International Capital Markets
Developments, Prospects,
and Key Policy Issues

By a Staff Team
led by
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Garry Schinasi
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The following symbols have been used throughout this volume:

- . . . 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 (for example, 1997-98 or January-June) to indicate the years or months covered, including the beginning and ending years or months;
- / between years (for example, 1997/98) to indicate a fiscal or financial year.

"Billion" means a thousand million; "trillion" means a thousand billion.

"Basis points" refer to hundredths of 1 percentage point (for example, 25 basis points are equivalent to ¼ of 1 percentage point).

“n.a.” means not applicable.

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

As used in this volume the term "country" does not in all cases refer to a territorial entity that is a state as understood by international law and practice. As used here, the term also covers some territorial entities that are not states but for which statistical data are maintained on a separate and independent basis.
Preface

The International Capital Markets report is an integral element of the IMF's surveillance of developments in international financial markets. The IMF has published the International Capital Markets report annually since 1980. The report draws, in part, on a series of informal discussions with commercial and investment banks, securities firms, stock and futures exchanges, regulatory and monetary authorities, credit rating agencies, and the staffs of the Bank for International Settlements, the Commission of the European Union, and the International Swaps and Derivatives Association. The discussions leading up to the present report took place in Argentina, Belgium, China, France, Germany, Hong Kong SAR, Hungary, Italy, Japan, Malaysia, Mexico, Poland, Singapore, Switzerland, Turkey, the United Kingdom, and the United States, in early 1999. The report reflects information available up to the end of June 1999.

The International Capital Markets report is prepared in the Research Department. The International Capital Markets project is directed by Charles Adams, Assistant Director, together with Donald Mathieson, Chief of the Emerging Markets Studies Division, and Garry Schinasi, Chief of the Capital Markets and Financial Studies Division. Coauthors of the report from the Research Department are Peter Breuer, Bankim Chadha, Nada Choueiri, Burkhard Drees, Anne Jansen, Charles Kramer, Subir Lall, William Lee, Joaquim Levy, Alessandro Prati, Anthony Richards, Jorge Roldos, Todd Smith (Visiting Scholar), Subramanian Sriram, Amadou Sy, Peter Tran, and Caroline Van Rijckeghem. Contributors from other departments are Martin Cerisola, Western Hemisphere Department; Cem Karacadag, Monetary and Exchange Affairs Department; and James Morsink, Asia and Pacific Department. Celia Burns, Sheila Kinsella, Rosalind Oliver, Ramanjeet Singh, and Adriana Vohden provided expert word processing assistance. Marina Primorac of the External Relations Department edited the manuscript and coordinated production of the publication.

The study has benefited from comments and suggestions from staff in other IMF departments, as well as from Executive Directors following their discussions of the International Capital Markets report on July 29, 1999. However, the analysis and policy considerations are those of the contributing staff and should not be attributed to Executive Directors, their national authorities, or the IMF.
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<td>BIS</td>
<td>Bank for International Settlements</td>
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<td>BNL</td>
<td>Banca Nazionale del Lavoro</td>
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<td>CAPM</td>
<td>Capital Asset Pricing Model</td>
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<td>CAPS</td>
<td>Capital Augmented Preferred Securities</td>
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<tr>
<td>CCBM</td>
<td>correspondent central banking model</td>
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<tr>
<td>DJIA</td>
<td>Dow Jones Industrial Average</td>
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<tr>
<td>DCR</td>
<td>Duff &amp; Phelps Credit Rating Agency</td>
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<td>EAF</td>
<td>Euro Access Frankfurt</td>
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<td>EBA</td>
<td>European Bankers’ Association</td>
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<td>ECB</td>
<td>European Central Bank</td>
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<tr>
<td>EFIL</td>
<td>Exchange Fund Investment Limited</td>
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<tr>
<td>EMU</td>
<td>Economic and Monetary Union</td>
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<tr>
<td>EONIA</td>
<td>euro overnight index average</td>
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<tr>
<td>ERM</td>
<td>exchange rate mechanism</td>
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<td>EU</td>
<td>European Union</td>
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<td>FBA</td>
<td>Federation of Bankers’ Associations</td>
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<td>FESCO</td>
<td>Forum of European Securities Commissions</td>
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<td>FOBAPROA</td>
<td>Fondo Bancario de Protección al Ahorro</td>
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<tr>
<td>FOMC</td>
<td>Federal Open Market Committee</td>
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<td>FRC</td>
<td>Financial Reconstruction Committee</td>
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<td>FSA</td>
<td>Financial Supervisory Agency</td>
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<td>G-7</td>
<td>Group of Seven</td>
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<td>G-10</td>
<td>Group of Ten</td>
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<tr>
<td>GITIC</td>
<td>Guangdong International Trust and Investment Corporation</td>
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<td>HKMA</td>
<td>Hong Kong Monetary Authority</td>
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<tr>
<td>HLI</td>
<td>highly leveraged institution</td>
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<td>IAS</td>
<td>International Accounting Standard</td>
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<td>IASC</td>
<td>International Accounting Standards Committee</td>
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<td>IFC</td>
<td>International Finance Corporation</td>
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<td>IIIF</td>
<td>Institute of International Finance</td>
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<td>INDRA</td>
<td>Indonesia Debt Restructuring Agency</td>
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<td>IOSCO</td>
<td>International Organization of Securities Commissions</td>
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<td>IPAB</td>
<td>Instituto de Protección del Ahorro Bancario</td>
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<tr>
<td>ISD</td>
<td>Investment Services Directive</td>
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<td>ISDA</td>
<td>International Swaps and Derivatives Association</td>
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<tr>
<td>ITIC</td>
<td>international trust and investment corporation</td>
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<td>JGB</td>
<td>Japanese government bonds</td>
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<td>KAMCO</td>
<td>Korea Management Corporation</td>
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<td>LIBOR</td>
<td>London interbank offered rate</td>
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<td>LTCM</td>
<td>Long-Term Capital Management</td>
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<td>MRO</td>
<td>main refinancing operations</td>
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<td>NCB</td>
<td>national central bank</td>
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<td>NDF</td>
<td>nondeliverable forward</td>
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<td>NRSRO</td>
<td>Nationally Recognized Statistical Rating Organization</td>
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<tr>
<td>OCC</td>
<td>Office of the Comptroller of the Currency</td>
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<tr>
<td>OTC</td>
<td>over-the-counter</td>
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<td>PCA</td>
<td>prompt corrective action</td>
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<td>PNS</td>
<td>Paris Net Settlement</td>
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<td>ROE</td>
<td>return on equity</td>
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<td>RTGS</td>
<td>real-time gross settlement</td>
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<td>S&amp;P’s</td>
<td>Standard &amp; Poor’s</td>
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<td>SAR</td>
<td>Special Administrative Region</td>
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<tr>
<td>SDDS</td>
<td>Special Data Dissemination Standard</td>
</tr>
<tr>
<td>SEC</td>
<td>Securities and Exchange Commission</td>
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<tr>
<td>SLIPS</td>
<td>Stapled Limited Interest Preferred Securities</td>
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<td>TARGET</td>
<td>Trans-European Automated Real-Time Gross Settlement Express Transfer</td>
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<td>TIBOR</td>
<td>Tokyo interbank borrowed rate</td>
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<tr>
<td>VaR</td>
<td>value at risk</td>
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<td>Y2K</td>
<td>Year 2000</td>
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Introduction and Overview

The period since last year’s International Capital Markets report has witnessed some of the most severe financial market turbulence in the postwar period. The effects of the Asian financial crisis were initially felt mainly within the region, and the negative spillovers to other emerging markets and to most of the advanced countries outside the region were short lived. Indeed, through mid-1998 other emerging markets, including in Latin America and Europe, generally maintained access to international capital markets at relatively favorable terms, and some of the Asian crisis countries saw a pickup in inflows. At the same time, equity markets in most of the advanced countries continued to record strong gains—reaching record valuations; levels of leverage in advanced countries’ financial systems remained high; and confidence was generally strong.

During 1998, however, the situation began to deteriorate as weakening commodity prices, deeper-than-expected output declines in the Asian crisis economies, and continued difficulties in Japan conspired to produce an increasingly negative perception of the global outlook. Russia’s decision in August to unilaterally restructure its domestic debt and allow the ruble to depreciate triggered a far-reaching reassessment of risk. Reflecting the associated portfolio rebalancing and deleveraging, credit and liquidity spreads in key mature markets widened sharply—more than reversing the compression over the preceding several years; liquidity almost dried up in some of the deepest capital markets in the world following the near-collapse of the hedge fund Long-Term Capital Management (LTCM); and the dollar-yen exchange rate experienced its largest one-day movement since the collapse of the Bretton Woods system. The effects of the turbulence on the emerging markets were dramatic: spreads on external debt widened sharply, international lending effectively dried up, and the more vulnerable economies in Latin America began to be brought into the crisis.

Timely action by a number of central banks and the international community were successful in staving off the risk of a global crisis, and financial markets in the advanced countries began to stabilize toward the end of 1998. Moreover, even though sentiment began to deteriorate again early this year when Brazil gave up its defense of its currency after several months of pressure, the spillovers to other countries were surprisingly short lived and the negative effects on Brazil less than had been feared. These muted responses were pivotal in avoiding another round of international financial turmoil. In the event, the economic climate began to improve as it became clear that growth in the U.S. economy remained surprisingly robust. Japan began to take important measures to stabilize its economy and address its banking sector problems, and the Asian crisis economies showed signs of recovery. Notwithstanding these favorable developments, conditions in financial markets remain fragile, as evidenced by continued high levels of volatility, high spreads on emerging market external debt, and capital flows to the emerging markets that are running well below the rates during the boom years.

The turbulence over the last few years has raised questions about the market dynamics of the “new” increasingly integrated and securitized international capital markets, including the boom-bust swings in international capital flows, the speed and severity with which disturbances spill over across countries, and the market dynamics (magnification effects) associated with high levels of leverage. Recent International Capital Markets reports and World Economic Outlooks have extensively covered many of these issues, which are also being considered in the context of the IMF Executive Board’s work program. Following a review and assessment of recent developments in capital market and banking systems, this year’s International Capital Markets report addresses a number of specific features of international capital market dynamics, including the systemic and other issues posed by highly leveraged institutions and activities; the nonstandard policy responses some emerging markets have taken when faced with extreme external pres-

1 The term “emerging markets” as used in this report is substantially broader than that used in other contexts and includes the IMF’s World Economic Outlook classifications of “developing countries,” “countries in transition,” and the advanced economies of Hong Kong Special Administrative Region (SAR) of China, Israel, Korea, Singapore, and Taiwan Province of China.

2 Here, and in what follows, Korea, Malaysia, the Philippines, Thailand, and Indonesia are characterized as the Asian crisis economies. In view of the large number of Asian countries seriously affected by the regional turmoil, the identification of crisis countries is necessarily somewhat arbitrary.
INTRODUCTION AND OVERVIEW

sures; and the performance of the major credit rating agencies during the recent financial crises.

Chapter II provides a comprehensive assessment of recent developments and trends in the mature financial markets and identifies key risks and uncertainties in the outlook. Beyond the turbulence in international capital markets, the mature financial markets were influenced significantly over the last year by continued sharp differences in macroeconomic performance and policies across the major advanced countries, notably the continued strong performance of the U.S. economy vis-à-vis Europe and Japan; spillovers from problems in the emerging markets, especially to banking systems; and the global shift toward a low-inflation environment. On the structural side, important factors have included the further progress toward European financial integration with the successful launch of the euro, Japan’s initiation of a program to address its financial sector problems, and stepped-up mergers and acquisitions within and between major banking systems. Notwithstanding the recent improved global situation, there are a number of risks related to the sustainability of current configuration of asset prices, especially in the United States, potential vulnerabilities in the major banking systems of the advanced countries, and the possibility of increased uncertainty in the lead-up to the Y2K (Year 2000) transition.

Chapter III reviews and assesses recent developments in the emerging markets with particular focus on how they have been affected by the global turbulence. After declining in 1997 for the first time this decade, private market financing for the emerging markets fell dramatically in 1998, with much of the decline in the latter half of the year in the wake of the international turbulence. With the notable exception of foreign direct investment, all categories of private inflows fell sharply with significant further retrenchments in bank lending. Many regions shared in the cutbacks, with the Asian crisis countries becoming net capital exporters as they began to build up reserves following sharp declines during the crisis. In response to the tightening and cutback of external financing, emerging markets adopted a number of innovative approaches to accessing international capital markets, but generally only the highest quality borrowers have been successful, in some instances supported by official guarantees. Not surprisingly, the tight external financing conditions have placed strains on emerging markets, with effects varying according to underlying vulnerabilities, including dependence on short-term external funding, the strength of banking and corporate sectors, and progress in improving financial sector resilience. Notwithstanding a rally in emerging market borrowers remains weak.

In the immediate aftermath of last year’s turbulence in international financial markets, the World Economic Outlook and International Capital Markets: Interim Assessment identified several weaknesses in private risk management, bank supervision, and financial markets surveillance that had been intended to provide key lines of defense against systemic risk. Subsequently, in the wake of the LTCM episode, recommendations have been made by both official and private groups in a number of countries to address these weaknesses. Against the background of deepened and ongoing changes in global financial markets, Chapter IV considers a number of conjunctural factors, such as abundant global liquidity and the search for yield in competitive financial sectors, that may have contributed to unsustainable levels of leverage in key financial centers, as well as the factors underlying the market dynamics set in train by the increase in risk aversion following the Russian crisis. High and unchecked levels of leverage have not only raised important systemic issues but have also been a source of concern for a number of countries that believe their markets have been pushed around by the large and concentrated positions taken by a number of highly leveraged institutions (HLIs). An appendix to Chapter IV addresses the impact of HLIs on small and medium-sized countries.

The evolving role of emerging markets in the new financial system is discussed in Chapter V. A number of emerging markets have recently responded to extreme financial pressures through relatively nonstandard approaches, taking into account developments in the instruments used—and high leverage employed—by some international investors. Included among these nonstandard approaches have been the interventions last year by the Hong Kong Monetary Authority (HKMA) in domestic equity and derivative markets to deal with concerns about a “double play” by highly leveraged speculators, the adoption by Malaysia of controls on capital outflows to provide greater domestic monetary independence and effectively close down the offshore market in its currency, and interventions by Brazil in its external debt market.

As capital markets become a major source of funding, major credit rating agencies have been assuming an increasingly important role in providing standardized assessments of the credit risks associated with emerging market investments. Although the major credit rating agencies identified weaknesses in the financial systems of a number of Asian countries before the crisis, the maintenance of investment-grade ratings for many countries and the subsequent sharp downgrades during the crisis have been seen by some observers as imparting a pro-cyclical element, exacerbating herding behavior before the crisis and contributing to the massive turnaround in capital flows.

Against this background, the report reviews in Chapter V the credit rating experience during the Asian crisis and considers steps the major rating agencies are taking to address weaknesses revealed by the episode. The recent Basel Committee proposals to base banks' capital risk weights on external credit ratings add importance to rating agencies' current efforts to strengthen the rating process, and could help dampen the boom-bust cycles in international capital flows, lock in some of the recent shift away from bank lending and toward portfolio flows, and facilitate a better pricing of risk.
II

Developments, Trends, and Issues in the Mature Financial Markets

During the last twelve months, mature markets have experienced severe turbulence. Following the crisis in Russia and amid news of difficulties at a major hedge fund (LTCM), these markets experienced volatility of a magnitude rarely seen; credit and liquidity spreads rose sharply in U.S. money and credit markets, major equity markets declined significantly, and the yen underwent the sharpest one-day adjustment against the dollar since the collapse of the Bretton Woods system. Mature markets rebounded fairly quickly, though U.S. credit spreads remain somewhat above precrisis levels. As the turbulence subsided, mature markets came to be predominantly influenced by domestic and regional conditions, against the background of a variety of important structural and conjunctural developments. The onset of European Economic and Monetary Union (EMU), the economic and financial difficulties in Japan, low and declining inflation, and the divergence of economic conditions and policies among the major countries have also importantly influenced financial markets. On balance, by end-June 1999, short-term interest rates were generally lower, long-term rates were mixed, equity prices were higher, and the dollar was mixed against the other major currencies compared with a year earlier.

The Mature Market Turbulence and Its Aftermath

Run-Up to the Mature Market Turbulence

Until July 1998, the mature financial markets in the United States and Europe were generally buoyant, extending a period of several years during which spreads on a wide range of instruments narrowed and the price of credit risk was increasingly compressed (a process that was little affected by the Asian crisis). Government bond yields continued to decline, while equity prices recorded further strong gains—especially in continental Europe, where markets surged in a number of countries by 45–65 percent over end-1997 levels. Contributing to this buoyancy were very subdued inflation, solid domestic demand growth in most countries, and increased confidence in a successful launch of EMU. In addition, the mature financial markets were bolstered by a “flight to quality” as investors shifted funds away from Asia and some other emerging markets. Despite these generally favorable developments, there were some signs of a weakening in sentiment in the months leading up to July 1998. Major stock market indices in the United States and the United Kingdom continued to advance, but the gains were increasingly narrowly based, and market indices for “small cap” stocks (which had underperformed “large cap” stocks for some time) began to weaken. Also, yield spreads on below-investment-grade bonds in the United States began to widen further, and the boom in U.S. and European equity markets stalled. Spreads on lower-quality U.S. corporate bonds, which averaged about 300 basis points during the early 1990s, crept up from a low of about 250

1This section focuses principally on developments during the period June 1998 to June 1999. The data cutoff is June 30, 1999.
2In particular, the dollar declined against the yen by 7.7 percent; as noted in Chapter III, emerging market liquidity also dried up during the period.
3The description of the turbulence in this section updates Chapter III in International Monetary Fund (1998b).
4See Chapter IV in International Monetary Fund (1998a).
5This widening coincided with a general weakening in U.S. corporate earnings growth and an increase in the number of domestic corporate credit rating downgrades relative to upgrades. Salomon Smith Barney’s announcement on July 6 that it planned to close its U.S. bond-arbitrage unit appeared to reduce liquidity in the U.S. bond markets, which may have contributed to the rise in spreads in July and the increase in volatility later in the year.
basis points around the end of April to about 320 basis points in July.\textsuperscript{6} Spreads on investment-grade bonds widened more modestly. Equity markets in the United States and Europe generally peaked in mid-July. While it is difficult to identify a particular event that triggered the subsequent correction, several factors may have led investors to reassess the sustainability of historically high equity market valuations and compressed credit spreads. First, the negative effects of the Asian crisis on output growth and corporate earnings were becoming more visible, particularly in the United States. In addition, it was increasingly apparent that the contraction in the Asian emerging market economies was much deeper than initially expected, and that prospects for early recovery in Japan had diminished. Signs that the situation was deteriorating in Russia also contributed to concerns that the emerging market crisis might spread beyond Asia. Bank stocks were hit particularly hard, in part unwinding earlier sharp gains but also reflecting concerns about bank exposures to emerging markets (Figure 2.1).

Mature Market Turbulence

The situation deteriorated sharply in the second half of August as the devaluation and unilateral debt restructuring by Russia sparked a period of turmoil in mature markets that is virtually without precedent in the absence of a major inflationary or economic shock. Neither Russia's relative importance in the world economy nor the size of bank exposures to Russia can fully explain the magnitude of the market movements that followed.\textsuperscript{7} The crisis in Russia sparked a broad-based reassessment and repricing of risk, especially regarding emerging market investments, and a large-scale portfolio rebalancing across a range of global financial markets. In subsequent weeks, conditions in many of the mature financial markets deteriorated sharply, increasing the pressures on financial institutions, including LTCM. The equity market sell-off intensified, largely wiping out the gains recorded earlier in the year. In the United States, equity markets bottomed out in late August, roughly 20 percent below their highs, while European markets continued to decline through the first half of October, falling on average by about 35 percent. At the same time, the decline in government bond yields accelerated, taking yields to their lowest levels since at least the mid-1960s and in some cases since World War II, as investors increasingly sought to shift funds into the safest and most liquid assets (Figure 2.2). In the six-week period between mid-August and early October, for example, government bond yields fell by about 70 basis points in Germany, 110 basis points in the United Kingdom, and 120 basis points in the United States, implying price gains in the range of 6-11 percent (equivalent to about 50 to 100 percent at an annual rate) for the benchmark 7- to 10-year bonds. Elsewhere in Europe, yield spreads over German rates widened to their highest levels of the year within the euro area (among both core and peripheral countries), and even more dramatically outside the prospective euro area, with spreads for Denmark and Sweden widening by 30-40 basis points in less than a month.

Corporate bond spreads widened more sharply starting in the second half of August, and in some instances, new debt issuance dropped off markedly (Figure 2.3; Table 2.1). Comprehensive data are most readily available for the United States, where the corporate bond market is relatively large and well developed (Figure 2.4). Yield spreads over U.S. treasury bonds for below-investment-grade bonds widened from about 375 basis points immediately before the Russian debt restructuring to almost 600 basis points by mid-October, the highest level since the collapse of the U.S. junk bond market at the beginning of the 1990s. For the most part, the rise in spreads on higher-grade credits reflected the fall in treasury bond yields rather than a rise in actual borrowing costs. However, below investment grade, the spread widening was also associated with a sharp increase in nominal yields, and the spread of below-investment-grade bonds over investment-grade bonds widened substantially (a similar increase in credit differentiation was observed in the commercial paper market). The volume of U.S. high-yield bonds issued in October fell to about $2 billion, compared with a monthly average of roughly $15 billion in the second quarter (a substantial though less pronounced drop-off was observed in the issuance of U.S. investment-grade bonds). Corporate bond spreads also appear to have widened in some European markets, though time-series data on these spreads are much more limited. For example, spreads on AA euro sterling bonds over U.K. gilts widened from about 90 basis points to 130 basis points during the same period.\textsuperscript{8} There were also reports that high-yield corporate bond issuance slowed sharply in continental Europe.

Starting in August, the deteriorating conditions in long-term fixed income markets gave rise to concerns that a widespread "credit crunch" might materialize in the United States. In the event, firms in large measure

\textsuperscript{6}Some market analysts have suggested that the adverse effect of widening credit spreads on balance sheets may have reduced market participants' willingness to roll over exposures to Russia once problems began to appear.

\textsuperscript{7}In 1998, Russia accounted for roughly 1 percent of world GDP and 1.2 percent of world trade: bank claims on Russia accounted for less than 1 percent of BIS reporting banks' total claims.

Figure 2.1. Major Industrial Countries: Stock Market Price Indices, January 1, 1997–June 25, 1999
(National currency: week ending January 2, 1997 = 100)

Source: Bloomberg Financial Markets L.P.

1For United States, Standard & Poor's 500 Index; for Japan, Price Index of Tokyo Stock Exchange; for Germany, DAX 100 Index; for France, Société des Bourses Françaises 250 Index; for Italy, Milan Stock Exchange MIB Telematico Index; for United Kingdom, Financial Times Stock Exchange All-Share Index; and for Canada, Toronto Stock Exchange 300 Composite Index.
Figure 2.2. Major Industrial Countries: Nominal Interest Rates, January 1, 1997–June 30, 1999 (in percent)

Sources: WEFA; and Bloomberg Financial Markets LP.

1 Yields on government bonds with residual maturities of 10 years or nearest.

2 Three-month maturities: treasury bill rates for United States and United Kingdom; interbank rate for Germany, France, Italy, and Canada; and deposit rate for Japan.
Figure 2.3. United States: Corporate Bond Market. January 1998–May 1999

Sources: Board of Governors of the Federal Reserve System; and Bloomberg Financial Markets L.P.

Table 2.4. Major Industrial Countries: Outstanding Amounts of Private Sector Domestic Debt Securities

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<tbody>
<tr>
<td>United States</td>
<td>3,418.2</td>
<td>3,651.0</td>
<td>4,072.3</td>
<td>4,605.6</td>
</tr>
<tr>
<td>Japan</td>
<td>1,325.6</td>
<td>1,497.3</td>
<td>1,529.7</td>
<td>1,468.5</td>
</tr>
<tr>
<td>Germany</td>
<td>738.5</td>
<td>867.2</td>
<td>1,033.5</td>
<td>1,030.5</td>
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<tr>
<td>France</td>
<td>541.2</td>
<td>572.4</td>
<td>605.3</td>
<td>567.7</td>
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<tr>
<td>Italy</td>
<td>300.0</td>
<td>325.4</td>
<td>356.5</td>
<td>411.6</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>134.2</td>
<td>170.2</td>
<td>187.3</td>
<td>261.0</td>
</tr>
<tr>
<td>Canada</td>
<td>45.7</td>
<td>45.8</td>
<td>50.5</td>
<td>63.8</td>
</tr>
<tr>
<td>Total</td>
<td>6,503.4</td>
<td>7,129.3</td>
<td>7,835.1</td>
<td>8,408.7</td>
</tr>
</tbody>
</table>

Source: Bank for International Settlements.

1Debt securities issued in domestic currency by residents of the country indicated. Includes short-term paper (e.g., commercial paper).
The Mature Market Turbulence and Its Aftermath

Figure 2.4. United States: Yields on Corporate and Treasury Bonds, January 3, 1964–June 25, 1999

Yields (In percent)

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<tbody>
<tr>
<td>Yield</td>
<td>18</td>
<td>16</td>
<td>14</td>
<td>12</td>
<td>10</td>
<td>8</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>8</td>
<td>10</td>
<td>12</td>
<td>14</td>
<td>16</td>
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Yield Differential with U.S. Treasury Bond (In basis points)

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</thead>
<tbody>
<tr>
<td>Spread</td>
<td>1000</td>
<td>800</td>
<td>600</td>
<td>400</td>
<td>200</td>
<td>100</td>
<td>0</td>
<td>-100</td>
<td>-200</td>
<td>-300</td>
<td>-400</td>
<td>-600</td>
<td>-800</td>
<td>-1000</td>
<td>-1200</td>
<td>-1400</td>
<td>-1600</td>
<td>-1800</td>
<td>-2000</td>
</tr>
</tbody>
</table>

Sources: Board of Governors of the Federal Reserve System; Bloomberg Financial Markets L.P.; and Merrill Lynch.

Figure 2.4

- Weekly data: the Moody's ratings of corporate bonds are as shown in the panels. Yields on 30-year treasury bonds of constant maturities are used for the U.S. treasury bond. The shaded regions indicate recession periods.

- Spreads between yields in the eurodollar market and on U.S. treasury bills for similar maturities also widened to historically high levels, as did spreads between commercial paper and treasury bills and those between the fixed leg of fixed-for-floating interest rate swaps and government bond yields, pointing to heightened concerns about counterparty risk. Interest rate swap spreads widened in currencies including the U.S. dollar, deutsche mark, and pound sterling. In the U.K. money markets, the spread of sterling interbank rates over generalized collateral repo rates rose sharply during the fourth quarter, partly owing to concerns about liquidity and counterparty risk (and also reflecting a desire for end-of-year liquidity).12

- Foreign exchange markets also experienced a bout of severe turbulence. Notwithstanding the growing current account imbalances, the U.S. dollar had continued to strengthen on a multilateral basis through mid-August, remaining relatively stable against major European currencies but rising further against the Japanese yen and currencies of the major commodity-exporting countries (Figure 2.6). As the emerging

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11 This particular comparison refers to the spread between the 25-year and the 30-year benchmark treasury, but a similar pattern was observed for other maturities. On-the-run securities are the latest issue of a particular maturity. Off-the-run securities are the previous issues of the same maturity.

Figure 2.5. United States: Developments in Fixed-Income Securities Markets, January 1, 1998–June 30, 1999
(In basis points)

Sources: Bloomberg Financial Markets L.P.; and Merrill Lynch.

Note: The vertical lines represent the following: Russia = Russian debt moratorium (August 17, 1998); F1 = Federal Reserve interest rate cut (September 29, 1998); and F2 = Federal Reserve interest rate cut (October 15, 1998).

1Spread between yields on 3-month U.S. treasury repos and on 3-month U.S. treasury bill.
2Spread between yields on 90-day investment grade commercial paper and on 3-month U.S. treasury bill.
3Spread between 3-month U.S. dollar LIBOR and yield on 3-month treasury bill.
5Spread of fixed-rate leg of 10-year U.S. dollar interest rate swaps over yield on 10-year U.S. treasury bond.
6Spread over 30-year U.S. treasury bond.
### Figure 2.6. Major Industrial Countries: Effective Exchange Rates, January 1991–May 1999

(Logarithmic scale: $EAM = 100$)

<table>
<thead>
<tr>
<th>Country</th>
<th>Real Exchange Rate $^1$</th>
<th>Nominal Exchange Rate $^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td></td>
<td></td>
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<tr>
<td>Japan</td>
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<tr>
<td>France</td>
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<tr>
<td>United Kingdom</td>
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<td>Germany</td>
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<td>Italy</td>
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<tr>
<td>Canada</td>
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1 Defined in terms of relative normalized unit labor costs in manufacturing, as estimated by the IMF's Competitiveness Indicators System, using 1989–91 trade weights.

market crisis took on global dimensions, however, the dollar began to weaken amid increased concerns about the downside risks to U.S. growth and a shift in market expectations about the direction of U.S. monetary policy from modest tightening to significant easing. These developments, combined with signs in Japan of greater progress with long-awaited bank reform (discussed in Annex II) and additional moves there toward fiscal and monetary stimulus, significantly altered the balance of risks perceived by investors with yen-denominated exposures. The initial weakening of the dollar was relatively orderly: it fell by less than 10 percent against both the yen and the deutsche mark between mid-August and early October. However, the situation changed in the week beginning October 5 when the dollar fell by about 15 percent against the yen in the space of three days, including the largest one-day movement in the yen-dollar rate since the collapse of the Bretton Woods system. This latter adjustment mainly reflected a sharp general appreciation of the yen: the dollar declined by less than 2 percent against the deutsche mark over the same period (Figure 2.7). It also coincided with an unusually abrupt steepening of mature market yield curves outside Japan, as bond yields rose from their historic lows while short rates continued to fall. Over the same week, for example, the gap between 3-month and 10-year rates widened by about 85 basis points in the United States, 50 basis points in Germany, and 60 basis points in the United Kingdom.

These dramatic moves in the yen-dollar rate and in major credit markets are difficult to explain in terms of shifts in economic fundamentals alone. Instead, the large price movements in foreign exchange and credit markets were a particularly visible manifestation of a global move by investors (including a number of HLIs) to close out open positions and reduce leverage in the wake of the heightened market turmoil. For example, the sharp rise in the yen against
the dollar appears to have reflected a large-scale unwinding of yen-denominated exposures—the "yen carry trade"—the effects of which were amplified by technical factors linked to stop-loss orders and dynamic hedging strategies.14 Also, as securities prices fell, market participants with leveraged securities positions sold those and other securities to meet margin calls on those positions, adding to the decline in prices. The decline in prices and rise in market volatility also led arbitrageurs and market makers in the securities markets to cut positions and inventories and withdraw from market making, reducing liquidity in securities markets and exacerbating the decline in prices. In this environment, signs that pressures were building on LTCM, an important market maker and provider of liquidity in securities markets, and considerable uncertainty about how much an unwinding of positions by LTCM and similar institutions might contribute to selling pressure fed concerns that the cycle of price declines and deleveraging might accelerate.

In response to these developments, the U.S. Federal Reserve Board began to cut interest rates starting in late September. An initial cut of 1/4 of 1 percentage point in the target federal funds rate was announced following the Federal Open Market Committee (FOMC) meeting on September 29 but failed to have a significant effect in calming markets; spreads continued to widen, equity markets fell further, and volatility continued to increase. Against this background, the Federal Reserve followed up on October 15 with 1/4 of 1 percentage point cuts in both the federal funds target and the discount rate, a move that proved to be the key policy action that stemmed and ultimately helped reverse the deteriorating trend in market sentiment. The easing—coming so soon after the first rate cut and outside a regular FOMC meeting (the first such move since April 1994)—sent a clear signal that the U.S. monetary authorities were prepared to move aggressively if needed to ensure the normal functioning of financial markets. Elsewhere, the Bank of Japan reduced the guideline for the uncollateralized call rate by about 25 basis points to 1/4 percent on September 9, and official interest rates have been reduced since late September in Australia, Canada, and Europe. Furthermore, EMU central banks indicated that central bank rates might converge at the levels prevailing in core countries. While these moves were motivated primarily by domestic considerations, they have also played a helpful role from a global perspective by contributing to the broad easing of monetary conditions in the industrial countries.

Starting in mid-October after the Federal Reserve's second cut in interest rates, some calm began to return to money and credit markets. Money market spreads declined quickly to precrisis levels, while credit spreads declined more slowly and remained somewhat above precrisis levels, probably reflecting the deleveraging (a return to the highly compressed credit spreads that prevailed before the Russian crisis was probably neither likely nor desirable).15 Except for low-grade credits, actual borrowing costs in mature markets did not appear to have increased significantly during the episode and may even have declined for many borrowers during the latter part of 1998. Issuance of long-term debt began to recover, though in November surveys suggested that banks were tightening lending conditions and there were signs of a renewed rise in short-term spreads. The Federal Reserve cut both the federal funds target and the discount rate by 1/4 of 1 percentage point at the FOMC meeting on November 17, noting that although financial market conditions had settled down materially since mid-October, unusual strains remained. Short-term spreads subsequently declined. The calming effect of the rate cuts suggested that the turbulence stemmed primarily from a sudden and sharp increase in pressures on (broadly defined) liquidity, including securities market liquidity, triggered by a reassessment of risk.

Developments in Money and Credit Markets Since the Turbulence

From November 1998, as the turbulence waned, U.S., European, and Japanese money and credit markets were predominantly influenced again by domestic and regional conditions, including continued strong growth in the United States, the EMU process in Europe, and weak economic growth, financial system difficulties, and policy responses in Japan.

Toward the end of 1998, as the effects of the turbulence waned and the flight to quality reversed, U.S. fixed-income markets turned their attention to the mounting pressures on Brazil. Market participants hedged or unloaded exposures well in advance, and in the event, the realignment and floating of the real during January 13–15 had little effect on long-term credit spreads or short-term money market spreads.17 It became increasingly clear in early 1999 that although credit risk had been repriced and credit differentiation had increased as a result of the tur-

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14See Box 3.1 in International Monetary Fund (1998b) for a discussion of the yen carry trade.
15See the discussion in Chapter IV.
16See the discussion in International Monetary Fund (1999), pp. 44–49.
II DEVELOPMENTS, TRENDS, AND ISSUES IN THE MATURE FINANCIAL MARKETS

bullence, access of most U.S. firms to credit had not been permanently reduced.\textsuperscript{18} Spreads of high-yield and Baa-rated bonds over Aaa-rated bonds remained wide, though tiering (differentiation of credit risks) in the commercial paper market decreased. U.S. corporate bond spreads against U.S. treasuries and dollar swap spreads remained above precrisis levels: risk also appeared to have been repriced in deutsche mark and sterling swaps and U.K. corporate bonds.\textsuperscript{19} Despite the repricing of risk in U.S. markets, issuance of commercial paper and corporate bonds resumed apace, and bank lending expanded at rates similar to early 1998 (though there were some indications that terms of bank lending remained tighter than before the turbulence, and high-yield issuance was less buoyant than in the first half of 1998).\textsuperscript{20}

At the same time, economic data pointed to continued strong growth in the United States, and fixed-income yields began to reflect concerns that monetary policy might need to be tightened to contain the risk of inflation, particularly in view of the easing that had taken place during the second half of 1998. Between end-December 1998 and mid-May 1999, long-term interest rates rose strongly; indicators of the expected stance of monetary policy, such as the slope of the yield curve and the federal funds futures rate, increased as well. The FOMC adopted a tightening bias at its May 18 meeting, and yields subsequently rose further in anticipation that the FOMC would tighten policy following its end-June meetings. By mid-June 1999, the yield on the 30-year treasury bond had risen by about 100 basis points from its end-1998 level to just above 6 percent, and the federal fund futures rate implied about 60 basis points of tightening over the second half of 1999. On June 30, as had been widely anticipated, the FOMC raised the target for the federal funds rate by 25 basis points to 5 percent, and also removed its bias toward tightening; long-term treasury yields declined, and stocks rallied.\textsuperscript{21}

European money and credit markets continued to be influenced by the convergence in euro-area policies and the planned introduction of the euro. The convergence in euro-area interest rates was only temporarily interrupted during the turbulence. Following the turbulence, the trend decline in euro-area government bond yields resumed. Spreads of euro-area government bonds against comparable German bond yields narrowed, even briefly turning negative for Italy. Short-term interest rates converged as well, and were closely aligned within the euro area by the end of the year.

The introduction of the euro was successful and smoother than some had expected. In January 1999, some minor "teething troubles" were experienced in the Trans-European Automated Real-Time Gross Settlement Express Transfer System (TARGET) payments system, as banks adapted to the new system, but were quickly resolved. There was also some volatility in overnight interest rates in the first few months of 1999, and the euro overnight index average (EONIA) declined to below the ECB's refinancing rate in March, as banks adapted to the new arrangements for monetary policy operations.\textsuperscript{22} Overall, by May 1999, European money markets were transferring funds across countries and institutions with reasonable efficiency, as financial systems and institutions that had excess liquidity were able to supply it to those that needed liquidity. However, some features of the euro financial infrastructure continued to limit recourse to cross-border transactions, including swaps and repos. These features, in some cases deriving from the EMU financial structure, included differences in market structure (such as the extent of bilateral interbank credit lines), national differences in infrastructure (such as payments and security settlement systems), and national differences in policies (tax, legal, and regulatory environments, including differences in the legal treatment of repo operations).

Following the launch of EMU, euro-area government bond spreads against Germany were broadly stable until the second quarter, when government bond rates rose amid rising U.S. bond rates. Spreads for Spain, Portugal, and Italy widened amid signs of divergent economic conditions within the euro area and concerns about the relaxation of Italy's deficit target. Apart from such considerations, remaining spreads have reflected a variety of factors, including differences in liquidity, perceived credit risk, trading conventions, and market infrastructure (including clearing and settlement systems) among countries.\textsuperscript{23}

The September 1998 International Capital Markets report identified a number of remaining challenges for EMU authorities in the areas of financial crisis prevention and management, especially in light

\textsuperscript{18} A rise in default rates on speculative-grade debt in 1998 also contributed to the repricing of credit risk.
\textsuperscript{19} See Bank of England (1999b, 1999c).
\textsuperscript{20} LTCM had returned to profitability by this time, and outperformed some other high-profile hedge funds in the first quarter of 1999.
\textsuperscript{21} In contrast, spot short-term rates were relatively little changed over the first half of 1999, outside a decline in treasury bill rates through April and a subsequent rebound (which gave rise to a temporary widening of money-market spreads).
\textsuperscript{22} These developments and associated structural issues (including payment and securities settlement systems) are described in more detail in Annex 1.
\textsuperscript{23} These factors also determined the composition of the euro-area benchmark yield curve, which market participants viewed as composed of German securities at the long end and French and German securities at the short end.
of the ongoing integration of European money and financial markets and banking system consolidation and restructuring. Since the publication of that report, there has been important progress toward meeting those challenges, including intensified efforts to enhance coordination and cooperation among European Union (EU) supervisors and regulators. First, the Banking Supervision Committee of the European Central Bank (ECB) supports the Eurosystem decision-making bodies in their supervisory tasks, and serves as a forum for the exchange of views on supervisory policies and practices that are not directly related to the tasks of the Eurosystem. Second, a discussion is ongoing on a possible further strengthening of multilateral cooperation and information sharing among supervisors. Moreover, the Banking Supervision Committee is focusing on the issue of cooperation between the Eurosystem and supervisory authorities in payment systems oversight. Third, a Commission Communication on an Action Plan for Financial Services was endorsed by the European Council in Cologne in June 1999. A key element of this action plan concerns the need to ensure that the EU supervisory and regulatory framework is appropriate for a single financial market. Concrete actions and an indicative timetable for implementation have been identified, and the Commission will pursue the plan with input from a high level group of representatives of finance ministers. This group has already served as a forum for the exchange of views on, inter alia, the issue of consolidated versus sectoral supervision, the appropriate relationship between central banks and supervisory authorities, the need for intensified cooperation among supervisory organizations, and the possible future need for some form of European-level supervision. Fourth, in February 1999, members of the Forum of European Securities Commissions signed a multilateral European memorandum of understanding on surveillance of securities activities.

In the area of crisis management, there has been agreement within the Eurosystem on responsibilities for emergency liquidity assistance. In the event of a liquidity problem involving an otherwise solvent institution, the provision of emergency liquidity assistance would be the responsibility and decision of the relevant national central bank. If and when this liquidity assistance might be large enough to have a monetary policy impact, it would entail consultation with the ECB and might also require a decision by the ESCB about whether such liquidity assistance should be provided. In this context, emergency liquidity assistance is defined as liquidity provided to an illiquid but not insolvent institution to contain any potential systemic risk or contagion if this were perceived to be a possibility. Regarding cases of solvency problems, ministers of finance, the European Commission, and the ECB have jointly begun to assess whether the current instruments and responsibilities would need to be adjusted for the EMU environment.

Japanese money and credit markets have been influenced by important policy measures to address banking system weakness and continuing macroeconomic difficulties, and by the acceleration of corporate restructuring efforts. Against this background, money and credit markets in Japan have increasingly diverged from international markets during the period under review.

Concerted efforts by the Bank of Japan to maintain monetary and financial stability caused short-term interest rates to decline sharply; overnight rates declined to virtually zero. In the second half of 1998, the overnight call rate fell steeply to about 25 basis points as domestic economic activity slowed and the Bank of Japan eased monetary policy. (Some international banks were reportedly quoting negative yen-LIBOR (London interbank offered rate) rates in November 1998.) The Bank of Japan eased further in February 1999, and announced that it would “encourage the uncollateralized overnight call rate to move as low as possible.” The overnight call rate subsequently declined to 3 basis points, essentially zero net of brokerage fees. The low rate of remuneration on call money led to a shift of funds from call money to bank deposits, and the call money market contracted sharply. Liquidity pressures eased considerably, as onshore funding spreads declined and the Japanese premium fell steeply to around zero.

During the period under review, supply and demand shifts in the Japanese government bond (JGB) market gave rise to considerable volatility in JGB yields. A strong increase in demand drove yields on 10-year JGBs from about 160 basis points at end-June to about 80 basis points in mid-November, amid repatriation of funds and heightened concerns about the domestic economic situation and problems in the banking system. Subsequent concerns that expansionary fiscal policy would strongly boost the supply of JGBs and that support of the market by the Trust Fund Bureau might be cut back sharply contributed to a sharp rebound in JGB yields, which reached about 225 basis points in December. Later, suggestions (and in March 1999, official confirmation) that the Trust Fund Bureau would continue to buy JGBs, and injections of public capital into the major banks, contributed to a subsequent decline in yields and...
Table 2.2. Announced International Syndicated Credit Facilities by Nationality of Borrowers  
(In billions of U.S. dollars)  

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</thead>
<tbody>
<tr>
<td>All countries</td>
<td>194.0</td>
<td>279.4</td>
<td>477.1</td>
<td>697.8</td>
<td>906.9</td>
<td>1,136.3</td>
<td>957.3</td>
<td>229.9</td>
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<tr>
<td>Industrial countries</td>
<td>159.6</td>
<td>242.6</td>
<td>422.0</td>
<td>608.3</td>
<td>795.8</td>
<td>970.7</td>
<td>877.0</td>
<td>216.5</td>
</tr>
<tr>
<td>Of which:</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>United States</td>
<td>114.8</td>
<td>194.3</td>
<td>312.4</td>
<td>399.0</td>
<td>551.9</td>
<td>674.9</td>
<td>648.8</td>
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<td>1.2</td>
<td>13.5</td>
<td>10.1</td>
<td>14.1</td>
<td>13.3</td>
<td>1.2</td>
</tr>
<tr>
<td>France</td>
<td>1.4</td>
<td>5.2</td>
<td>6.8</td>
<td>18.1</td>
<td>21.3</td>
<td>38.5</td>
<td>16.0</td>
<td>3.4</td>
</tr>
<tr>
<td>Italy</td>
<td>3.2</td>
<td>2.0</td>
<td>5.3</td>
<td>15.1</td>
<td>5.7</td>
<td>11.4</td>
<td>5.2</td>
<td>0.3</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>18.3</td>
<td>12.9</td>
<td>28.4</td>
<td>56.3</td>
<td>76.7</td>
<td>103.1</td>
<td>74.7</td>
<td>22.8</td>
</tr>
<tr>
<td>Canada</td>
<td>4.4</td>
<td>7.3</td>
<td>15.0</td>
<td>22.6</td>
<td>25.4</td>
<td>43.3</td>
<td>39.3</td>
<td>5.5</td>
</tr>
</tbody>
</table>

Source: Bank for International Settlements.

International credit markets were dramatically influenced by developments in the major national markets. In the second half of 1998, lending to mature market borrowers in international credit markets appeared to have been hard hit by the turbulence in mature markets. Syndicated lending declined sharply and terms of lending tightened (Table 2.2; Figure 2.8). Net issuance of international bonds (gross issuance less repayments) also declined sharply, as scheduled repayments rose and completed issues declined (Table 2.3). Net issuance of international bonds rebounded strongly in the first quarter of 1999, and announced issuance hit a record high, but syndicated lending continued to fall and loan spreads widened, possibly reflecting a continued withdrawal of Japanese banks and a desire to hold liquid claims; also, there was considerable issuance of euro-denominated international bonds. More generally, the currency composition of international bond issuance reflected broader developments in the major financial markets during the period under review, as yen issuance declined and ECU issuance increased in 1998 (Table 2.4).

Figure 2.8. Weighted Average Spreads for Announced Facilities in the International Syndicated Credit Market, First Quarter 1992–First Quarter 1999  
(In percent)  

Market borrowers in international credit markets appeared to have been hard hit by the turbulence in mature markets. Syndicated lending declined sharply and terms of lending tightened (Table 2.2; Figure 2.8). Net issuance of international bonds (gross issuance less repayments) also declined sharply, as scheduled repayments rose and completed issues declined (Table 2.3). Net issuance of international bonds rebounded strongly in the first quarter of 1999, and announced issuance hit a record high, but syndicated lending continued to fall and loan spreads widened, possibly reflecting a continued withdrawal of Japanese banks and a desire to hold liquid claims; also, there was considerable issuance of euro-denominated international bonds. More generally, the currency composition of international bond issuance reflected broader developments in the major financial markets during the period under review, as yen issuance declined and ECU issuance increased in 1998 (Table 2.4).

Developments in the Major Foreign Exchange Markets Since the Turbulence

As the turbulence eased toward the end of 1998, developments in foreign exchange markets came to

26 The announcement of measures to increase the appeal of JGBs to international investors may also have contributed to the decrease in volatility. These measures include eliminating the withholding tax on JGB interest paid to nonresidents, encouraging the use of the Bank of Japan registration system, eliminating call provisions in JGBs, permitting stripping of JGBs, and issuing 5-year and 30-year JGBs.

27 This section discusses lending to borrowers in mature markets. Chapter III discusses lending to emerging markets.

28 Syndicated loan markets apparently continued to thrive in the United States, however (see "Long Live the Loan," p. 67).

29 In addition, ongoing structural changes in the syndicated loan market have brought terms in the syndicated loan market closer to those in the bond market, so that loan prices more closely reflect prevailing market conditions. These structural changes include the increased participation of institutional investors and investment banks, increased securitization and secondary-market trading, and the introduction of "market flex" features, which allow the repricing or restructuring of arrangements to reflect changes in market conditions during the syndication period.

30 The dollar remained the main currency of issuance in the first quarter of 1999, with a share of about 50 percent of gross issuance compared with 36 percent for the euro.
Developments in the Major Foreign Exchange Markets Since the Turbulence

Table 2.3. Outstanding Amounts of International Debt Securities

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>All countries</td>
<td>2,027.0</td>
<td>2,400.0</td>
<td>2,720.1</td>
<td>3,129.5</td>
<td>3,506.7</td>
<td>4,316.1</td>
<td>4,446.3</td>
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<tr>
<td>Industrial countries</td>
<td>1,642.5</td>
<td>1,942.2</td>
<td>2,216.1</td>
<td>2,532.4</td>
<td>2,809.6</td>
<td>3,489.5</td>
<td>3,617.7</td>
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<tr>
<td>Of which:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United States</td>
<td>175.7</td>
<td>203.9</td>
<td>264.1</td>
<td>388.1</td>
<td>552.8</td>
<td>845.0</td>
<td>946.0</td>
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<tr>
<td>Japan</td>
<td>336.8</td>
<td>351.6</td>
<td>351.3</td>
<td>340.1</td>
<td>316.7</td>
<td>318.1</td>
<td>308.5</td>
</tr>
<tr>
<td>Germany</td>
<td>119.3</td>
<td>184.7</td>
<td>261.1</td>
<td>335.7</td>
<td>388.5</td>
<td>508.7</td>
<td>526.7</td>
</tr>
<tr>
<td>France</td>
<td>152.9</td>
<td>184.5</td>
<td>204.6</td>
<td>214.2</td>
<td>218.7</td>
<td>265.4</td>
<td>271.1</td>
</tr>
<tr>
<td>Italy</td>
<td>69.8</td>
<td>84.4</td>
<td>91.8</td>
<td>94.2</td>
<td>96.6</td>
<td>114.8</td>
<td>112.8</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>186.5</td>
<td>211.4</td>
<td>224.5</td>
<td>271.5</td>
<td>306.7</td>
<td>362.5</td>
<td>381.8</td>
</tr>
<tr>
<td>Canada</td>
<td>146.7</td>
<td>163.9</td>
<td>174.7</td>
<td>180.4</td>
<td>184.7</td>
<td>207.4</td>
<td>204.9</td>
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<tr>
<td>Developing countries</td>
<td>120.6</td>
<td>158.9</td>
<td>181.9</td>
<td>262.3</td>
<td>345.2</td>
<td>394.3</td>
<td>392.4</td>
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<tr>
<td>Offshore centers</td>
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<td>19.1</td>
<td>35.1</td>
<td>48.7</td>
<td>61.0</td>
<td>67.7</td>
</tr>
</tbody>
</table>

Source: Bank for International Settlements.

1 Debt securities other than those issued by residents in domestic currency; this includes non-home-currency debt issued by residents and all debt issued by nonresidents.

Table 2.4. Outstanding Amounts and Net Issues of International Debt Securities by Currency of Issue

<table>
<thead>
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<td></td>
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<tr>
<td>U.S. dollar</td>
<td>832.9</td>
<td>899.9</td>
<td>969.8</td>
<td>1,231.8</td>
<td>1,560.7</td>
<td>1,971.9</td>
<td>2,110.3</td>
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<tr>
<td>Japanese yen</td>
<td>267.9</td>
<td>388.0</td>
<td>451.1</td>
<td>480.6</td>
<td>459.7</td>
<td>487.5</td>
<td>458.0</td>
</tr>
<tr>
<td>Deutsche mark</td>
<td>192.5</td>
<td>243.1</td>
<td>312.6</td>
<td>340.2</td>
<td>340.9</td>
<td>440.9</td>
<td>n.a.</td>
</tr>
<tr>
<td>French franc</td>
<td>92.1</td>
<td>130.5</td>
<td>147.2</td>
<td>166.2</td>
<td>178.5</td>
<td>222.0</td>
<td>n.a.</td>
</tr>
<tr>
<td>Italian lira</td>
<td>37.4</td>
<td>56.1</td>
<td>66.9</td>
<td>93.1</td>
<td>112.3</td>
<td>137.5</td>
<td>n.a.</td>
</tr>
<tr>
<td>Pound sterling</td>
<td>154.1</td>
<td>177.6</td>
<td>185.3</td>
<td>235.9</td>
<td>281.1</td>
<td>342.3</td>
<td>352.3</td>
</tr>
<tr>
<td>Canadian dollar</td>
<td>81.5</td>
<td>83.5</td>
<td>83.6</td>
<td>76.9</td>
<td>67.6</td>
<td>55.9</td>
<td>55.4</td>
</tr>
<tr>
<td>Spanish peseta</td>
<td>10.6</td>
<td>10.7</td>
<td>13.2</td>
<td>17.8</td>
<td>20.4</td>
<td>22.5</td>
<td>n.a.</td>
</tr>
<tr>
<td>Netherlands guilder</td>
<td>44.9</td>
<td>65.6</td>
<td>83.1</td>
<td>93.3</td>
<td>94.1</td>
<td>121.1</td>
<td>n.a.</td>
</tr>
<tr>
<td>Swedish krona</td>
<td>3.5</td>
<td>5.0</td>
<td>5.3</td>
<td>5.2</td>
<td>4.5</td>
<td>7.4</td>
<td>6.7</td>
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<tr>
<td>Swiss franc</td>
<td>149.1</td>
<td>161.3</td>
<td>188.8</td>
<td>165.4</td>
<td>152.4</td>
<td>168.0</td>
<td>158.6</td>
</tr>
<tr>
<td>ECU/euro</td>
<td>92.6</td>
<td>90.0</td>
<td>90.0</td>
<td>74.2</td>
<td>64.7</td>
<td>157.6</td>
<td>1,192.9</td>
</tr>
<tr>
<td>Total</td>
<td>2,027.1</td>
<td>2,400.0</td>
<td>2,720.1</td>
<td>3,146.5</td>
<td>3,506.6</td>
<td>4,316.1</td>
<td>4,446.4</td>
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Net Issues

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<tr>
<td>U.S. dollar</td>
<td>31.5</td>
<td>73.4</td>
<td>74.2</td>
<td>262.1</td>
<td>332.0</td>
<td>411.1</td>
<td>138.4</td>
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<tr>
<td>Japanese yen</td>
<td>33.8</td>
<td>106.8</td>
<td>108.3</td>
<td>84.8</td>
<td>34.6</td>
<td>29.3</td>
<td>-11.9</td>
</tr>
<tr>
<td>Deutsche mark</td>
<td>31.2</td>
<td>27.5</td>
<td>55.0</td>
<td>53.8</td>
<td>47.3</td>
<td>71.1</td>
<td>n.a.</td>
</tr>
<tr>
<td>French franc</td>
<td>34.5</td>
<td>27.0</td>
<td>5.2</td>
<td>28.9</td>
<td>34.6</td>
<td>30.3</td>
<td>n.a.</td>
</tr>
<tr>
<td>Italian lira</td>
<td>13.0</td>
<td>18.4</td>
<td>10.3</td>
<td>23.7</td>
<td>33.2</td>
<td>16.8</td>
<td>n.a.</td>
</tr>
<tr>
<td>Pound sterling</td>
<td>31.7</td>
<td>14.5</td>
<td>10.0</td>
<td>30.8</td>
<td>51.4</td>
<td>59.3</td>
<td>20.4</td>
</tr>
<tr>
<td>Canadian dollar</td>
<td>20.5</td>
<td>6.7</td>
<td>-2.2</td>
<td>-6.4</td>
<td>-6.3</td>
<td>-7.4</td>
<td>-0.8</td>
</tr>
<tr>
<td>Spanish peseta</td>
<td>3.5</td>
<td>-0.7</td>
<td>1.4</td>
<td>5.8</td>
<td>5.2</td>
<td>0.9</td>
<td>n.a.</td>
</tr>
<tr>
<td>Netherlands guilder</td>
<td>7.9</td>
<td>14.8</td>
<td>13.5</td>
<td>17.6</td>
<td>13.8</td>
<td>18.9</td>
<td>n.a.</td>
</tr>
<tr>
<td>Swedish krona</td>
<td>6.7</td>
<td>1.0</td>
<td>0.3</td>
<td>0.1</td>
<td>0.1</td>
<td>3.1</td>
<td>-0.6</td>
</tr>
<tr>
<td>Swiss franc</td>
<td>-2.3</td>
<td>-6.4</td>
<td>4.3</td>
<td>4.2</td>
<td>1.2</td>
<td>6.5</td>
<td>3.1</td>
</tr>
<tr>
<td>Other</td>
<td>-0.4</td>
<td>-0.3</td>
<td>2.0</td>
<td>9.3</td>
<td>1.6</td>
<td>-4.0</td>
<td>n.a.</td>
</tr>
<tr>
<td>Total</td>
<td>-8.0</td>
<td>13.0</td>
<td>36.5</td>
<td>34.8</td>
<td>28.6</td>
<td>14.4</td>
<td>-3.8</td>
</tr>
</tbody>
</table>

implied a possible easing in euro-area monetary policy (which materialized in April). Indications of divergent economic conditions among euro-area countries also contributed to concerns about economic tensions within the euro area and added pressure on the currency. In this environment, the euro weakened by about 8 percent against the dollar during the first quarter of 1999 and another 4 percent during the second quarter. At mid-1999, the euro stood about 6 percent lower against the dollar compared with where the theoretical euro had stood a year earlier.\(^{32}\)

The behavior of the yen after the turbulence seems difficult to reconcile with the broader environment and its trends prior to the turbulence. The yen traded around an appreciated level against the dollar compared with prior to the turbulence (in real and nominal effective terms, the yen was around 1997 levels), and there were few signs of a renewed trend weakening of the yen against the dollar, despite the widening cyclical divergence between the United States and Japan. Some market analysts suggested that this phenomenon might have reflected the deleveraging of speculative positions against the yen.\(^{33}\) Others have suggested that repatriation of funds (including in the run-up to the end of the fiscal year) and a scaling back of international activity by Japanese banks may have bolstered the yen. Another view is that market participants may have focused increased attention on the large current account surplus in Japan and the current account surplus.

\(^{32}\) The theoretical or synthetic euro is a weighted average of the euro’s component currencies.

\(^{33}\) Against this, there were suggestions that some of the technical features that contributed to the earlier volatility—such as the yen carry trade—began to reestablish themselves in the first part of 1999. In April 1999, the Japan Center for International Finance reported that hedge funds had sharply increased their borrowing of yen during February 1999 (see Bloomberg Financial Markets L.P., 1999). Also, short-term outflows in the first quarter might have reflected the yen carry trade (see Nikko Salomon Smith Barney, 1999).
its predominance in trade-related transactions. The dollar was involved in 87 percent of all foreign exchange transactions. The second and third most traded currencies were the deutsche mark and Japanese yen, which contributed 30 percent and 21 percent to total turnover, respectively. While the share of the dollar increased by 4 percent, the share of the mark and yen decreased by 7 percent and 3 percent, respectively. The currency pairs formed by these three currencies together accounted for 40 percent of turnover in all currency pairs worldwide. Even the third most actively traded currency pair, the U.S. dollar-British pound, represented only 8 percent of total global foreign exchange activity. Emerging market currencies contributed less than 15 percent to total daily turnover.

The global foreign exchange business is concentrated in four centers, which together account for 64 percent of total reported turnover: the United Kingdom (32 percent), the United States (18 percent), Japan (8 percent), and Singapore (7 percent). A larger share of U.S. dollar turnover (32 percent) and deutsche mark turnover (34 percent) is conducted in the United Kingdom than in either the United States (18 percent) or Germany (10 percent).

The share of outright forwards and foreign exchange swaps in total foreign exchange market turnover rose from 40 percent in 1989 to 60 percent in 1998. Nevertheless, among currency pairs not involving the U.S. dollar, spot transactions still dominate the business (70 percent of turnover).

The foreign exchange market is dominated by dealers, and is becoming increasingly automated and concentrated. Most trades (73 percent) take place among reporting dealers. Nonfinancial customers account for 20 to 30 percent of turnover in the smaller markets, and even less in larger markets. Business among dealers is mostly (59 percent) across borders, whereas transactions with nonfinancial customers are mostly (68 percent) domestic. The foreign exchange market is also increasingly automated. For example, in the United Kingdom, the share conducted over electronic broking systems increased from 5 percent in 1995 to 11 percent in 1998. In the United States, this share more than tripled from 10 percent to 33 percent during the same period. Consolidation in the financial industry contributed to growing market concentration in the foreign exchange business. The share of the top 10 dealers rose from 44 percent to 50 percent in the United Kingdom, and from 48 percent to 51 percent in the United States. Smaller markets tended to have higher levels of concentration.

Developments in the Major Equity Markets Since November 1998

Although the major equity markets staged impressive recoveries from the depths of the turbulence in October 1998, on balance, some markets performed much more strongly than others during the 12 months ending June 1999. In local currency terms, U.S. stocks have risen by about 20 percent since end-June 1998; broad indexes of European stocks have risen by about 5-10 percent (though some country indexes have fallen); Japanese stocks have risen by about 10 percent (and have been unusually volatile over the intervening 12 months). Gains during 1999 have been attributed to various factors, including in the United States, a surprisingly robust pace of economic growth, which has raised hopes for sustained growth in corporate earnings; in Europe, structural changes in equity markets and prospects that corporate consolidation and restructuring will boost corporate earnings; and in Japan, suggestions that recent measures improved the sentiment of foreign investors toward Japanese equities.

In March 1999, the long-running debate over the high valuation level of the U.S. equity market intensified as the Dow Jones Industrial Average (DJIA) crossed the 10000 mark (Figure 2.9). This strength is remarkably in view of the recent rise in long-term U.S. interest rates, which implies an associated rise in im-

3 Since every foreign exchange transaction involves two currencies, the contributions of all currencies to total turnover sum to 100 percent. For example, suppose there are two spot currency transactions: an exchange of $15 for yen, and an exchange of $5 for euros. In this example, the dollar is involved on one side of all currency transactions, and the yen and euro are each involved on one side of half of all transactions. The dollar contributed 100 percent to turnover, the yen contributed 75 percent, and the euro contributed 25 percent.

4 The foreign exchange market is dominated by dealers, and is becoming increasingly automated and concentrated. Most trades (73 percent) take place among reporting dealers. Nonfinancial customers account for 20 to 30 percent of turnover in the smaller markets, and even less in larger markets. Business among dealers is mostly (59 percent) across borders, whereas transactions with nonfinancial customers are mostly (68 percent) domestic. The foreign exchange market is also increasingly automated. For example, in the United Kingdom, the share conducted over electronic broking systems increased from 5 percent in 1995 to 11 percent in 1998. In the United States, this share more than tripled from 10 percent to 33 percent during the same period. Consolidation in the financial industry contributed to growing market concentration in the foreign exchange business. The share of the top 10 dealers rose from 44 percent to 50 percent in the United Kingdom, and from 48 percent to 51 percent in the United States. Smaller markets tended to have higher levels of concentration.

5 A market is defined here as total foreign exchange turnover in a country.
Figure 2.9. United States: Equity Market Performance, 1926–March 1999

S&P 500 Dividend Yield (In percent)

S&P 500 Price-Earnings Ratio

S&P 500 Industrials Price-Book Value Ratio

Equity Yield Gap (In percent)

Sources: Board of Governors of the Federal Reserve System; Bloomberg Financial Markets L.P.; and Standard and Poor's.
plied dividend growth or fall in the equity risk premiump to justify current dividend yields (see Box 2.2). The mature phase of the business cycle suggests that growth in corporate earnings will slow, while a decline in the equity risk premium seems difficult to reconcile with the evident repricing of credit risk in fixed-income markets. Accordingly, concerns about the risk of a correction in equity markets have increased since mid-1998. Nevertheless, observers have suggested a variety of factors that might rationalize some of the recent rise in equity prices. These include broader household participation in the stock market through institutional investors; the increased number of funded pension plans; the strong performance of the U.S. economy, including low inflation and robust productivity growth; and (until 1999) the decline in long-term interest rates.

On balance, these considerations have given rise to concerns about a correction and its possible repercussions. A correction in the U.S. equity market could affect the risk appetite and financial condition of major financial institutions (particularly HLIs), which could adversely affect conditions in fixed-income markets in the United States and conditions in financial markets outside the United States (though reforms have bolstered the U.S. equity market infrastructure; see Box 2.3). It could also adversely affect economic activity in the United States, including through its effect on household wealth and corporate balance sheets, with knock-on effects to global trade and growth.

In Europe, a trend decline in long-term interest rates has worked to support equity valuations over a period of increased uncertainty about the prospects for dividends. A simple calculation of expected dividend growth implied by the dividend yields for major European markets suggests that such expectations have become less optimistic or stayed the same since mid-1998 (see Box 2.2). Over the medium term, the performance of European equity markets might be supported by structural trends in European equity markets and in the European corporate sector. These include the privatization of major public enterprises; merger and acquisition activity; deeper and more unified European equity markets; an increasing number of defined-contribution pension plans; improved corporate control; and equity buybacks. In the near term, however, prospects are clouded by uncertainties about the pace of recovery in Europe.

The Japanese stock market has been affected mainly by developments in the domestic financial system and concerns about the burden of the corporate-debt overhang and weak economic performance. Between mid-November 1998 and end-February 1999, a period when U.S. and European stocks posted strong gains, the Nikkei was volatile but ended the period virtually unchanged. In the first two weeks of March, the Nikkei abruptly rose by about 12 percent, as the Japanese authorities' efforts to stabilize the financial system and stem the economic decline contributed to an improvement in the sentiment of foreign institutional investors toward the Japanese stock market (which also coincided with a brief rise in the yen against the dollar). Overseas institutional investors reportedly raised benchmark weights on Japanese stocks (often from underweighted positions), bolstering foreign inflows. The pronounced rally in Japanese stock prices lost momentum in April, however, perhaps reflecting concerns that more fundamental measures were needed to put the Japanese economy and financial system on a path to recovery, and concerns that unloading of cross-shareholdings might depress stock prices. In June, stock prices rebounded following the release of favorable economic data.

Developments in Derivatives Markets

Developments in derivatives markets continued to reflect a number of ongoing trends (Tables 2.5–2.9). These trends, including rapid growth, the increasing dominance of the OTC segment compared with the exchange-traded segment, and the preponderance of "plain vanilla" derivatives, are clearly illustrated by the most recent Bank for International Settlements (BIS) triennial survey of foreign exchange and derivatives markets (see Box 2.1 for discussion of the foreign exchange segment of the survey). The survey covers traditional foreign exchange derivatives (outright forwards and swaps); more sophisticated foreign exchange derivatives (options, currency swaps, and others); and interest rate products. It conveys a sense of market size as measured by notional amounts and gross market value of derivatives outstanding, and activity as measured by average daily turnover of notional amounts.

Notional amounts outstanding in derivatives markets are related to market risk exposure. From the end of...
Table 2.5. Currency Composition of Notional Principal Value of Outstanding Interest Rate and Currency Swaps
(In billions of U.S. dollars)

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</tr>
</thead>
<tbody>
<tr>
<td>All counterparties</td>
<td>682.9</td>
<td>1,012.0</td>
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<tr>
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<td>78.5</td>
<td>128.0</td>
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<td>706.0</td>
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<td>1,987.4</td>
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<td>263.4</td>
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<td>214.0</td>
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<td>426.7</td>
<td>642.5</td>
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<td>273.7</td>
<td>397.1</td>
<td>607.8</td>
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<td>1,113.1</td>
<td>1,674.4</td>
<td>2,621.8</td>
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</table>


1Adjusted for double-counting because each currency swap involves two currencies.

of March 1995 to the end of June 1998, notional amounts outstanding in the OTC markets rose by 52 percent to $72 trillion, compared with $13.2 trillion outstanding in exchange-traded foreign exchange and interest rate derivatives (which grew by 34.2 percent). To put this figure in perspective, in 1998, world GDP was $29.2 trillion,1 in 1997, stock market capitalization and securitized debt in the European Union, North America, and Japan amounted to about $46.6 trillion (GDP in these countries totaled $21.4 trillion).2

Gross market value (a concept that originated at the BIS) is a useful indicator of current credit exposure. The gross market value of a portfolio of derivatives contracts is the sum of the (absolute) market values of the component contracts. For example, a portfolio that

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1See Statistical Appendix, Table I, of International Monetary Fund (1999).

2Notional derivatives outstanding in the same countries amounted to approximately $681.1 trillion, about 146 percent of the size of underlying capital markets (assuming that these countries' share in total OTC derivatives turnover is the same as their share in amounts outstanding in OTC and exchange-traded markets).
<table>
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<tr>
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<td><strong>Interest rate futures</strong></td>
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<td></td>
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<td></td>
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<td></td>
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<td></td>
<td></td>
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<td>1,454.5</td>
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<td>2,913.0</td>
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<td>5,863.4</td>
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<td>662.6</td>
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<td>110.0</td>
<td>229.2</td>
<td>421.9</td>
<td>425.7</td>
<td>654.6</td>
<td>626.2</td>
<td>1,016.9</td>
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<td>0.0</td>
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<td>47.7</td>
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<td>229.2</td>
<td>421.9</td>
<td>425.7</td>
<td>654.6</td>
<td>626.2</td>
<td>1,016.9</td>
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<td>249.3</td>
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<td>31.3</td>
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<td>106.1</td>
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<td>2,741.8</td>
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<td>17.0</td>
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<td>34.7</td>
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<td>38.3</td>
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<td>51.9</td>
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<td>50.2</td>
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<td>46.5</td>
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<td>195.9</td>
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<td>657.0</td>
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<td>107.0</td>
<td>59.6</td>
<td>58.5</td>
<td>42.7</td>
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Source: Bank for International Settlements.
¹Calls and puts.
II DEVELOPMENTS, TRENDS, AND ISSUES IN THE MATURE FINANCIAL MARKETS

Table 2.7. Notional Value of Outstanding Interest Rate and Currency Swaps of ISDA Members
(In billions of U.S. dollars)

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<th>Year</th>
<th>All counterparties</th>
<th>Interbank (ISDA member)</th>
<th>Other (end-user and brokered)</th>
<th>End-user</th>
<th>Financial institutions</th>
<th>Governments1</th>
<th>Corporations2</th>
<th>Unallocated</th>
<th>Brokered</th>
<th>Interest rate options3</th>
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<td>32.7</td>
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<td>955.5</td>
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<td>76.2</td>
<td>295.2</td>
<td>49.0</td>
<td>0.0</td>
<td>537.3</td>
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<td>447.9</td>
<td>49.0</td>
<td>0.0</td>
<td>634.5</td>
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<td>1,722.8</td>
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<td>242.8</td>
<td>666.2</td>
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<td>572.7</td>
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<td>11,961.4</td>
<td>1,164.6</td>
<td>2,010.9</td>
<td>0.0</td>
<td>0.0</td>
<td>4,920.0</td>
</tr>
</tbody>
</table>

1Including international institutions.
2Including others.
3Adjusted for double-counting because each currency swap involves two currencies.
4Include caps, collars, floors, and swaptions.

Activity continued to expand more rapidly in OTC markets than on exchanges. Average daily turnover on OTC derivative markets nearly caught up with turnover on organized exchanges: OTC turnover averaged $1.26 trillion per day in April 1998 and grew by 66 percent between April 1995 and April 1998, whereas exchange-traded turnover averaged $1.37 trillion a day and grew by only 12 percent. Foreign exchange derivatives were increasingly (and by April 1998, were almost exclusively) traded in the interbank market: while daily turnover in the OTC segment grew by 38 percent to $990 billion, daily turnover in exchange-traded contracts shrank by 29 percent to $12 billion. By contrast, interest rate products were predominantly traded on exchanges, where they averaged daily turnover of $1.36 trillion compared with $270 billion in OTC markets.4

Activity in interest rate derivatives is dominated by swaps (58 percent of turnover), followed by forward rate agreements (28 percent) and options (14 percent).

---

4One reason for the higher turnover of foreign exchange contracts is that they tend to have shorter maturities than interest rate contracts.

---

Other (end-user and brokered) Total (interest rate and currency contracts, reflecting the greater leverage in interest rate contracts)
Turnover in foreign exchange derivatives is dominated by foreign exchange swaps (76 percent), followed by outright forwards (14 percent), options (9 percent), and currency swaps (1 percent). The comparatively small forward market is oriented toward the retail trading and hedging needs of nonfinancial customers, who account for 36 percent of turnover. While 92 percent of OTC currency derivatives activity is conducted in U.S. dollars, the interest rate segment—the dollar (27 percent) is followed closely by the deutsche mark (24 percent).

The rapid growth of derivatives markets, the limited transparency of OTC markets compared with organized exchange markets, the role of derivatives markets in facilitating leverage, and the concentration of derivatives activity in a small number of institutions have given rise to extensive discussion of the risks in derivatives markets, particularly the OTC segment. Part of the debate revolves around the issues of liquidity and counterparty risks, which are generally viewed as higher in the OTC market than in organized exchange markets. Accordingly, there have recently been attempts to adapt some of the features of exchange markets to the OTC market. For example, the London Clearing House has recently launched an initiative to clear OTC swaps (a similar arrangement is already in place in Sweden).

Table 2.8. New Interest Rate and Currency Swaps

<table>
<thead>
<tr>
<th></th>
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<td>Interest rate swaps</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All counterparties</td>
<td>387.8</td>
<td>568.1</td>
<td>833.6</td>
<td>1,264.3</td>
<td>1,621.8</td>
<td>2,822.6</td>
<td>4,104.7</td>
<td>6,240.9</td>
<td>8,698.8</td>
<td>13,678.2</td>
<td>17,867.1</td>
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<tr>
<td>Interbank (ISDA member)</td>
<td>125.9</td>
<td>193.1</td>
<td>318.0</td>
<td>484.5</td>
<td>761.7</td>
<td>1,336.4</td>
<td>2,003.9</td>
<td>3,199.5</td>
<td>4,989.8</td>
<td>7,185.8</td>
<td>9,163.0</td>
</tr>
<tr>
<td>Other (end-user and brokered)</td>
<td>261.9</td>
<td>375.0</td>
<td>515.5</td>
<td>779.7</td>
<td>860.0</td>
<td>1,486.2</td>
<td>2,100.8</td>
<td>3,041.4</td>
<td>3,709.0</td>
<td>6,492.4</td>
<td>7,904.1</td>
</tr>
<tr>
<td>End-user</td>
<td>257.0</td>
<td>371.4</td>
<td>503.4</td>
<td>705.3</td>
<td>844.7</td>
<td>1,436.7</td>
<td>2,000.6</td>
<td>2,962.4</td>
<td>3,709.0</td>
<td>6,492.4</td>
<td>7,904.1</td>
</tr>
<tr>
<td>Financial institutions</td>
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<td>238.1</td>
<td>317.9</td>
<td>420.1</td>
<td>492.4</td>
<td>853.9</td>
<td>1,157.7</td>
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<td>2,292.9</td>
<td>4,754.4</td>
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<tr>
<td>Governments</td>
<td>21.7</td>
<td>32.9</td>
<td>39.6</td>
<td>74.7</td>
<td>79.0</td>
<td>148.9</td>
<td>198.6</td>
<td>178.8</td>
<td>232.4</td>
<td>261.2</td>
<td>469.0</td>
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<tr>
<td>Corporations</td>
<td>62.6</td>
<td>98.2</td>
<td>139.5</td>
<td>210.6</td>
<td>273.3</td>
<td>434.0</td>
<td>678.0</td>
<td>1,150.9</td>
<td>1,183.7</td>
<td>1,476.8</td>
<td>1,478.9</td>
</tr>
<tr>
<td>Unallocated</td>
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<td>6.5</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>8.3</td>
<td>0.1</td>
<td>0.0</td>
<td>0.0</td>
<td>-0.1</td>
</tr>
<tr>
<td>Brokered</td>
<td>4.9</td>
<td>3.5</td>
<td>12.1</td>
<td>74.4</td>
<td>15.3</td>
<td>49.5</td>
<td>100.2</td>
<td>79.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Currency swaps</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All counterparties</td>
<td>172.8</td>
<td>248.5</td>
<td>356.3</td>
<td>425.5</td>
<td>656.8</td>
<td>603.7</td>
<td>590.4</td>
<td>758.6</td>
<td>910.2</td>
<td>1,518.1</td>
<td>2,270.8</td>
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<tr>
<td>Interbank (ISDA member)</td>
<td>86.3</td>
<td>124.2</td>
<td>178.2</td>
<td>212.7</td>
<td>328.4</td>
<td>301.9</td>
<td>295.2</td>
<td>379.3</td>
<td>455.1</td>
<td>759.1</td>
<td>1,135.4</td>
</tr>
<tr>
<td>Other (end-user and brokered)</td>
<td>86.8</td>
<td>124.2</td>
<td>178.2</td>
<td>212.7</td>
<td>328.4</td>
<td>301.9</td>
<td>295.2</td>
<td>379.3</td>
<td>455.1</td>
<td>759.1</td>
<td>1,135.4</td>
</tr>
<tr>
<td>End-user</td>
<td>67.8</td>
<td>93.9</td>
<td>127.1</td>
<td>150.7</td>
<td>219.1</td>
<td>234.7</td>
<td>239.0</td>
<td>296.7</td>
<td>301.3</td>
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<td>673.0</td>
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<td>Financial institutions</td>
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<td>51.4</td>
<td>98.6</td>
<td>78.9</td>
<td>77.2</td>
<td>107.6</td>
<td>143.8</td>
<td>231.8</td>
<td>324.9</td>
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<td>69.1</td>
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<td>113.7</td>
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<td>108.5</td>
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</tr>
<tr>
<td>Brokered</td>
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<td>2.1</td>
<td>1.0</td>
<td>1.6</td>
<td>10.7</td>
<td>1.9</td>
<td>1.5</td>
<td>0.1</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Total (interest rate and currency swaps for all counterparties)</td>
<td>474.1</td>
<td>692.3</td>
<td>1,011.8</td>
<td>1,477.0</td>
<td>1,950.2</td>
<td>3,424.5</td>
<td>4,399.9</td>
<td>6,620.2</td>
<td>9,153.9</td>
<td>14,437.3</td>
<td>18,202.5</td>
</tr>
</tbody>
</table>


1 Including international institutions.

2 Including others.

3 Adjusted for double-counting because each currency swap involves two currencies.

4 A foreign exchange swap is typically a short-term deal that combines a spot sale of currency and a forward purchase. A currency swap typically has a longer maturity and involves both a spot sale and forward purchase and the periodic exchange of interest in the two currencies.

5 The average deal size of spot and forward transactions in the United States is approximately $4 million, whereas the average notional size of foreign exchange swaps is nearly eight times as large. Long-term transactions (one year and longer to maturity) account for less than 4 percent of traditional foreign currency derivatives turnover.

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Table 2.9. Annual Turnover in Derivative Financial Instruments Traded on Organized Exchanges Worldwide
(In million of contracts traded)

<table>
<thead>
<tr>
<th>Year</th>
<th>Interest rate futures</th>
<th>Futures on short-term instruments</th>
<th>Three-month eurodollars</th>
<th>Three-month euroyen</th>
<th>Three-month PIBOR futures</th>
<th>Futures on long-term instruments</th>
<th>U.S. treasury bond</th>
<th>Notional French government bond</th>
<th>Ten-year Japanese government bond</th>
<th>German government bond</th>
</tr>
</thead>
<tbody>
<tr>
<td>1986</td>
<td>91.0</td>
<td>145.7</td>
<td>156.4</td>
<td>201.0</td>
<td>219.1</td>
<td>230.9</td>
<td>330.1</td>
<td>427.0</td>
<td>628.6</td>
<td>561.0</td>
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<tr>
<td>1987</td>
<td>391.2</td>
<td>145.7</td>
<td>156.4</td>
<td>201.0</td>
<td>219.1</td>
<td>230.9</td>
<td>330.1</td>
<td>427.0</td>
<td>628.6</td>
<td>561.0</td>
</tr>
<tr>
<td>1988</td>
<td>456.2</td>
<td>145.7</td>
<td>156.4</td>
<td>201.0</td>
<td>219.1</td>
<td>230.9</td>
<td>330.1</td>
<td>427.0</td>
<td>628.6</td>
<td>561.0</td>
</tr>
<tr>
<td>1989</td>
<td>456.2</td>
<td>145.7</td>
<td>156.4</td>
<td>201.0</td>
<td>219.1</td>
<td>230.9</td>
<td>330.1</td>
<td>427.0</td>
<td>628.6</td>
<td>561.0</td>
</tr>
<tr>
<td>1990</td>
<td>456.2</td>
<td>145.7</td>
<td>156.4</td>
<td>201.0</td>
<td>219.1</td>
<td>230.9</td>
<td>330.1</td>
<td>427.0</td>
<td>628.6</td>
<td>561.0</td>
</tr>
<tr>
<td>1991</td>
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<td>145.7</td>
<td>156.4</td>
<td>201.0</td>
<td>219.1</td>
<td>230.9</td>
<td>330.1</td>
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<td>628.6</td>
<td>561.0</td>
</tr>
<tr>
<td>1992</td>
<td>456.2</td>
<td>145.7</td>
<td>156.4</td>
<td>201.0</td>
<td>219.1</td>
<td>230.9</td>
<td>330.1</td>
<td>427.0</td>
<td>628.6</td>
<td>561.0</td>
</tr>
<tr>
<td>1993</td>
<td>456.2</td>
<td>145.7</td>
<td>156.4</td>
<td>201.0</td>
<td>219.1</td>
<td>230.9</td>
<td>330.1</td>
<td>427.0</td>
<td>628.6</td>
<td>561.0</td>
</tr>
<tr>
<td>1994</td>
<td>456.2</td>
<td>145.7</td>
<td>156.4</td>
<td>201.0</td>
<td>219.1</td>
<td>230.9</td>
<td>330.1</td>
<td>427.0</td>
<td>628.6</td>
<td>561.0</td>
</tr>
<tr>
<td>1995</td>
<td>456.2</td>
<td>145.7</td>
<td>156.4</td>
<td>201.0</td>
<td>219.1</td>
<td>230.9</td>
<td>330.1</td>
<td>427.0</td>
<td>628.6</td>
<td>561.0</td>
</tr>
<tr>
<td>1996</td>
<td>456.2</td>
<td>145.7</td>
<td>156.4</td>
<td>201.0</td>
<td>219.1</td>
<td>230.9</td>
<td>330.1</td>
<td>427.0</td>
<td>628.6</td>
<td>561.0</td>
</tr>
<tr>
<td>1997</td>
<td>456.2</td>
<td>145.7</td>
<td>156.4</td>
<td>201.0</td>
<td>219.1</td>
<td>230.9</td>
<td>330.1</td>
<td>427.0</td>
<td>628.6</td>
<td>561.0</td>
</tr>
<tr>
<td>1998</td>
<td>456.2</td>
<td>145.7</td>
<td>156.4</td>
<td>201.0</td>
<td>219.1</td>
<td>230.9</td>
<td>330.1</td>
<td>427.0</td>
<td>628.6</td>
<td>561.0</td>
</tr>
</tbody>
</table>

Source: Bank for International Settlements.
1 Calis plus puts.

Developments in the Major Banking Systems

Profits in major banking systems were affected by the market turbulence in 1998, and credit temporarily tightened in some countries. The performance of top banks was hampered by their direct and indirect exposures to emerging markets and interest rate exposure from large securities portfolios. In the aftermath of the turbulence, the international exposure of the major banking systems contracted, notably due to a sharp decrease in credit to nonbank entities in these markets. Exposures to emerging markets also declined in the second half of 1998 (Table 2.10). The rebound in asset prices in the following months, however, generally translated into a pickup in profits in the first quarter of 1999 (see Figure 2.1). With respect to credit conditions, the tightening of standards and terms evident in the United States in late 1998 eased considerably thereafter, although risk premiums, notably on commercial and industrial loans, continued to rise (as noted earlier, in the United States, bank credit substituted for market credit to some extent during the turbulence). Credit expansion was strong in early 1999 in the euro area, but credit contracted in Japan both for structural (including write-offs of bad debt and an increased focus on credit risk) and cyclical reasons and despite earlier official measures to support lending.

Supervisors have moved to monitor large banks more closely, and efforts to update international prudential requirements have been accelerated. The shift toward closer monitoring of banks' activities and greater disclosure appears to reflect the recognition that commercial banks' increased reliance on trading revenues (including from proprietary trading) and leverage (including through derivatives and securitization of loans and commercial credits) might have heightened systemic risks (Chapter IV). In the United States, the shift also appears to have been motivated by the changing nature of the industry following the numerous mergers among top banks,46 while at the international level it was reflected, inter alia, in added momentum to the work of the Joint Forum on Financial Conglomerates, which issued a set of papers on the supervision of large financial conglomerates (see Annex IV). On the regulatory front, the Basel Committee presented a draft revision of the 1988 Capital Accord. The document focuses on making prudential credit risk measurements more sensitive to actual risk, and on expanding the current framework to include supervisory review of an institution's capital adequacy and internal assessment process, as well as on enhancing the role of market discipline.

46 Several mergers announced in the early part of 1998 (see International Monetary Fund. 1998a) were completed in subsequent months, and a major U.S. commercial bank was taken over by one of the three largest German banks in 1999. In addition, consolidations among regional banks continued; Wells Fargo and Norwest Corporation merged in November, and Fleet announced in March that it would acquire its cross-town rival BankBoston.
The profitability of the top 10 U.S. banks dropped by one-third in 1998, on the heels of the turbulence in the summer and fall. To varying extents, most of these banks faced losses on direct holdings of securities and exposures to hedge funds, as well as declines in revenues from securities trading.\textsuperscript{49} Merger and internal restructuring charges also had a substantial impact on revenues from securities trading.\textsuperscript{49} The resilience among banks was uneven, with those banks more dependent on investment banking activities being more affected. For example, a top institution became the target of a (friendly) takeover after major losses in its emerging market portfolio compounded earlier losses stemming in part from an aggressive business strategy.

\begin{table}[h]
\centering
\caption{Claims of Banks in BIS-Reporting Countries on Selected Emerging Markets as of December 1998\textsuperscript{1}}
\begin{tabular}{|l|c|c|c|c|c|c|}
\hline
 & \textbf{All BIS-} & \textbf{United} & \textbf{United} & \textbf{Euro} & \textbf{France} & \textbf{Germany} \\
 & \textbf{Reporting} & \textbf{Kingdom} & \textbf{States} & \textbf{Area}\textsuperscript{2} & & \\
 & \textbf{Countries} & & & & & \\
\hline
\textbf{Asia} & 554.5 & 154.4 & 78.8 & 27.3 & 210.2 & 51.0 & 93.1 \\
\textbf{(Percent change from June 1998)} & (-13.2) & (-17.5) & (-6.8) & (-7.9) & (-11.4) & (-7.8) & (+0.6) \\
\textbf{Of which:} & & & & & & & \\
China & 58.2 & 15.1 & 6.5 & 1.9 & 22.7 & 8.2 & 6.9 \\
Hong Kong SAR & 131.4 & 38.7 & 28.1 & 4.7 & 46.5 & 9.7 & 22.4 \\
Asia-5 & 187.9 & 64.7 & 15.0 & 14.7 & 64.6 & 18.9 & 25.5 \\
\textbf{Latin America} & 288.5 & 14.5 & 24.0 & 62.0 & 143.1 & 22.0 & 40.9 \\
\textbf{(Percent change from June 1998)} & (-2.4) & (-1.8) & (+3.8) & (-3.3) & (+27.3) & (-12.3) & (+3.7) \\
\textbf{Of which:} & & & & & & & \\
Argentina & 61.5 & 2.0 & 5.7 & 11.3 & 34.6 & 3.4 & 9.1 \\
Brazil & 73.3 & 4.2 & 6.5 & 12.7 & 36.7 & 6.1 & 11.3 \\
Mexico & 65.0 & 4.7 & 5.1 & 18.2 & 25.9 & 6.3 & 6.8 \\
\textbf{Transition countries} & 121.6 & 3.9 & 2.8 & 6.5 & 95.3 & 10.3 & 56.7 \\
\textbf{(Percent change from June 1998)} & (-8.9) & (-5.5) & (-27.2) & (-47.8) & (+3.1) & (-7.2) & (+8.0) \\
\textbf{Of which:} & & & & & & & \\
Russia & 58.6 & 0.9 & 1.0 & 2.2 & 47.3 & 5.8 & 30.9 \\
\textbf{Middle East} & 63.1 & 3.9 & 7.6 & 5.7 & 29.1 & 7.2 & 14.6 \\
\textbf{(Percent change from June 1998)} & (+10.1) & (+106.5) & (+17.1) & (+7.4) & (+13.4) & (+3.0) & (+25.9) \\
\textbf{Africa} & 56.4 & 1.9 & 3.7 & 3.3 & 39.0 & 18.6 & 10.2 \\
\textbf{(Percent change from June 1998)} & (-3.2) & (-19.3) & (-4.2) & (-31.8) & (-0.9) & (-0.8) & (+8.0) \\
\textbf{All emerging markets} & 1,084.0 & 178.3 & 116.8 & 104.8 & 516.8 & 109.2 & 205.5 \\
\textbf{(Percent change from June 1998)} & (-8.4) & (-15.5) & (-4.1) & (-11.5) & (-3.5) & (-6.9) & (+4.8) \\
\hline
\end{tabular}
\begin{flushright}
Sources: Bank for International Settlements (BIS); and IMF staff calculations.
\end{flushright}
\begin{flushright}
\textsuperscript{1}On-balance-sheet claims, excluding claims on offshore centers (with the exception of Hong Kong SAR and Singapore, which are included in Asia).
\end{flushright}
\begin{flushright}
\textsuperscript{2}Because data are not reported for Greece and Portugal, data are for Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, and Spain.
\end{flushright}
\end{table}

\textsuperscript{49} Return on equity of the 10 major banks in the United States still averaged above 10 percent in 1998. The resilience among banks was uneven, with those banks more dependent on investment banking activities being more affected. For example, a top institution became the target of a (friendly) takeover after major losses in its emerging market portfolio compounded earlier losses stemming in part from an aggressive business strategy.

\textsuperscript{50} Legislation recently passed in the U.S. Congress. The Federal Reserve and the Treasury still maintain different views about whether the nonbanking activities of banks should be conducted within bank holding companies or within operating subsidiaries; under this legislation, each agency could veto the other's actions on new banking powers. Although passage of legislation repealing the Glass-Steagall act is closer now than at any time in the past 15 years, the final legislative outcome is still uncertain and depends upon further negotiations between both houses of Congress.
Box 2.2. Interest Rates and Implied Dividend Growth in G-7 Stock Markets

Since 1995, equity prices have almost tripled in the United States and more than doubled in Canada, France, Germany, Italy, and the United Kingdom (see Figure 2.1). At the same time, ex ante real yields on long-term government bonds have declined to record lows. A key question is how much of the recent increase in equity prices is justified by the environment of low interest rates—which boosts equity valuations by increasing the discounted present value of future dividend flows—and how much is attributable to expectations of higher real growth of future dividends?

The main result of the analysis below is that, in almost all Group of Seven (G-7) industrial countries, the decline in real yields can more or less fully explain the surge in equity valuations. Only in the United States has real expected dividend growth increased. In the other G-7 countries, real expected dividend growth implied by current equity prices is actually lower than in 1995. The implications of these results are twofold. On the one hand, current equity valuations do not imply unusually high expected dividend growth rates except in the United States, where they are at historically high levels. On the other hand, in all countries, equity prices appear vulnerable to shocks to expected real interest rates. Leaving expected real dividend growth unchanged at current implied levels, a permanent upward shift of real yields for all maturities by 25 basis points—or a permanent increase in the equity risk premium by a similar amount—can be estimated to result in a fall of equity prices ranging from about 10 to 25 percent depending on the country. If real long-term interest rates returned to their sample average, the expected real growth rate of dividends would need to increase permanently by 1-1/4 percentage points in Canada, Germany, France, and the United Kingdom, and by about 3 percentage points in Italy to sustain current equity valuations.

Calculation of Expected Real Growth Rate of Dividends

The conventional equity valuation model states that the current equity price, $P_t$, is equal to the discounted present value of future dividends expected at time $t$, $D_{t+1}$, where 

$$ P_t = \frac{\sum_{i=1}^{\infty} \left( 1 + g_f \right)^i}{\left( 1 + r_t \right)^i}, $$

where $g_f$ denotes the ex ante real cost of equity capital based on the information available at time $t$. Assuming that expected future dividends grow at a constant rate, $g_f$, such that $D_{t+1} = (1 + g_f) D_t$ for $i \geq 0$, equation (1) becomes

$$ P_t = D_t \sum_{i=1}^{\infty} \left( \frac{1 + g_f}{1 + r_t} \right)^i, $$

where $g_f$ varies over time together with the information set on which the expectation of future dividends is based. This implies the following relationship between the price-dividend ratio ($P_t/D_t$), the cost of equity capital, and the future expected real growth rate of dividends:

$$ P_t = \frac{1 + g_f}{r_t - g_f}. $$

Equation (3) can be solved for $g_f$, after setting the cost of equity capital at time $t$ equal to $r_t + e$, where $r_t$ denotes the ex ante real yield on 10-year government bonds and $e$ is a constant equity risk premium (assumed to be 6 percentage points)?

Assessment

The box figure plots the expected real growth rate of dividends for the period April 1992–May 1999 for all G-7 countries, together with the ex ante real yield on 10-year government bonds. The figure also depicts the expected growth rate of dividends that would be consistent with the observed price-dividend ratio, if ex ante real yields were kept constant at their sample average for the period April 1992–May 1999.

1In Box 3.2 of International Monetary Fund (1998b), similar calculations based on a variation of equation (1) were reported for the United States. There are two reasons why those previous estimates are not comparable with those of this box. First, the cost of equity capital is now expressed in real terms, so that the computed implied dividend growth is "real" and not "nominal." Second, all calculations are now in terms of dividends and not earnings (equation (1) in Box 3.2 implicitly assumed a payout ratio of 1).

2The assumption that expected future dividends grow at a constant rate is an approximation that simplifies the analysis.

3Much empirical research has focused on estimation of the equity premium. Mehra and Prescott (1985) and Campbell, Lo, and Mackinlay (1997) find a risk premium of about 6 percentage points. Different constant equity premia would result in almost parallel shifts of the growth rates shown in the figure, leaving their time-series profile essentially unchanged. By contrast, time-varying equity premia would affect the results of this analysis with effects similar to changes in real yields.

4Price-dividend ratios are computed as the inverse of the dividend yield for each country equity index. On the basis of the availability of a dividend yield series, the indices selected were S&P 500 for the United States, FTSE 100 for the United Kingdom, Nikkei 225 for Japan, and Dow Jones indices for Germany, France, Italy, and Canada. Datastream indices cover a larger set of stocks (200 in Germany and France, 60 in Italy, and 250 in Canada) than the usually reported indices for these countries (DAX, CAC40, COMIT, and TSE) and have similar time-series profiles.
Major Industrial Countries: Expected Long-Term Growth of Real Dividends and Ex Ante Real Yields, April 1992–May 1999

- Expected real dividend growth
- Expected real dividend growth (with real yields at sample average)
- Ex ante real long-term yields

Sources: Datastream; and IMF staff estimates.
Box 2.2 (concluded)

The expected growth rate of dividends obtained by keeping ex ante real yields constant at their sample average follows a marked upward trend in all G-7 countries. This suggests that, if a constant real cost of equity capital were used to discount future dividend flows, current equity valuations would imply expectations of record growth rates of future dividends for the period 1992—99. This conclusion changes when the current low real yield environment is taken into account. Only in the United States is the expected real growth rate of dividends based on current real yields close to historical highs. In the other G-7 countries, current equity valuations appear consistent with dividend growth expectations that are well below past peaks and suggest that the recent surge in equity prices could largely be explained by lower real yields. Conversely, if the real yields reverted to their sample average, the expected growth rate of future dividends would have to increase considerably to support current valuations.

Several studies have recently pointed out, however, that equation (1) can track equity prices and predict future returns reasonably well only with time-varying interest rates once analysts’ earnings forecasts are taken into account (see, for example, Lee, Myers, and Swaminathan, 1999).

Insurance firms, although the accompanying merger and acquisition charges could become a heavy burden to banks as the economy slows.

Bank performance in Canada was also affected by volatility in trading activities, but return on equity remained above 15 percent for most banks, pointing to the soundness of the sector. Growth prospects could, however, be dampened by Canada’s susceptibility to the economic cycle in the Western Hemisphere, and by banks’ limited diversification into other markets. Further consolidation in the domestic market appeared unlikely after regulators blocked two large mergers.

Banks in the United Kingdom that operate mainly in the domestic market had another good year; those banks with a large share of business in Asia, however, faced a decline in profitability (albeit from a high level). Interest margins on domestic operations remained mainly in the 2–3 percent range, and labor costs were well contained. Several factors may put downward pressure on earnings growth in the period ahead. Domestic competition is intensifying, particularly from nonbank financial institutions. Loan losses have already edged up, and the economic slowdown will put further pressure on loan quality (though recent strong profitability will mitigate the effects of a slowdown). Despite recent improvements in risk management, greater reliance on high-margin loans to individuals has raised the cyclical sensitivity of bank income. Prospects for overseas earnings will hinge on the recovery of emerging market economies, notably Hong Kong SAR.

Profitability in most continental European banking systems recently improved as banks have been able to increase noninterest income (though return on equity (ROE) generally remained below 10 percent). Non-interest income was boosted by fees and commissions from a shift of customers into alternative savings products, as well as trading income. Despite some write-offs for emerging market exposures, aggregate 1998 results were favorable in the larger European countries. The aggregate operational income of the four top banks in Germany rose by 14 percent in 1998, following the recovery of asset prices in the last quarter of the year; income from trading accounts increased by 50 percent. Major banks in France enjoyed a second year of improved results (net income for the four largest banks rose by 14 percent), also in large part owing to increased income from trading and a rise in the value of their holdings in nonfinancial corporations in the wake of strong stock-market gains, and despite substantial provisions for emerging market risks. The aggregate return on equity of Italian banks rose from 2.7 percent in 1996–97 to 7.8 percent in 1998. That improvement was underpinned by a 60 percent increase in revenues from fees and other services, and an 18 percent increase in profits from securities trading in 1998.

Low interest margins, large branch networks, and overstaffing continue to burden continental European banks’ profitability. While mergers could help reduce capacity and might raise interest margins, strict labor laws and political considerations still limit the rate at which overstaffing can be addressed. Mergers and acquisitions have accelerated: several major banks have attempted to take over domestic rivals, in what some have characterized as a “quest for national champions,” and numerous European banks have taken minority interests in institutions in other euro-area countries (Annex I). As cross-border mergers pick up, European banks will benefit from geographic diversification. The top insurance companies on the European continent (based in Germany, France, and Italy) have continued to play a prominent role in the unification of those financial systems.

Consumer loans have grown by 15–20 percent a year since 1997.

Banks were quick to increase provisions in the aftermath of the crises in Asia and Russia, notably in France and Germany (Italian banks had small exposures). Also, trade credit by large French and German commercial banks to Russia was largely secured or guaranteed by the respective governments; the exposure of other German banks, notably Landesbanken, varied significantly, and were in some cases considerable in relation to the equity base and earnings capacity.

Italy and France also made further progress toward overhauling their savings bank systems, while similar steps continued to lag in Germany.
European banks continued to strive to raise their capitalization in recognition of the increased risks owing to their larger securities portfolios, as well as the desire to make strategic acquisitions domestically and abroad. For instance, large commercial German banks are still estimated to have sizeable hidden reserves (e.g., 3 percent of assets for one bank), in part because of strength in stock prices in recent years. However, two major banks chose to raise over €6 billion (about 20 percent of existing shareholder liquidity) in outside capital to finance actual or prospective acquisitions abroad. In France, the relatively weak capitalization of major commercial banks remains a handicap, which could be progressively attenuated by further consolidation of net profits and further rationalization of the French banking structure. In Italy, the capitalization of large banks has improved in recent years, notably in connection with foreign investment and privatization. Nonetheless, considering the banking system as a whole, the relatively high stock of problem loans (nonperforming and doubtful loans account for 11.9 percent of total loans) appears to remain a source of weakness for some banks as reflected, inter alia, in the significantly negative free capital of some of these banks.

All major banks in Japan posted losses in fiscal year 1998, owing mainly to large loan loss provisions and charge-offs totaling ¥10 trillion (equivalent to about $80 billion). Net interest revenues were broadly unchanged, and fee income was stagnant. Gains from trading and investment, however, rose by 37 percent, reflecting the volatility of exchange rates and bond yields. Operating costs declined by 2 percent. Several aspects of asset quality were subject to reevaluation, reflecting new disclosure rules and greater recognition of problem loans under the aegis of the Financial Revitalization Laws. At the end of the fiscal year, claims on problem borrowers under the disclosure rules, established by those laws, were estimated at ¥28 trillion (8.8 percent of total loans), against total reserves of ¥16.7 trillion. Major banks’ capital was boosted by public capital injections (¥7.5 trillion) and the inclusion of deferred tax assets (¥7.1 trillion), which together accounted for more than half of Tier I capital.

Several measures helped stabilize the Japanese banking system, but prospects will remain uncertain until the problems of low core profitability and excess capacity are decisively addressed. The passage of laws providing a framework for dealing with problem banks and the provision of ample liquidity by the Bank of Japan were key ingredients to that stabilization, reflected inter alia in the decline of the Japan premium in interbank markets. Both the establishment of an independent Financial Supervisory Agency and the creation of a high-level Financial Reconstruction Committee (FRC), whose chief holds a cabinet-level position, have resulted in important strides toward the reorganization of the sector. The restructuring plans presented by major banks to the FRC, however, by themselves might be insufficient to restore core profitability, and loan disposal remains too slow. Also, incipient corporate restructuring suggests that banks may face years of low credit demand and asset write-downs in connection with corporate financial reorganizations.

Risks and Vulnerabilities

Looking ahead, there are some risks to and vulnerabilities in the U.S. equity market, the major currency markets, and the major banking systems. Lack of comprehensive information about the degree and extent of leverage in the major financial systems, which could amplify and propagate shocks in these markets, complicates an assessment of the risks. There are also risks associated with the Y2K computer problem. The remarkably high level of valuations in the U.S. equity market, reached after a nearly unprecedented period of gains, poses a risk in global financial markets. Three factors have supported past gains in the U.S. equity market: a decline in long-term U.S. interest rates through the end of 1998; robust growth in corporate profits over much of the past few years; and strong inflows of funds. The decline in interest rates has reversed, and rates may rise further in the period ahead. Looking ahead, growth in corporate profits is likely to slow eventually as economic activity moderates to a more sustainable pace. Finally, mutual-fund

———. (1998a), which describes the causes of the rise in equity prices that to many has reached well beyond the justifiable. (See Greenspan, 1999b).

———. (1998b). A competing explanation for the rise in stock prices—a decline in the equity risk premium—is difficult to reconcile with the apparent re-pricing of risk in the fixed-income market.
Box 2.3. Ongoing Reforms in the U.S. Equity Market Infrastructure

Concerns about the sustainability of current equity market valuations in the United States have renewed interest in the ability of the current U.S. equity market infrastructure to withstand the effects of a sudden and sustained correction in equity prices, such as the one experienced during the October 1987 market crash. Post-crash episodes of market sell-offs, such as occurred in October 1997, suggest that structural and regulatory changes have significantly improved the ability of equity market participants to withstand the strains associated with massive market sell-offs.1

What Was Learned from the 1987 Market Crash?

The reports that examined the 1987 crash emphasized several deficiencies in the infrastructure that led to the market collapse.2 For example, the Brady report suggested that the interrelationship of market mechanisms (particularly portfolio trading strategies, and clearing and settlement) was largely responsible for the disconnection of cash and futures markets and problems in handling transactions, and that the major systemic risk was the threat posed to the clearing and settlement mechanisms. The report recommended unifying clearing and settlement procedures for stocks, index futures, and stock options. Other reports also emphasized the role of a re-assessment of fundamental factors (such as corporate earnings potential and risk premia) in driving the sell-off, and recommended specific reforms, such as cross-margining and guaranteeing agreements, to help ease the severe imbalances in financing needs and increased demand for credit and liquidity created by the need to transfer funds across entities during the margin settlement process. A key recommendation was to ensure that market participants maintain adequate levels of capital and abstain from withdrawing during periods of massive sell-offs. In examining market leverage and volatility, some reports acknowledged that margin requirements did not cover all the risks from price movements, but no unified view emerged on whether these needed to be raised.3

The reports agreed that, to reduce processing time and potential default risks, the settlement of all transactions had to be done in book-entry form, reduced to three days, and paid in same-day funds. The reports saw a need to enhance the operational capacity of broker-dealers, specialists, and self-regulatory organizations, as the massive sell-off had clearly overwhelmed the capacity to process trading operations.

What Has Been Done Since the 1987 Market Crash?

Reforms since 1987 have attempted to improve coordination, mitigate deficiencies in the operational capacity

1See International Monetary Fund (1998a), Box 4.1
3The Brady report suggested that margin requirements had to be made consistent between stock index futures, options, and cash stock markets, while the report by the Working Group on Financial Markets concluded that margins for stocks, stock index futures, and options should remain different, and that the benefits of raising them were ambiguous. The report by the Securities and Exchange Commission (SEC) recommended examining equity haircuts for proprietary trading firms. Since most of the failures and financial difficulties during the crash involved this type of firms.

inflows have slowed in 1999 compared with a year earlier, partly reflecting a shift to direct stock ownership. The weakening of these supporting factors implies an increased vulnerability of U.S. equity prices to shocks, including a sharper-than-expected tightening of monetary policy, weaker-than-expected growth in earnings, and a worsening of investor sentiment.

Although a correction in the U.S. market might have domestic origins, it could well have international consequences. According to some estimates, a correction in the range of 15 to 20 percent would have a manageable domestic economic impact, though a sharp slowdown in domestic demand cannot be ruled out.61 Also, measures taken since the 1987 crash have strengthened the infrastructure of the U.S. equity markets (see Box 2.3). Uncertainties about the extent of leverage in the global financial system complicate a broader assessment of the risks, however.62 As the turbulence demonstrated, leverage can magnify small initial disturbances and propagate them across markets in an unpredictable fashion, as margin calls can give rise to adjustments across a range of assets in portfolios. If there is substantial leverage in the system, then a correction in the U.S. equity market could give rise to corrections in financial markets outside the United States, which could

61See International Monetary Fund (1999), p. 22. Some have also suggested that a stock-market correction could put pressure on U.S. firms that have employed debt-financed equity buybacks to raise returns on equity. Also, see Starr-McCluer (1998) for an analysis of the wealth effect in the United States. The macroeconomic effects of a correction (including effects on the value of the dollar) could also give rise to international spillovers.
62Some anecdotal evidence suggests that in the early part of 1999, hedge fund activity picked up and lenders relaxed terms of credit to HILs, including by reducing or waiving maintenance margins.
63In October 1997, turbulence in the Hong Kong SAR equity market appeared to spill over to the U.S. equity market (see Box 4.1 in International Monetary Fund. 1998a).
to process and execute transactions, and reduce financial strains experienced by broker-dealers during periods of market stress. As a result, markets have been able to accommodate the sharp increase in volatility and trading volumes—especially during the October 1997 crash—with minimal delays and disruptions. Market participants have also taken additional safeguards to deal with counterparty and liquidity risk. Clearing and settlement activity for equity trading has been fully centralized at the National Securities Clearing Corporation; settlement cycles have been shortened from five to three business days, and transactions are being settled only in book-entry form, with payments effectuated in same-day funds. Broker-dealers and clearing houses have also raised their capital levels and have established committed credit facilities with banks. Several clearing houses have established cross-margining and cross-guaranteeing agreements among them to ease the strains associated with transferring funds across markets in turbulent times and to withstand the risks posed by the default of a member with large positions across several markets. Regulatory changes have also enhanced market transparency and improved market makers' incentives to maintain orderly and fair market conditions during sell-offs.

The possibility of sharp corrections in the U.S. equity market and in the major currencies adds to the risks facing the major banking systems, as such corrections would no doubt adversely affect banks that are increasingly involved in securities markets. In an environment of growing competition, and as banks’ more creditworthy customers increasingly access securities markets, banks are reaching for yield by expanding into securities or securities-related business. More and more banks lend to HLIs, underwrite securities, and engage in proprietary trading and other investment banking activities, including in the fast-growing OTC derivative markets, where risks are not always transparent. This has tended to increase their exposure to risks in securities markets, against a back-

What Are the Potential Gaps?

Looking ahead, the shape and functioning of the U.S. equity market will be largely influenced by the progress in dealing with a rapidly increasing volume of transactions, by efforts to shorten the settlement cycle for cash transactions and to enhance cross-margining and guarantee agreements across markets, and possibly, by potential actions to arrest perceived systemic risks posed by market participants and transactions outside regulatory oversight. The October 1997 market correction exposed the need for broker-dealers to expand and test their system capacities for peak trading periods, a problem likely to intensify in the period ahead given the upward trend in volume. Cross-margining between futures and equity options still needs to be expanded and some operational and legal complexities solved. Moreover, recent episodes of market turbulence show that risks of contagion across markets are higher, casting some doubts on whether current capital and margin requirements are sufficient leverage limiting instruments. Supporting evidence for increasing margin requirements to fend off excess leverage and volatility remains weak; however, this evidence may be reconsidered if “fat-tailed events” become more recurrent and linked to transactions by market participants outside the regulatory purview of the SEC and the Commodity Futures Trading Commission.

For a complete discussion, see Lindsey and Pecora (1997). The Collateral Management System at the National Securities Clearing Corporation helps clearing houses and their members better monitor collateral at various clearing entities. The Collateral Management System could be used to rapidly locate excess collateral if a member were to default, a major hurdle in the 1987 crash. The SEC established Order Execution Rules for market makers and specialists to display limit orders that improve OTC market makers’ and specialists’ quotes, and also require OTC market makers and specialists (who own more than 1 percent of the daily volume in any listed security) to publish their quotations. The SEC also established penalties for market withdrawals by market makers and amended the net capital rule to prevent capital withdrawals without first notifying the SEC at least two business days in advance.
Box 2.4. Implications of the Y2K Problem for the Major Financial Systems

With the approach of the millennium, concerns that the Y2K problem could affect financial systems in mature markets have heightened.¹ The Y2K problem is a legacy of a computer programming shortcut: to save computer memory, programmers have frequently used two digits instead of four to identify dates (for example, "99" instead of "1999").² As a result, on January 1, 2000, many computer programs and embedded microprocessors may misinterpret "00" as "1900" instead of "2000" and generate errors.³

Most observers agree that banks in the major countries have made important progress in preparing for Y2K. Supervisors in the major countries have pressed the banks that they supervise to test and repair their computer systems, and in many instances have followed up with audits and on-site inspections: various international groupings of authorities have served as forums for cross-border coordination and information-sharing on Y2K issues relating to financial sectors. There have also been active efforts to ensure that important segments of the financial infrastructure, such as the major payments systems, are prepared for the date change, and that the various systems will communicate properly with one another in the year 2000. On June 12 and 13, 1999, a global test involving 34 payments systems that handle the bulk of cross-border cash transactions and banks and financial institutions in 19 countries simulated the first two business days of 2000; the test reportedly went smoothly.

Progress and transparency about preparations have been uneven in the emerging markets and in the nonfinancial sector, and problems in those sectors could impact mature financial markets. Recent surveys have found that even some of the major nonfinancial corporations in the industrial countries have lagged in testing and repairing their systems. Preparations have also reportedly lagged in some of the emerging market banking systems (though some emerging market systems have kept pace with the mature markets). More generally, the relatively limited information about progress in Y2K preparations outside the mature market financial systems, and the heavy reliance of such information on self-assessments, raise some concerns in and of themselves.

There are also risks that market participants could react adversely to perceived Y2K problems. Already, in June 1999, there are suggestions of market nervousness about the run-up to the year 2000. In the futures markets, December 1999 funds in U.S. dollars and other currencies now command a larger-than-usual premium over September 1999 and March 2000 funds. Japanese banks have begun to borrow one-month money-market funds deliverable at mid-December 1999 at a premium of about 30 basis points above the current unsecured call money rates, including from Japanese life insurers. There were also mounting concerns about securities markets, including concerns that securities investors might shun credit risk (including below-investment-grade bonds and emerging market securities) during the second half of 1999.⁴

In view of these risks and the limited remaining time to correct problems in computer systems, market participants and authorities have recently devoted increasing efforts to contingency planning. National authorities in the major countries have urged financial institutions to formulate and implement business continuity and contingency plans, and national authorities and international groupings have noted the need for authorities to make contingency plans as well. The Joint Year 2000 Council—composed of senior representatives of the Basel Committee on Banking Supervision, the Committee on Payment and Settlement Systems, the International Association of Insurance Supervisors, and the International Organization of Securities Commissions—has emphasized the importance of contingency plans to manage possible liquidity pressures.⁵ Recently, a number of central banks have announced contingency plans to ensure adequate supplies of currency and bank liquidity around the turn of the century. Also, in April 1999, the Global 2000 Coordinating Group (private market participants representing 432 institutions in 65 countries) launched a global contingency planning effort, with support from central banks and regulatory authorities.⁶

¹See also International Monetary Fund (1999), Box 1.2.
²Computer software that appears to use non-Gregorian calendar dates may be susceptible as well, since some software internally converts such dates to Gregorian dates.
³Failures may also occur around other critical dates, including the first day of fiscal year 2000 and on September 9, 1999 (since "9999" is sometimes used to indicate errors in computer programs), and on dates well after January 1, 2000 (see Marcoccio, 1999).
⁵Joint Year 2000 Council (1999).

Ground of growing concentration amid merger activity. Each banking system also has specific vulnerabilities. In the United States, there have recently been signs of some deterioration in credit quality. There are also signs that, following a sharp decline in ROE in 1998, banks are attempting to resist a further deterioration in ROE by taking on more risk. According to a recent Federal Reserve survey of senior loan officers, a rise in securities yields relative to the cost of funds and a willingness to employ increased leverage led U.S. banks to increase their securities holdings in the fourth quarter of 1998. In continental Europe, labor market rigidities are preventing banks from fully reaping the benefits of the wave of mergers sparked by EMU. Also, the introduction of a common monetary policy in the euro area may result in overheating in...
some of the relatively smaller economies. In these economies, special attention is needed to prevent credit growth from leading to a deterioration of credit standards and portfolio quality and, more generally, to excessive risk-taking. In Japan, although much has been done to stabilize the financial system, the challenge of restoring its long-term viability has not yet been fully addressed. In the meantime, the major banks remain weak, and face years of low profitability owing to weak credit demand and continued write-downs of assets. In these circumstances, banks in these countries may be vulnerable to shocks, including shocks to capital markets, a deterioration of credit quality stemming from weaker-than-expected economic activity, and (in view of the still-considerable exposures) renewed turbulence in emerging markets.

Banks and other financial institutions also face risks from the Y2K computer problem (see Box 2.4). These include both technical risks—the risk of operational failures—and the risks of an adverse shift in market behavior. The risks of operational failures within banks may be minimal in view of the considerable pressure from supervisors and the substantial progress that has been reported. However, nonbank counterparties and borrowers are probably less prepared, particularly in countries where authorities have not actively encouraged the private sector to prepare. Banks could face substantial credit losses if a major borrower or counterparty became bankrupt, and could face a liquidity squeeze if operational problems led to delays in payments.

Liquidity squeezes could also arise from an adverse change in market behavior in reaction to Y2K risks, even in those markets where adequate technical preparations have been implemented. In reaction to a perceived increase in risks (rational or not), households may withdraw cash, or shift funds to banks that are viewed as safest; banks could withdraw riskier credits and seek to hold only the safest and most liquid assets through the end of 1999 (with the effect that, e.g., smaller financial institutions and emerging market borrowers might have difficulty obtaining funding through the year-end); and securities markets might experience a “flight to liquidity” similar to the episode during the turbulence.64 Central banks in the major countries are well aware of these risks and of the need to be watchful in the run-up to the year-end for signs of tensions in their markets and institutions; some have also announced explicit contingency plans to manage liquidity risks related to Y2K.65

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64As early as March 1998, December 1999 eurodollars commanded a significant premium compared with September 1999 or March 2000 eurodollars. A similar rise in turn-of-the-year premia was also evident in the other major currencies.

65For example, in May 1999 the Federal Reserve proposed the creation of a special facility (the Century Date Change Special Liquidity Facility) that would lend to depository institutions on special terms around the turn of the year.


The turmoil that began as the "Asian crisis" in 1997 spread far more widely in 1998 as the pattern of rolling crises continued. After the substantial turmoil experienced in late 1997, the outlook for emerging markets appeared to improve in early 1998 and suggested that the crisis might perhaps be contained in Asia. However, pressures reemerged and were reflected in a slowing of gross capital flows, a rise in bond yield spreads, and a fall in equity prices. The situation worsened following the devaluation and unilateral domestic debt restructuring in Russia. Fears that similar defaults could occur in other emerging markets resulted in a full-blown emerging market crisis, exacerbated by the turmoil in the mature markets around the near-failure of LTCM. In Latin America, pressures on the Brazilian real intensified and culminated in the devaluation in January 1999. However, the devaluation did not have major or long-lived effects on other emerging markets, reflecting the deleveraging that had occurred in late 1998 and the growing expectation that an exchange rate adjustment would eventually be necessary in Brazil.

There was a recovery in emerging markets in the first half of 1999 following the Brazilian devaluation. By mid-1999, the pressures on emerging markets appeared to have lessened somewhat, and market access for the higher-rated emerging market borrowers had improved from the anemic levels of the second half of 1998. Nonetheless, yield spreads remain high. International markets remain closed for many corporates, and the weakness in May of expectations regarding U.S. interest rate increases illustrates the sensitivity of emerging market asset prices to developments in the mature markets. Further, trading volumes in emerging market bonds and foreign exchange are now much lower than prior to the crisis, as leverage has been cut back and many investors have retreated from the market, leaving both a smaller pool of "dedicated" emerging market investors and fewer "crossover" investors. There have also been cutbacks in the number of market makers, and price volatility and bid-ask spreads have increased relative to their levels prior to the Asian crisis.

The crises seen in Asia, Russia, and Brazil were both causes and symptoms of a reassessment of risk in emerging markets. The large capital inflows into emerging markets in the 1990s were predicated on, and helped to strengthen, the perception that emerging markets represented a near-mainstream asset class that was suitable for many investors. By early 1997, this perception had resulted in yield spreads on emerging market bonds that were unreasonably low. As weaknesses in emerging markets were revealed, yield spreads increased, and net flows to emerging markets slowed and then reversed. To some extent, this reassessment of risk in emerging markets is appropriate. It remains to be seen, however, how much yield spreads will fall from current levels and how much flows will pick up from their current low rate.

The spillover effects associated with the recent emerging market crises are larger and more complex than those seen in earlier periods of turmoil. In part, this contagion was the result of common external shocks, wake-up calls about common domestic weaknesses, and macroeconomic linkages. But financial linkages have proven stronger and more complex than in earlier periods, and they have increased the rapidity with which shocks are reflected in asset prices. Moreover, the portfolio decisions of market makers and large global players, including those that operate with a high degree of leverage, have often played a key role in determining short-term movements in asset prices. By contrast, the role of traditional "fundamentals" in short-term price movements sometimes appears quite modest. As an example, while the falls in asset prices in the turmoil of August and September of 1998 certainly reflected a reassessment of credit and other risks, this initial impact was magnified substantially by the subsequent drying up of market liquidity.

The continued turmoil in emerging markets has resulted in some noteworthy changes in investor and issuer behavior. As investors' appetites for emerging market assets have fallen, they have shown a clear preference for assets with reduced credit risk and enhanced liquidity. As a result, the proportion of emerging market bonds sold without credit ratings was far lower in early 1999 than it had been in 1997. Further, the average credit quality of new rated bonds is now substantially higher, as more issuers have sought to enhance the credit quality of their bonds through asset backing and as investors have shown a preference for sovereign over private sector issuers. In this context, Japan's New

1 See also IMF (1999a) for a further discussion of financial contagion.
Miyazawa Initiative, which provides guarantees for bonds issued by Asian emerging markets, will be helpful in facilitating market access. The difficult market conditions of the last year have also encouraged innovation in issuance policy. Emerging market borrowers have looked for new ways to make their issues attractive, by attaching warrants and other "sweeteners" and enhancing the liquidity of their issues by reopening existing issues and issuing securities with stepdown coupons that will later become fungible with existing issues. In addition, the reluctance of banks to weigh down their balance sheets with low-yielding syndicated loans means the terms and conditions in this sector are becoming more like those in the bond market.

The losses experienced on emerging market assets in 1998 were reflected in a further sharp contraction in private market financing for emerging markets. Balance of payments data suggest that private net capital inflows fell in 1998 to levels not seen since 1990, while gross private market financing flows fell back to the levels of 1994-95. Most types of inflows fell, although foreign direct investment remained fairly stable. International banks continued their withdrawal of funds from emerging markets, imposing severe strains on domestic banking systems.

The turbulence in global markets imposed severe pressures on most systemically important emerging market banking systems, but most systems outside Asia weathered the consequences of capital outflows reasonably well. Many Asian and Latin American banks experienced substantial cuts in international interbank credit lines and losses in international repo lines, but their deposit bases proved resilient to the turbulence in the second half of 1998—in many cases aided by extensive government guarantees. In most countries, banks magnified the transmission of the external liquidity squeeze to local capital markets and the real economy, as they scrambled to restore the liquidity of their balance sheets, shifting funds away from the corporate sector and into government securities. In addition to the losses on their securities portfolios, banks were hit by increased delinquencies in their loan portfolios owing to a deteriorated operating environment. While most banks in emerging Asia remained focused on restructuring their bad loans and restoring their capital bases, the largest banking systems in Latin America have shown an enhanced ability to withstand the external liquidity squeeze. The healthiest banking systems in emerging Europe have continued to attract sizable capital flows and to expand credit to a fledgling corporate sector, as competition grows and foreign banks contribute to a more stable and efficient financial environment.

Despite the resilience of most emerging market banking systems to the recent bouts of market turbulence, some risks remain. The lack of progress in corporate debt restructuring in Asia represents one of the key risks to the strengthening of banks’ balance sheets in the region, and may require additional rounds of bank recapitalization. In Latin America, the pronounced slowdown in economic activity has not yet been fully reflected in banks’ balance sheets. Moreover, the banks’ conservative behavior toward lending—combined with the corporate sector’s loss of access to international capital markets—has continued to squeeze the small and medium-sized enterprises, which have all but lost access to private credit, particularly in Argentina and Mexico. Smaller and weaker banks in some countries are facing the double strain of a deteriorated environment and competition from foreign banks, and are likely to have to exit the market. While the authorities have so far managed the failures of weaker banks with no adverse effects upon the rest of the systems, market participants view the likely acceleration of the consolidation process in a weak economic environment as a source of concern. In Poland and Hungary, the rapid growth in foreign currency loans to generally unhedged corporates is a potential risk, but this is counterbalanced by the stability offered by high foreign ownership and the ongoing improvements in supervision and regulation prior to EU accession. In Turkey, analysts remain concerned about banks’ foreign currency mismatches, the concentration of intragroup lending and guarantees, and the health of some weak institutions.

Financial Market Developments

Evolution of the Crisis Through 1998 and Early 1999

In the early part of 1998, it appeared that the emerging markets were beginning to recover from the Asian crisis, and from the October 1997 turmoil in Hong Kong SAR and other equity markets. A modest recovery in Asia—where Korea and Thailand saw increases of over 60 percent in U.S. dollar terms in equity prices in the first quarter—suggested that the crisis might perhaps be stopped from spreading beyond Asia. This rally reflected the improving outlook in Korea, which—after substantial downgrades in late 1997—was upgraded by two of the major rating agencies in February 1998 as the external debt restructuring and IMF-supported program bolstered confidence. Indonesia was a notable exception to the improving outlook, with the rupiah remaining extremely weak against a background of economic policy weaknesses and continuing civil unrest that eventually saw the resignation of President Suharto in May.

The nascent recovery came to a halt in May and the outlook began to worsen through the middle of the year. While the worsening situation in Russia was an

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element of the deterioration in sentiment, there was a more general reevaluation by investors of risks in the global economy, especially in Asia. The worsening outlook reflected larger-than-projected output declines in a number of Asian emerging markets and continuing weakness in Japan, which contributed to a depreciation of the yen and to pressure on other Asian currencies. More generally, weakness in oil and other commodity prices was seen as having an adverse impact on the balance of payments positions of a number of emerging market countries, with South Africa hit especially hard. The result was both a sharp across-the-board increase in yield spreads and increased pressure on some of the more vulnerable emerging markets, especially Russia. In the emerging markets, this reassessment pushed bond yield spreads (as measured by the J.P. Morgan EMBI index)3 from about 450 basis points in late April to about 780 basis points in early August (Figures 3.1 and 3.2).

The combination of the debt restructuring, devaluation, and moratorium on private principal repayments announced by Russia on August 17 came as a major shock to emerging market investors (see Box 3.1). Investors were particularly surprised by the decision to restructure domestic debt—on terms that were viewed as extremely harsh. But market participants were also surprised that such measures could be introduced in a country that had previously been viewed as likely to receive continuing support from the major industrial countries and international financial institutions notwithstanding its weak fundamentals. The Russian measures appeared to make it more likely that other countries might also adopt similar policy actions and led to a major reassessment of risk in other emerging markets.

The impact of the policy changes on Russian asset prices was dramatic. Within 10 days the exchange rate had depreciated from Rub 6.2 per dollar through the new lower band of Rub 9.5 per dollar, and by December it traded through Rub 20 per dollar: as of end-June 1999, the rate stood at about Rub 24 per dollar. The price of the benchmark 2007 eurobond fell to as low as 7 cents on the dollar in early October, implying a yield spread of about 5.000 basis points. The prices of debt instruments that were viewed as less senior—the domestically issued “MinFin” bonds, and the restructured London Club “IAN” notes and “PRIN” loans—were hit even harder as their repayment came even more into question. And the Russian equity market, the world’s strongest in the first three quarters of 1997, fell in October 1998 to a level (in dollar terms) about 95 percent below its October 1997 peak.

The fall in the prices of Russian assets had major effects on the balance sheets of investors and market makers in Russian assets. Several small or medium-sized hedge funds encountered financial problems and were unable to meet margin calls.4 Some institutions incurred losses when Russian banks were unable to de-

3In light of the substantial difference in levels of yields in Russia and elsewhere, and the impact of this difference on indices of bond yields, all references to the J.P. Morgan EMBI yield spread are to the index excluding Russia.

4The losses of the larger hedge funds tended to be relatively small. In the case of LTCM, the firm’s losses were not primarily in Russia or other emerging markets. Only 16 percent of the total loss in August (44 percent of net assets) was on emerging market assets, with just under 10 percent of the loss on Russian instruments.
Liver on forward contracts on the ruble, or when Western banks refused to deliver, claiming that the policy actions of the Russian government constituted a form of *force majeure*. As losses on holdings of Russian securities were revealed and market volatility increased, many leveraged investors began to face much higher margin calls from their creditor banks. Further, risk management systems in many investment banks require higher asset price volatility to be supported by higher capital charges against trading activity or reductions in trading positions in assets whose perceived riskiness has increased. In many cases, the decision...
Box 3.1. Russia: The Feeding Frenzy

The actions announced by the Russian government on August 17, 1998, came as a major surprise to the financial markets, even though Russia had been downgraded by one rating agency (Moody’s) in March 1998 and then by all three major agencies in May or early June, and despite the fact that yields on Russian securities clearly reflected a substantial default risk. In explaining their large positions in Russian assets, market participants have typically noted that they relied on the proposition that Russia was too important a country for the major industrial countries and the international financial institutions to allow it to collapse. In this sense, moral hazard clearly played a role in the buildup of claims on Russia in a way that cannot realistically be said for any of the other crisis countries. But in addition to (or in combination with) this moral hazard, there is also clear evidence that Russia represents a case where many investors bought securities that they did not fully understand, and where they did so in the face of developments that should have raised concerns.

Between March 1998 and July 1998, there was an enormous buildup in the outstanding stock of sovereign Russian eurobonds. This buildup, which added to the large positions of nonresidents in GKO’s and OFZ’s (ruble-denominated domestic government securities) and other Russian instruments, reflected five separate bond issues: one in March, one in April, two in June, and one in July as part of the GKO exchange. As a result, the stock of eurobonds rose from $4.6 billion to $15.9 billion in just five months. What is notable is that these bond sales and massive growth in nonresidents’ holdings of Russian assets occurred in the face of downgrades in Russia’s credit rating and in sharp increases in yields that indicated a substantial probability of default (see also figures and Annex V, on the review of ratings during the crises). For example, before the first issue of 1998 in March, the yield spread on the benchmark June 2007 bond stood at about 470 basis points. By late June, when the outstanding stock of eurobonds had risen from $4.6 billion to $9.4 billion, the yield spread had increased to about 750 points, and Russia was rated four notches below investment grade by Moody’s and Standard & Poor’s. By late July, after the issuance of a further $6.4 billion of bonds in the debt exchange (or $4.8 billion at market value, since the bonds were issued with submarket coupons) the yield spread had risen to around 900 points. By August 14, just before the announcement of the devaluation and debt moratorium, the yield spread had risen to about 1,800 basis points and Russia was rated by the two leading agencies as five or six notches below investment grade.

was to decrease trading positions. This combination of external and internal margin calls contributed to contagion, a self-off in a broad range of emerging market securities, and a sharp spike in yield spreads.

The combination of reduced liquidity in emerging markets and concern that other countries might follow Russia’s lead resulted in major losses in all emerging market assets as spreads blew out. In addition, the imposition of capital controls by Malaysia on September 1 raised new concerns about the transfer risk associated with emerging market securities issued by even fairly highly rated coun-
was that GKO holders expected that they would make large capital gains as GKO yields fell when others tendered their holdings and reduced the outstanding stock. Market participants talk of “feeding frenzies” at the time of new Russian issues, and of demand from a wide range of investors with little knowledge of Russia. Indeed, one eurobond issue— the April issue of Lit 750 million ($420 million) in five-year bonds— was targeted at Italian retail investors seeking the high yields that had been previously available on Italian debt. And in the case of the London Club debt, the number of holders of the restructured notes (IANs) and loans (PRINS) had grown from about 400 “traditional” creditors (mostly banks) at the time of the original agreement to several thousand, many of which had little understanding of the legal nature of the instruments they held. The widely dispersed holdings of these instruments and the lack of understanding of the inherent risks was reflected in difficulties in contacting and seeking agreement among creditors in the negotiations over the London Club debt in late 1998 and early 1999. Similarly, some investors in MinFins (domestically issued dollar-denominated debt) appear to have lacked a full understanding of their legal status, including the jurisdiction in which they were issued.

A range of other Russia-linked securities were also offered in the first half of 1998 by other issuers. These included euro-ruble issues (notes with principal and interest payments payable in dollars, but based on the value of the rouble) from several supranational institutions (the International Finance Corporation, European Bank for Reconstruction and Development, and Inter-American Development Bank) that were sold to yield-seeking investors (and which were swapped to provide low cost dollar financing to their issuers). There were also rouble-linked notes such as a May 1998 issue by an Italian investment bank of Lit 750 billion of 10-year bonds that yielded an above-market coupon of 6.4 percent, but with a clause that the coupon would go to zero in the event of a Russian default: the clause was triggered in August 1998, and holders were left with a zero-coupon bond worth only about 60 percent of face value. More generally, there was a whole range of structured notes with payments linked, sometimes with leverage, to the payment flows on GKO s and other Russian securities. The large falls in prices of these securities, the disappearance of a market in many cases, and the legal uncertainty over some instruments contributed to the deterioration in sentiment for other emerging market assets following the Russian default.5

tries.5 The yield spread on the J.P. Morgan EMBI index rose from 587 points at end-July to as high as 1,610 points on September 10. Across a wide range of emerging markets, yield spreads reached levels not seen previously in this decade (although—due to its heavy weighting of Latin American countries—the EMBI spread remained just below its peak in the Mexican crisis). Countries that were hit the hardest—including Bulgaria, Ecuador, and Venezuela— included some that were viewed as being most susceptible to pressures similar to those that had faced Russia. However, other countries also saw massive yield increases: for example, Korea and Mexico both experienced a doubling in yield spreads to about 1,000 basis points. Pressures on the emerging markets of Central Europe tended to be fairly modest, reflecting the substantial economic differences relative to Russia. Emerging market equity prices also tumbled, resulting in a 28 percent fall in the all-country IFC index, the largest monthly fall on record (Figure 3.3).

Latin American stock markets were hardest hit—most notably, Brazil and Venezuela—with Asian markets falling by less.

In the wake of Russia’s problems, market participants turned their attention to other emerging markets with large financing needs and/or fixed or managed exchange rates that were perceived as being vulnerable, most notably Brazil. While the Brazilian banking sector was clearly far stronger than the Russian one, and Brazil had a long history of full domestic debt service including in difficult conditions, the large amount of Brazilian short-term domestic debt raised issues that were similar in some respects to the Russian case.6 One aspect of concern in Brazil was the effect on fiscal sustainability of having so much of the domestic debt carrying yields that were indexed to the overnight interest rate or to the exchange rate. There was also substantial speculative pressure on the Hong Kong dollar, which had been subject to periodic pressure for almost a year, and on the Argentine peso (Figure 3.4). In the case of Hong Kong SAR, the vulnerability stemmed from its being—with China—one of the last large Asian economies to have a fixed exchange rate. As is discussed in Chapter V, one of the authorities’ responses to this period of pressure and to the so-called “double play” on the equity and money markets was their nonstandard intervention in the domestic equity and derivatives markets. With the assistance of a rally in stock markets outside of Asia and the deleveraging that followed the Russian crisis and the LTCM episode, the Hong Kong SAR market rose and the authorities’ intervention proved successful. The speculative pressures on Hong Kong SAR were, however, associated with pressures on a number of other currencies in the wider region. These pressures on the South African

5See IMF (1998b) for further details of the debt maturity profiles of Brazil and Russia.

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Figure 3.3. Total Return Equity Indices: IFC Global and S&P 500
(U.S. dollar terms, June 6, 1997 = 100)

Source: Bloomberg Financial Markets L.P.

The post–Russia contagion in emerging markets eased somewhat from around September 11, following statements by the IMF and some of its major shareholders that they stood ready to extend support to Brazil or to other Latin American countries that were implementing strong economic programs. Stock markets recovered somewhat, and yield spreads fell, although international markets remained essentially closed to new issuance by emerging market borrowers. The recovery was interrupted, however, by the turmoil in mature markets in early October and the near-failure of LTCM. Nonetheless, the spike in emerging market bond yields was less extreme than after Russia’s unilateral debt restructuring. Subsequently, pledges of support for emerging market countries from the international community at the IMF/World Bank Annual Meetings and the reelection of Brazilian President Cardoso eased pressures. On Oc-

Figure 3.4. Forward Exchange Rates for the Hong Kong Dollar and Argentine Peso
(12-month forward exchange rate divided by spot rate)

Source: IMF staff calculations based on data from Bloomberg Financial Markets L.P.

Data for Argentina are not available prior to September 1998.
In October 20, an agreement between the IMF and Brazil on the target fiscal deficit was announced, and on November 13 an agreement was announced on a support package of up to $41 billion from the international community. These indications of financial support for Brazil and the accompanying policy measures helped significantly in easing the pressures on emerging markets.

The enormous pressure on emerging markets in August and September of 1998 resulted from the combination of a contraction in liquidity and a reassessment of credit risk. The trigger for the crisis was, of course, the Russian devaluation and debt moratorium, with its implications for a potential wider reduction in emerging market creditworthiness. However, the factor that transformed the shock into a major crisis was a generalized pullback in market making and risk taking in emerging markets. Box 3.3 presents some evidence on the reduction in liquidity in emerging bond markets. More generally, the movements in emerging market yield spreads over the last couple of years appear to be far larger than can be explained by any reasonable estimate of the change in average credit quality of emerging markets (Figure 5.5). For example, the majority of countries with long-term foreign currency debt ratings as of May 1997 had experienced no net change in their credit rating as of May 1999 (Figure 3.5). 7 Further, one- or two-notch rating changes over this period were divided equally between upgrades and downgrades. There were of course a number of larger downgrades of three–six notches in magnitude—Indonesia, Korea, Malaysia, Moldova, Romania, Russia, Thailand, and Venezuela—with no corresponding large upgrades. Further, the countries experiencing large downgrades accounted for a substantial proportion—about 26 percent—of total private market financing in 1996–98. As a result, the average credit quality of rated emerging markets (using total financing as weights) declined by about 1½ notches between May 1997 and May 1999, from strong Baa3 to Ba1.

Emerging markets recovered substantially during the fourth quarter of 1998, amid easings of official interest rates in most industrial countries and agreement on a program between the IMF and Brazil. For the quarter as a whole, emerging market equity prices (as measured by the International Finance Corporation (IFC) all-country index) rose 18 percent in U.S. dollar terms, with Asian equities rising 42 percent and Latin America gaining 8 percent. Within Asia, the largest increases were seen in Korea and Indonesia, where equity prices rose by about 125 percent in the quarter. As market sentiment improved, market access for higher-rated emerging market borrowers began to improve, although, as described below, innovative structures were required to attract investor interest. Further, emerging markets remained very sensitive to developments in mature markets, and the first large bond issues did not occur until November 18, the day after the U.S. Federal Reserve cut its target for the federal funds rate to 4.75 percent, the third cut in two months, and less than a week after the announcement of agreement in principle over a large international financing package for Brazil. Amid this positive news, emerging markets were little affected by the deteriorating situation for several of China’s international trust and investment corporations (ITICs), which first became apparent following the October 6 announcement by the People’s Bank of China that it was closing Guangdong ITIC (see Box 3.4). Indeed, these problems did not prevent a $1 billion sovereign bond issue by China in December.

A further shock to emerging markets occurred early in 1999 with the devaluation—and subsequent float—of the Brazilian real. While international support for Brazil had been helpful in safeguarding emerging markets from further shocks in late 1998 when markets were in an extremely fragile state, sentiment concerning Brazil remained weak going into 1999. Against a background of delays in the passage of fiscal reforms, the trigger that led to the renewal of pressures on the real was the news on January 6 that Brazil’s second-largest state (Minas Gerais) was declaring a moratorium on its debt pay-

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7 See Chapter V for further information on the credit rating industry, including the limitations on the use of ratings as measures of absolute (rather than relative) creditworthiness.
Box 3.2. The Activity of Highly Leveraged Institutions in Pacific Rim Currencies in 1998

The speculative pressures experienced in Hong Kong SAR in 1998 (see also Chapter V) were also felt in other countries that saw substantial speculative activity by hedge funds and other leveraged players. Other currencies experiencing large hedge fund trading at various stages in 1998 included the Australian dollar, the New Zealand dollar, and the South African rand, in addition—as is discussed in Chapter II—to the Japanese yen.

Short hedge fund positions were built up in the period leading up to mid-1998 against currencies that were seen as “surrogates” for the less liquid Asian emerging currencies. In addition to views on commodity prices and on the vulnerability of some countries, positions against some of the targeted countries reflected the desire to take short positions against certain Asian emerging markets. However, reflecting the thinness of the foreign exchange markets in most of emerging Asia in the wake of the Asian crisis, it was impossible to put in place large short positions on these currencies. Leverage investors therefore put positions on the more liquid currencies in the region, including the Australian dollar, the Hong Kong dollar, the New Zealand dollar, and the Singapore dollar, with the absence of any capital controls facilitating the establishment of short positions on the first three currencies. Hedge funds were also seen at times taking short positions against the Canadian dollar and the South African rand.

Discussions with market participants suggest that speculative positions in some of these currencies in mid-1998 were quite large and highly concentrated, with unconfirmed estimates suggesting that total positions of more than 5 percent of annual GDP may have occurred against some countries. Of course, given the relative magnitudes of foreign exchange trading and GDP, even a position this large in terms of GDP may represent less than one day’s average total (i.e., spot, forward, and swap) turnover in the foreign exchange market. In terms of client business (i.e., excluding interbank dealing), the positions would seem substantially larger, and may represent several days of normal turnover. A comparison with final client turnover may be more relevant, since this may give a better indicator of a market’s ability to digest a given position without a large price impact.

A surprising feature of the market reaction to the Brazilian devaluation was the limited negative impact on Brazilian assets and the limited spillovers elsewhere in the region. For example, Brazilian stock prices (in domestic currency terms) fell 31 percent between January 6 and January 14, before surging on the float of the real on January 15, and by January 20, the stock market had more than recovered its losses in domestic currency terms. And, after initially falling about 23 percent (its yield spread increasing by 440 basis points), the price of the benchmark Brazilian eurobond had fully recovered its losses by mid-Febru-

1 A comparison with final client turnover may be more relevant, since this may give a better indication of a market’s ability to digest a given position without a large price impact.
ary. Spillovers into Latin American markets were moderate, except in the case of Argentina. While other major Latin American stock markets generally fell only by about 10 percent, the stock market in Argentina (which has relatively strong trade links with Brazil) fell 23 percent, and did not regain its pre-Brazilian crisis level until early April. Spillovers in bond markets were also relatively modest, and the spike in emerging market yields was much smaller than had been seen after the Russian crisis (Figure 3.2). However, a notable exception was Argentina, where yields as of end-June still had not returned to their previous levels: this may partly reflect the substantial bond issuance over this period. The effects of Brazil on emerging markets outside the region were also fairly muted.

The pattern of limited and short-lived effects on asset prices both in Brazil and in other emerging market countries suggests that the eventual collapse of the Brazilian band regime—if not its timing—had been well anticipated by markets and that positions had already been adjusted, thus limiting the contagion following the event. Indeed, data for exposures of mature market banks indicate that credit exposures to Brazil were trimmed substantially in the second half of 1998, and the earnings figures announced by domestic Brazilian banks in the first quarter of 1999 would suggest that some of these had actually managed to put large short domestic currency positions in place. Further, the deleveraging that had occurred in the second half of 1998 reduced the amount of speculative capital that could propagate the Brazilian shock into other markets. In addition, the Brazilian banking system was viewed as being relatively strong and to have been hedged with regard to exchange rate changes, providing confidence in its ability to withstand a devaluation.

However, the muted reaction to the Brazilian devaluation was helped also by the benign international markets situation in which it occurred. For example, U.S. equity prices had risen nearly 30 percent over the

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4International banks active in the nondeliverable forward market (NDF) also made large profits by arbitraging between onshore and implied NDF yields. See Box 3.5 for a brief description of the NDF market.
Box 3.3. The Decline in Liquidity in Emerging Market Bonds and Foreign Exchange

In the wake of the Russian unilateral debt restructuring and the near-failure of LTCM, there has been a sharp cutback in the willingness of market participants to take positions in emerging market assets. Many hedge funds and proprietary trading desks either have chosen to reduce their activity in emerging markets or have been forced to do so by the reduction of credit lines. In addition, "crossover" players (investors who specialize in investment grade instruments from mature markets, but who are also able to hold positions in emerging market securities) also have a sharply reduced appetite for emerging market assets. Several investment banks have closed down their emerging market trading desks, while most of the others that continue to operate have reduced the capital devoted to this activity and therefore now take smaller positions in emerging market assets.

This trend is confirmed by data showing a sharp fall in trading turnover. Data from a survey by the Emerging Markets Trading Association suggest a sharp fall in trading in the third and fourth quarters of 1998, with the turnover of responding firms in the first quarter of 1999 down around 66 percent from its peak level in the fourth quarter of 1997. While a part of this decline is due to falls in the prices of emerging market instruments (and perhaps also to changes in survey coverage), it is clear that there has been a sharp pullback in trading and market-making in emerging market instruments. Market participants report an even larger fall in the repo market for emerging market securities, repos having been used to finance the purchases of many investors. Market participants reported gains in turnover in the second quarter in both bond trading and repo activity, but volumes remained far below earlier peaks.

The reduction in liquidity and the greater day-to-day price volatility has shown up in larger bid-ask spreads in emerging market instruments. Data for bid-ask spreads for emerging market bonds (measured as the monthly average of the daily median spread for some benchmark bonds) are shown in the figure. The data suggest that bid-ask spreads in emerging markets were at their lowest in September 1997, around the time that price volatility in emerging market bonds and yield spreads on emerging market bonds and U.S. high-yield debt also touched their lows. Bid-ask spreads peaked in September 1998 in the post-Russian turmoil at levels eight or nine times their levels a year earlier. While they have since declined—with a hiccup around the Brazilian devaluation—bid-ask spreads in mid 1999 remained about three times higher than the levels of September 1997.

The decline in liquidity has also shown up in a smaller number of firms that are active in the primary issuance of emerging market securities. As a result of the reduced competition and the higher price volatility in emerging market assets, fees paid by issuers have increased.

There has been a substantial reduction recently in liquidity in some sectors of the foreign exchange market. There has been a sharp decline in the volume of trading in Asian and European emerging market currencies, with the withdrawal of many market makers in central Europe, the nondeliverable forward market—which exists mainly for position taking—has been especially hard hit, with a much smaller contraction in onshore spot markets. However, in the case of the crisis-affected countries, liquidity has recovered somewhat from the thin levels in the midst of the crisis. For example, in May 1999 bid-ask spreads in Thailand, Indonesia, and Brazil had fallen by between 60 and 90 percent from their levels during the respective crises. Nonetheless, spreads remain much higher than the levels that prevailed under the previous managed exchange rate regimes.

preceding three-month period, and global interest rates were low. Furthermore, one rating agency had placed Korea under review for possible upgrade in December 1998, while the other two major agencies actually upgraded Korea less than two weeks after the Brazilian devaluation. Malaysia and Thailand were also upgraded around this period.

As a result of the overall favorable global environment, strengthening oil prices, and improving macro-economic conditions in a number of key emerging markets, markets rallied in February–April, and the issuance drought following the Brazilian shock was relatively brief (Figure 3.7). In the first six months of 1999, emerging equity markets (as measured by the IFC Investable Index) rose by 37 percent, with the Asian index rising 52 percent and the Latin American index rising 31 percent. Korea, Indonesia, and Russia showed some of the largest rises, each rising by more
EMERGING MARKETS: EXTERNAL FINANCING CONTRACTION AND IMPACT ON FINANCIAL SYSTEMS

Box 3.4. The Collapse of GITIC

Concerns over the financial condition of China's international trust and investment corporations (ITICs) came to a head in October 1998 with the closure of Guangdong ITIC (GITIC) by the People’s Bank of China for failing to meet its debt obligations. GITIC, which was declared bankrupt in January 1999, had total liabilities of about $4.7 billion, about half of which had not been registered. Press reports in April 1999 indicated that creditors could expect to receive back only around 17 percent of the face value of their claims. About $3.9 billion of liabilities were external, and the authorities have announced that the claims of external creditors will be treated in a similar fashion to domestic creditors. Foreign creditors have complained, however, about the lack of transparency and of creditor consultation in the liquidation process.

Over 200 ITICs were established over the last two decades by central and regional governments. These companies played an important role in terms of raising funds (mainly in foreign markets in the case of about 20 large ITICs), making loans and investments (including in property development), and conducting securities operations. Their growth occurred with limited supervision and under substantial pressure for policy-related lending from their owners. The resulting weaknesses in governance have been exacerbated by the weak health of the state enterprise sector.

The closure of GITIC has provided a clear indication that creditors of ITICs may not be able to rely on government support. The precise degree of support for ITICs from their owners had long been uncertain, although many provincial governments provided letters of support for foreign loans but not explicit guarantees. For their part, the national authorities had issued several statements in recent years warning investors that unauthorized external borrowings would not be guaranteed by the central government. In the case of GITIC, it was owned by the Guangdong provincial government and had in the past received capital support from its owner. This support—in addition to its location in a prosperous region that benefited from its proximity to Hong Kong SAR—was one factor behind GITIC still having an investment-grade credit rating by one agency (BBB+ from Standard & Poor’s) at the time of its closure. However, the other major agency (Moody’s) had downgraded GITIC and some other ITICs to sub-investment-grade two months prior to its closure, citing their deteriorating financial health and the weakened ability of their provincial owners to provide support.

The closure and bankruptcy of GITIC has prompted a reduction in foreign banks’ exposure to China and an increasing differentiation between sovereign and non-sovereign entities. Several other ITICs have encountered liquidity pressures in recent months, including Guangzhou ITIC, which is seeking to restructure its debts to banks in the face of attempts to force the company into bankruptcy. Total ITIC external debt (including GITIC) is estimated by the authorities at $12 billion—but analysts estimate it could reach over $20 billion with the inclusion of unregistered external claims and guarantees. Only one major ITIC (the central government-controlled China ITIC) retains an investment-grade rating.

Looking ahead, it is expected that there will be substantial consolidation of the ITIC sector. The People’s Bank of China has announced that the number of ITICs will be substantially reduced through mergers and restructuring, and a reduction in the scope of their operations. Further, ITICs have been required since late 1998 to separate their securities and trust operations, in an attempt to increase the transparency of their operations.

than 60 percent. Emerging market bonds also rallied modestly, with the J.P. Morgan EMBI yield spread (excluding Russia) falling from 1,020 basis points to 915 basis points. This recovery reflected the improving fundamentals in many countries—especially in Asia, where several countries have had rating upgrades—and a perception that the markdown on emerging market assets in the wake of the Russian crisis had been larger than was justified in the wake of the relatively modest reduction in the creditworthiness of most emerging markets.

The recovery in emerging markets has also been supported by favorable developments in Brazil (Figure 3.6). Market participants responded favorably to the nomination and confirmation of Ámérico Fraga as Governor of the central bank. The announcement of a strengthened IMF-supported arrangement in March also helped sentiment, as did favorable macroeconomic developments, including resilient output data and a smaller-than-expected impact on inflation. While official interest rates were initially increased only slowly, the overnight interest rate was increased to about 45 percent in early March, helping to stabilize the real. As market participants gained confidence in monetary policy, the real strengthened substantially, allowing overnight interest rates to be eased to about 21 percent by late June. At end-June, equity prices in dollar terms were about 20 percent above their pre-devaluation levels and about 65 percent above their lows during the crisis. Benchmark bond yields had also fallen significantly. As a result of these favorable trends, Brazil was able to return to the eurobond market in April, raising $2 billion in cash and a further $1 billion in a conversion of Brady securities into conventional eurobonds. However, at a yield spread of 675 basis points on five-year bonds, the cost of funds was far higher than an earlier five-year issue in May 1996 that had carried a spread of only 265 basis points.

Bond markets appear to have been largely unaffected by developments in early 1999 with regard to
the possible restructuring of some sovereign eurobonds (Box 3.6). Although market participants expressed concern about the Paris Club's decision to ask Pakistan to reschedule its private sector obligations—including eurobonds and floating rate notes—in a comparable manner to the restructuring of debt owed to official creditors, the impact on the debt of other emerging markets appears to have been limited to a few other lower-rated credits. The possibility of restructuring was seen to be relevant only for a few other countries—including Ukraine and Romania—with substantial principal repayments due in 1999.

Nonetheless, in conjunction with the turbulence of the second half of 1998, indications in early 1999 that payments on sovereign eurobonds might not always be met on schedule have helped to ensure that "investors have become newly acquainted with the notion of credit risk for countries as well as companies and banks" (Moody's, 1999).

The rally in emerging markets slowed in May amid indications that the U.S. Federal Reserve might raise official interest rates in response to an increase in inflationary pressures. Emerging market bond and equity markets both peaked around May 10 and then drifted down over the rest of the month. While some country-specific factors—such as the political uncertainty in Russia after the removal of the Primakov government—were at work, the decline in emerging market asset prices mostly reflected developments in the mature markets, including expectations of higher short-term interest rates in the United States.

In the case of Romania, repayments were eventually made on schedule in May and June on two international bonds. In the case of Ukraine, creditors agreed in late June to extend the grace period on a structured rate maturing in early June, to enable further negotiations on a possible restructuring.
Box 3.6. Issues Involving the Possible Restructuring of Eurobonds

There has recently been substantial discussion about the possibility that countries with debt servicing problems may need to restructure sovereign eurobonds and that countries issuing new eurobonds might change the legal structure of bond contracts to provide for facilitated restructuring if that should prove necessary in the future. This discussion follows the decision by the Paris Club to ask Pakistan to reschedule its private sector obligations—including eurobonds and floating rate notes—in a comparable manner to the rest structuring of debt owed to official creditors.

Although some market participants have complained that seeking rescheduling of eurobonds is a change in the “rules of the game,” most have accepted that the move was probably inevitable in extreme cases, given the recent substantial increases in the issuance of government bonds by emerging market countries, especially by countries rated below investment grade. For example, in the case of Pakistan, the majority of eurobonds were issued at ratings of B2 or below, while in the case of Ukraine—where restructurings have already occurred—some of the instruments were issued even before the country had received a B2 rating.

It is clear that there is a tradeoff for countries that approach creditors for a restructuring between immediate cash flow benefits and possibly reduced subsequent access to capital markets. As a result, there is widespread agreement in both the official and private sectors that any restructuring of eurobonds should be done on a case-by-case basis and that debtors and creditors should work collaboratively to resolve problems on a voluntary basis—for example, via exchange offers.

Looking forward, it may be useful to have more flexible bond contracts that facilitate restructurings should they become necessary. Currently, most outstanding eurobonds are “American-style” bonds, which do not include contractual provisions allowing qualified majorities to modify the terms of a bond and to impose these modifications on minority holders. Further, in the event of default the bonds provide few contractual limitations on the ability of individual bondholders to initiate and benefit from legal action on their claims. Given that ownership of eurobonds is generally spread widely, restructuring under these terms may be difficult and could lead to litigation, loss of value, and perhaps even loss of access for other borrowers. This could be exacerbated if “vulture funds”—investors that are skilled in extracting payments from troubled borrowers—were to increase their presence in emerging markets.

In light of the potential problems with existing bonds, there have been several suggestions over the last few years that future eurobond issues adopt “British-style”

In bond yields or credit yield spreads in some countries, and some weakness in commodity prices. Argentina was one of the most affected countries, with market participants concerned about the impact of higher interest rates on an already weak economy, due to the loss of competitiveness from the Brazilian devaluation. Nonetheless, the pressure on the peso (as measured by the 12-month forward exchange rate) was substantially less than around the Russian and Brazilian crises. Further, as mature equity markets recovered in June, pressures on emerging markets eased, and there were no major movements in emerging market asset prices when the U.S. Federal Reserve announced a 0.25 percent increase in its target for the federal funds rate on June 30.

At the end of June, yield spreads on all major emerging countries had fallen to levels substantially below their peaks after the crises in Russia and Brazil. But there were substantial differences across countries. Yield spreads on some of the mid-rated countries—for example, Argentina, Brazil, and Turkey—remained above their pre–Russian crisis levels, due either to domestic developments or because the Russian crisis has highlighted their vulnerability to global shocks. And even in some of the more highly rated countries—for example, Hungary and China—yield spreads have not really fallen back to their pre–Russian crisis levels, due in the latter case to new weaknesses revealed in the problems of the ITICs. Spreads on most other countries in Asia have fallen back below their pre–Russian crisis levels, although they remain well above the pre–Asian crisis levels. Finally, spreads for one country—Mexico—have fallen back nearly to the levels prior to the entire emerging market crisis, largely reflecting the stability imparted by its proximity and links to the United States and the buffering role of its flexible exchange rate.

Looking ahead, one aspect of concern arising out of the losses of the last two years is the damage that has been done to earlier perceptions that emerging markets had become a mainstream asset class. In the middle of the decade, emerging market bonds and equities had begun to establish themselves as a legitimate asset class for many investors, with high expected returns and favorable portfolio characteristics (such as low

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correlations with mature market returns). Many investors that came into emerging markets have fled the market and may not return quickly. The emerging market investor base is now reduced, with a smaller pool of "dedicated" money and fewer "crossover" investors (those specializing in mature market investments but able also to invest in emerging markets). Further, the experience of the last two years may have made the remaining crossover investors more opportunistic in their willingness to hold emerging market assets. As a result, emerging markets will remain unusually susceptible to ongoing shocks. Global shocks such as larger-than-expected increases in U.S. interest rates, falls in mature market equity prices, renewed weakness in commodity prices, or set-backs in Japan would undoubtedly have a negative impact on emerging markets. Indications of Y2K problems in emerging market economies or in the trading of emerging market instruments could also affect the outlook, as could indications that reduced access of Latin American corporates to international markets is leading to greater-than-expected difficulties in servicing external debt.

benefit to bondholders from a higher recovery rate in the event of restructuring. However, there seems to be no evidence in current market prices to suggest that British-style bonds carry higher yields than U.S.-style bonds. Thus, it seems unlikely that a shift to British-style bonds per se will result in market access being curtailed or yield spreads being increased substantially. If market access were indeed to worsen, it is more likely that this would be a more general result of the problems of some sovereign borrowers having resulted in a greater focus on credit risk by market participants.

After some initial negative reaction to official suggestions for changes to bond contracts in new issues, market participants appear to be more open to such changes. The initial reaction may have in part reflected concerns that all bonds—rather than just new issues—would be subject to such changes. The proposed clauses are seen by many as potentially helpful in facilitating restructuring and in preserving value that could be lost in the event of a holdout by a small number of creditors. Nonetheless, some market participants remain wary of such instruments, and some emerging market countries may be reluctant to be at the vanguard of a concerted shift to British-style issuance, so it will be important for the larger emerging market countries to lead this shift.

Private Capital Flows to Emerging Markets and Developments in the Bond, Equity, and Syndicated Loan Markets

Net Private Capital Flows to Emerging Markets

Balance of payments data show a further sharp fall in net private capital flows to emerging markets in 1998, to the lowest level this decade. While data for 1998 are still preliminary for many countries, current estimates suggest that total net private capital flows in 1998 were about $60 billion, a level about 55 percent below the 1997 figure and about 70 percent below the peak level of 1996 (Table 3.1). The sharpness of the recent fall is illustrated by the fact that private flows in 1998 are estimated at levels not seen since 1990 (in dollar terms) or 1989 (as a ratio to emerging market GDP). Further, the level of capital markets activity seen in the first half of 1999 suggests that any pickup this year will be fairly modest.

The financing pressures that in 1997 had mainly affected the crisis-affected Asian countries spread more widely in 1998. Regions that appeared to benefit in
Ill EMERGING MARKETS: EXTERNAL FINANCING CONTRACTION AND IMPACT ON FINANCIAL SYSTEMS

(in billions of U.S. dollars)

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Total net private capital inflows 4.4 8.9 6.9 8.7 4.8 6.8 7.6 7.6 10.3
Net foreign direct investment 1.2 2.0 1.7 1.9 3.4 4.2 5.5 7.6 6.8
Net portfolio investment -1.5 -1.5 -0.6 10.8 -0.2 2.9 3.5
Bank loans and other 4.7 8.4 5.8 0.7 1.2 2.7 5.8 0.0

Asia
Total net private capital inflows 19.6 34.1 17.9 57.3 66.4 95.1 100.5 3.2 -55.1
Net foreign direct investment 9.3 14.4 14.8 33.0 45.3 49.8 55.1 62.6 50.0
Net portfolio investment -2.7 1.4 7.8 21.0 9.4 10.9 12.6 6.9 -15.4
Bank loans and other 13.0 18.4 16.3 -57.6 -103.5

Five affected Asian countries
Total net private capital inflows 24.2 26.8 26.6 31.9 33.2 62.5 62.4 -19.7 -46.2
Net foreign direct investment 6.0 6.1 6.3 6.7 6.5 6.7 9.5 12.1 4.9
Net portfolio investment -1.5 -1.5 -0.6 1.0 0.8 1.5 -0.2 2.9 3.5
Bank loans and other 4.7 8.4 5.8 -0.7 -56.3 -89.7

Europe
Total net private capital inflows 0.0 -16.3 7.6 26.0 16.1 48.1 25.2 35.3 17.5
Net foreign direct investment 0.5 3.2 5.1 6.7 6.0 13.9 13.4 16.6 18.2
Net portfolio investment 0.5 0.4 2.3 12.4 22.5 18.9 24.8 20.5 4.8
Bank loans and other -1.1 -19.9 7.0 -12.3 15.2 -13.0 -1.8 -5.4

Russia
Total net private capital inflows -5.0 -40.2 0.7 5.9 2.1 15.1 -26.0 1.0 -14.7
Net foreign direct investment -0.7 0.0 0.7 0.9 0.5 1.7 1.7 3.6 1.2
Net portfolio investment 0.0 0.0 0.0 5.0 14.5 14.4 21.9 17.2 4.5
Bank loans and other -4.3 -40.2 0.0 0.0 -14.9 -11.1 -26.3 -19.8 -20.4

Middle East
Total net private capital inflows 10.0 73.0 30.9 27.3 17.9 5.0 -3.1 7.1 22.6
Net foreign direct investment 0.6 0.3 0.1 3.2 3.1 2.8 1.7 2.5 2.2
Net portfolio investment 3.5 21.9 11.3 18.1 12.1 8.3 3.7 2.8 10.8
Bank loans and other 5.8 50.8 19.6 5.9 5.9 6.1 -8.5 1.8 9.6

Western Hemisphere
Total net private capital inflows 13.7 24.1 55.9 62.6 47.5 38.3 82.0 87.3 69.0
Net foreign direct investment 6.7 11.3 13.9 12.0 24.9 26.0 39.3 50.6 54.0
Net portfolio investment 17.5 14.7 30.3 61.1 60.8 1.7 40.0 39.7 33.0
Bank loans and other -10.5 -2.0 11.7 -10.6 -38.2 10.6 2.7 -3.1 -18.1

Brazil
Total net private capital inflows 8.1 3.1 14.1 12.0 10.0 33.1 35.2 20.5 17.1
Net foreign direct investment 0.3 0.1 1.9 0.8 2.0 2.8 10.0 15.5 25.0
Net portfolio investment 0.5 3.8 14.5 12.3 51.1 11.7 21.4 10.5 17.5
Bank loans and other 7.3 -0.8 -2.3 -1.2 -43.2 18.6 3.8 -5.5 -25.4

1997 from a diversion of flows from Asia saw reduced flows in 1998. Net private outflows from the five crisis-affected countries increased relative to 1997, with net outflows of $46 billion, a massive 7 percent of GDP. In addition, financing pressures worsened for the rest of Asia, with net private outflows from these countries estimated at $9 billion in 1998, versus net inflows of $23 billion in 1997. In the Western Hemisphere region, net inflows continued in 1998, but fell relative to 1997 for both Brazil and other countries. Not surprisingly, there were substantial net private outflows from Russia in 1998, but there was only a modest fall in net inflows to the other emerging markets in Europe. Net private flows to Africa fell, while net flows to the Middle East are estimated to have risen substantially as foreign asset positions have been drawn down amid the weakness in oil prices. Overall, net private flows to countries outside Asia remained—despite their decline in 1998—above their 1996 level, suggesting that the impact on private flows to emerging markets outside Asia had been fairly modest. In light of the savage reversal—more than $150 billion—in private financing to Asian countries between 1996 and 1998, it would not be surprising if
Table 3.1 (concluded)

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<td>Portfolio investment</td>
<td>0.3</td>
<td>0.6</td>
<td>0.9</td>
<td>1.9</td>
<td>1.8</td>
<td>0.7</td>
<td>1.4</td>
<td>1.1</td>
<td>0.6</td>
</tr>
<tr>
<td>Bank loans and other</td>
<td>0.2</td>
<td>0.9</td>
<td>0.6</td>
<td>0.2</td>
<td>-0.6</td>
<td>0.9</td>
<td>0.3</td>
<td>-1.0</td>
<td>-1.8</td>
</tr>
<tr>
<td>Total official capital flows</td>
<td>26.6</td>
<td>36.5</td>
<td>22.3</td>
<td>20.1</td>
<td>1.8</td>
<td>26.0</td>
<td>-0.9</td>
<td>24.4</td>
<td>41.1</td>
</tr>
<tr>
<td>Total official capital flows (percent of emerging market GDP)</td>
<td>0.5</td>
<td>0.6</td>
<td>0.5</td>
<td>0.4</td>
<td>0.0</td>
<td>0.4</td>
<td>0.0</td>
<td>0.3</td>
<td>0.6</td>
</tr>
<tr>
<td>Total official capital flows (percent of G-7 GDP)</td>
<td>0.3</td>
<td>0.8</td>
<td>0.7</td>
<td>1.1</td>
<td>0.9</td>
<td>1.0</td>
<td>1.1</td>
<td>0.8</td>
<td>0.3</td>
</tr>
</tbody>
</table>

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

1 Net foreign direct investment plus net portfolio investment plus net other investment.
2 Indonesia, Korea, Malaysia, the Philippines, and Thailand.

the data for 1999 show a cutback in private financing to emerging markets outside Asia.

Data for the exposures of mature market country banks suggest that the outflows from Asia began to ease during 1998, although they worsened through 1998 for Brazil, Russia, and other countries in Eastern Europe. While the BIS data for consolidated banking exposures (Table 3.2) are on a different basis than balance of payments data (gross versus net, and banks versus all private sector entities), they are suggestive of certain trends. First, cutbacks of bank financing to Asian countries were much smaller in the second half than in the first half of 1998, suggesting that Asia was less affected by the Russian turmoil and that net outflows from this region might be easing. Second, there was a sharp swing in Brazilian exposures during 1998, with a buildup of about 10 percent in the first half, and then a cutback of nearly 15 percent in the second half. This presents further evidence that investors were able to adjust their portfolios in advance of the January 1999 devaluation. By contrast, there was a modest increase in bank exposures to other Latin American countries, with virtually no slowdown in the second half amid the Russian crisis. Exposures to Russia rose modestly in the first half, consistent with the buildup in debt noted in Box 3.1, but then fell sharply in the second half, mainly due to write-downs. By contrast, other European emerging market countries saw a
modest growth in exposures in the second half, although much reduced relative to the 16 percent growth seen in the first half.

The major component in the fall in net private capital inflows was a further sharp withdrawal in bank financing of emerging markets. Most bank financing of emerging markets is captured in the “bank loans and other investment” component of the balance of payments. This component—which includes syndicated bank lending, trade financing, and some other smaller items—became more sharply negative in 1998, with most of the net outflows from Asia. This movement would appear consistent with the fall in syndicated bank lending noted below, and also with the data from the BIS on total bank exposures. By contrast, net portfolio inflows—which include bond and equity holdings by bank and nonbank investors—remained positive in 1998, although they fell relative to the previous year and remained far below their peak levels of 1994-95.

Foreign direct investment in emerging markets fell in 1998—the first fall seen this decade—although it remained fairly healthy. This component has been the largest component of net private capital flows in the second half of the 1990s. The entire fall in 1998 can be accounted for by falls in Asia and Russia, with direct investment remaining at healthy levels in other regions. Notwithstanding the longer-term horizon of this type of investment, it is perhaps surprising that this component of inflows has remained so robust in light of cutbacks in the other types of investment.10

Table 3.2. Changes in Bank Exposures to Emerging Markets

<table>
<thead>
<tr>
<th>Region</th>
<th>1997</th>
<th>1998</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1st half</td>
<td>2nd half</td>
</tr>
<tr>
<td>Asia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indonesia, Korea, Malaysia, and Thailand</td>
<td>33.8</td>
<td>-7.8</td>
</tr>
<tr>
<td>Africa</td>
<td>4.7</td>
<td>-0.8</td>
</tr>
<tr>
<td>Middle East</td>
<td>6.1</td>
<td>2.1</td>
</tr>
<tr>
<td>Europe</td>
<td>11.8</td>
<td>8.4</td>
</tr>
<tr>
<td>Russia</td>
<td>7.8</td>
<td>4.1</td>
</tr>
<tr>
<td>Western Hemisphere</td>
<td>20.8</td>
<td>21.3</td>
</tr>
<tr>
<td>Brazil</td>
<td>3.9</td>
<td>3.8</td>
</tr>
</tbody>
</table>


The fall in aggregate net private capital inflows to emerging markets in 1998 was accompanied by some substantial shifts in current account positions. In the case of the five crisis-affected countries in Asia, there was a massive swing into surplus on the current account, which enabled these countries to reverse the large fall in reserves that had been seen in 1997 and increase reserve levels substantially in 1998 in the face of the fall in external financing. By contrast, other emerging markets saw an increase in their aggregate current account deficit, which together with a fall in external financing resulted in a sharp fall in the rate of reserve accumulation.

Gross Private Capital Flows to Emerging Markets

Data for gross new issuance in international capital markets—that is, the sum of all bonds, equities, and loans—also show a sharp fall in 1998, but suggest a stabilization in 1999. These data indicate that gross financing fell nearly 50 percent from the 1997 level (Table 3.3).11 At this level, gross issuance had fallen back to the levels of 1994–95 in dollar terms and back to the level of 1993 in terms of ratio to emerging market GDP.12 Data for the first six months of 1999 indi-
cated that gross financing was running at an annual rate broadly similar to 1998 as a whole, suggesting that gross private market financing to emerging markets may stabilize in 1999.

**Developments in the Bond Market**

Issuance of bonds and other fixed-income instruments—now the major source of private market financing (i.e., excluding foreign direct investment) for emerging markets—fell substantially in 1998 and showed only a modest recovery in the first half of 1999. Issuance by emerging market borrowers fell 43 percent in 1998 relative to 1997, despite substantial growth in the global bond market, with the result that the share of emerging markets in global issuance fell from 17 percent to only 8 percent. After peaking at $49 billion in the third quarter of 1997, emerging market issuance fell to a low of only $10 billion in the fourth quarter of 1998 in the wake of the Russian crisis. In the first six months of 1999, issuance was proceeding at a quarterly rate of about $23 billion, suggesting that volumes in 1999 would be somewhat higher than the levels of 1998. There was a massive decline in Asian issuance in 1998 (down 78 percent), with only three large issues through the whole year—a $4 billion sovereign issue from Korea in April, a $1 billion corporate issue from Singapore in March, and a $1 billion sovereign issue from China in December. Issuance also fell sharply in Africa (down 85 percent) due to a fall in issuance by South Africa, the only country to have substantially tapped the international bond market in recent years. Issuance was less affected in the Western Hemisphere (down 30 percent) and the Middle East (down 23 percent), and actually rose substantially in Europe (up 50 percent), reflecting growth for Hungary, the Slovak Republic, and—prior to the problems in the third quarter—Russia and Ukraine. The recovery in the first six months of 1999 was fairly broadly based, with many countries seeing increases, Russia and Ukraine being two notable exceptions.

### Table 3.3. Gross Private Market Financing to Emerging Markets, by Region, Financing Type, and Borrower Type

<table>
<thead>
<tr>
<th></th>
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<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(In billions of U.S. dollars)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>All emerging markets</td>
<td>136.0</td>
<td>157.8</td>
<td>218.4</td>
<td>286.1</td>
<td>148.5</td>
<td>56.2</td>
<td>87.1</td>
<td>84.8</td>
<td>58.0</td>
<td>39.5</td>
</tr>
<tr>
<td>Asia</td>
<td>84.6</td>
<td>86.9</td>
<td>118.5</td>
<td>127.5</td>
<td>34.1</td>
<td>32.5</td>
<td>38.2</td>
<td>36.2</td>
<td>20.7</td>
<td>7.1</td>
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<tr>
<td>Western Hemisphere</td>
<td>26.2</td>
<td>36.2</td>
<td>63.1</td>
<td>90.3</td>
<td>64.6</td>
<td>16.7</td>
<td>29.4</td>
<td>30.1</td>
<td>14.1</td>
<td>21.7</td>
</tr>
<tr>
<td>Middle East</td>
<td>10.8</td>
<td>8.7</td>
<td>9.9</td>
<td>16.0</td>
<td>9.2</td>
<td>1.8</td>
<td>4.1</td>
<td>2.2</td>
<td>7.9</td>
<td>1.2</td>
</tr>
<tr>
<td>Africa</td>
<td>3.3</td>
<td>9.3</td>
<td>5.6</td>
<td>14.8</td>
<td>4.4</td>
<td>1.0</td>
<td>1.8</td>
<td>8.4</td>
<td>3.6</td>
<td>2.1</td>
</tr>
<tr>
<td>Europe</td>
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<td>16.8</td>
<td>21.3</td>
<td>37.5</td>
<td>36.1</td>
<td>4.1</td>
<td>13.7</td>
<td>7.9</td>
<td>11.7</td>
<td>7.5</td>
</tr>
<tr>
<td>Bonds</td>
<td>61.3</td>
<td>63.7</td>
<td>111.3</td>
<td>138.2</td>
<td>78.2</td>
<td>29.7</td>
<td>46.3</td>
<td>48.7</td>
<td>13.5</td>
<td>25.4</td>
</tr>
<tr>
<td>Equities</td>
<td>18.0</td>
<td>11.2</td>
<td>16.4</td>
<td>24.8</td>
<td>9.9</td>
<td>3.2</td>
<td>8.2</td>
<td>6.3</td>
<td>7.1</td>
<td>3.1</td>
</tr>
<tr>
<td>Loans</td>
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<td>82.9</td>
<td>90.7</td>
<td>123.2</td>
<td>60.4</td>
<td>23.3</td>
<td>32.7</td>
<td>29.9</td>
<td>37.3</td>
<td>11.0</td>
</tr>
<tr>
<td>Sovereign</td>
<td>18.2</td>
<td>25.4</td>
<td>41.8</td>
<td>48.2</td>
<td>48.7</td>
<td>11.4</td>
<td>17.0</td>
<td>14.1</td>
<td>5.6</td>
<td>17.2</td>
</tr>
<tr>
<td>Public</td>
<td>38.2</td>
<td>48.2</td>
<td>53.8</td>
<td>73.2</td>
<td>31.9</td>
<td>11.3</td>
<td>22.3</td>
<td>22.9</td>
<td>16.6</td>
<td>4.9</td>
</tr>
<tr>
<td>Private</td>
<td>79.5</td>
<td>84.2</td>
<td>122.8</td>
<td>164.8</td>
<td>68.0</td>
<td>33.5</td>
<td>47.8</td>
<td>47.8</td>
<td>35.7</td>
<td>17.4</td>
</tr>
<tr>
<td>(Percent of total)</td>
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<td></td>
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<tr>
<td>Asia</td>
<td>62.2</td>
<td>55.0</td>
<td>54.3</td>
<td>44.6</td>
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<td>17.9</td>
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<td>35.5</td>
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<td>4.5</td>
<td>5.6</td>
<td>6.2</td>
<td>3.2</td>
<td>4.8</td>
<td>2.6</td>
<td>13.5</td>
<td>3.0</td>
</tr>
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<td>Africa</td>
<td>2.4</td>
<td>5.9</td>
<td>2.5</td>
<td>5.2</td>
<td>3.0</td>
<td>1.8</td>
<td>2.0</td>
<td>9.9</td>
<td>6.3</td>
<td>5.3</td>
</tr>
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<td>Europe</td>
<td>8.2</td>
<td>10.6</td>
<td>9.7</td>
<td>13.1</td>
<td>24.3</td>
<td>7.3</td>
<td>15.7</td>
<td>9.3</td>
<td>20.2</td>
<td>19.0</td>
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<tr>
<td>Bonds</td>
<td>45.0</td>
<td>40.4</td>
<td>51.0</td>
<td>48.3</td>
<td>52.7</td>
<td>52.8</td>
<td>53.1</td>
<td>57.4</td>
<td>23.4</td>
<td>64.3</td>
</tr>
<tr>
<td>Equities</td>
<td>13.3</td>
<td>7.1</td>
<td>7.5</td>
<td>8.7</td>
<td>6.7</td>
<td>5.7</td>
<td>9.4</td>
<td>7.4</td>
<td>12.3</td>
<td>8.0</td>
</tr>
<tr>
<td>Loans</td>
<td>41.7</td>
<td>52.6</td>
<td>41.5</td>
<td>43.0</td>
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<td>41.5</td>
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<td>35.2</td>
<td>64.3</td>
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<tr>
<td>Sovereign</td>
<td>13.4</td>
<td>16.1</td>
<td>19.1</td>
<td>16.8</td>
<td>32.8</td>
<td>20.3</td>
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<td>12.3</td>
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<tr>
<td>Private</td>
<td>58.3</td>
<td>53.3</td>
<td>56.2</td>
<td>57.6</td>
<td>45.8</td>
<td>39.6</td>
<td>54.8</td>
<td>56.4</td>
<td>61.6</td>
<td>44.1</td>
</tr>
</tbody>
</table>

Sources: Capital Data; and IMF staff calculations.

1Data for 1999 Q2 are preliminary.
A striking recent development in the international bond market has been the reduction in access for private sector entities from the emerging markets. While borrowing by sovereigns was virtually unchanged between 1997 and 1998, borrowing by public enterprises and private sector issuers fell sharply, by 68 and 61 percent, respectively. In the first six months of 1999, this trend continued for private sector entities, which saw a further small fall in their share of total borrowing; public enterprises appeared, however, to be regaining access in early 1999 on the back of the recovery in sovereign access. In part, this reflects an increasing preference on the part of investors to lend only to the more highly rated borrowers, especially to sovereigns; see Box 3.7 for a discussion on the extent to which markets are becoming more discriminating.

The decline of private sector access to international markets also reflects the economic health of borrowers. In Asia, the high leverage of many companies precludes the issuance of new debt. In Latin America, companies on average have lower debt burdens but most have found it difficult to get access to debt markets at reasonable interest rates. In general, corporate borrowers have responded to their reduced access to international markets by returning to their domestic markets, mainly the domestic banking systems, where they are displacing smaller, less creditworthy companies (see below). However, the lack of market access for medium-sized Latin American corporates is beginning to show in cash flow and debt servicing problems. A growing number of companies are missing interest or principal payments on external debt as a result of the worsening in business conditions following the Russian and Brazilian shocks and the loss of access to capital markets for working capital or refinancing purposes. The number of defaults on external debt is expected to increase as 1999 progresses.

Perceptions of higher risk and the reduced appetite for investing in emerging market bonds have caused a worsening in the terms and conditions of market access. After rising modestly in 1997, average yield spreads for emerging market borrowers rose substantially in 1998 and remained high in the first six months of 1999. For sovereign borrowers, the average yield spread in early 1999 was just under 500 basis points for unenhanced U.S. dollar–denominated bonds, up from 270 basis points in 1996. At the same time, the average maturity of issues has fallen, from a peak of 12.4 years in 1997 to about nine years in both 1998 and in early 1999.

A constant theme in the difficult bond market conditions has been the need for issuers to be innovative in the design of their securities to retain market access at a reasonable price. One trend that has been seen frequently is the reopening of earlier issues: for example, Turkey on three occasions in April and May reopened the five-year sovereign bond it had first issued in February 1999, increasing the outstanding volume from €500 million to €1 billion. Such reissues are attractive because the preexistence of the security minimizes pricing risk for investors and because they boost issue size and liquidity for potential inclusion into benchmark bond indices. Another trend has been the issuance in whatever currency and sector will reduce borrowing cost. For example, Argentina (one of the largest issuers in 1998 and 1999) made sovereign issues in eight different currencies in 1998 and 1999, frequently targeting issues at a particular small class of investors. The use of bonds with stepdown coupons has also been common.13 Such issues may be attractive for two reasons. First, market participants suggest that the high initial coupons can be attractive to (short-sighted) yield-seeking investors. In addition, the stepdown can be used to issue bonds at close to par and yet enable fungibility with other (lower coupon) bonds at some point in the future, thus enhancing the future liquidity of the bond. For example, two sovereign Argentine issues of euro-denominated bonds in February and March of 1999 carry coupons of 15 and 14 percent until February 2001, after which the coupons fall to 8 percent to become fungible with preexisting deutsche mark, Dutch guilder, and French franc issues from February 1998, and resulting then in a single €1.8 billion issue maturing February 2008. Finally, there has also been substantial use of asset-backed securities to reduce the cost of debt. For example, in December 1998 Telefónica del Perú used telephone receivables from international carriers to enable it to issue bonds rated as investment grade securities, despite the lack of an investment rating for the sovereign. However, asset backing has proven only partially effective in reducing the cost of borrowing in difficult conditions. For example, in March 1999 PDVSA, the Venezuelan oil company, had to pay an average spread of over 400 basis points on a $1.2 billion multi-tranche deal that was backed by oil receivables and carried a strong A3 credit rating; in part because of the worsening in market conditions, the tranches carried spreads three or four times the level of a similar, slightly higher-rated (A2) deal in May 1998.

Other innovations have involved giving some form of “sweetener” to investors, which may be costly to the issuer in the future. Several recent bond issues have carried put options, which enable the investor to shorten the stated maturity of the security. Other bonds have carried warrants that enable the bond purchaser to buy other debt securities at predetermined times and prices, which at that point may represent an above-market cost of funds for the issuer. One suggested rationale for warrants is that their complexity may offer a way for issuers to raise new funds without driving down the price of existing “plain-vanilla”

13Bonds with stepdown coupons have coupon payments that “step down” from a high initial level to lower subsequent levels, usually according to a fixed schedule.
Box 3.7. Is the Bond Market Becoming More Discriminating?

The yield spread compression of 1997 and the subsequent turmoil in emerging markets has raised issues about the ability of investors to appropriately assess and price risk. The large issuance in Russian or ruble-linked securities in 1998 also raises similar issues.

As more countries gained access to the international markets in the 1990s, the average credit ratings of countries with credit market access fell. As shown in Figure 5.5, the emerging markets that obtained credit rating from each bond was the original Moody's rating for that issue as taken from Bondware. If no rating was shown, the Standard & Poor's rating in Bondware was used (and converted to the Moody's scale). If neither of these were available, the long-term foreign currency credit rating for the issuer was used, with these data taken either from Bondware or the rating agencies. It is possible that a proportion—but probably a fairly small one—of these bonds actually had credit ratings, but that these are simply not shown in the Bondware database. For the most part, the bonds are small issues that are predominantly from private sector issuers. In some cases, the issuers were not rated but appear to have been affiliates of rated companies.

The large issuance in Russian or ruble-linked markets were becoming more tolerant of credit risk as the decade progressed.

Indeed, data on the credit ratings of bonds issued in the first half of 1997 suggest either that investors paid little attention to credit risk or that they were comfortable with the high level of credit risk that they were incurring. About 19 percent of all issues in the first half of 1997 appear not to have been rated or to have come from issuers without credit ratings (see figure). A further 53 percent of bonds (or issuers) were rated as noninvestment grade (Bal or below), with 2 percent actually rated within the "default" grades (Caa1-Caa3). Only 26 percent of bonds (or issuers) were rated as investment grade.

By early 1999, those investors that remained as buyers of emerging market securities appeared to be paying substantially more attention to credit risk. In the first five months of 1999, the proportion of unrated bonds had fallen sharply from 1997, from 19 percent to 4 percent, and there were no default grade issues. Further, the proportion of investment-grade issues had risen from 26 percent to 40 percent. It is noteworthy that this occurred in an environment where the average credit rating of emerging market borrowers had actually declined. The changes would appear to indicate a massive reduction in investor demand for unrated bond issues, a significant decline in investor demand for sub-investment-grade issues, and efforts by issuers to enhance the credit ratings of their debt, including via asset backing and official guarantees (including under Japan's New Miyazawa Initiative). As noted elsewhere, the increased attention to credit risk is also reflected in a substantial increase in the proportion of bond issuance from sovereign borrowers, largely at the expense of private sector ones.

Whether or not their assessment of risk is correct, there appears to be increasing evidence to suggest that investors are forming their own judgments about risk and not simply relying on the credit rating agencies. For example, within the same week in early May, investors bought similarly rated (Ba2/BBB) new issues from Hungary and Qatar at sharply different yield spreads over U.S. treasury notes: 135 and 395 basis points, respectively. Similarly, in early June, benchmark long-term eurobonds from Mexico and Argentina with the same rating (BB) from two of the three major agencies (and a one-notch difference—Ba2 versus Ba3—from the third) were trading at yield spreads that were about 230 basis points different. It remains to be seen whether these differences in investor risk assessment prove well-founded.

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De••e/opments in the Syndica/etl Loan Market

One of the more noteworthy recent trends in emerging markets has been the sharp and ongoing decline in the amount of internationally syndicated bank lending. In 1998, syndicated loans to emerging markets halved relative to 1997. Further, in the first six months of 1999, bank lending was proceeding at a monthly rate about 30 percent lower again than the level of 1998. As a result, in the first six months of 1999, syndicated loans accounted for only 28 percent of private market financing for emerging markets, down from 41 percent in 1998 and 43 percent in 1997. The tightening of the market has also been reflected in the terms and conditions of market access, with average maturities falling in 1998 relative to 1997 and average yield spreads for sovereign, public sector, and private sector borrowers widening in 1998.

Historically, the loan market has provided something of a "safety-valve" function, remaining open at times when the bond market was essentially closed to emerging market borrowers. This was the case in September 1998 in the wake of the Russian unilateral debt restructuring, when the loan market continued to provide substantial financing to emerging borrowers, albeit largely to highly rated ones: the three largest borrowers in that month, accounting for about 64 percent of the total value of all loans, were all publicly owned—a Chinese electric utility and two Saudi Arabian petrochemical companies. Similarly, the share of bank loans increased substantially in 1995 following the Mexican crisis, and in the fourth quarter of 1997 amid the turmoil in global equity markets and the problems in Asia.

However, in the wake of the Brazilian devaluation, the bond market reopened quickly while activity in the loan market has remained fairly low. For example, in the months of January and February, entities from only two Latin American countries (Mexico and Colombia) were able to raise money in the international loan market. Subsequent lending has been limited mostly to relatively highly rated issuers, at shorter maturities and higher spreads than in the past. Furthermore, some of this recent lending has actually involved the refinancing of earlier loans that were intended to be bridge loans until conditions in the bond market improved. For example, an April 1999 $700 million one-year syndicated loan to Brazil's largest electricity distributor was actually a refinancing of an earlier one-year $875 million loan, which was rolled over subject to a cash repayment of 20 percent of the original loan and an increase in the interest rate from LIBOR plus 350 basis points to LIBOR plus 925 basis points. In addition, lenders included a provision in the new loan whereby the interest rate will rise if the spread on Brazil's 2008 eurobond widens substantially.

The turbulence in emerging markets and some recent developments in international banking may be leading to an acceleration of the long-run shift toward greater use of bond and equity financing in emerging markets. Between 1983–89 and 1990–98, the share of bonds in total financing rose from 27 percent to 46 percent, while the share of equity rose from 1 percent to 8 percent, with the share of loans falling from 72 percent to only 45 percent. This trend reflects the general trend toward securitized rather than bank-intermediated financing, the recently growing importance of new nonbank investors in emerging markets, and the limited secondary market trading of bank loans. More recently, however, it appears that a shift in the nature of the loan market is occurring and that banks in mature markets have sharply reduced their willingness to hold emerging market loans. This reflects both a general cutting of emerging market credit lines after the losses of recent years and—as discussed in Chapter II—a sharp cutback in international lending by Japanese banks. In addition, some of the mergers between banks active in emerging markets have reportedly resulted in new aggregate credit lines that are less than the sum of the previous individual credit lines. Further, banks are looking more closely at the capital requirements for all their lines of business and the returns on those lines. As a result, there has been a substantial pullback in syndicated lending in the mature markets and a much larger fall in emerging market lending.

As a result of these trends, banks are cutting back the volume of loan syndication, increasing the cost at which loans are being provided to emerging market borrowers, taking steps to reduce pricing risk, and attempting to sell loans to nonbanks. A major shift in 1998 was that flexible pricing replaced the previous practice whereby banks would underwrite loans by setting a pricing level at the start of the period—frequently several months—during which the loan was negotiated. Syndication fees have typically increased, and spreads have risen very substantially so that pricing on loans has now approached the levels of the bond market, after years of loans sometimes serving as a loss leader for banks to secure other business. Banks are also working to create a secondary market in emerging
market loans, initially mainly in larger Latin American loans. These trends will all make the syndicated loan market more similar to the bond market and will make syndicated loans a more attractive asset class for non-bank investors. An example of the likely future direction of the market can be seen in an innovative syndicated loan that was finalized in March 1999. The transaction, a $650 million multi-tranche loan to a large Mexican company, carried spreads that were initially set at 600-700 points over LIBOR but will be repriced quarterly based on the spread on Mexico’s 2008 eurobond. It was reported that there was substantial interest set at 600-700 points over LIBOR but will be repriced quarterly based on the spread on Mexico’s 2008 eurobond. It was reported that there was substantial interest.

In addition to the decline in syndicated loans, banks have also cut back on loan facilities. The value of new loan facilities fell 58 percent between 1997 and 1998, and in the first six months of 1999 was running at an annual rate about half of the level of 1998. In the case of sovereign borrowers, the drawdown by Mexico in late 1998 on a loan facility appears to have reduced banks’ appetite for the type of contingent liability represented by such facilities. In this light, as is discussed in Box 3.8, there may be limitations on the extent to which banks are willing to provide credit lines to sovereign borrowers to serve as contingent financing when normal market access is disrupted.

**Developments in the Equity Market**

International equity issuance by emerging market companies has also been hard hit by the emerging markets crises. Amid equity price weakness that saw a return of -22 percent on the all-country IFC Investable index in 1998, the amount of equity raised in 1998 was about 60 percent lower than in 1997. Following a peak at $8.2 billion in the second quarter of 1997, equity issuance declined sharply early in 1998 and virtually dried up in the third quarter, when only $239 million was raised. The market was entirely closed in August and September and did not reopen until October 31, with a small issue from a Singaporean company. Volumes recovered somewhat in the fourth quarter amid a strengthening in equity prices, and were running at an annual rate of about $1.5 billion in the first six months of 1999, suggesting that there might be some improvement this year over the 1998 level of $10 billion. The limited sale of new equity that occurred in 1998-99 is mostly accounted for by a few large issues, typically from blue-chip companies or as part of privatizations. A notable recent large sale was the May 1999 $2.5 billion sale of shares in Korea Telecom, with the new American Depository Receipts (ADRs) being the third-most actively traded stocks on the New York Stock Exchange on the day of their issuance.

New international issuance in 1998 fell most dramatically in the Western Hemisphere countries but remained relatively robust in Europe. International issuance from the Western Hemisphere countries fell from $5.1 billion in 1997 to only $1.64 billion in 1998. This decline is consistent with the larger equity price declines seen in the region: the IFC Latin American index showed a return of -36 percent in 1998. There was zero international issuance from Argentina, Brazil, and Mexico in 1998, although domestic new issues continued in these countries, as did privatization through negotiated sales. Despite the much smaller fall in prices in Asia—the IFC index showed a -1 percent return in 1998—Asian issuance also fell sharply in 1998. Indeed, much of the limited issuance was accounted for by two large issues ($835 million and $1.1 billion in March and April, respectively) by Thai banks as part of their recapitalization: excluding Thailand where issuance rose enormously, issuance from the rest of Asia fell by 83 percent. The fall in European issuance was smaller than in most other regions, but almost all issuance occurred in the first half of 1998 prior to the Russian crisis, the exception being a large initial public offering for Poland’s national telephone company in November.

As in the bond market, the combination of losses and high volatility in returns in the equity market has damaged perceptions of emerging market equity as an asset class. After strong return performance at the start of the decade, emerging market equities have substantially underperformed mature market equities since 1994. In addition, the volatility of emerging market equity returns has also jumped recently (Figure 3.8). For example, data for 16 emerging market countries would suggest that weekly return volatility has been about 70 percent higher over July 1997–June 1999 than over January 1992–June 1997. The declining attractiveness of emerging equity markets has been reflected in outflows from U.S. and foreign-managed mutual funds investing in emerging markets (Figure 3.9). While Asian funds have seen outflows for several years, Latin American and other funds also saw outflows all through 1998. More recent data suggest that these outflows may now have ended, but it is clear that there has been a substantial setback to perceptions in the mid-1990s that emerging market assets were a near-mainstream asset class suitable for a wide range of investors.

**Developments in Emerging Market Banking Systems**

The tightening of global credit conditions in the aftermath of the Russian crisis imposed severe pressures in most systemically important emerging market banking systems—with the exception perhaps of central European banks (Table 3.4). International banks

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14Annex III details the performance of individual banking systems.
continued the withdrawal of funds from Asia that had started with the region's currency crises of 1997. While the pullback from Asia slowed down after the Russian unilateral debt restructuring, creditors began to focus on Latin America's heavy external financing needs and the region's banks experienced substantial cuts in international interbank credit lines and in the availability of international repo lines. Although Brazilian banks were most affected by the retrenchment from Latin America, banks in Argentina and Mexico also suffered external liquidity pressures as well as a flight to quality that concentrated external flows in the largest—mostly foreign-owned—banks.

The behavior of domestic depositors contributed to the stability of domestic banking systems and the capital outflows were reflected mostly in a decline in the share of foreign liabilities in total liabilities of the banks (Table 3.4). This stands in sharp contrast to events in Asia in the second half of 1997, when external liquidity pressures were compounded by domestic depositor runs (see IMF, 1998a). The resilience of the depositor base this time around reflected a number of factors. In many Latin American countries, the extent of reforms and the commitment to improvements in prudential supervision and regulation has served to enhance the soundness and transparency of banking systems, supporting depositor confidence even in a volatile operating environment. In some countries, such as Turkey, Mexico, and most of the Asian crisis countries, extensive government guarantees contributed to the stability of deposits, while in others—such as China—the lack of alternative saving vehicles has also been an important factor keeping the deposits in the banking system.

Most emerging market banking systems outside Asia weathered the consequences of capital outflows reasonably well, but the banks' behavior magnified the transmission of the external liquidity squeeze to local capital markets and the real economy, as they scrambled to restore the liquidity of their balance sheets. Many banks achieved their balance sheet adjustment through a slowdown in lending (reflected in a fall in loan-deposit ratios, see Table 3.4) and a shift toward government securities. As a result, domestic credit conditions tightened considerably, especially for small corporates. Even in central European banks,
Box 3.8. Private Contingent Credit Lines

Private contingent credit lines are one of the tools that have been suggested to involve the private sector in forestalling and resolving financial crises. While sovereign borrowers have at times put in place loan facilities that enable them to draw at their discretion on preestablished credit lines with groups of banks, contingent credit lines could allow for drawdown only under specific circumstances, including following exogenous shocks such as contagion from other countries. As noted in IMF (1999a), such credit lines could (1) provide efficient insurance against adverse (exogenous) developments; (2) allow private financing to supplement official financing in times of crises; and (3) possibly forestall crises through the confidence-enhancing role of stand-by financing.

Three sovereign borrowers that have put loan facilities in place in recent years are Argentina, Indonesia, and Mexico.

• Argentina contracted with a group of 13 banks in December 1996 for a facility in the amount of $6.1 billion. The agreement committed the participating banks to lend (via a repurchase agreement on Argentine government securities) for a minimum of two years, to allow the government to lend—within the currency board framework—to domestic banks in the event of banking sector problems. The credit line has been rolled over and has remained active (and untapped) as of mid-1999, albeit with increased commitment fees (which have risen from around 30 to about 60 basis points) and some changes in the participating banks.

• Indonesia established a series of credit lines (each of $500 million) over 1994-97 with large groups of banks. These lines were all nearly fully drawn down amid the crisis of late 1997 and early 1998.

• Mexico established a $2.5 billion contingent line of credit in November 1997, with the interest rate rising both through the drawdown period and in the event of credit downgrades. The facility was drawn on in late September 1998 over the objections of the participating banks, who argued that the drawdown in a nonemergency situation was opportunistic and—although it was clearly allowed by the agreement—against the spirit of the agreement. In March 1999, Mexico signed an agreement to roll over the loan into a combination of five-year floating rate notes and two-year commercial paper, conditional upon a partial cash repayment.

The decisions by Mexico and Indonesia to draw on their credit lines in 1998 appear to have changed banks' perceptions about the attractiveness of loan facilities to sovereign borrowers. In particular, credit lines will typically be drawn on at times when countries are unable to get equivalently priced financing from other sources, owing either to a general aversion to emerging market risk or to a decline in the individual sovereign's creditworthiness. That is, such facilities increase bank exposures to borrowers precisely at times when they are seeking to reduce them.

Indeed, once a credit line is in place, banks have an incentive to dynamically hedge their contingent exposures, suggesting that loan facilities may not offer much effective new financing. In the case of Mexico, some participating banks have indicated that they offset their expected increased exposures prior to drawdown, by cutting back other credits to the extent possible and by taking short positions on Mexican credit. This offsetting of increased risk exposures to meet internal overall country risk limits implies that any contingent financing arrangement between emerging market borrowers and private banks will not necessarily provide any net additional resources. This would be especially true if the banks in question had participated mainly for relationship reasons (such as the desire to manage future capital market issues).

There are several obstacles to be overcome if private banks are to play an effective role as providers of liquidity insurance through contingent credit lines. First, to increase the attractiveness of such facilities to banks, contingent credit line agreements will need to be very specific about the conditions under which drawdown can occur and the pricing of the loan under different states in which drawdown can occur. Banks will presumably be reluctant to provide financing in circumstances where an individual country's creditworthiness has deteriorated, so there may be a role for linking drawdowns to indicators of macroeconomic performance. However, this raises issues as to the credibility of domestic macroeconomic statistics, suggesting a possible role for external verification. Second, it will be necessary to mitigate the tendency of banks to try to hedge their exposures as drawing becomes more likely. In the Argentine case, one of the purposes of the use of collateralization with domestic bonds was to minimize cutting into banks' regular country limits in the event that the sovereign drew on the credit line. It remains, however, to be seen to what extent banks would view such collateral as mitigating their loan exposure to an emerging market country. Subject to this uncertainty, special purpose credit lines that contain some form of collateralization—that is, like the (untested) Argentine facility—may provide a first model for other contingent credit lines.

1See IMF (1999b) for further discussion of other possible roles for private sector involvement.

2Some loan facilities are already linked to credit ratings, in terms of either pricing or availability.

which were not substantially affected by the external liquidity squeeze, loan-deposit ratios fell as the monetary authorities tightened policies to withstand foreign exchange market pressures.

The modest recovery of capital inflows in the first half of 1999 and the adjustment in Asian trade flows were the main causes of the turnaround in domestic financial markets, but the recovery of the domestic
Proactive approaches to financial restructuring have produced macroeconomic results faster than Thai international Financial Statistics; region remains one of the key risks to the strengthening of banks’ balance sheets in the region. Moreover, the process of phasing out full deposit insurance schemes. Following the imposition of extensive guarantees in the wake of financial crises, many emerging market banking systems are considering or have even announced effective time-tables to limit the coverage of these guarantees.15 Large losses in Latin American banks’ securities portfolios led to some degree of regulatory forbearance in the immediate aftermath of the Russian crisis, but regulators moved subsequently to enhance regulation on the classification and valuation of securities, as well as on capital requirements for market risk.16

Emerging markets in central Europe have strengthened their regulatory frameworks, but significant challenges remain as they face the prospect of full capital account liberalization and contemplate joining the EU. In particular, capital adequacy requirements need to be broadened to include market risks and off-balance-sheet exposures that are growing in most countries.

Asian Banking Systems

In Asia, efforts to restructure and recapitalize banks have continued, but as is typically the case, extensions of credit have been much slower to recover than fi-

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<th>Table 3.4. Selected Emerging Markets: Banking System External and Domestic Liquidity Conditions</th>
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<td>Cross-Border Claims of BIS Banks on Domestic Banking Sector (In billions of U.S. dollars)</td>
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1See IMF (1998a) for a discussion of issues on deposit insurance for emerging markets.

16See Box A.3.3 in Annex III for a discussion of issues on deposit insurance for emerging markets.
Developments in Emerging Market Banking Systems

Figure 3.10. Real Estate and Stock Prices: Selected Asian Countries

Sources: International Finance Corporation and Jones Lang LaSalle.

Financial markets and capital flows. Different countries have followed diverse approaches to financial sector restructuring, but results have been slower than expected. Despite the recovery in financial markets and economic activity in most of the crisis countries, the turnaround in the credit cycle has yet to happen, and asset quality is only now starting to bottom out. The recovery in real estate values has not yet begun (with the exception perhaps of Hong Kong SAR residential prices; see Figure 3.10) and some analysts believe that the recovery in equity values has been liquidity driven, as the lack of effective corporate restructuring does not support strong forecasts of earnings growth.

Korea and Malaysia have followed more proactive approaches to financial restructuring, which seem to be producing balance sheet results faster than in Thailand, which has followed a more gradual and less interventionist approach. The former countries forced banks to either reserve and write off nonperforming loans or to sell them to asset management companies, and there has been substantial progress in strengthening banks’ balance sheets and a number of successful mergers and acquisitions. Both countries also have fairly effective bankruptcy and foreclosure laws, but concerns remain about the extent and depth of their achievements in corporate restructuring—especially among Korean chaebol. Despite this progress, analysts are concerned that this strategy may lead to future problems and further rounds of recapitalization. In particular, nonperforming loan purchases in Korea have been done with few conditions on the banks to maximize recovery values, which means the banks have limited in-

17 The number of commercial banks in Korea has fallen from 27 at end-December 1997 to 17 at end-May 1999. The Korea Asset Management Corporation has bought more than half the banks’ nonperforming loans, while Danaharta (the Malaysian asset management company) had bought 32 percent of the banks’ nonperforming loans by end-June 1999.

18 As of December 1998, the debt-equity ratio of the top 30 chaebol had declined to 380 percent, from 519 percent in 1997. However, rating agencies have suggested that substantive deleveraging and restructuring has not yet occurred and that the banks will likely bear a disproportionate share of the debt-reduction burden (see Box A3.1, Annex III).
centives to improve their lending practices. Thailand has also made some progress in bank restructuring, but its decision to let the banks deal with the nonperforming loans themselves, combined with an only gradual tightening of provisioning requirements and delays in the strengthening of the legal framework, has led to a significant deterioration in asset quality. In particular, this has allowed even healthy borrowers to avoid repaying loans, leading to the accumulation of so-called "strategic" nonperforming loans. However, recent amendments to the bankruptcy and foreclosure legislation, combined with a more proactive role in corporate restructuring, are likely to start delivering more effective results in the second half of 1999. Indonesia has closed several banks, but widespread insolvencies and low loan recoveries are hampering progress in financial restructuring.

Bank recapitalization has required a substantial amount of government resources as foreign participation has been limited. In Indonesia, the restructuring process has resulted in government ownership of more than 80 percent of the banking system's assets; and the implied costs—currently estimated at more than 50 percent of GDP—could continue to escalate unless a forceful loan collection strategy is implemented. In Korea, the government now owns more than 90 percent of the equity of the second- and third-largest banks, and while foreign ownership in other top-tier banks has increased, strategic foreign investments in nationalized banks have suffered some setbacks. In Thailand, several private banks raised capital using hybrid financial instruments in an attempt to avoid government recapitalization and the loss of control. In April, the country's fourth-largest bank completed a landmark $1.8 billion capital-raising deal whereby the government matched the share purchases of private institutional investors to become the largest shareholder in the bank.

China has begun to set up individual asset management companies to tackle the bad loan problems of each of the four state banks. The establishment of these companies has reflected the determination of the Chinese government to resolve asset quality problems. To promote the operation of asset management companies, consideration has already been given to improving the legislation and market infrastructure. However, analysts have raised doubts about whether the country has the financial infrastructure to allow the companies to be effective, and they foresee problems in the valuation and pricing of the assets. While the bankruptcy of Guangdong ITIC has led foreign banks to cut exposures to mainland borrowers, domestic deposits have continued to grow. Meanwhile, Hong Kong SAR banks have continued to handle the deflationary pressures well and their exposures to the mainland's ITICs appear to be manageable. Banks in Singapore are preparing to face increased competition after the authorities' gradual move to liberalize the banking sector.

Latin American Banking Systems

The largest banking systems in Latin America have shown an enhanced ability to withstand the external liquidity squeeze; and while depositor confidence was maintained in the midst of financial market turbulence, many banks suffered losses on their securities portfolios. The reassessment of international banks' exposure to emerging markets strongly affected the Brazilian banks, but the external liquidity pressures subsided somewhat after the arrangement of an IMF-led financial package in mid-November 1998 and its revision in mid-March 1999. Banks in Argentina and Mexico suffered from cuts in international interbank credit (and repo) lines, but contrary to the experience during the Tequila crisis, deposits continued to grow. The reductions in international interbank exposures and subsequent pressures in currency and securities markets led to losses in the banks' securities portfolios, which were absorbed through a reduction in earnings and the equity accounts—and, in the case of Mexico, through further regulatory forbearance and central bank support.

The decline in asset quality as a result of a deteriorated operating environment has not yet been fully reflected in banks' balance sheets and is leading to further banking system consolidation. The persistence of high real interest rates and of the recession has reversed the recent recovery in asset quality across the region, but analysts believe that most large banks have adequate capital bases to withstand the increases in delinquency rates. The combination of large foreign ownership and the authorities' strong commitment to improvements in prudential regulation and supervision has strengthened considerably Latin American banking systems in the period since the Tequila crisis. However, the number of banks in many systems remains large and further consolidation is warranted. Smaller and weaker banks in Argentina, Brazil, and Venezuela are facing the double strain of a deteriorated operating environment and the competitive pressures from foreign banks, and are likely to have to exit the market. So far, the authorities in these countries have shown an increased ability to resolve the failures of weaker banks with no adverse effects upon the systems as a whole.

19Thailand has made substantial progress cleaning up the finance companies, and assets sales are well advanced.
20The hybrid capital instruments combine noncumulative preferred shares with subordinated debt (see Box A3.2, Annex III).
Central European Banking Systems

After 10 years of transition in the region, restructuring and privatization have strengthened banking systems in Hungary and Poland to a greater extent than in the Czech Republic. These three banking systems continued to receive sizable foreign capital inflows, in part owing to stable relationships with western European banks and the prospects of EU accession. However, exposures to Russia uncovered the fragility of the largely state-owned Czech banks and, after two years of negative profits in the banking industry, the authorities are moving forward with the bank privatization process. Capital inflows supported strong loan growth in Hungary and Poland, especially in foreign currency loans to (generally unhedged) borrowers. Competition has led to declining profits and a search for higher yields through lending to the small and medium-sized corporate and consumer segments, but analysts believe that improved financial fundamentals and large foreign ownership would enable banks in both countries to withstand a cyclical downturn. Losses in brokerage subsidiaries of foreign-owned banks in Hungary led to funding support from head offices in the wake of capital outflows during the Russian crisis, providing an example of the resilience afforded by this ownership structure. All of these countries have strengthened their regulatory and supervisory frameworks following the signature of EU Association Agreements, but significant challenges remain as they face the prospect of full capital account liberalization and contemplate joining the EU. In particular, capital adequacy requirements need to be broadened to include market risks and off-balance-sheet exposures that are growing in most countries. Also, the convergence to EU deposit insurance levels is likely to require an increase in the coverage of the country’s deposit insurance systems.

The Turkish banking system faced increased funding and credit risks during 1998, owing to reduced access to external funding by the lower-tier banks, higher domestic interest rates, and an economic downturn. However, the strength of a core group of well-managed top-tier banks, the treasury’s readiness to accept high interest rates, and the stability of the depositor base allowed the banking system to weather the global crisis relatively well to date. The top-tier banks have maintained access to international capital markets and have continued to absorb a large share of the lira-denominated government debt. The high real interest rates have raised questions about the dynamics of the government’s debt but this has so far not been a key concern with the domestic investor base.

The large currency mismatch of Turkish banks remains a source of concern, despite the tighter regulations to bring the open positions to 30 percent of equity. As the economy slowed down, asset quality deteriorated somewhat, with the biggest credit risk being the concentration of intragroup lending and guarantees that are not readily apparent in the analysis of banks’ accounts. Market analysts see the approval of a new banking law that calls for the establishment of an independent bank supervisory body as a crucial step toward reforming the Turkish banking system.

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22Following the sale of one of the four large state-owned banks in early 1998, the government sold the fourth-largest in early June 1999 and announced a timetable for the privatization of the other two—to be completed in 1999.

23See Annex III for further details.
Managing Global Finance: Private and Public Policy Challenges Raised by Last Fall’s Mature Market Turbulence

The severe turbulence that erupted in the immediate aftermath of Russia’s effective default and devaluation has raised a number of questions about the adequacy of the current lines of defense against systemic risk and the factors underlying the dynamics and spillovers that characterize modern financial markets. The World Economic Outlook and International Capital Markets: Interim Assessment noted that the three lines of defense against systemic risk—market discipline, prudential supervision and regulation, and macro-prudential surveillance—had proved inadequate to avoid a buildup in vulnerabilities during the two preceding years. As a result, the global financial markets experienced a bout of severe turbulence in the late summer and early autumn of 1998 following the reappraisal of risk triggered by the Russian crisis. Moreover, both market participants and policymakers were surprised by the virulent dynamics and spillovers across markets during the turbulence—especially for emerging markets—as a rapid process of deleveraging and portfolio rebalancing was set in train by a sharp increase in risk aversion. Even in some of the deepest capital markets in the world, liquidity pressures emerged.

This chapter steps back from the proximate causes of the turbulence to address the questions of whether there are any particular features of financial systems that make them susceptible to such episodes, the degree to which modern risk management practices—and frequent marking to market—may contribute to the severe dynamics and spillovers that have characterized recent periods of deleveraging and portfolio rebalancing, and the associated challenges for public policy. In the process, the chapter discusses the main proposals that have been advanced by various groups to contain the excessive leverage that contributed importantly to financial market turbulence.

Even though it was influenced by the structure of modern capital markets, the recent turbulence shares several features with earlier episodes of financial distress. Most notably, the turbulence was preceded by a gradual buildup in vulnerabilities, as investors were increasingly willing and able to assume higher levels of risk and, as in earlier episodes, a relatively minor or unrelated event served as a trigger for a sharp reappraisal of risk and the bursting of the euphoria. The turbulence, in short, involved the traditional elements of boom-bust cycles that have been common in financial history.

In at least three respects, the environment of the recent turbulence has evolved from that in earlier episodes. First, reflecting the investments many governments have made in creating financial safety nets, such as deposit insurance and lender of last resort, many of the larger institutions are increasingly operating either explicitly or implicitly under a too-big-to-fail policy. As a result, and notwithstanding the stepped-up supervision and regulation that accompanies the safety net, the system itself may be tending to encourage excessively risky behavior while blunting market discipline.

Second, modern risk management practices—such as marking to market, margin calls, dynamic hedging, and frequent portfolio rebalancing to meet internal and regulatory capital requirements—are leading to rapid adjustments in response to new information and/or reapraisals of risk. With the same large globally active institutions operating in many different markets and countries, these systems are also creating the potential for spillovers between seemingly unrelated markets. Moreover, risk management systems are placing an increasing premium on liquidity on account of the higher margin calls triggered during periods of financial stress.

Third, the growing use of OTC derivatives and structured notes is increasing the ability of institutions to leverage up capital positions. The high levels of leverage may be creating financial systems that are capable of making costlier mistakes during periods of euphoria (exacerbating the boom) and that can magnify the adverse consequences of a negative shock or a reappraisal of risk.

Following a brief review of some key features of episodes of financial stress as well as the growth of financial safety nets, the next section considers the environment in which the buildup in vulnerabilities occurred in the mature financial markets last year. In addition to a number of structural factors related to modern finance, relatively abundant global liquidity and competition among financial institutions appear to have contributed to an environment in which risk became underpriced and leverage rose to unsustainable levels. The next section discusses some key public policy issues raised by the turbulence, with particular
emphasize on issues of market discipline, transparency, incentives, moral hazard, and the evolving nature of systemic risk. This is then followed by a review of the main proposals for addressing the risks posed by highly leveraged institutions and activities, and remaining challenges. Finally, the chapter concludes with an overall assessment of current proposals to effectively address the private and public policy challenges relating to weaknesses in private risk management and market discipline that contributed to the crisis. Appendix 1 discusses issues concerning the measurement of off-balance-sheet leverage. Appendix 2 addresses issues of market integrity that have arisen in connection with the activities of some HLIs in small and medium-sized markets.

Recurring Features of Turbulence and Crisis: Importance of Lines of Defense Against Systemic Problems

The mature market turbulence associated with the near-collapse of LTCM is the most recent example of a buildup of financial risks followed by a sharp adjustment in which exposures are unwound. The process of deleveraging was associated with virulent dynamics. Similar buildups of vulnerabilities can be identified in other episodes of financial turbulence and crisis, including most recently in the emerging market loan crisis, Japan’s 1990s asset-price bubble and financial system crises, and Thailand’s 1997 foreign exchange and financial sector crisis.

The episodes have frequently been characterized by relaxed attitudes toward risk taking, sometimes encouraged by economic and financial policies, and sometimes driven by overoptimism about the prospect for returns. The realization that imbalances are about to be unwound often leads to a race for the exits, rapid price adjustments, large volumes of transactions being unwound—sometimes even closures of institutions, severe price dynamics and liquidity crises, and on some occasions more long-lasting credit crises. These are characteristics of the manias and panics in the early part of this century, documented by Kindleberger and others, including the now seemingly irrational exuberance in the run-up to the bank runs and panics preceding the Great Depression. In some cases,3 the accumulation of excessive concentrations of risk can persist for some time before a series of triggering events encourages investors to reassess risks and rebalance portfolios. Risks and vulnerabilities can accumulate in systemically important financial institutions, in markets, or, as in more recent emerging market crises, in countries or regions. In the 1990s, excesses and vulnerabilities seem to have become more market based and market oriented than they were in the early part of the century, but the psychology of market behavior has probably not changed much. Imbalances between the “greed” for high returns and the “fear” of losses and default have persistently led to swings between overexuberance during asset market booms and irrational panic during busts.

Although earlier episodes of turbulence and crises had similar features to those in the 1990s, they often had different consequences. For example, in the United States (and in most countries) at the turn of the century, financial markets were much less regulated than today, and financial structures also were different. In the period leading up to the 1930s U.S. banking crises and the Great Depression, the banking system and financial markets more generally were less supervised and regulated than now. As a consequence, the banking and financial crises were largely resolved privately, with relatively low direct costs to taxpayers. However, the adjustment in the real economy during 1929–33 was devastating—a 30 percent decline in real GDP in the United States and 17 percent decline in employment. This large real economic damage formed the basis for a significant amount of legislation aimed at creating a financial safety net and a regulatory and supervisory structure, and at ensuring both monetary and financial stability. That is, it is as a result of the experience in the 1930s that financial markets, and more generally international financial markets, have several lines of defense against the potential for widespread damage or systemic problems. The changes in the United States were in most important respects, but also with some special differences, representative of the approaches taken in other industrial countries and in many developing countries.

As a result, the advanced countries now have financial systems that have significantly different balances of costs related to the buildup and unwinding of financial excesses during the 1920s included a broad-based expansion of private debt (outstanding corporate bonds rose from 28 percent to 49 percent of GDP between 1920 and 1928) and household mortgages (from 12 percent of GDP to 27 percent). Banking failures during 1930–33 involved mainly capital losses of owners and depositors. For example, in the case of the United States, while the Federal Reserve was charged with financial stability as early as 1913, its powers were expanded and consolidated with the Banking Acts of 1933 and 1935. The mandate for monetary policy beyond financial stability was not granted until the Employment Act of 1946 provided implicit guidance. Banking legislation during the 1930s also tightened the public safety net with the provision of deposit insurance, but commercial banking, investment banking, and brokering were separated to reduce financial concentration, which was suspected as a contributor to earlier financial excesses.

3See Kindleberger (1989).

2As in the banking crisis leading up to the 1930s Great Depression, the 1973 Bankhaus Herzstalt international banking crisis, the 1980s developing-country debt crisis, the 1980s U.S. savings and loan crisis, Japan’s 1990s asset-price bubble and financial system problems, and Thailand’s 1997 foreign exchange and financial sector crisis.
nancial excesses. There are extensive official safety nets and monitoring frameworks—banking supervision and market surveillance—and self-regulatory private organizations. By creating safety nets and monitoring frameworks for preventing and managing systemic problems, modern financial systems—in Europe, the United States, and Japan—have sought a different balance of costs than existed in the 1930s between prevention and resolution of crises, in which the potential for higher ex ante costs of prevention and ex post costs of resolution (both borne by taxpayers) yield benefits by reducing the economic damage and systemic consequences.

Meanwhile, national financial systems and the international financial system have been transformed dramatically by financial liberalization, innovation, modernization, and globalization. Most recently, these developments include the growth of derivatives markets (especially the OTC market) and the development of off-balance-sheet finance, the increasingly widespread use of complex quantitative models for portfolio and risk measurement, and the associated practices of marking to market and rapid portfolio rebalancing. International finance is now driven by globally active financial institutions that rely on modern techniques and instruments of finance using sophisticated information, communication, and computer technologies.

Recent crises, and in particular last fall’s virulent dynamics, leave open the question of whether the official safety nets and monitoring systems have adapted sufficiently to this new financial environment and whether they are still ensuring that incentive structures encourage an appropriate amount of market discipline.

It might be argued that, on the basis of the available evidence, it is difficult to justify the absolutely firm conclusion that last autumn’s turbulence demonstrates serious weaknesses in the functioning of the global financial system that generate the potential for substantial systemic risk. It is the function of financial institutions to take on and manage risks. Sometimes ex ante risks materialize in adverse ex post outcomes, and those undertaking such risks incur losses or even become insolvent, with costly consequences for owners, creditors, and counterparties. This is an inevitable feature of the normal and healthy functioning of a market-based, competitive financial system. Realization of losses and occasional insolvencies are essential to instill the necessary discipline on risk management policies and practices for all who participate in the financial system.

In addition, periods of turbulence are a normal and recurring feature of financial markets, especially when markets experience significant adverse developments. Realization that such turbulence can occur—because it actually does occur—is also important for instilling proper discipline. In this regard, the difficulties that were encountered and the losses that were sustained in the turbulence that followed the Russian default and the near failure of LTCM have taught (or reinforced) some important lessons about prudent risk management in modern global financial markets. Moreover, while the actions of the U.S. Federal Reserve and other central banks to calm financial markets suggest that the turbulence of last autumn did generate the potential for meaningful systemic risk, the comparatively modest extent of these actions and their subsequent success suggests that the level of such risk was well within manageable proportions. That major central banks may, on infrequent occasions, need to fulfill their responsibilities in this way does not necessarily imply grave defects in the general functioning of the global financial system.

However, on a reasoned assessment, this would clearly be too sanguine a view of the financial market turbulence of last autumn and of the lessons it should teach concerning the functioning of the global financial system. As emphasized in the World Economic Outlook and International Capital Markets: Interim Assessment, the extent of the turbulence last autumn—which affected a broad array of financial markets, including those that are normally the deepest and most liquid—does appear grossly disproportionate to the initiating causes. Something was not right in the buildup of vulnerabilities that preceded the turbulence, and something was not right in the exaggerated market response after the turbulence started. Moreover, one can wonder what might have happened in a similar situation of apparent (at least ex post) vulnerability, if there had been a substantially larger initiating disturbance, such as a sudden upsurge in global inflation or the onset of recession affecting most of the global economy. How would global financial markets have responded? Would the turbulence have been so easily contained and reversed? One can also ask, given the same initiating shocks as last year, what would have happened if monetary policy in the major countries had been less able to calm financial market turbulence because, for example, higher priority needed to be given to containing inflationary pressures? While such questions lack clear answers, they do strongly suggest that the path of prudence is to analyze carefully, with a view to designing and implementing relevant reforms, a variety of deficiencies in the functioning of financial markets and institutions that may contribute either to the unwarranted buildup of risks and vulnerabilities or to their disorderly and turbulent unwinding.

**Environment in Which Financial Excesses Accumulated and Created the Potential for Systemic Problems**

The buildup of leverage and the market dynamics experienced last fall occurred in an environment shaped by the structural features of the modern global financial system. These features undoubtedly affected
the nature of market dynamics in international financial markets, but do not alone explain the buildup of excesses and the corresponding threat of systemic problems. A combination of conjunctural factors and market psychology also contributed to financial excesses manifest in the buildup of unsustainable risk exposures and concentrations, and leverage. These features, which are described below, cannot be precisely measured, but discussions with market participants strongly suggest that they all played a role in the turbulence.

Market Dynamics Are Changing

Greater Reliance on Securities Markets, Especially OTC Derivative Markets

As the returns from traditional banking have declined, globally active firms have increasingly relied on off-balance-sheet activities and, in particular, OTC derivatives as a source of revenues. For the 50 largest banks, the ratio of other (i.e., noninterest) operating income to net interest revenue rose from almost 50 percent in 1991 to about 85 percent in 1997. This change in the business of global banking reflects at least two important factors. First, the opportunities for unbundling and repackaging risks provided by relatively recent advances in information and computer technologies have made it possible to create new derivative products that can be custom tailored to a customer's needs. The development of derivative products and the growth of this market have increased the opportunities for embedding financial features (options) in traditional securities that allow investors to hedge or to take specific positions on precisely defined risks (though the apparent precision may sometimes be illusory, because apparently separate components of financial risk may in fact be closely related at times).

Second, both private and regulatory incentives have encouraged the use of off-balance-sheet OTC derivatives, in part reflecting the more active internal and dynamic reallocations of capital across the various businesses within the organizations. Much of the activity has shifted off balance sheet because this is where profits can be made. Banks' clients now engage in more liquidity and asset management, and in hedging and position taking. Commercial banks have tapped into market-oriented business through other off-balance-sheet instruments as well, such as commercial credit lines and revolving underwriting facilities. The regulatory environment also provides incentives to shift activities off the balance sheet, as off-balance-sheet risks often carry a smaller regulatory capital burden than on-balance-sheet risks. For example, by using OTC derivatives in their trading activities, commercial banks can increase leverage considerably without significant additional bank capital charges. Also, risk taking has shifted to market risk, which can be engineered through the use of off-balance-sheet derivatives. OTC derivatives are valued at market value on the balance sheet, but implicitly may contain additional layers of leverage that are not captured by capital requirements. Moreover, OTC derivative assets currently receive a maximum 50 percent risk weight (compared with 100 percent weight for private loans) according to the Basel Accord.

Finally, loan commitments with a maturity of up to one year, even if they are routinely rolled over, carry no capital charge.

Modern Portfolio Risk Management and Control Systems

A key aspect of modern finance is the reliance on risk management, measurement, and control systems. Financial institutions now use risk management models and stress tests to measure the risk to capital (and ultimately the risk of insolvency) of their investment positions. Value-at-risk (VaR) models are one way to achieve this objective, as they quantify the amount of the firm's capital that is exposed over a given period, conditional on various assumptions. Some financial institutions also use stress tests in which scenarios are simulated. Regardless of the methodology, if the potential loss is too large, the firm might rebalance its portfolio to reduce the value at risk (the loss on the firm's portfolio that should be exceeded with no more than a small probability). Some financial institutions also allocate capital on the basis of VaR and similar models.

Modern risk management models have two significant limitations. First, they rely heavily on historical data and relationships, which may underestimate the likelihood of future extreme events and often involve the assumption that stable processes generate market prices. Recent events have underscored that rare, "fat-tailed" events can occur more frequently than might be expected, that correlations can increase and change sign during periods of extreme turbulence, and that volatility can increase sharply.

Second, the modeling of nonmarket risks, such as credit and liquidity risks, is challenging even for the

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6This has been one of the main driving forces behind the rapid growth in the OTC derivative markets, whose notional value of outstanding contracts amounted to more than $80 trillion at end-1998, up from $47.5 trillion in 1995.

7The cap on the risk weights for (nonbank) OTC derivatives in the 1988 Basel Accord was based on the (by now questionable) presumption that the counterparties in the OTC derivatives market are of first-rate quality. The proposed revisions to the Basel Accord would eliminate the cap on risk weights for OTC derivatives.

8For example, a firm's value at risk might indicate that its losses over the coming week should exceed $10 million with no more than 5 percent probability.
Liquidity and Speed

Another, and closely related, aspect of the modern financial system is that modern portfolio and risk management systems rely heavily on market liquidity. Market liquidity can be seen as having three important characteristics: tightness (range for asset price bid-ask spreads), depth (volume of trades possible without affecting prices), and resiliency (speed with which price shocks are dissipated). Financial systems have become increasingly “liquidity hungry” as modern hedging and portfolio management need liquid markets to facilitate portfolio rebalancing and unwinding of leveraged positions. Derivative markets in particular require that underlying securities markets produce continuous prices; otherwise, shocks can trigger a snowballing sequence of margin calls and sell orders that can cause prices to move very sharply.

Market-making activities rest with broker/dealers who often take positions themselves and also require ready access to liquid repurchase markets or money markets to finance their positions. Broker/dealers rely on credit lines from banks for funding when circumstances do not permit them to roll over their funding positions in the repo or money markets. For other linkages among market liquidity, broker/dealers, banks, and money markets to operate smoothly, counterparties must be able to assess credit risks and must be assured of efficient and timely clearance and settlement of transactions. Unusual events that raise doubts about credit risk can cause these linkages to break down and lead to an evaporation of market liquidity. When markets become illiquid owing to the withdrawal of market makers, portfolio rebalancing can be disruptive, and asset prices can adjust abruptly.

Such adjustments occurred last fall during the mature market turbulence. As mature markets moved toward their nadir in late September and early October, there were few suppliers of liquidity. Those already holding safe liquid assets, such as newly issued (that is, on-the-run) U.S. treasury bonds, were not selling them. And arbitrageurs that normally “insure” liquidity (such as LTCM, other hedge funds, and investment banks) were already highly leveraged and faced liquidity spreads that were likely to widen further.

This generated losses and even greater pressures to obtain liquidity. The drying up of liquidity appeared to have been magnified and accelerated because many institutional market makers (investment banks, some commercial banks, and hedge funds) experienced proprietary trading losses and were unable to provide liquidity. These institutions withdrew from market making as they rushed to liquidate positions and absorbed market liquidity, and there appeared to be no natural sellers of liquid assets once the severe market dynamics took hold. Also, as many financial institutions had to meet margin calls, lending to market makers evaporated, which added to pressure on market makers. Discussions with market participants have suggested they are now paying more attention to liquidity risk, and some risk models are being adjusted to mark assets to “liquidation values,” using nonlinear pricing formulas, in times of stress rather than to “market values” as is done in normal market conditions.

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Even during normal market conditions, however, a particular event could trigger—via modern risk management and control systems—many simultaneous sell or buy orders in the same assets. Decentralized markets obscure the number of participants on the other side of the market (within the normal range of price variation). Without sufficient liquidity to support market transactions, prices can jump sharply as markets become one-sided, especially when market positions have been multiplied by leverage.

**All Have Influenced Market Dynamics**

Summing up this part of the discussion, the structural changes just described together have changed market dynamics in two important ways. First, modern finance allows risks to be priced and traded more actively, more continuously, in larger quantities, and ideally more safely. Changes in fundamental economic value that were once hidden on bank balance sheets are now recognized more quickly and more frequently in a mark-to-market environment through market prices. In addition, as market prices provide continuous (albeit noisy) signals about value, market participants reappraise risk, rebalance portfolios, and deploy or withdraw capital. This reassessment and rebalancing can, in turn, feed back to market prices. Thus, along with potential improvements in efficiency have come more frequent changes in asset prices and financial flows, and possibly more rapid and complicated market dynamics. Second, because the market makers that provide critical market liquidity are often also traders and investors, large price shocks can be associated with the withdrawal of market makers, a decline in market liquidity, and sharp and disruptive price declines (not only in the market that originally experienced the shock, but in any market where market makers might have been active).

Many of these features of modern finance are efficiency enhancing when used in moderation, but in the event, a critical mass of them were pushed simultaneously, aided by a buildup of high leverage, similar position-taking, and excessive reliance on—and presumption of—continuous market making and ample liquidity. In this environment, the August 1998 Russian default then came as an event that triggered the wholesale reassessment of risk that ultimately led to the mature market turbulence. Given the environment, some other combination of events could have done the same.

**Roles of Market Psychology, Conjunctural Factors, and Leverage in Virulent Market Dynamics**

**Market Psychology**

In addition to the above-mentioned features of modern finance, market psychology also played a role. Financial markets have long been seen as subject to cycles of market sentiment, in which excessive optimism suddenly shifts to extreme pessimism. This phenomenon is sometimes attributed to market irrationality, but it can have fundamental underlying causes. Early in the cycle, a critical mass of market participants begins to view some investment opportunity in a more attractive light than in the past. This belief might be triggered by a new paradigm; a strong track record of returns; or the observation that those market participants that are viewed as having "inside information" or special expertise are pursuing that opportunity and profiting from it. These can cause trend-following behavior by market participants that extrapolate past returns, and "copycat" behavior by those that attempt to "free ride" on the superior information of "insiders" and "experts." Eventually, some event puts the initial optimism in question, and in response, risk is reassessed and portfolios are rebalanced. Sentiment deteriorates rapidly, capital is withdrawn, and prices fall further, potentially creating a cycle of price declines and eroding sentiment that feed upon one another.

These psychological dynamics are generic to financial markets and may have been at work in recent years. Suggestions that the economic structure has changed in the 1990s may have led market participants to overweight the recent unusually favorable experience. The short price history of emerging markets provided a potentially distorted picture of the risks in those markets during the early 1990s. Generous liquidity in international financial markets—and a presumption that it will continue to be provided on generous terms—may have boosted asset prices in the 1990s.

**Conjunctural Factors**

Conjunctural factors also played an important role in the buildup of imbalances before the fall of 1998. In the period 1996 to mid-1998, three interrelated factors appear to have influenced conditions in global financial markets. First, low inflation rates, and in some cases near price stability, in the major countries resulted in very low nominal interest rates and a boom in the major fixed-income markets. Second, liquidity was generally ample, if not excessive, in international financial markets (but not necessarily in particular domestic markets). Third, competition to manage funds and maintain high returns intensified among major financial institutions, which along with ample liquidity compressed margins in many markets, adding to the

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16See Chapter 2 of Flood and Garber (1994).
17Empirical studies of herd behavior and momentum trading among institutional investors in mature markets include Grinblatt, Titman, and Wermers (1995) and Lakonishok, Shleifer, and Vishny (1992), which find some statistically significant evidence for momentum trading and herding among U.S. equity funds.
incentives to reach for yield. In turn, these conjunctural factors encouraged changes in market features and practices, which later gave rise to the buildup in vulnerabilities through mid-1998.

**Interplay of Financial Market Practices and Conjunctural Factors**

Although it is not possible to be precise about the separate influences of market practices and conjunctural factors in the buildup in mature market vulnerabilities, market participants have suggested that the following were particularly important:

- **lax attitudes toward risk taking**, including in emerging markets—manifested, inter alia, in ineffective risk management (including the presumption of continuous market liquidity) and overreliance on collateral (which substituted for counterparty risk assessment and concentrated certain risks in some institutions);
- **inadequate transparency about counterparty risk**, because of widespread reliance on off-balance-sheet, OTC, cross-border, and cross-market transactions;
- **mark-to-market accounting**, which contributed to liquidity pressures; and
- **unsustainable leverage**, which became increasingly necessary to remain competitive and meet expectations of continued high returns.

**Leverage, Financial Fragility, and Systemic Risk**

Perhaps the single most important factor in the buildup of financial conditions that enabled a single credit event—the Russian default—to trigger such large reactions in the deepest and most liquid markets in the world was leverage. Without the exposures magnified by leverage, the effect of moderate shocks on systemically important institutions might not have induced the degree of withdrawal from market making and the extent of selling to meet margin calls witnessed in September and early October 1998. Without such selling pressures, initial declines in prices and widening in spreads might not have been amplified and propagated. Without the amplification and propagation of market shocks, large, systemically important institutions might not have seen the pressures against their profitability and capital that emerged at the height of the market turbulence.

High levels of leverage can give rise to vulnerabilities at every level of the financial system. At the individual firm level, although leverage enhances returns on equity when asset prices move in a favorable direction, leverage also magnifies losses when prices move against the firm’s positions. This magnification of losses increases the risk to the firm’s solvency and the risk that the firm will face margin calls and forced liquidation of securities holdings when adverse price movements occur.

The same applies for groups of financial institutions, particularly when many of them have similar highly leveraged exposures. In those circumstances, high levels of leverage can produce simultaneous swings in the profit-and-loss accounts of many firms, and by the same token, simultaneous adjustments in portfolios. A large market “shock” can also raise concerns that several financial institutions may simultaneously risk substantial losses. Either mechanism may give rise to sharp price declines and spillovers in response to price shocks, for example, owing to disproportionate selling pressures and reassessment of counterparty risk. Thus, modern financial systems can produce potentially disruptive price movements in the presence of high leverage.

At the financial market level, high leverage may contribute to price variability, as it could create price movements that reduce efficiency. These may occur first during the buildup of leverage, by leading to misallocations of resources and unsustainable appreciations of asset values, and second during the deleveraging process, in which sharp price reversals that are disruptive and temporarily destabilizing are likely. Unsustainable leverage can cause price swings on the downside that are beyond what is required by efficiency as market participants simultaneously attempt to liquidate leveraged positions in order to minimize losses.

In some circumstances, the risk of market disruptions stemming from high leverage can reach systemic proportions if leverage has built up in several markets simultaneously or through markets that are linked by the similar leveraged, cross-market investment strategies pursued by key participants, or if leverage causes the risk of insolvency in a critical mass of systemically important institutions. The potential for systemic consequences can also increase through highly leveraged price arbitrage between different market segments or markets. The buildup of unsustainable leverage can, in extreme circumstances, transform the financial system into one that is temporarily inefficient and unstable.

Finally, despite the risks raised by leverage, too little is known about how to measure leverage, about its role in modern, complex financial institutions, about the optimal degree of leverage within financial markets, and about whether, and if so how, to regulate it. Because of the paucity of data on financial transactions flows, the most direct and observable evidence (ex post) of the buildup of counterparty risk concentrations and of high levels of leverage are various price data. These include the relatively compressed spreads on higher-risk debt instruments, the prevalence of low or zero initial margin requirements and haircuts on repo transactions, and the relatively easy terms of lending to those engaged in arbitrage in the markets for liquidity and short-term credit. The prevalence of these phenomena during the buildup of lever-
age and the severity of the market dynamics during the turbulent deleveraging process last fall suggest that leverage might have been excessive. However, there is no widely accepted analytical framework for determining and assessing the threshold beyond which leverage in a firm—or in a market or financial system—becomes potentially disruptive. If a comprehensive measure of leverage could be formulated and made transparent, then shareholders, creditors, and counterparties could reflect it in their assessments of counterparty risk and in the cost of capital they charge (see Appendix 1). This would add a degree of market discipline to constrain unsustainable leverage.

Regarding optimality, even if it can be argued that each institution pursues a risk management and leverage policy that appears individually sensible, the buildup of leverage at the systemic level may, due to unforeseen interactions in a crisis situation, reach unsustainable levels. This would suggest that the use of leverage can at times create a significant negative externality with potential systemic consequences.

**Private and Public Policy Issues and Challenges**

Because of concerns about the activities of hedge funds and especially about the events surrounding the near-collapse of LTCM, consideration has been given to whether to regulate hedge funds to reduce the possibility of their potentially excessive use of leverage. Like all other financial intermediaries, hedge funds use leverage, and in some cases misuse it. However, because the use of leverage is not by any means confined to hedge funds, the issue of reforms in this area should not focus only on regulating and reforming hedge funds. As observed in previous *International Capital Markets* reports, hedge funds have not been the only, or even the largest, financial institutions involved in highly leveraged financial activities in international financial markets. Many other financial institutions, including the proprietary trading desks of commercial and investment banks and other institutional investors, are major participants in the same kind of highly leveraged activity. The financial vulnerabilities that accumulated in and across several markets before August 1998 resulted from the activities of a large number of globally active financial institutions and many smaller specialized institutions (brokers, dealers, settlement systems) in both cash and derivative markets, and was not the outcome of the activities of a single group of financial institutions.19

From a policy perspective, a key concern is that an unsustainable degree of leverage accumulated in the international financial system, with some early warning signs, but without sufficient remedial action to forestall a buildup of vulnerabilities. The relevant participants that could have taken corrective actions include private financial institutions, authorities responsible for supervising internationally active banks and for national market surveillance, and international groupings composed of central banks and national supervisory authorities that monitor international financial markets. The main challenge going forward is for private financial institutions and public policy to maintain the efficiency-enhancing aspects of modern finance while reducing the tendency for financial excesses to build up in the system and generate risks of virulent market dynamics.

**Importance of Improving Market Discipline**

In a market-based economy, internal private discipline (set by internal incentives and enforced by top management in financial firms) and, ultimately, market discipline (provided by external incentives from creditors, equity holders, and counterparties) are the primary market mechanisms for constraining private risk taking and leverage. Internal and market discipline are intended to detect growing financial imbalances within firms and remove them through internal management controls and through market mechanisms (appropriate incentive structures, arbitrage opportunities, profit and loss statements, and market-related governance, including bankruptcies and the threat of takeovers) before they become large and threatening to a particular financial institution, market, or set of markets.20

While improving private market discipline has been identified as the most important challenge coming out of the turbulence, insufficient market discipline may itself have been a manifestation of other more fundamental deficiencies. Effective internal and market discipline rely on various other features of the economic and financial system and infrastructure. Of paramount importance are the availability of relevant information and the effectiveness of private and regulatory incentive structures. More broadly, challenges

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18 See, for example, International Monetary Fund (1998a).
19 For a general discussion of the role of hedge funds in the Asian crises see Eichengreen and others (1998).
20 There is also the presumption that when a single financial institution develops an unsustainable risk profile (for example, because senior management faces inappropriate incentives), this will become known and be reflected either in the share price of the firm or in its ability to attract deposits or raise funds within the market place. There is the further presumption in most of the mature markets that the infrastructures are built so as to prevent problems at one institution from necessarily leading to problems at other institutions through the large-value transfer payments systems and through other parts of the private and public financial infrastructures (such as exchanges and securities settlement systems). All of these presumptions rest on the fundamental assumption that there is sufficient information available on a timely basis for investors and counterparties to assess reasonably accurately the risk profiles of their counterparts and their relationships with them.
include improving financial disclosure and transparency; understanding and better aligning private, market, and regulatory incentive structures; and better understanding the changing nature of systemic risk. Ultimately, however, the presence of the public safety net for financial institutions—especially the largest systemically important institutions—creates countervailing incentives that work against adequate private internal and market discipline; accordingly, containing moral hazard from such public policies is also a key challenge.

Greater Financial Disclosure and Transparency About Risk Exposures

Disclosure by financial institutions and transparency about their risk profiles is a fundamental requirement for private market discipline and regulatory and supervisory oversight. Without sufficient and timely information about on- and off-balance-sheet activities, the market disciplining mechanisms that are relied upon to address financial imbalances before they become vulnerabilities will not produce adequate self-corrective adjustments. Because of the complex nature of modern finance, the information requirements for assessing risk profiles of financial institutions are challenging both for those within the institutions (for risk management purposes and for allocating capital among businesses) and externally for stakeholders (including depositors, investors and creditors, counterparties, and supervisors). In an environment in which risks can be unbundled, repackaged, and embedded in securities, it is not a simple matter for the senior management of a financial institution to obtain accurate measures of the aggregate risk exposures of the institution. Risk managers from the most sophisticated international commercial and investment banks report daily estimates of the firms’ capital at risk to senior management, by relying on risk management models and stress tests. The combination of estimation and testing provides management with some, but not necessarily a sufficient, understanding of the firm’s existing exposure and how well the firm’s portfolio might perform outside historically based scenarios of market stress and turbulence. The financial industry is now developing techniques for more accurately estimating potential future exposure and for assessing the potential impact of systemic disturbances (that is, of liquidity risk) on the amount of capital at risk.

Investors, depositors, creditors, and counterparties to financial institutions also are challenged by the lack of transparency. Often, the only information available about the riskiest off-balance-sheet activity is embedded in footnotes of the firm’s presentation of its simplified balance sheet in its annual report. Private stakeholders have the option of not lending to, or not dealing with, counterparties if they do not have sufficient information to manage their risks. However, in the highly competitive environment that existed in the mid-1990s, counterparties appear to have been willing and able to engage cost effectively in counterparty relationships with limited information. A prophylactic for counterparty complacency would be increased disclosure and enhanced transparency of off-balance-sheet activity and other vital parts of a counterparty’s operational controls, including risk management.

In addition to the challenges faced by senior managers and counterparties in assessing risk exposures, there are also systemic concerns associated with the lack of transparency. These concerns extend beyond the exposures of individual systemically important financial institutions, and include the degree of concentration of exposures within specific markets and the linkages across markets. Without such information, it is difficult for those in charge of official market surveillance and systemic risk management to know where all of the risks and vulnerabilities reside within the international financial system and where and how they might be concentrated. Overall, the objective is to enhance the degree of transparency and disclosure so that it strikes the appropriate balance between (1) the type of information that allows counterparties to assess counterparty risk accurately and that allows systemic risk managers to assess market imbalances and vulnerabilities soon enough to take preemptive actions against potentially systemic turbulence; and (2) encouraging and not inhibiting efficiency-enhancing financial activity.

Realigning and Improving Incentive Structures to Promote Better Market Discipline

Greater disclosure and better transparency, in particular about risk exposures, are necessary but not sufficient for improving credit and counterparty risk assessments. Appropriate incentive structures—both within a financial institution and for outside stakeholders—are also required to encourage firms to obtain sufficient information and act upon it properly. Without such incentives, disclosure would not create sufficient market discipline to discourage the buildup of concentrations of exposures and unsustainable leverage within individual financial institutions. This kind of market discipline appears to have been deficient in the period leading up to the turbulence in the fall of 1998.

The overall incentive structure faced by financial institutions is a complex composite of the internal firm-specific structures, a competitive market environment, corporate governance arrangements, and the supervisory and regulatory framework. Internal discipline is guided by business practices, including appropriate capital endowments, sufficient profitability, and acceptable asset quality, and is safeguarded by internal control mechanisms, including risk management and
assessment procedures. Effective internal discipline requires the support of an internal incentive structure that aligns incentives of individual business units and individual decision makers with the overall objectives of the institution. The alignment of incentives at various levels of a complex decentralized organization is difficult because decision makers at various levels have the incentive to take rewards and shift associated risks onto others (or into the future).

That the turbulence appears to have been largely unanticipated suggests that risk management and stress testing systems may have been predicated on insufficient information and incomplete views about market dynamics and possible market repercussions from economic and financial shocks, as might be expected during a process of learning and adaptation to structural changes. The systems may not have fully taken into account the pace of financial innovation and the impact on market dynamics and cross-market linkages of the increasingly widespread use of derivative financial instruments. For example, until recently, many global financial institutions maintained separate market and credit risk departments, with the consequence that positions that were profitable because of price movements became unprofitable because of their impact on the solvency of the counterpart.

Ultimately, internal discipline is supported (and bolstered) by external market discipline by bank owners, creditors, and counterparties (as well as to some extent by supervisors). However, even if external stakeholders have access to sufficient information about the firms' risk profiles, they may not have strong incentives to closely monitor risk taking and other business activities. External monitoring is likely to be inadequate because of the highly complex nature of modern financial institutions, the opacity of their investment positions to outsiders, the nature of competitive pressures, and free-rider problems that are inherent in widely dispersed counterparty and financing relationships. This possibility of less than adequate private external monitoring by private stakeholders suggests there is a role for public policy to provide additional guidance, rules, and incentives for proper risk management.

Although possible, it seems unlikely that the apparent inadequacies of internal discipline within financial institutions and external stakeholder governance and control in the recent turbulence were entirely the combined result of coincidental misjudgments and errors. Because transformations in modern finance have altered the way national and international financial markets price and allocate resources, it is reasonable to expect that private incentive structures would also need to adjust to these different ways of doing business. Thus, part of the explanation of insufficient discipline is probably that private incentive structures have yet to adapt to account adequately for financial modernization, securitization (market-based finance), and globalization, and may be neither consistent with, nor supportive of, effective market discipline.

This suggests, in turn, that there may need to be adjustments in the role that public policy plays in ensuring that private incentive structures provide an appropriate degree of market discipline in financial markets. In addition to improving private risk management and prudent oversight over the risk-taking activities of financial institutions, policymakers, supervisors, and financial regulators can enhance the ability of market discipline to prevent systemic problems by providing greater incentives for stakeholders to exercise a greater degree of control and governance over the activities of financial institutions with whom they have business relationships. Moreover, because private and regulatory incentives interact and jointly affect private financial decisions, and because of the potential impact of financial modernization and globalization on them, it would be beneficial to review existing regulations and their potential impact on private incentives to ensure that distortions are not being created. Part of this effort would include providing a proper balance of insurance against systemic risk and disincentives (penalties) for exploiting the financial safety net.

Reducing Moral Hazard

The existence of financial safety nets (for depositors, financial institutions, and markets) creates the presumption that when market discipline is not sufficient to prevent systemic problems, there will be official involvement through the supervisory process and official market surveillance, and occasionally through more direct means of support. Financial stability (for example, in official large-value payments systems) is a public good that can be adversely affected by a collection of private actions. Without some degree of official involvement to insure against systemic risks, private market participants might collectively lack the willingness or ability to undertake optimal levels of financial risk, and they might therefore engage in suboptimal levels of financial intermediation. This seems to have occurred at the height of the market turbulence in the fall, when the widespread fear of private losses disrupted the normal operation of financial markets, to an extent that raised systemic problems. This is one reason why the U.S. Federal Reserve System, and other central banks, intervened to reduce the cost of liquidity and risk taking.

Prudential oversight and other elements of official involvement constitute preventive and corrective mechanisms, which—like market discipline—provide a degree of insurance and stability to national financial systems and, more broadly, to the international financial system. This presumes that the degree of official involvement remains within reasonable boundaries and does not unduly influence market participants into thinking they can engage in imprudent risk taking.
taking without suffering the consequences of bad outcomes. The presumption should be that official involvement occurs only so far—up to the point where it encourages normal and prudent risk taking.

This poses a difficult balancing act for policymakers, who are responsible for encouraging normal risk taking and at the same time insuring the financial system against systemic problems. The challenge is for banking supervision, market surveillance, and financial policymaking more generally to balance efforts to manage systemic risks with efforts to ensure that market participants—in particular, the systemically important institutions—will bear the costs of imprudent risk taking and, accordingly, will have the right incentives to avoid imprudence. Accountability also needs to be in place, and perhaps bolstered in some cases, to foster and promote discipline in the exercise of official supervision and surveillance.

Improving Understanding of the Changing Nature of Systemic Risk

The evolving character of the global financial system raises challenges for systemic risk management. The national and international lines of defense put in place over the past twenty years to deal with systemic events rest on a certain conception of the nature of systemic risk, one that may have become too narrow given the expanded opportunities for risk taking and reliance on markets for financing. Most of the existing defenses are built on the presumption that a systemic financial event is (confined to) one in which the problems at one institution might cascade through a payments system, interbank relationships, or depositor runs and infect other institutions to the point of posing risks for the financial system itself.

As financial systems have moved from separate national bank-based intermediation systems to a globally integrated market-based system, national payments systems have also been reformed. Market-based systems in which securities are traded in markets have lower potential for traditional systemic risk than bank-intermediated systems. Securities firms hold liquid assets that can be traded and have a higher proportion of longer-term funding; and economic shocks are in principle absorbed by price changes, and their effects are spread and dispersed more widely (in fact, almost globally). There is now a much greater reliance on securitized finance in most national financial systems and certainly within the international financial system. This may have created a more market-oriented form of systemic risk, involving an array of markets and their underlying infrastructures, which by and large are privately owned and operated. As a result, systemic risk may now be more highly concentrated in capital and derivative markets, and involve private settlement systems and quasi-private clearing houses.

In addition, there is an element of dynamic competition—a race—between the regulated and the regulator. Because of the combination of technological advances and private incentive structures, private financial practices may be changing more quickly and dynamically than it is possible for supervisory and regulatory frameworks to adapt to monitor them. Likewise, because of differences in resources and incentives, the ability of the private sector to capture the gains from technological advances may have exceeded the ability of officials to learn how these technologies can be applied to the measurement, calibration, and management of systemic risk. As noted by one former senior regulator, the relationship of supervisors and financial institutions is like that of a “bloodhound chasing after a greyhound”: regulators have trouble keeping pace with the ability of internationally active financial institutions, and the gap between them may be widening.

Current financial regulatory frameworks generally provide a financial safety net supported by (1) prudential regulations requiring banks to maintain sufficient capital, and (2) reporting and accounting standards and best business practices. The former are designed to ensure that financial institutions—particularly systemically important ones—have sufficient capital to absorb internally any losses sustained so that taxpayer costs are minimized. The latter are designed to ensure that losses are quickly and adequately reflected in profit/loss statements so that private stakeholders can discipline financial institutions to implement changes that prevent future losses. This general approach has worked reasonably well in limiting collateral systemic damage from private financial excesses and problems. Nevertheless, this approach is not without tensions: it creates potential conflicts between the objectives of regulators, who—by providing insurance—underline private risk taking beyond some limit that might not otherwise be taken, and those of regulated institutions, who have incentives to find ways to take greater risks within internal and regulatory capital constraints. A danger in imposing further constraining regulations is that the regulatory environment might then tend to inhibit efficiency-enhancing risk taking; alternatively, the danger in not adequately enforcing existing regulations is that financial institutions will take risks not usually considered worth taking.

There is no final solution to these challenges, and it is neither possible nor desirable for financial supervisors and regulators to know as much about a financial institution and its risk-taking activities as its own management. Nevertheless, financial policymakers must continuously reassess instruments for encouraging prudent behavior and risk management, recognizing that some instruments are likely to be imperfect and blunt. The challenge is to develop instruments that are effective in encouraging prudent behavior and
management but that do not inhibit efficiency-enhancing activities. As markets evolve and become more complex, regulatory frameworks need to be continuously well adapted to the changing nature of private financial risk and systemic risk.

In summary, the transformation of the modern financial system is changing the nature of systemic risk. As noted recently by President Tietmeyer of the Deutsche Bundesbank, "... systemic risk is not a given quantity. To a large extent, it is an endogenous variable which depends on the structures of the financial markets, on the supervisory framework at the national and international levels and on the decisions taken by the political and monetary authorities." A fundamental concern is that private incentives are not strong enough to prevent excesses and that the existing lines of defense presently inadequately address some aspects of the transformed, more market-oriented systemic risk. A desirable approach is to consider reforming existing private and public mechanisms (including crisis prevention and management mechanisms) for dealing adequately with all of these evolving elements of the international financial system. In addition to reforming private risk management systems, G-10 financial policymakers may also need to consider reforming systemic risk management systems to more effectively deal with the evolving nature of systemic risk and events. This will entail a more global approach, as has taken place so far in the policy discussion on, and reform of, the international financial architecture.

Proposals for Reform

Even before the turbulence in the fall of 1998 had fully dissipated, private market participants, national authorities, and international groupings had begun to consider reforms to address the weaknesses revealed by the episode. The proposals made so far do not take the view that new regulations (except for improved disclosure), and in particular direct regulations for HILs, are needed at this stage to address the private and public policy challenges posed by the near-collapse of LTCM and the associated market turbulence. Proposals have focused on strengthening market discipline and bank risk management by increasing the transparency of financial institutions through improved disclosure.

Private sector proposals have focused on improvements in private risk management, especially the integration of market and credit risk functions. They stress the need for adapting risk management procedures to the evolving financial environment and for better understanding the role of collateral. Undoubtedly, given the losses sustained at some institutions and lessons learned more generally from the recent turbulence, there have been already, and will continue to be, significant adjustments in risk management policies and practices. This is a favorable result that should help to improve systemic stability. However, some private sector proposals are critical of any attempt to codify risk management practices. Although some private studies advocate enhanced transparency in financial markets, others have expressed doubts about the net benefits of requiring extensive public disclosure of exposures to HILs and direct disclosure by hedge funds. This approach adds somewhat to more general doubts about whether private initiatives to improve risk management—important and valuable as they will surely be—will be enough to meet the evolving challenges of the increasingly complex global financial system.

Some national authorities have suggested changes in private risk management procedures or supervisory practices that go beyond private sector proposals. For example, the U.S. President's Working Group on Financial Markets surveyed the issues surrounding hedge funds and recommended a number of measures designed to constrain unsustainable leverage by improving transparency and private risk management. The Working Group concluded, inter alia, that hedge funds should be required to report their quarterly financial statements to the public, and that all public companies should publicly disclose their aggregate exposures to HILs. The Working Group also identified a need for regulators to provide guidance on risk management practices. It noted ambiguities in the close-out netting regime and severe shortcomings in the interplay of national bankruptcy laws, in particular vis-a-vis offshore centers. Supervisory directives have been issued in the United States by the Federal Reserve Board and by the Office of the Comptroller of the Currency (OCC). These directives provide guidance on key elements of counterparty credit risk, such as the measurement of credit exposures, and on internal controls to ensure that practices comply with policies. They stress that due diligence—not competitive pressures—should drive the credit decision process.

A Bundesbank report noted that sole reliance on market discipline is unlikely to suffice to contain excessive leverage. The Bundesbank argued that the systemic risks associated with hedge funds depend

22The main initiatives, both public and private, are summarized in Annex IV.
24For example, see Corrigan and Thieke (1999).
27See Deutsche Bundesbank (1999).
primarily on the degree of their integration with the banking system. The report proposed an international credit register as an effective monitoring system for creditors and concluded that it would be desirable if hedge funds were required, under direct supervision, to comply with reporting rules and possibly with investment and capital requirements. The Bundesbank recognized the practical difficulties in enforcing national regulatory measures given globalized markets and complex investment strategies.

A Reserve Bank of Australia report indicated there is a case for a public policy response to the emergence of hedge funds. Although the report argues that regulation of some types of hedge funds was warranted, it also acknowledges considerable practical difficulties, including the possible migration of hedge funds to nonregulated offshore centers and the emergence of new institutions similar to hedge funds that would not be covered by regulation. The report concluded that, given these practical difficulties, the most effective approach would include improving disclosure standards, enhancing the risk monitoring by the creditors of hedge funds, and removing distortions in the Basel capital framework that favor bank exposures to hedge funds. The report also noted that, notwithstanding ongoing efforts toward international coordination, there was scope for unilateral action by national regulators, particularly in the United States, with beneficial effects for the global financial system.

There have also been several international initiatives. In addition to risk management practices, these have concentrated on how greater appropriate disclosure could be beneficial for improving counterparty risk assessments by private agents and for enhancing banking supervision and official market surveillance efforts for assessing market and system-wide accumulations and concentrations of risk and leverage.

A draft EU paper on the reform of the international financial system concluded that HLIs should comply with the same rules on transparency and disclosure that apply to other financial institutions. HLIs overall leverage should be monitored and bank lending to HLIs tightly supervised. The EU paper also proposed a credit register on the overall indebtedness of funds and suggested that financial institutions situated in offshore centers could face higher capital requirements or transparency obligations.

The Basel Committee on Banking Supervision issued a paper on, and sound-practice guidelines for, banks’ interaction with HLIs. The paper noted that transactions with HLIs pose special challenges for risk management, given the opaqueness of their activities and the dynamic nature of their trading strategies. It urged supervisors to put in place incentives and standards to encourage prudent management of bank exposures to HLIs. The sound practices call upon banks, inter alia, to adopt credit standards in line with the specific risks associated with HLIs; to monitor exposures frequently; and to develop meaningful measures of potential future exposure and establish appropriate credit limits.

Ongoing work on these issues is taking place in various international forums. In February 1999, the Financial Stability Forum was established by the G-7 industrial countries to improve cross-border and cross-sector cooperation of official agencies in identifying incipient vulnerabilities and ensuring that consistent international rules apply across all types of financial institutions. The Financial Stability Forum has three working groups currently examining HLIs, offshore financial centers, and capital flows. The three working groups are expected to prepare reports for the next meeting of the Financial Stability Forum in mid-September 1999.

Work is also under way in various working groups established by the Committee on the Global Financial System (formerly the Euro-currency Standing Committee). One working group is developing templates for disclosure of market exposures and trading positions by the large internationally active banks that will allow national and international authorities to assess market-wide risk exposures and concentrations without knowing details of risk exposures within individual institutions. Another working group is investigating the usefulness of aggregate position data for improving financial system transparency.

Overall, current private and official proposals have emphasized the role of private risk management (the first line of defense) for containing leverage and have viewed regulatory and supervisory activities (the second line of defense) primarily as tools for strengthening market discipline. Much less attention has been devoted to reforms that would improve the ability of supervisory and regulatory frameworks to ensure incentives for a sufficient degree of oversight to effectively monitor and influence the levels of leverage and risk taking. Appropriate incentives—for bank management, credit and market risk management, and supervisors—supported by effective enforcement through supervisory oversight and guidance are also necessary.

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29The Reserve Bank report notes that, according to the current Basel Accord on Capital Adequacy, inter alia, banks’ derivative exposures to nonbanks receive only a 50 percent risk weight (impllying a 4 percent capital requirement compared with the standard 8 percent for claims on the private sector), that short-dated foreign exchange contracts are zero-weighted, and that on-balance-sheet exposures to hedge funds are treated like other claims on the private sector. The proposed revisions to the Basel Accord address some, but not all, of these issues. For example, the Basel Committee proposes lifting the cap on OTC derivatives risk weights and introducing a new 150 percent risk weight category for poor-quality corporate claims.
30See EU Economic and Financial Committee (1999).

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In addition, it would be prudent to make clear—through appropriate incentives and disincentives, perhaps requiring new regulations and even laws—that senior management (decision makers) and the financial institutions they manage will bear the cost of mistakes.

**Remaining Challenges**

The proposed measures for enhanced private risk management are by and large appropriate, but there are several areas that have not yet been addressed fully. Both private and public sectors face important challenges in improving incentive structures, increasing the breadth of information to be disclosed and learning how to best utilize it for prudent financial decision making, and redefining a well-articulated and enforceable role for public policy, in particular supervision and market surveillance (the second and third lines of defense against systemic problems). There are also several important areas where improvements can be made in the public sector’s role in financial policymaking and implementation: better coordinating micro- and macro-prudential oversight; narrowing the gap between the regulators and the regulated; and better understanding the linkages between monetary and financial stability.

**Ineffective Incentive Structures**

Current proposals do not, at this stage, sufficiently address the role of incentive structures in preventing a buildup of financial vulnerabilities. Internal incentive structures could be improved through an integrated firm-wide and comprehensive approach to risk management and control that aligns the incentives of all players—from back-office to traders to risk officers—with the incentives and risk preferences of senior management and shareholders. Incentives for screening and monitoring by stakeholders could also be encouraged by providing market participants with additional market-based incentives more in line with public policy objectives: for example, by requiring banks to issue subordinated debt. In addressing these inconsistencies in private incentives, official oversight of their implementation can help to ensure that private incentives are more effective.

Official proposals do not explicitly acknowledge the scope for improving regulatory incentive structures. The current proposal to revise the Basel Accord to make it more risk focused suggests there is likely to be greater flexibility in tailoring the regulatory burden (including capital requirements) to the effectiveness of a firm’s risk management and control systems, but this remains to be seen (see Box 4.1). Other similar adjustments in prudential regulations and supervisory oversight may also be considered, many of which have been, and are still being, discussed in the various consensus-oriented committees, subcommittees, and working groups of central banks and supervisory authorities that meet regularly under the auspices of the BIS. In addition to enforcing private sector safeguards, the effectiveness of public sector involvement may be enhanced by evaluating, and improving if necessary, the ability of incentive structures to limit excesses in the transformed global financial system. Part of this effort should include an evaluation of how regulatory and private incentives interact, and whether regulatory incentives are distorting private incentives, especially in light of the modernization and globalization of finance.

**Gaps in Disclosure and Transparency**

There were also significant gaps in information (vis-à-vis counterparties, supervisors, and the public) in the run-up to last fall’s financial turbulence. Official proposals for increasing disclosure requirements and transparency do not clearly delineate what type of information should be disclosed, how often, and to whom (investors, depositors, shareholders, counterparties, or supervisors). This reflects in part the fact that there has not yet been sufficient time to digest completely how modern financial systems have altered the informational requirements for assessing, monitoring, and managing financial risk. Beyond the need to know more about risk exposures, off-balance-sheet activity, and OTC derivative risk, the form the information is likely to take remains unclear. A better understanding of the role of leverage, for example, could provide guidance on the type of information regulators and supervisors can provide to market participants about industry or market-wide vulnerabilities. Supervisors might make information available to financial institutions about prevalent types of position taking in key markets that could serve as input to firms’ stress-testing exercises with a view to more accurately assessing the simulated market dynamics in response to economic shocks. Those performing market surveillance could also disclose information on aggregate market positions to indicate market excesses and concentrations. Indeed, with global markets, closer coordination among supervisors and those performing market surveillance could be beneficial.

Further improvements in information on the extensive off-balance-sheet activities by financial institutions could prove useful for both supervision and surveillance. As supervisors intensify their information-gathering efforts, particularly with regard to OTC derivatives, and refine their methods of assessing risk exposures related to derivatives in individual institutions, a finer reporting network for surveillance pur-
Box 4.1. Proposed Revisions to the Basel Accord on Capital Adequacy

The Basel Committee on Banking Supervision recently issued a consultative paper proposing revisions to the 1988 Basel Accord. The proposals are designed to align capital requirements more closely with a bank's risk profile and to address financial innovations, such as asset securitization and credit derivatives, while at least maintaining the current level of capital in the system.

The 1988 Accord has been criticized for being based on crude measures of economic risk, for permitting regulatory arbitrage between the true economic risk of an asset and the applicable risk weights, and for not providing proper incentives for risk-mitigating techniques. While maintaining in principle the 8 percent risk-weighted capital requirement, the new proposals redesign the risk weights assigned to asset categories and provide some scope for judgments by bank management and supervisors in setting adequate capital. The revisions primarily address credit risk. Explicit capital charges for other types of risk, such as interest rate risk in the banking book and operational risk, are still to be developed. The coverage of the capital rules would be extended to include, on a fully consolidated basis, holding companies that are parents of banking groups. While the new rules would directly apply to internationally active banks, the Basel Committee noted that the guiding principles are generally suitable for any bank in any jurisdiction.

The new framework rests on three pillars: minimum capital requirements, supervisory review of a bank's capital adequacy, and market discipline. The revised minimum capital requirements, as the centerpiece of the new framework, build on the existing "standard approach," but would increase the number of risk buckets and allow the selective use of external credit assessments and banks' internal ratings.

- While the current Accord differentiates risk weights for claims on sovereigns by membership in the Organization for Economic Cooperation and Development (OECD), the weight for members. 100 percent weight for nonmembers, the revised risk weights would be benchmarked to assessments of sovereign long-term foreign currency obligations by eligible external credit assessment institutions (rating agencies and G-10 export insurance agencies) (see table). However, to be eligible for a risk weighting below 100 percent, the country would have to subscribe to the IMF's Special Data Dissemination Standard (SDDS). Supervisors could impose lower weights for banks' exposures to their own sovereign denominated in domestic currency.

- All short-term claims on banks (and long-term claims on OECD-incorporated banks) are currently assigned a 20 percent weight, while long-term claims on banks incorporated outside the OECD are weighted at 100 percent. The Basel Committee invites comments on two alternative options. Under the first option, claims on banks would receive risk weights one category less favorable than that of their home country sovereign— with a cap at 150 percent (see table). Under the second option, risk weights would depend directly on the counterparty bank's rating. The weighting on short-term claims would generally be one notch more favorable than the bank's overall risk weight, with a floor either at 20 percent or at the weight applied to its sovereign. It is proposed that claims on securities firms that face risk-based capital adequacy regulations similar to banks would be weighted in the same way as claims on banks.

- The current Accord assigns a uniform 100 percent weight to all claims on corporates regardless of credit quality. Under the new scheme, the 100 percent standard weight bucket would be supplemented by a 20 percent weight bracket for very-high-quality corporates and a 150 percent weight bracket for very-poor-quality corporate claims (see table).

Improving the Analytical Understanding of Modern Financial Systems

As noted by U.S. Federal Reserve Chairman Alan Greenspan (well ahead of last fall's mature market turbulence), "We do not as yet fully understand the new system's dynamics. We are learning fast, and need to update and modify our institutions and practices to reduce the risks inherent in the new regime." Current proposals do not take a broad view of the potential im-

Basel Committee on Banking Supervision (1999a).
OECD group comprises, for the purpose of the current Accord, all member countries of the OECD and countries that have concluded special lending arrangements with the IMF.

Associated with the IMF's General Arrangements to Borrow and that have not rescheduled their external sovereign debt within the previous five years.
Risk weights below 100 percent, under either option, would only be admissible in countries that have implemented or endorsed the Core Principles for Effective Banking Supervision (see Basel Committee on Banking Supervision, 1997).

Impact of financial structural changes—the modernization and globalization of finance—on the structure of modern financial institutions, the nature of market dynamics, the interplay of private and regulatory incentive structures, and the changing nature of private and systemic financial risk.

Many of the current analytical frameworks were designed to assess and monitor risk exposures, risk concentrations, leverage, financial fragility, and systemic risk stemming from balance-sheet items associated with traditional banking activities. Credit risk remains the predominant financial risk for banks and needs to be better understood and modeled, especially as it now also takes on different forms, much of it off balance sheets. Analytical frameworks also need to be developed to better understand the role of leverage, the nature of existing gaps and incompatibilities between private and regulatory incentive structures, and the resulting changes in market dynamics. For example, as part of market surveillance, it would be useful to have an analytical framework for weighing the efficiency enhancements of leverage against the higher risks and market volatility that it can create. The public sector, and in particular central banks,

<table>
<thead>
<tr>
<th>Counterparty</th>
<th>A to AA</th>
<th>A+ to A</th>
<th>BB+ to BBB</th>
<th>BB+ to B</th>
<th>Below B</th>
<th>Unrated</th>
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<tr>
<td>Sovereigns</td>
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<td>20</td>
<td>50</td>
<td>100</td>
<td>150</td>
<td>100</td>
</tr>
<tr>
<td>Banks</td>
<td>Option 1</td>
<td>20</td>
<td>50</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td></td>
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<td>20</td>
<td>50</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Corporates</td>
<td>20</td>
<td>100</td>
<td>100</td>
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</tr>
</tbody>
</table>

Source: Basle Committee on Banking Supervision (1999a).

1 As illustration, assessments are based on Standard & Poor’s ratings system.
2 Risk weighting based on the risk weighting of the country in which the bank is incorporated.
3 Risk weighting based on the rating of the individual bank.
4 Claims on banks of a short original maturity, for example, less than six months, would receive a weighting that is one category more favorable than the usual risk weight.

Subject to supervisory approval, internal credit ratings—and, at a later stage, portfolio credit risk models—could form the basis for setting capital charges at some sophisticated banks, with details to be proposed in a forthcoming paper.

The purpose of the second pillar of the proposed new framework—supervisory review—is twofold: to ensure that a bank’s capital position is consistent with its overall risk profile and strategy, and to encourage early supervisory intervention if capital does not provide a sufficient buffer. Supervisors would encourage banks to develop internal capital assessment processes that are conceptually sound and robust. But at the same time, supervisors would have the ability to require banks to hold capital in excess of the minimum depending on the quality of bank management, its track record in managing risks, and business cycle effects as well as the overall macroeconomic environment.

The third pillar, market discipline, is viewed as an additional lever—supplementing and supporting supervision—to strengthen the safety and soundness of the banking system. A precondition for effective market discipline is informative disclosures of capital levels and of the nature and magnitude of risk exposures that would enable market participants to encourage banks to hold adequate capital.
could take a lead role in developing an informative analytical framework, which would be useful for shaping disclosure requirements and to determine what information should be collected and processed at the individual institution level and various levels of aggregation.

Other Challenges for the Public Sector

There are other important challenges for the public sector's role in strengthening supervision and surveillance: at the nexus of micro- and macro-prudential oversight; in the gaps between regulators and the regulated; and possibly in gaps between frameworks for ensuring monetary stability and financial stability.

First, financial system stability depends on the soundness of individual financial institutions, especially those that are systemically important. There may be unexploited synergies between macro-prudential—concerned with financial system stability—and micro-prudential oversight—concerned with the soundness of individual financial institutions. Although meetings occur regularly in international forums, more extensive discussions between supervisors of the internationally active banks could have helped to detect the predominance of creditor and counterparty exposures to LTCM and other hedge funds, and possibly have helped to prevent the buildup of problems last fall. Supervision could benefit from market intelligence gathered through market surveillance to obtain a market perspective on the risks faced at the firm level, while those performing market surveillance could benefit from knowing about financial institutions' market-related activities. Better coordination between macro-prudential market surveillance and micro-prudential financial supervision, and (public) disclosure of information gathered from supervisory activities, could help to limit the accumulation of market imbalances.

Second, because of advantages in the way they use information and technology, and their access to resources, financial institutions have informational advantages over regulators. Competition spurs financial firms to create new financial products, from which they earn rent, by utilizing state-of-the-art financial and information technologies, and they have more knowledge about their own positions and trading strategies than do supervisors. By contrast, the capabilities of public authorities to assess the implications of these financial innovations lag the private sector's capabilities to exploit those innovations. In essence, there are asymmetries between regulators and those they regulate in the understanding of changes to financial businesses and in the application of new financial and information technologies. Widening gaps are limiting the ability of regulators and supervisors to monitor global financial markets, oversee financial institutions and activities, and enforce regulations. Moreover, in view of the national orientation of supervisory, regulatory, and surveillance structures, the globalization of financial markets and the rise of financial conglomerates have also widened jurisdictional gaps. Thus, as noted earlier, continuing efforts are required to update supervisory tools and regulatory frameworks, at a minimum to prevent these gaps from widening, and preferably to reduce them.

Third, there are close linkages between monetary stability and financial stability. Although it is unlikely that monetary policies in the major countries contributed directly to this buildup, they may have played a role. In discussions during the past two years, private market participants in the major international financial centers often noted that there was ample liquidity in international financial markets driving spread compression. Without judging whether this is correct, there may be channels through which national monetary policies have an unintended impact on the global pool of liquidity. For example, while low Japanese interest rates of 0.5 percent may have been appropriate for promoting aggregate demand in Japan in 1997-98, they also were associated with the heavy reliance on the yen carry trade, which supplied liquidity to several regions via swaps in international capital markets. Similarly, monetary policies in other major financial centers have likely contributed to global liquidity from time to time.

Because national monetary policies affect the global pool of liquidity, they may also at times support, if not encourage, a buildup of leverage and position taking in international markets beyond prudent levels. Current analytical and policy frameworks for conducting monetary and financial policies in the major countries are unlikely to detect growing imbalances of this kind. Thus, there may be important gaps in the ability to monitor international monetary and financial developments: on the one hand, at the nexus of monetary and financial stability, and on the other hand, at the nexus of achieving domestic and international stability. These issues may also require careful consideration by national monetary and supervisory authorities and international bodies composed of national authorities that address related issues regularly in international meetings and forums.

Overall Assessment and Conclusion

Current reform proposals emphasize improving transparency and disclosure and strengthening private risk management, with the objective of enhancing market discipline. One reason leverage and risk concentrations may have produced potential systemic problems is that corrective market mechanisms apparently did not sufficiently limit growing imbalances
within financial institutions and across financial markets. Ultimately, vulnerabilities became large enough that they had to be contained. Various proposals for reform are now under active discussion and consideration by official forums, including the newly created Financial Stability Forum, and many of the issues raised in this chapter are likely to be addressed. The key challenge for private financial institutions and for public policy is to maintain the efficiency-enhancing aspects of modern finance and to reduce the tendency for the system to experience financial excesses and virulent market dynamics.

An initial approach should be to identify concrete and pragmatic ways in which the existing lines of defense against systemic problems can be bolstered and, if necessary, reformed. More information would improve the ability of financial institutions to strengthen quantitative and qualitative tools for managing financial risk. Better and more timely public disclosure of appropriate information, including about the risk exposures of the financial institutions, could also potentially improve the ability of private stakeholders to assess risks and act accordingly in pricing risk and allocating portfolios. Likewise, the ability of supervisors and those responsible for surveillance to exercise adequate oversight could also be improved, with more accurate and comprehensive information about the size and nature of exposures across the complete range of an institution's activities, including both balance-sheet and off-balance-sheet activities. The ability to understand, measure, monitor, and control the buildup of leverage and other aspects of risk taking should be an important part of this agenda.

This, however, is only part of the solution. To know what information is required requires analytical frameworks capable of understanding, assessing, and monitoring modern finance. Authorities can contribute by developing analytical frameworks for understanding, measuring, calibrating, and controlling the degree of leverage in financial systems, including by rigorously pursuing both monetary and financial stability objectives and through prudential oversight and market surveillance. There are no simple solutions to these analytical problems, and they need not be seen as part of a supervisory effort to "run their businesses for them." Just like the institutions they monitor, supervisors also require new tools and techniques and better and more comprehensive information, not necessarily exclusively for examining individual institutions. No one has a comprehensive picture of the positions building up in OTC derivative markets or of the credit with which these positions are leveraged. National market surveillance also can be improved to be better able to obtain market-wide and system-wide views of growing vulnerabilities that extend beyond inferences from price data about unobserved market activity: data on transactions or some measure of demands and supplies would also be useful.

In a market economy, financial decision making is driven by incentives. The incentives faced by modern financial institutions, especially those that are globally active, are a complex composite of laws, regulations, supervisory guidelines, and private incentive structures. The financial playing field has been greatly transformed by the modernization and globalization of finance, and financial institutions are continuously engaged in a learning process about how to profit from these changes. During periods of learning, understanding of risks can lag behind technical capabilities and opportunities, and the effectiveness of internal discipline can thus become impaired. Moreover, just as regulators have lagged behind financial institutions, incentive structures may have become less effective in achieving their desired objectives and may be affecting behavior in unintended or even unexpected ways. To some extent the proposed revisions to the Basel Accord are recognition of this possibility, but more needs to be done in other areas. Tangible reforms to regulatory incentives are difficult to identify without first reexamining the applicability of the existing rules of the game, in light of the modernization and globalization of finance. This may not be urgently required, but it seems to be a prerequisite for proposing long-lasting improvements to the effectiveness of market and regulatory discipline. Although challenging, it would also be beneficial to have a clearer sense of how incentives, risk taking, market structure, and market dynamics interact in modern financial systems.

In the meantime, financial markets will continue to evolve. Private market participants now have gained experience from the financial excesses and market turbulence of last fall and appear to be reforming internal risk management and control systems. Top management also seems to have been more clearly setting risk tolerances to send clear signals to the various lines of business that make up modern financial institutions. Mechanisms need to be put in place, and monitored sufficiently within the firm and through supervisory oversight, to limit imprudent risk taking and its consequences. No doubt, the next financial problem will be driven by some other aspect of risk taking, so vigilance and flexibility are required.

Finally, there should be little doubt that, at the margin, moral hazard also played a role. Moral hazard is an inevitable consequence of ensuring financial stability. Given that financial stability is a public good, the public sector necessarily must provide insurance to protect against systemic problems. Without this insurance, private market participants may not collectively

34If incentives were effective and appropriate, the private sector might then have good reason to obtain the information it needs to make more prudent decisions.
achieve an optimal level of risk taking and financial intermediation, in part because they cannot adequately protect themselves privately against systemic risk. With insurance comes a degree of moral hazard, but the combination of insurance and moral hazard should provide an equilibrium outcome with higher social welfare than without it. To limit moral hazard and maintain the welfare-improving equilibrium, the public sector must also effectively monitor and limit risk-taking behavior that would impinge on the balance of welfare considerations—in particular, those individual institutions that are most capable of exploiting the public sector safety net.

The appropriate balance between market discipline and official intervention involves difficult trade-offs between different objectives. On the one hand, financial safety nets appear to have significantly lessened the deadweight losses and collateral damage associated with financial crises earlier this century. On the other hand, the safety nets themselves may be contributing to excessively risky behavior and may involve potentially large costs to taxpayers. A complicating factor in seeking to rely more on supervision and regulation is that the large globally active financial institutions are able to circumvent regulation through gaps between the information sets of supervisors and the institutions themselves. Banking supervision, official market surveillance, and systemic risk management are the tools for monitoring. The buildup of financial vulnerabilities that only became evident once the turbulence occurred last autumn was a wake-up call: existing frameworks for banking supervision, official markets surveillance, and managing systemic risk may not be sufficient for the modern financial system.

Ultimately, the part of the insurance provided by the public sector that may create the most obvious moral hazard is that the public sector has in the past intervened to save institutions, either directly or indirectly through markets. One possibility for limiting moral hazard is to take more frequent decisions that reduce the perception that interventions are the rule and failures the exception, for example, by gradually but deliberately reducing the size and scope of the safety net. The U.K. authorities may not have deliberately had this in mind when Barings was allowed to fail, but there can be little doubt that it had a sobering impact on U.K. financial institutions. The more general objective would be to have greater involvement of the private sector in preventing systemic problems, not just through improved private risk management to protect themselves, but also through greater awareness that their actions have systemic implications and are affected by systemic problems created by others. Given that the scope of official financial safety nets is unlikely to be reduced quickly or entirely, the ability to monitor, supervise, and surveil modern financial systems remains critical.

Appendix 1

Off-Balance-Sheet Leverage

Leverage is the magnification of the rate of return (positive or negative) on a position or investment beyond the rate obtained by a direct investment of own funds in the cash market. Leverage is of concern because (1) by definition it creates and enhances the risk of default by market participants; and (2) it increases the potential for rapid deleveraging—the unwinding of leveraged positions—which can cause major disruptions in financial markets by exaggerating market movements.35

For private and systemic risk management, and market surveillance, it would be useful to have broad measures of the extent of leveraged positions in capital markets. This knowledge would allow market participants to assess the potential for rapid price movements resulting from exogenous adverse market shocks that may cause investors to deleverage in an attempt to mitigate their losses. Anticipation of possible turbulent deleveraging might limit the buildup of unsustainable leverage. Hence, a publicly available measure for overall leverage by institutions and in markets could enhance self-stabilizing forces without necessitating disclosure of proprietary position data to the public. Since leverage in modern financial markets can easily be assumed by using derivative contracts, it is useful to have a measure that captures not only on-balance-sheet leverage but also the leverage implicit in off-balance-sheet transactions. Despite its importance, empirical measures of leverage are difficult to implement.

Leverage is traditionally measured by the ratio of a firm's total assets relative to its equity. Calculating this ratio is straightforward if the firm only relies on balance sheet transactions, such as bank loans. However, if the firm uses off-balance-sheet transactions, such as derivative instruments, the measurement of leverage is more complicated. This appendix first explains how the leverage that is implied by the most common derivative instruments could be measured. More complicated derivatives, such as swaps and structured notes, can generally be decomposed into spot market, forward, and option positions and will therefore not be considered separately. The appendix also presents methods for aggregating leverage within an institution and within markets.36

35See International Monetary Fund (1998b), Box 3.3.
36Leverage has the capacity to increase risk. For a given equity base, leverage allows the borrower to build up a larger investment position and thus higher exposure to market risk. Since leverage increases the potential loss triggered by a given adverse price movement, leveraged investors are likely to adjust their positions sooner than pure equity investors. The simultaneous unwinding of large leveraged positions may, in turn, trigger further price movements and therefore increase risk.
Leverage Implicit in Plain Vanilla Derivative Instruments

To assess leverage resulting from a derivative contract, the contract can be decomposed into its cash market equivalent components. The basic derivative instruments—futures and options—can be replicated by holding (and, in the case of options, constantly adjusting) positions in the spot market of the underlying security, and by borrowing or lending in the money market. This replication of the contract maps the individual components into own-funds equivalents (equity) and borrowed-funds equivalents (debt), which can be used to measure the leverage contained in long and short forward positions and option contracts.

Consider, as an example, a long forward contract on a security that, for simplicity, provides no (interest or dividend) income. Purchasing a security forward is equivalent to borrowing cash at the risk-free interest rate, supplementing the borrowed funds with own funds in the amount that would otherwise be spent on the forward contract, and investing the total amount in the underlying asset. In the replicating portfolio, own funds are equivalent to the market value of the contract; the sum of own and borrowed funds is equivalent to the contract’s current notional value. Hence, the leverage ratio implicit in a forward contract is defined as the current notional value relative to the contract’s market value. As a short forward position is tantamount to a short position in the underlying asset, its leverage ratio—defined in the same way as that of a long forward ratio—is negative. To compare leverage ratios for short positions and long positions, it is therefore necessary to take the absolute value of leverage ratios for short positions. Leverage ratios for long and short option positions can be calculated in a similar fashion (see Table 4.1).

As the price of the underlying asset changes, the value of the forward contract—and thus the value of equity—will change, which implies a continually changing leverage ratio. This is similar to on-balance-sheet leverage: as the value of the underlying security increases (decreases), the investor’s equity rises at a faster rate than the value of the assets, thereby reducing the leverage ratio, and vice versa. The leverage ratio could ultimately reach infinity when losses equal the equity in the position. However, for exchange-traded derivatives the ratio is bounded as a result of margin requirements. Futures margin requirements range between 2 percent and 8 percent, implying maximum leverage ratios between 50 and 12.5. Although leverage in forward contracts is typically not bounded by margin requirements, it may be limited by overall credit and trading limits that institutions have with each other.

Aggregate Leverage of a Financial Institution

The mapped asset components can be aggregated for an institution and expressed relative to its on-balance-sheet equity. There are at least two ways of aggregating assets to arrive at an overall measure of leverage for a financial institution: the “gross leverage ratio” and the “net leverage ratio.” Both ratios add the spot market asset equivalent components in some form to on-balance-sheet assets before dividing by on-balance-sheet equity. To the extent that the institution’s overall equity is positive, the leverage ratio will be less than infinity, even though some of its positions may have infinite leverage.

Table 4.1. Leverage Ratios in Basic Derivative Instruments

<table>
<thead>
<tr>
<th>Derivative</th>
<th>Long Position</th>
<th>Short Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forward contract</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Call option      | \[
| \( \text{(delta)} \times \text{(current notional value)} \) \] | \[
| \( \text{- (delta)} \times \text{(current notional value)} \) \] |
| Put option       | \[
| \( \text{- (delta)} \times \text{(current notional value)} \) \] | \[
| \( \text{(delta)} \times \text{(current notional value)} \) \] |

37 The market value of a derivative contract, in turn, might be financed by on-balance-sheet debt and on-balance-sheet equity.
38 The current notional value of a derivative contract is defined as the product of the number of underlying shares and their current market price. By contrast, the notional amount refers to the product of the number of underlying shares and the delivery (exercise) price specified in the contract.
39 The “delta” of an option—also called the “hedge ratio”—is defined as the rate of change of the option price with respect to the price of the underlying asset.
40 The delta of a put option, \( \Delta_p \), is related to the delta of an equivalent call option (\( \Delta_c = \Delta_p - 1 \)).
The “gross leverage ratio” adds the absolute amount of short (negative) asset equivalents to that of long (positive) positions. Hence, this ratio, in general, overstates the total market exposure, as short positions may offset long positions to some extent. Subtracting short asset positions from long asset positions yields the “net leverage ratio,” which is smaller than the gross leverage ratio. Both ratios measure the relationship between an investor’s exposure and that investor’s equity. While the net leverage ratio may more accurately reflect the market risk of a leveraged investor, it does not take into account credit and liquidity risk inherent in the individual contracts. By contrast, the gross leverage ratio incorporates all those risks.

As a third measure of leverage, the U.S. President’s Working Group on Financial Markets proposed the value at risk of an entity’s portfolio relative to its equity. It is, however, not a measure of leverage per se. Rather, it is a measure of risk and addresses whether an institution’s equity is sufficient to cover potential losses due to market risk. Hence, it could be called the “risk coverage ratio.” Unlike the leverage ratio, this ratio does not capture the extent to which the institution has pooled economic resources from outside debt investors and therefore its systemic importance. To judge the “riskiness” of an institution, it would be useful to know all three ratios. Regulators are currently considering whether disclosure of these ratios ought to be required.

It is impossible to precisely measure leverage for institutions active in derivative markets without full knowledge of their positions, including hedges. However, data filed by commercial banks and trust companies in the United States with the OCC allow an approximation. As gross market values of derivative positions (not subject to netting) are itemized as assets and liabilities on the balance sheet, changes in the value of these positions directly affect the firm’s equity. Hence, the ratio of current notional values outstanding to the equity of the institution indicates the extent of off-balance-sheet gross leverage. The sum of this ratio and the conventional balance sheet leverage ratio can serve as an approximation to the overall gross leverage ratio. The net leverage ratio cannot be calculated without further information about the nature of the positions.

Gross off-balance-sheet leverage of the top 25 U.S. banks, which in 1998 held approximately 99 percent of the total notional amount of derivatives in the domestic banking system and 38 percent of derivatives outstanding worldwide, exceeded the leverage of the remaining domestic commercial banks by a wide margin. For the latter group the ratio ranged around 0.1, indicating virtually no derivatives activity. In the aftermath of the 1996 bond market turbulence and the associated deleveraging, leverage among the top 25 banks increased gradually from 70 in 1996 until the second quarter of 1998 (see Figure 4.1). It surged by 18 percent to 91 in the third quarter of 1998. The increase was largely due to an upsurge in derivatives exposures rather than a decrease in capital (see Figure

41Two important shortcomings are that: these ratios, by their nature, need to be reported by the financial institutions themselves and that the estimates of value at risk used for the risk coverage ratio are predicated on very specific assumptions.

42Risk-based capital, the sum of Tier 1 and Tier 2 capital, was derived from OCC data.

43The reported figures overstate the gross leverage ratio because the “delta” of option contracts is assumed to be 1 (owing to lack of data) and because the reported notional amounts are valued at exercise (delivery) prices, and not at current market prices.

44One globally active bank reached a ratio as high as 579.
Table 4.2. Global Positions and Approximate Gross Leverage Ratios in OTC Derivatives Markets by Type of Risk Instrument
(In billions of U.S. dollars)

<table>
<thead>
<tr>
<th>Type of Risk Instrument</th>
<th>Notional Amounts</th>
<th>Gross Market Values</th>
<th>Approximate Gross Leverage Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign exchange contracts</td>
<td>13,095</td>
<td>22,055</td>
<td>1.048</td>
</tr>
<tr>
<td>Outright forward and forex</td>
<td>8,699</td>
<td>14,658</td>
<td>622</td>
</tr>
<tr>
<td>Currency swaps</td>
<td>1,957</td>
<td>2,324</td>
<td>346</td>
</tr>
<tr>
<td>Options</td>
<td>2,379</td>
<td>5,040</td>
<td>71</td>
</tr>
<tr>
<td>Other</td>
<td>61</td>
<td>33</td>
<td>10</td>
</tr>
<tr>
<td>Memorandum item: Exchange-traded contracts</td>
<td>119</td>
<td>103</td>
<td></td>
</tr>
<tr>
<td>Interest rate contracts</td>
<td>26,645</td>
<td>48,124</td>
<td>647</td>
</tr>
<tr>
<td>Forward rate agreements</td>
<td>4,597</td>
<td>6,602</td>
<td>18</td>
</tr>
<tr>
<td>Swaps</td>
<td>18,283</td>
<td>32,942</td>
<td>562</td>
</tr>
<tr>
<td>Options</td>
<td>3,548</td>
<td>8,528</td>
<td>60</td>
</tr>
<tr>
<td>Other</td>
<td>216</td>
<td>52</td>
<td>7</td>
</tr>
<tr>
<td>Memorandum item: Exchange-traded contracts</td>
<td>9,722</td>
<td>13,107</td>
<td></td>
</tr>
<tr>
<td>Equity-linked contracts</td>
<td>579</td>
<td>1,341</td>
<td>50</td>
</tr>
<tr>
<td>Forwards and swaps</td>
<td>52</td>
<td>180</td>
<td>7</td>
</tr>
<tr>
<td>Options</td>
<td>527</td>
<td>1,161</td>
<td>43</td>
</tr>
<tr>
<td>Commodities contracts</td>
<td>318</td>
<td>506</td>
<td>28</td>
</tr>
<tr>
<td>Gold</td>
<td>147</td>
<td>228</td>
<td>10</td>
</tr>
<tr>
<td>Other commodities</td>
<td>171</td>
<td>278</td>
<td>18</td>
</tr>
<tr>
<td>Forwards and swaps</td>
<td>120</td>
<td>165</td>
<td>13</td>
</tr>
<tr>
<td>Options</td>
<td>51</td>
<td>113</td>
<td>5</td>
</tr>
<tr>
<td>Credit-linked and other contracts</td>
<td>...</td>
<td>118</td>
<td>...</td>
</tr>
<tr>
<td>Estimated gaps in reporting</td>
<td>6,893</td>
<td>...</td>
<td>432</td>
</tr>
<tr>
<td>Total contracts</td>
<td>47,530</td>
<td>72,143</td>
<td>2,208</td>
</tr>
</tbody>
</table>

Source: Bank for International Settlements.
1Adjusted for inter-dealer double-counting.
2The surveys of March 1995 and June 1998 are not fully comparable because of differences in the reporting basis (locational reporting in 1995: worldwide consolidated reporting in 1998) and in the number of participating countries (26 in 1995: 43 in 1998).
3Single-currency contracts only.
4Not adjusted for double-counting.

4.1). In contrast, traditional balance-sheet leverage ranged between 6 and 7 during the same period. While the gross leverage ratio only provides an upper bound to net leverage, the relative movements confirm the concentration of off-balance-sheet leverage among a few banks and a significant increase of leverage during the third quarter of 1998.

**Leverage in Markets**

To determine the potential for financial market turbulence stemming from deleveraging it is useful to estimate the extent of leveraged positions in a particular market. In practice, it is not possible to gather such data without individual position data, particularly for off-balance-sheet transactions. However, the recent BIS survey of foreign exchange and derivatives market activity (see Box 2.1) allows approximations of the extent of leverage in certain derivatives markets on a global basis. The survey reports total gross notional amounts and total gross market values outstanding at the end of June 1998 in various segments of the foreign exchange derivative and interest rate derivative markets. Notional amounts are aggregated in a similar fashion as suggested for the gross leverage ratio. Based on the definitions of leverage introduced above, the notional amounts outstanding divided by the gross market value approximates the gross leverage ratio.

The data indicate that the overall approximate gross leverage ratio increased from 22 in 1995 to 28 in 1998 (see Table 4.2). Interest rate derivative contracts had higher leverage ratios than foreign exchange derivative contracts.

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43See footnote 43.
44This compares to a ratio of 36 for the top seven U.S. commercial banks at the end of the second quarter of 1998.
contracts, reflecting the fact that the latter—unlike the former—typically involve an exchange of principal. In addition, interest rates tend to be less volatile than exchange rates, so that market values of interest rate contracts (for a given notional amount) tend to be smaller than those of foreign exchange contracts. The latter also represent exposure to both currency and interest rate risks, which also contributes to a higher market value relative to the notional amount. The high degree of leverage in option contracts can mostly be attributed to the lack of information about the delta.

Appendix 2
Impact of HLIs on Small and Medium-Sized Markets

In addition to the systemic issues posed by high levels of leverage, recent attention has also been paid, especially in the Pacific Rim countries, to the impact of HLIs on some of the small and medium-sized financial markets.47 A number of countries, including Australia, Hong Kong SAR, South Africa, and Malaysia, have expressed concern about the implications of the size and concentration of positions taken by a number of HLIs (especially hedge funds) in their markets, and there have been suggestions that the aggressive tactics of some of these institutions have contributed to excess volatility and mispricing in foreign exchange rates.48 There have, in addition, been numerous newspaper reports questioning the activities of hedge funds in various countries, including in the Pacific Rim,49 and a frequently heard market view is that the large hedge funds “hunt in packs.”

Responding to similar concerns raised two years ago, the IMF undertook a study of the role of hedge funds in the Asian crisis, and there has also been some research outside the IMF on the activities of hedge funds in Asia.50 While recognizing that lack of data seriously hampered the analysis, the IMF study reached the conclusion that “popular press” accounts of hedge funds seriously exacerbating the Asian crisis were exaggerated, drawing on anecdotal evidence, discussions with market participants, and return data for hedge funds. In addition, the study suggested that sharp distinctions between hedge funds and other highly leveraged players were overdone and that the proprietary trading desks of some of the internationally active commercial and investment banks frequently engaged in similar activities to hedge funds: moreover, in terms of size, hedge funds were not obviously the largest institutional investors in many of the Asian currency markets, nor were they—contrary to popular accounts—always ahead of the pack in taking positions against currencies.51 The study, however, only covered the period through the end of 1997, and some HLIs, including hedge funds, may subsequently have significantly expanded the nature and scope of their activities giving rise to the concerns noted above.52

In assessing the concerns about HLIs activities, it is useful to distinguish between issues raised by the large differences in size between many small markets and the large internationally active institutional investors, and issues of market integrity related to the large and concentrated positions some HLIs may have taken in particular markets. The significant asymmetries in size between some international investors and the markets in which they operate clearly present difficult policy dilemmas for many countries. Large swings in capital flows between advanced and emerging markets have, on several occasions, been driven by autonomous shifts in sentiment in the large advanced countries and may have been an important source of volatility in recipient countries’ foreign exchange and domestic asset markets.53 The surges in capital inflows have presented particular problems when international investors are seen as exhibiting herd-type behavior and the capital inflows can be quickly and easily reversed.54 Even though HLIs appear to have played a role in these episodes, many other institutions also have been involved—most likely playing a larger role on account of their number and size—and broader systemic issues are raised about the structure and operation of international capital markets.55 The concerns are being addressed, at least in part, through efforts by the international community and national regulators to improve transparency in order to lessen the role of herding; proposed improvement in Basel bank risk weights on country exposures; and strengthening financial systems and infrastructures in capital-importing countries. The implications for market dynamics of the significant differences in size between “smaller” markets

47The buildup in large positions against a number of Pacific Rim countries by some HLIs during 1998 is discussed in Chapter III (see Box 3.2).
48See, for example, Reserve Bank of Australia (1999).
49See Krugman (1998).
50See Eichengreen and others (1998); and Brown, Goetzmann, and Park (1998).
51By contrast, the Reserve Bank of Australia’s discussion of hedge funds takes the view that hedge funds are fundamentally different from other HLIs because they are lightly regulated and do not have longer-term relationships with countries. The latter is argued to lead to more aggressive trading strategies.
52Under its Articles of Agreement, the IMF is given the responsibility of ensuring that countries do not manipulate exchange rates but has no explicit responsibilities regarding possible private manipulation.
53Whether an open capital account will expose a small country to more or less asset price volatility depends importantly on whether shocks are predominantly internal or external in origin. If domestic shocks dominate, overall volatility may decrease.
54See Schadler and others (1993).
55See Mussa and others (1999).
and the larger institutional investors nevertheless remains an important issue.

An especially contentious issue is whether some HLIs have aggressively tried to manipulate some small and medium-sized markets—acting either alone or in collusion—and whether these efforts have been a major and systematic source of volatility and inefficiency. Although the particular strategies that HLIs employ is proprietary information, anecdotal evidence from a number of private market participants is consistent with the possibility that some institutions have employed very aggressive tactics, including when they took out very large short positions in a number of Pacific Rim currencies during 1998. Indeed, however, is known in general about the strategies of different institutions. The large apparent size and concentration of the positions taken by a number of HLIs in Pacific Rim markets last year has been seen by a number of national authorities as giving these institutions excessive market power. The possibility that some large investors may, in these circumstances, try to manipulate markets cannot be dismissed a priori, given many highly publicized cases of attempted market manipulation in the large advanced financial markets, including organized exchanges.

There is, however, as discussed below, a substantive issue of whether foreign exchange markets are as susceptible to private manipulation as individual domestic asset markets and whether manipulation can be systematically profitable. Moreover, in determining the feasibility and profitability of such strategies, consideration needs to be given to the exchange rate regime and the terms at which the official sector intervenes in the foreign exchange market.

In the classic case of domestic financial market manipulation, speculators either seek to corner an asset that is in finite supply and profit by squeezing short sellers (a “bear” squeeze) or they abuse insider knowledge and/or spread false information, typically about conditions in a particular industry or market. Even though most foreign exchange trading occurs in unregulated OTC markets, there are reasons to think that these kinds of abuses would be more difficult in these markets. Not only are the underlying assets—domestic and foreign money—widely held, the types of macroeconomic information that usually drive exchange rates are much more generally available and potentially easier to verify than for a particular commodity or firm. At least in principle, therefore, these differences would tend to make foreign exchange markets less prone to private manipulation than domestic asset markets. Notwithstanding the above, it has been suggested that some HLIs have spread misinformation to try to manipulate foreign exchange markets after they have built up large short positions in particular currencies and that these strategies are typically followed when market sentiment is weak. In what follows, we focus on the case in which speculators seek to push a currency down. It has been argued, for example, that some HLIs—acting either collectively or alone—quietly build up short positions against a currency in the spot, forward, or swap market and then seek to close out their positions at a profit after spreading false information or adverse economic projections that cause a loss of confidence in the targeted currency. The information spread is argued to include rumors of changes in government policies or exchange rates, targeted wash sales, or publicizing a buildup in short positions in the belief that the reputation of the HLIs as aggressive operators will precipitate a rush to sell other investors. These strategies are argued to be pursued most often in fragile market conditions where sentiment is already weak and it is not difficult to generate concerns about exchange rates. HLIs—and especially hedge funds—are typically singled out by national authorities as the main entities engaging in such activities.

There is unfortunately only limited theoretical work on the mechanics of these kinds of currency attacks and the conditions under which they might generate profits for speculators. Generally, for such strategies to be profitable, it must be possible for speculators to build up positions against a currency without significantly moving prices against themselves and then to be able to trigger large-scale selling of the targeted currency by other investors (independent of fundamentals) to allow a close-out of positions at a profit. In standard models of floating exchange rates, it is generally difficult for speculators to do this since the buildup and closing out of positions will tend to move prices against them, and the reactive investors who lose money eventually learn from their mistakes. But such strategies may still be possible under such regimes and have been argued to have been used in some Pacific Rim countries. In recent second-generation models of balance of payments crises with multiple equilibria, speculators are able to force the collapse of pegged or managed exchange rate regime if they are able to launch a large enough currency attack. These mod-

56International Monetary Fund (1993, 1994).

57In principle, manipulation could involve either domestic currency appreciation or depreciation. The example of pushing a currency down is chosen because it corresponds to the cases of concern, and as argued later, any manipulation is more likely under unsettled and nervous market conditions than in normal times.

58The double play against the Hong Kong dollar involved simultaneously taking short positions in the domestic stock market and attacking the domestic currency. The return from the play was intended to derive from the resulting higher domestic interest rates pushing equity prices down. See Box 5.1 in Chapter V and International Monetary Fund (1998a).

59A wash sale involves the simultaneous purchase and sale of an asset with the trader making public the sell side of the transaction.

60See Krugman and Obstfeld (1997).
els point to the possibility that manipulation might be easier in regimes where there is some government exchange market intervention and speculative attacks might be self-fulfilling. The full implications of these kinds of models, however, have not yet been worked through and it would be premature to draw strong conclusions about the feasibility of systematic manipulation. Moreover, the profitability of speculative attacks in these models is influenced importantly by the authorities’ intervention strategies and, in particular, by whether interest rates are raised to defend a currency so as to reduce the possibility of one-way bets and increase the cost of taking short positions.

The strategies that may have been used by some HLIs in the Pacific Rim require the targeted currencies’ markets to be liquid enough to allow a large (and undetected) buildup in short positions and require a large pool of reactive market participants who will follow the actions of speculators. On this basis, it has been argued that medium-sized foreign exchange markets may be more prone to manipulation than small or very large markets since they can provide enough liquidity to allow the gradual buildup in positions while at the same time not having the same degree of stabilizing speculation as the large advanced markets.

Beyond the problem of a lack of data on speculative currency positions, one of the major difficulties in empirically assessing the concerns that have been expressed about HLIs is to distinguish between the kind of strategic currency attacks that a number of countries have argued take place and the pressures triggered by genuine concerns about underlying economic fundamentals (observational equivalence). It is also difficult to distinguish empirically between the coordinated taking of positions against a currency and more general herding behavior related to similar assessments of economic conditions and policies. These difficulties are compounded by the fact that the period in 1998 when Pacific Rim currencies are argued to have been manipulated was a time when there were serious concerns about economic fundamentals related to the possible spreading of the Asian crisis, and a large number of investors were taking a negative view of economic prospects.

Against this background, it remains unclear to what degree certain HLIs have from time to time colluded in efforts to try to manipulate foreign exchange markets and whether such efforts can be a major systematic source of volatility and inefficiency. Reflecting the importance of the concerns raised, however, the Financial Stability Forum’s working group on HLIs is expected to report on its assessment of the issues early next year. At this point, several preliminary observations can be made.

First, there is a need for additional analytical and empirical work to better understand the conditions under which private manipulation of exchange rates might be feasible and profitable—on a systematic or unsystematic basis—and the implications of large and concentrated positions in some countries’ foreign exchange markets. Among the issues to be more fully addressed are whether official exchange rate intervention may facilitate such strategies, the particular circumstances and market conditions under which manipulation might be profitable, and how any manipulation might take place.

Second, detailed case studies are needed. of particular episodes where manipulation is argued to have taken place and of other episodes of large concentrations of positions, to better understand the market dynamics involved when there are large leveraged players in the market.

Finally, it needs to be recognized that even if manipulation is not systemically feasible or profitable, the possibility that it may be attempted—especially when sentiment is fragile—can be an important and valid source of concern for countries. Any initiatives adopted by countries to address their concerns about the activities of certain HLIs need to take into account that HLIs can be important providers of market liquidity and that, by virtue of their ability to take contrarian positions, they may be an important stabilizing force when markets have under- or overshoot their equilibrium values. Ultimately, the solutions taken to address the concerns will need to balance issues of market integrity with the need to encourage sufficient stabilizing speculation and to avoid the domination of markets by a few large players.

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Emerging Markets: Nonstandard Responses to External Pressure and the Role of the Major Credit Rating Agencies in Financial Markets

The financial market turbulence experienced by many emerging markets during the past two years has both generated new policy responses to market pressures and highlighted the key role of institutional investors and agencies in mature markets in determining capital flows to emerging markets. This chapter examines two aspects of this experience. First, while the authorities have traditionally responded to speculative attacks through on-balance-sheet sales of domestic currency and other assets converted into foreign exchange, they have begun to expand the set of instruments and markets in which intervention is undertaken. This chapter analyzes three such interventions—namely, Hong Kong SAR’s equity markets intervention, Brazil’s buyback of Brady bonds, and the use of capital controls by Malaysia. The second section focuses on the role of the major credit rating agencies in influencing terms and conditions of access to global securities markets for emerging markets. As global securities markets have become increasingly important sources of funding for emerging markets, the credit ratings assigned to sovereign and private sector issuers have often had an important influence on the demand for these securities. Indeed, some institutional investors often can hold only so-called “investment-grade” securities because of either regulation or self-imposed risk management considerations. Moreover, the Basel Committee on Banking Supervision recently proposed that credit ratings would become key determinants in the risk weights attached to bank exposures to sovereign and other borrowers. However, the sharp adjustments of sovereign credit ratings for many emerging markets in the period since July 1997 have raised concerns about the accuracy and stability of the rating process.

Nonstandard Policy Interventions in Emerging Markets

Innovations in financial markets and the accompanying proliferation of instruments have increased the channels through which investors can take positions on expected asset price movements in emerging markets. In times of crisis, a high degree of volatility has often been transmitted through various markets, posing a dilemma for national authorities in pursuing their policy objectives, which have typically included exchange rate and financial system stability, as well as broader macroeconomic objectives such as growth and price stability.

While the classic speculative attack takes place through on-balance-sheet sales of domestic currency and other domestic assets converted into foreign exchange, alternative positions can be taken in markets for other assets, such as domestic and international stocks and bonds, as well as a variety of derivatives such as currency forwards and futures, equity and bond futures, options, and total rate of return swaps. While the typical defense of a speculative attack has meant a combination of spot foreign exchange intervention and an interest rate defense, when strong pressures have been felt in markets and instruments other than domestic credit, national authorities have in some cases been tempted to intervene through nonstandard methods to counter speculative pressures. Some of these interventions have involved alternate uses of foreign exchange reserves, such as buying equity or buying back outstanding debt, or imposing restrictions on the mobility of capital. Since the beginning of the Asian crisis in mid-1997, several countries have adopted such nonstandard interventions, raising questions about the implications of such intervention for the behavior of market participants and asset prices in the future. The line distinguishing standard from nonstandard interventions is by definition elastic, and other episodes of what may be considered nonstandard interventions have been discussed in previous reports. The following section reviews some of the more notable recent nonstandard responses by authorities.

Hong Kong SAR’s Intervention in Equity Markets

Between August 14 and 28, 1998, the HKMA bought a total of some $15 billion in stocks and futures in the Hong Kong SAR equity market, which...
Nonstandard Policy Interventions In Emerging Markets

Figure 5.1. Stock Market Indices: Hong Kong Hang Seng and Dow Jones Industrial Average
(July 1, 1997 = 100)

Source: Bloomberg Financial Markets L.P.

constituted 7 percent of the capitalization and between 20 and 35 percent of the free float of the Hang Seng index. This intervention in the equity market was at the time viewed by a wide variety of market participants as a significant departure from Hong Kong SAR's traditional free market principles and clearly took the markets by surprise.

The Hong Kong SAR authorities have explained their stock market intervention as being targeted at a specific group of speculators that were manipulating Hong Kong SAR's equity and foreign exchange markets for profit in what was termed a "double play," that is, a simultaneous attack on equity and currency markets. (See Box 5.1 for a description of the mechanics of a double play.) The authorities perceived certain players as selling Hong Kong dollars to drive up interest rates—taking advantage of the adjustment mechanism of Hong Kong SAR's linked exchange rate arrangement—and depress stock prices, thus generating profits on previously established substantial short positions in the equity cash and futures markets. Certain players were also said to have spread rumors in the market about a Chinese devaluation and its knock-on effect on Hong Kong SAR, and about a collapse of the Hong Kong SAR equity and property markets, to generate selling pressures on the Hong Kong dollar and the stock market. According to the authorities, the speculative attack "was a contrived game with clearly destructive goals in mind...[to] drive up interest rates, drive down share prices, make the local population panic and exert enough pressure on the linked exchange rate until it breaks."

However, some market participants noted that at the time of the pressures, there were fundamental reasons to sell off Hong Kong SAR equity holdings and the Hong Kong dollar. As of August 1998, the Hong Kong SAR economy was heading into its deepest recession in 23 years with recently released figures showing first

1The portfolio was worth some $26.7 billion following the Hong Kong SAR market's 85 percent rise between September 1998 and end-June 1999 (see Figure 5.1), and the government has announced plans to sell up to two-thirds of the portfolio while allowing money managers to manage the rest. The government plans to sell part of the shares it owns in the form of a unit trust tracking the Hang Seng index, available to retail investors, and preparatory work for its listing will take four to five months. In the meanwhile, the government's holdings are being managed by EFIL, according to strict guidelines to avoid interference with the day-to-day commercial activities of the companies.

4However, it may be recalled that under severe pressures in 1987, the authorities had temporarily shut down the stock market altogether with adverse implications for market sentiment.

5The official account is most comprehensively summarized in Financial Secretary Donald Tsang's speech at the Hong Kong Trade Development Council (Tsang, 1998).

6According to the authorities, some of these sales of Hong Kong dollars may have been facilitated by "prefunding" in the swap market, that is, engaging in swaps to access Hong Kong dollars that multilateral organizations had raised through their bond issuances. Multilateral agencies, including inter alia the World Bank Group, the Asian Development Bank, the Inter-American Development Bank, and the European Bank for Reconstruction and Development, issued HK$36.6 billion (equivalent of US$4.7 billion) worth of bonds in the period January-August 1998.

7From Hong Kong Development Council speech (Tsang, 1998).
Box 5.1. The Mechanics of a “Double Play”

According to a widely discussed version of events leading up to the intervention by the Hong Kong Monetary Authority in Hong Kong SAR’s equity market in August 1998, some large players were taking large short positions in the spot and futures markets for Hong Kong SAR equities. They then engaged in abrupt sales of Hong Kong dollars, driving up interest rates. This spike in interest rates drove down equity market prices, allowing speculators to close out their short positions at a profit. This is the essence of the so-called “double play,” where speculators were shorting both the currency and equity markets, and taking advantage of the currency board’s automatic adjustment mechanism to cause a spike in interest rates—predominantly in very short-term rates, but also to a lesser extent in long-term rates—which would negatively affect asset prices. By some accounts, the players who were manipulating the stock and foreign exchange markets may also have simultaneously spread rumors about the health of the Hong Kong SAR stock and property markets, to create a panic in markets, and may also have established positions that would have become profitable if the exchange rate collapsed.

The basic version of the “double play” raises some interesting issues. First, such a play is clearly risky, since it runs the risk that other market participants will understand the intention of the players involved, and will take larger opposite positions. Second, a double play could clearly not occur systematically if other agents are rational, as other agents would quickly come to understand the play and would no longer respond to the artificial spike in interest rates. Instead, a double play presumably needs to exploit very particular circumstances where markets are unusually susceptible to being pushed by large players in one direction, and perhaps also where some asset price—such as the overnight interest rates in Hong Kong SAR in 1998—is especially volatile owing to an institutional factor. Third, if a double play can be made in one direction, it is of interest to ask if a similar play could be made in the opposite direction. This is unclear, but one factor that would limit the possibility is the fact that interest rates are bounded below at zero. Fourth, one aspect of the double play is that any profits from shorting the equity market are denominated on Hong Kong dollars, so that the potential profit would be reduced if the various short positions result in a devaluation in the exchange rate. Finally, to the extent that an exchange rate devaluation did occur, the experience of some countries is that equity prices—in domestic currency terms—may actually rise substantially, resulting in losses on the short equity position.

1 A formal model of the mechanics is described in Chakravorti and Lall (1999).
1998, the strength of the yen in the wake of the deleveraging following the near-collapse of LTCM, and improved sentiment and conditions in Hong Kong SAR and in Asia more generally.

The nonstandard response by Hong Kong SAR in the face of massive speculation raises a number of issues. The first is the direct impact of the intervention in the short run and the long run. While the massive intervention did raise the index by 18 percent in the period in which it was taking place, the market fell back 10 percent in the two days after intervention ceased. The market then rebounded along with other regional stock indices and the U.S. equity market (see Figures 5.1 and 5.2). To some extent, the significant reduction in the free float in the market may have allowed the market to rally more than would otherwise have been the case for a given amount of inflows into the equity market. However, the government’s large holdings also obviously have raised concerns in the market about the timing and rate of disposal of the Exchange Fund Investment Limited’s assets. In this regard, the recent announcement that the government will create a unit trust tracking the Hang Seng index to dispose of part of the portfolio has been well received by markets, as it supports the authorities’ pledge to implement an orderly disposal of the assets.

While imposing losses on speculators is often undertaken by authorities wishing to deter speculation, the inability to specifically target such speculators because of the use of blunt instruments leads to much wider impacts. In this case, in addition to preventing major systemic effects, the aim of the HKMA’s intervention appears to have been to impose losses on certain speculators who were perceived as manipulating the markets, to discourage speculation in the future. In the event, the impact of the intervention on prices was felt by all investors. To the extent that the HKMA’s intervention has altered perceptions of the risk and return on equity investments in Hong Kong SAR, it will have done so for all classes of investors. The intervention and subsequent statements by the authorities have created an impression among investors that the authorities retain the option to intervene once again to support the market under circumstances that are not well defined. This may have altered the distribution of returns that investors foresee when undertaking investment decisions. While there is no general agreement on levels, some market participants may now be acting on the belief of an informal floor on the market, truncating the downside risk to investing in Hong Kong SAR’s equity market, increasing the chances of a “one-way” bet where investors may expect the government to bail them out before they can suffer large losses. Such perceptions on the limited risk of investments may attract inflows in excess of those that would otherwise occur, as risk is mispriced by the expectation of intervention. Furthermore, uncertainty regarding the precise circumstances that may trigger a response by the government, and the willingness of the government to intervene through nonstandard channels, may have shifted the balance so that those investors who are more sensitive to the lack of clarity on the “rules of the game” will shy away from the market. So while the overall flows into the market may increase, the investor base is likely to shift away from investors who are averse to policy shifts.
Nevertheless, the fact that the HKMA's intervention was fairly transparent, and was followed up by clear statements from the authorities on the extent of intervention and their motivation for intervening, together with the recent announcement on the unit trust to dispose of part of the share portfolio, has been viewed positively by market participants. Furthermore, given that the portfolio's value has appreciated with the Hang Seng index, the negative impact of the intervention on the perception of risk and reward in Hong Kong SAR's equity market is mitigated by the fact that no contingent liabilities have arisen from the actions.

**Buybacks of Bonds**

One notable development in emerging market financing in the 1990s has been the growth in the issuance of bonds in international markets. Beginning with the Brady plan—which converted the commercial bank debt of several emerging market sovereign borrowers into tradable securities known as Brady bonds, partly collateralized with U.S. treasury bonds—countries also began to issue overseas bonds in various markets such as in the U.S. dollar bond market (yankees) and the yen-denominated bond market (samurais). This year, issuances denominated in euros made their debut.

The volume and pricing of international bonds remains a closely watched indicator of the access of emerging markets to private financing. Since international and Brady bonds (Bradies) are traded in international bond markets and continuously priced, the spreads of these securities over a benchmark have become a common indicator of country creditworthiness.8

The most common benchmark for dollar-denominated bonds such as Bradies has been the yield on U.S. treasury securities of comparable maturity, and indices such as J.P. Morgan's Emerging Market Bond Index are interpreted as representing the average spread of bonds in the index over U.S. treasury securities.

While numerous factors determine the spread of sovereign bonds over their benchmark, the most prominent and visible component of the spread is country creditworthiness and, more generally, the country's fundamentals. As a result, when a country is under speculative pressure, spreads on its international bonds and Brady bonds tend to widen. These bonds therefore become an important instrument for taking a short position offshore based on a negative view of the issuing country's fundamentals. Moreover, the very act of short-selling these bonds lowers their price, widens their spreads, and signals negative sentiment, and may fuel speculative pressures through other onshore channels. However, price movements in these bond markets do not in and of themselves translate into pressures on the issuer in terms of a drawdown of reserves since short-selling the bonds has no strong direct link with the provision of domestic credit, which is the key to fueling a speculative attack on a country's reserves. It does, of course, influence the price at which a country can access new funding on international capital markets. Furthermore, if the fall in the price of international bonds issued by a country triggers a rebalancing of portfolios by investors away from assets of that country, it may through this channel result in a drawdown of reserves.

An important element of international bonds and Bradies that does, however, have a more direct bearing on a country's ability to defend itself against a speculative attack is the fact that, in many emerging market countries, it is often domestic entities—typically domestic commercial and investment banks, but also mutual funds and other investors—that hold these instruments. This reflects the fact that resident entities often feel they are better equipped to assess the country's fundamentals and creditworthiness and are quick to exploit what they see as attractive pricing relative to risk of these instruments. These instruments are often held on margin. International banks are the counterparties that provide the credit for domestic entities to buy these securities, against the posting of an initial margin as well as a variation margin that has to be posted if the price of the bonds, and hence value of the underlying position, falls below a threshold. The leveraged holding of such instruments by domestic entities becomes a potentially lucrative asset with high expected rates of return. However, in the event of a fall in the prices for these bonds—whether due to deteriorating domestic conditions or a general sell-off across emerging market debt instruments—these leveraged positions can become a source of pressure in domestic markets. This is because the suppliers of credit overseas, the international investment and commercial banks, will require the leveraged domestic investors to post additional (variation) margin or force a sell-off of the bonds. Posting of additional margin, in the event that liquid foreign assets are not available to the investor to liquidate for this purpose, requires selling domestic liquid assets, their conversion to foreign exchange, and their transfer to the overseas banks. This process exerts downward pressures on domestic stock and bond markets, foreign exchange reserves, and the exchange rate, and exerts upward pressure on interest rates. Therefore, developments in Brady and international bond markets can transmit pressures onto the domestic market rapidly and forcefully.

Sovereign issuers have been tempted to intervene in the Brady and international bond markets by buying securities for a number of reasons, as suggested in the above discussion. First, intervening in these markets raises prices and lowers spreads. This has the effect of squeezing those speculators that are short-selling the bonds overseas. While this has a limited direct impact,
as discussed above, the resultant narrowing of spreads sends a more positive signal—perhaps inaccurately if the pricing of bonds is being manipulated by official buying—about the domestic economy’s fundamentals and creditworthiness. This may cool direct speculative pressures that may be being felt onshore. Second, supporting the bond markets ensures that margin calls and forced selling will not be imposed by the banks that provide the leverage to domestic entities that have built up long leveraged positions in these instruments. This eliminates one channel for the outflow of reserves and downward pressures on domestic markets when a country’s perceived fundamentals deteriorate.

Intervention in the market for overseas bonds is done either directly by the central bank or the treasury, or through a state-owned entity such as a bank or a large corporate. The latter two methods would make the intervention less transparent to market participants, as they could be justified as being proprietary positions taken on their own account by the bank or the corporate, reflecting their own views on the fundamentals, which differ from those of the rest of the market.

One notable example of intervening in the overseas bond markets in the recent crisis has been Brazil’s reported intervention in the market for its own international bonds. Brazil reportedly imposed a squeeze on speculators that were short-selling the bonds overseas by buying large quantities of the bonds, bidding up the price and making the short positions unprofitable. Market sources report significant buying on behalf of the government at certain times throughout 1998. The intervention also prevented margin calls from being made on Brazilian domestic banks that were holders of such instruments on margin overseas.9 Other nonstandard forms of intervention by Brazil that have not been noted elsewhere—and which have resulted in losses given the subsequent evolution of asset prices—have included its intervention in the currency futures market for the real, and its issuance of dollar-linked domestic currency debt over a period prior to the devaluation of the currency.10

Interventions of this type, where governments buy their own country’s bonds, imply a use of liquid foreign exchange reserves in times of possibly severe market pressures to either acquire longer-term illiquid assets or extinguish long-term debt. This reduces the amount of liquid reserves available to counter speculative pressures through traditional means and the interventions must be viewed against this trade-off. Furthermore, the interventions involving bond buybacks have been viewed as much less transparent than the equity purchases in Hong Kong SAR, adding a greater element of uncertainty to market participants’ understanding of the official policy stance.

There are numerous other instances where issuing governments have sought to buy back their own debt at discounts. Such nonstandard interventions, motivated by one or more of the factors discussed above, have a number of consequences in addition to the obvious ones mentioned above. Such interventions may skew the subjective distribution of prices that investors in such instruments perceive when making their investment decisions. Investors may begin to perceive informal floors on the prices of these instruments and the risk-reward characteristics they embody. This reduces two-way risk from investing in such instruments. For example, if investors know that spreads will not be allowed to rise above a certain level, long positions in these instruments will be greater than in the case of other instruments, because the downside of this investment is seen as limited. Such “moral hazard” plays, where it is believed the investors will be bailed out in case of a fall in the prices of the bonds, leads to mispricing of risk associated with these instruments and excessive investments in them. Further, in the event that investors reassess their earlier expectations of price support on the downside, the price adjustment that subsequently ensues will be much sharper and abrupt.

In the case of those countries where domestic investors are significant leveraged holders of international bonds issued by their own country, the knowledge that downside risk has been truncated would lead to incentives to build up larger leveraged long positions overseas, as the (perceived) return adjusted for risk of such investments has gone up. Therefore, the equilibrium size of leveraged positions may rise. In this case too, in the event that expectations of price support are not validated in the future, the rapid reappraisal of the risk-reward characteristics of the instruments and the resultant positions can lead to a sharper market correction, greater outflows related to margin payments, and greater pressures on authorities facing a speculative attack than would otherwise be the case.

Capital and Exchange Controls on Outflows

In an aggressive move to reduce short-term capital flows, on September 1, 1998, Malaysia imposed a
range of foreign exchange and capital controls that substantially insulated Malaysian financial markets from external influences and effectively closed down the offshore ringgit market. These measures led to an appreciation of the ringgit, and on September 2 the authorities fixed the exchange rate at RM3.80 to the dollar, which was somewhat stronger than the previous two months’ average of RM4.18, but significantly below its precrisis level of about RM2.49 to the dollar. The controls were imposed a day after Malaysia banned overseas trading in Malaysian securities in a move to quell what was seen as excessive speculation. The new capital and exchange controls included restrictions on repatriation of proceeds from securities sales by foreign investors for a year, restrictions on sales and purchases of ringgit by nonresidents, a ban on the transfer of ringgit between offshore accounts effective October 1, 1998, restrictions on overseas investments by residents exceeding RM10,000, a requirement to repatriate all overseas ringgit in one month, a limit of RM1,000 on Malaysian overseas travelers, and a ban on ringgit transactions at the Labuan offshore center. The restrictions reportedly locked in $10 billion of foreign investment in domestic securities. Extension of domestic credit to nonresidents was also banned. Current account transactions (including the repatriation of interest and dividends) and foreign direct investment flows remained unaffected by the measures.

The authorities have explained their actions by noting that they were aimed at allowing Malaysia to regain monetary independence and insulating the Malaysian economy from destabilizing developments in overseas markets. By restricting the internationalization of the ringgit, the authorities hoped to be able to conduct independent domestic monetary policy and not be subject to the volatility of capital movements and exchange rates. The immediately preceding ban on offshore trading of Malaysian securities was aimed at containing the speculative buying and selling of these securities, which was believed to be affecting domestic markets.

Before the imposition of controls, short positions against the ringgit were reportedly being built in the overseas market in Singapore, where by some estimates almost 90 percent of the total ringgit foreign exchange market was located. After initial informal attempts to limit the supply of ringgit credit offshore, the differential between onshore and offshore rates began to rise. Arbitrage between the two rates, including by Malaysian corporates, began putting pressure on domestic interest rates as well. The imposition of the controls effectively isolated the onshore and offshore markets at this point and decoupled the two interest rates. The controls effectively brought all offshore trading back onshore and there is little evidence of widespread circumvention of the controls.

Key to understanding the controls and the need for monetary independence is the sensitivity of the Malaysian economy to shifts in interest rates. While Malaysia had controls on private offshore borrowings well before the crisis, which prevented an excessive buildup of short-term debt, Malaysian private entities have substantial domestic borrowing. For instance, the ratio of domestic banks’ assets to GDP at the end of 1997 was 178 percent, compared with 145 percent for Thailand and 76 percent for Indonesia. This has made the Malaysian domestic economy and the banking system much more vulnerable to interest rate increases than to exchange rate depreciation. It was well known to market participants that in the trade-off between exchange and interest rates in the face of speculation and capital outflows, the balance was likely to tilt toward greater exchange rate variability, with little danger of an interest rate squeeze. The extent of domestic leverage present in the economy tied the hands of the authorities and made it difficult to use interest rate squeezes to curb volatility in the exchange rate that resulted from swings in capital flows.

The Malaysian controls introduced in September were accompanied by other measures aimed at priming the pump of the economy and reducing the burden of nonperforming loans on banks. Banks were also recommended to expand credit by 8 percent for the year as a whole. and the authorities reduced the margins banks could charge their customers above the base lending rate from 4 percent to 2.5 percent. The central bank also instated a policy of easing the classification requirement for bad loans to six months from three months. The combination of these two broad sets of policies, one aimed at expanding credit and the other at reducing the pressure on banks to set aside capital against nonperformance loans, served to generate growth by expanding credit and easing liquidity conditions in the domestic market without an adverse impact on the exchange rate and inflation. The easing of liquidity also eased the banks’ bad loan burdens.

As conditions have stabilized, the new rules have been liberalized somewhat, with the intention of promoting a longer-term view by foreign investors. In early February 1999, Malaysia announced modifications to the one-year restriction on the outflow of repatriated portfolio investments. Portfolio capital invested before February 15, 1999, would become subject to a graduated exit levy depending on the length of the period between funds being brought in (after September 1, 1998) and repatriation. For funds brought in after February 15, 1999, the principal could be repatriated without a levy but the profits would be subject to a 30 percent levy if repatriated in less than a year and 10 percent otherwise.

The nonstandard measures Malaysia employed to deal with the pressures faced in the summer of 1998 have to be analyzed in the context of the overall environment and the policy framework. While initial reac-
tions to the imposition of controls and the “locking in” of portfolio funds were in general negative, the introduction of an exit levy in February eased some uncertainties about the long-term prospects for portfolio investors. Furthermore, concerns that easing of liquidity and the classification requirements for banks, in addition to moral suasion to lend more, would mask banking system problems and lead to future contingent liabilities, were eased when it became clear that banks would not be punished for failing to meet the 8 percent credit expansion target. Also, for purposes of supervision, the classification period of three months appears to have been followed by both banks and supervisors. In addition, the establishment of two agencies to deal with banks’ nonperforming loans, with well-established and transparent guidelines, clear procedures and principles, and tangible progress being reported, appears to have comforted international investors that the overall structural reform strategy was being pursued. A further important element in analyzing the policies, unanticipated at the time, was that other Asian currencies subsequently rebounded strongly on improved sentiment and capital inflows, while the ringgit remained fixed.

While investor sentiment toward Malaysia has recovered somewhat, as evidenced by Malaysia’s ability to issue $1 billion in international bonds in May 1999, it is difficult to disentangle the relative impacts of the nonstandard responses from the structural reforms that were undertaken. While the capital and exchange controls, when seen in isolation, had a very poor impact on market sentiment and on the prospects for capital flows, the structural reforms that were subsequently launched did have a favorable impact. In that sense, there is a view in some market circles that the controls were used to provide a “window” to set structural changes in train. However, assessing the true benefits of the controls is difficult, given that the subsequent improvement in emerging market sentiment means that the controls were not tested against severe further pressures. There is also a perception that the controls were imposed at a time when much foreign capital had already left Malaysia (see Figure 5.3), as it had other Asian emerging markets, and all the controls did was act as a disincentive for capital to return to Malaysia once markets viewed the prospects as having improved. Nonetheless, given the grim outlook for emerging markets in late August and early September, and the possibility that things might have worsened substantially, the desire to put in place an insurance policy against some of the possible adverse consequences may be understandable.

Some market observers argue that had Malaysia pursued the structural reforms related to the corporate and banking systems while at the same time not resorting to controls, the market response to those reforms would have been stronger and eased the reform process. It is also argued that in such a scenario, economic recovery would have been speedier. However, a comparison of Malaysia with other Asian countries suggests that performance across countries has been relatively similar and that it is difficult to make any strong judgments about whether the imposition of controls had any substantial effect (see Figure 5.4).

The significant difference between the nonstandard responses in equity and bond markets discussed ear-
tier in this chapter and the Malaysian response is that, by imposing direct controls on transactions and movements of capital, the authorities abruptly changed the rights and opportunities of private investors. Furthermore, there was a perceived lack of transparency in the methods used relating to the controls. This has created a perception among market participants that, in the face of market turbulence, sudden and abrupt swings in the policy stance may reappear, and such perceptions are likely to persist for some time. Looking ahead, while the general sentiment among market participants is that the controls may be retained for some time, it remains to be seen whether the controls will be reflected in greater differentiation between Malaysia and other relatively open Asian emerging markets as investors make decisions on how to allocate their exposures.

While the recent emerging markets crisis has drawn attention to certain policy responses from some authorities that are deemed nonstandard, some facts need to be borne in mind in assessing the impact of the interventions in the short term and the long
The Role of the Major Credit Rating Agencies in Global Financial Markets

During the 1990s, global securities markets have become an increasingly important source of funding for many emerging market countries. As a result, the portfolio preference and practices of the major institutional players in these markets have been key determinants of the scale and composition of capital flows to emerging markets, as well as the terms and conditions under which those markets can be accessed. In this regard, credit rating agencies have been viewed by many market participants as having a strong impact on both the cost of funding and the willingness of major institutional investors to hold certain types of instruments. Indeed, obtaining a sovereign credit rating has often been seen as a prerequisite for issuing a eurobond; and some institutional investors are constrained to hold securities that have been classified by rating agencies as “investment grade,” as a result of either official regulations or internal risk management practices. Moreover, under recent proposals put forth by the Basel Committee on Banking Supervision, credit ratings would become key determinants of the risk weights attached to bank exposures to sovereign and other borrowers.

The sharp adjustments of sovereign credit ratings for many emerging markets in the period since July 1997 have raised concerns about the credit rating process. Indeed, critics have charged that the improvements in ratings during the early and mid-1990s and the subsequent sharp declines in 1997–98 introduced a procyclical element into global capital flows—accelerating inflows during the mid-1990s and contributing to a collapse of inflows after the Asian crisis emerged—and that the ratings neither warned of the crisis nor accurately reflected economic fundamentals. In addition, there have been concerns that the agencies have been excessively sensitive to short-term developments, especially during crisis periods.

To examine these concerns, this section reviews the role of credit agencies in global financial markets, as well as the specific experience with sovereign credit ratings for emerging markets during the 1990s. There is first consideration of the general issue of how markets generate information about alternative investments and convey that information to either individual savers or institutions serving as their agents. In this setting, credit rating agencies seek to provide information on relative default probabilities for the securities issued by a broad range of public and private sector borrowers. The role of credit rating agencies in global markets is examined by (1) reviewing the history of the credit rating industry and the growing use of ratings in the regulatory process; (2) discussing the nature of the rating process; and (3) analyzing the historical accuracy of ratings. The section then considers the experience with sovereign credit ratings for emerging markets in the 1990s, with particular emphasis on the period since the beginning of the Asian crisis in July 1997.

Financial Markets and Information

One of the fundamental problems that financial markets must deal with is the presence of asymmetric information between savers and investors. In deciding whether to fund a particular investment project, a saver would presumably want to examine a broad range of factors that influence the return on that investment as well as the associated risks. However, the owner or manager of the investment project is likely to have much more information about some aspects of the project (including the amount of effort the owner/manager will devote to making the project successful) than the saver. As a result, gathering information on a complex investment project can be not only very costly but also often subject to great uncertainty. Moreover, in an international setting, the potential asymmetric information problems confronting each individual saver are likely to be much greater than at the national level, owing to differences in reporting requirements, accounting standards, and legal arrangements.

A variety of financial institutions and markets, supplemented by official disclosure and investor protection policies, have evolved both to reduce the need for individual investors to evaluate a multitude of investments and to generate a mixture of private and public information to help savers evaluate alternative investments. For example, banks have historically been one
of the key institutions for dealing with asymmetric information through reliance on private information. Commercial banks pool the funds of depositors and allocate these funds to a variety of investment projects. In addition to allowing for a diversification of risks across a bank’s portfolio, banks are able to develop specialized expertise in the evaluation of the credit risks associated with individual investment projects. Banks typically do not share the information they develop about individual investment projects, and they can therefore capture the full value of this private information, which helps to offset the cost of generating such information.

Savers can also make use of public information that is generated both by market institutions and as a result of regulatory disclosure requirements; once this information is available, it is a public good. For example, securities houses employ analysts to evaluate alternative investments and to make investment recommendations to individual savers and institutions. The costs associated with producing such “sell-side” investment research are indirectly recovered through the transaction fees that the securities house earns when its customers trade on the basis of the investment advice.

Another source of public information is provided by investment newsletters and credit rating agencies, and is not linked to sales of particular financial products. These entities provide “standardized” evaluations of the likely returns and risks associated with alternative investments, but the decision regarding which investments are undertaken remains with the saver. The cost of generating this information is recovered through subscription charges to subscribers (in the case of newsletters) or through charges imposed on the issuers of rated securities. Alternatively, savers can delegate to investment managers or mutual funds both the evaluation of alternative investment projects and the choice of the most profitable, risk-adjusted mix of investments. In this situation, the cost of such evaluations and investment activities is imposed on savers through commissions and/or fees based on assets under management and deducted from the returns on the investments.

**Credit Ratings and the Credit Rating Process**

The emergence of the credit rating agencies is a classic example of how market institutions evolve to deal with asymmetric information in the absence of government intervention. The “good” that they provide is to evaluate financial claims according to standardized creditworthiness categories.

**History of the Major Rating Agencies**

As a result of geographically fragmented banking and capital markets in the United States in the 1800s, a series of institutions developed to provide private and public information about the creditworthiness of various borrowers. Cantor and Packer (1994) argue that the immediate precursors of modern rating agencies were the mercantile credit agencies, which rated merchants’ ability to meet their financial obligations. Following the financial panic of 1837, Louis Tappan established the first mercantile credit agency in New York; and Robert Dun subsequently acquired the agency and published its first rating guide in 1859. In 1849, John Bradstreet established his agency and started publishing his rating book in 1857. In 1933, the two agencies merged to form Dun and Bradstreet, which became the owner of Moody’s Investor Service (Moody’s) in 1962.

Ratings were extended to the securities markets in 1909 when John Moody began rating U.S. railroad bonds and in 1910, ratings of utility and industrial bonds were added. Poor’s Publishing Company issued its first ratings in 1916, Standard Statistical Company, in 1922, and the Fitch Publishing Company, in 1924. Standard & Poor’s (S&P’s) was formed in 1941 by the merger of Standard Statistical and Poor’s Publishing. Duff and Phelps began to provide bond ratings in 1982. These long-established rating agencies have faced competition from more specialized agencies and newer agencies, particularly in emerging markets. For example, Thomson Bankwatch rates financial institutions, and A.M. Best rates insurance companies. As part of efforts to “jump start” domestic securities markets, a number of emerging markets have introduced mandatory rating requirements for the issuance of certain types of domestic securities or required certain institutions to periodically issue securities that will be rated. (Table 5.1 provides a listing of some of the rating agencies in emerging markets). Recently, rating agencies have experienced a rapid expansion of their activities in Europe, where a growing number of corporate entities have sought ratings to facilitate bond issuance.

Over time, the agencies have continued to expand both the types of financial instruments that they rate and the frequency with which they report these ratings. The major U.S. agencies rate not only long-term sovereign and corporate bonds but also a variety of other instruments, including municipal bonds, preferred stocks, asset-backed securities, medium-term note programs, shelf registrations, private placements, commercial paper, and bank certificates of deposit. Table 5.2 provides a description of the rating categories developed by Moody’s and S&P’s for long-term foreign currency bonds. More recently, they have also begun to evaluate counterparty risk posed by derivative products, the claims paying ability of insurance companies, and price volatility of mutual funds and mortgage-backed securities.

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12 Annex V provides a more detailed listing of the ratings categories used by the two largest ratings agencies—Moody’s and S&P’s.
### Table 5.1. Local Credit Rating Agencies

<table>
<thead>
<tr>
<th>Country</th>
<th>Name</th>
<th>Ownership Name</th>
<th>Ownership Type</th>
<th>Instruments Rated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>DCR Argentina</td>
<td>DCR Argentina</td>
<td>Joint venture (Duff &amp; Phelps)</td>
<td>Bonds and stock</td>
</tr>
<tr>
<td></td>
<td>Fitch IBCA Argentina S.A.</td>
<td>Fitch IBCA</td>
<td>Subsidiary</td>
<td>Bonds, stock, preferred, securitization, and bank deposits</td>
</tr>
<tr>
<td></td>
<td>Standard &amp; Poor's Argentina Branch</td>
<td>Standard &amp; Poor's</td>
<td>Subsidiary</td>
<td>Bonds</td>
</tr>
<tr>
<td></td>
<td>VALUE Calificadora de Riesgo S.A.</td>
<td>Argenhold S.A. (80%)</td>
<td>Local</td>
<td>Bonds, stock, securitization, and certificates of deposit</td>
</tr>
<tr>
<td>Brazil</td>
<td>SR Rating/Duff &amp; Phelps</td>
<td>Fitch IBCA</td>
<td>Joint venture (Duff &amp; Phelps)</td>
<td>Bonds and stock</td>
</tr>
<tr>
<td>Chile</td>
<td>Fitch IBCA Chile</td>
<td>Fitch IBCA</td>
<td>Joint venture (Duff &amp; Phelps)</td>
<td>Bonds</td>
</tr>
<tr>
<td></td>
<td>Duff &amp; Phelps de Chile Ltd.</td>
<td>ECONSULT Credit Rating Ltd.</td>
<td>Local (Strategic alliance with S&amp;P)</td>
<td>Bonds, stock, and time deposits</td>
</tr>
<tr>
<td>Colombia</td>
<td>Duff &amp; Phelps de Colombia S.A.</td>
<td>Duff &amp; Phelps</td>
<td>Subsidiary</td>
<td>Bonds</td>
</tr>
<tr>
<td>India</td>
<td>Duff &amp; Phelps Credit Rating India Private Ltd.</td>
<td>Credit Analysis &amp; Research Ltd (CARE)</td>
<td>Local</td>
<td>Bonds and time deposits</td>
</tr>
<tr>
<td></td>
<td>The Credit Rating Information Services of India Ltd (CRISIL)</td>
<td>CRISIL</td>
<td>Local</td>
<td>Bonds, commercial paper, and structured obligations</td>
</tr>
<tr>
<td>Israel</td>
<td>MAALOT-The Israel Securities Rating Ltd.</td>
<td>MAALOT</td>
<td>Local</td>
<td>Bonds and commercial paper</td>
</tr>
<tr>
<td>Korea</td>
<td>Korea Investors Service Co.</td>
<td>Korea Development Bank (93%)</td>
<td>Local (subsidiary of KDB)</td>
<td>Bonds and commercial paper</td>
</tr>
<tr>
<td></td>
<td>Korea Management Consulting &amp; Credit Rating Corporation</td>
<td>National Information &amp; Credit Evaluation, Inc.</td>
<td>Local</td>
<td>Bonds and commercial paper</td>
</tr>
<tr>
<td>Malaysia</td>
<td>Rating Agency Malaysia Berhad</td>
<td>Rating Agency Malaysia Berhad</td>
<td>Joint venture (Duff &amp; Phelps)</td>
<td>Bonds and preferred stock</td>
</tr>
<tr>
<td>Mexico</td>
<td>Fitch IBCA Mexico S.A. de CV</td>
<td>Fitch IBCA</td>
<td>Subsidiary</td>
<td>Bonds</td>
</tr>
<tr>
<td></td>
<td>Duff &amp; Phelps de Mexico S.A. de CV (DCRMEX)</td>
<td>Duff &amp; Phelps de Mexico S.A. de CV (DCRMEX)</td>
<td>Joint venture (Duff &amp; Phelps)</td>
<td>Bonds and securitization</td>
</tr>
<tr>
<td></td>
<td>Standard &amp; Poor's, S.A. de CV. S&amp;P Ca-Val</td>
<td>Standard &amp; Poor's</td>
<td>Subsidiary</td>
<td>Bonds</td>
</tr>
<tr>
<td>Pakistan</td>
<td>DCR-VIS Credit Rating Company Limited</td>
<td>DCR-VIS</td>
<td>Local</td>
<td>Bonds and stock</td>
</tr>
<tr>
<td></td>
<td>The Pakistan Credit Rating Agency (Pvt.) Ltd. (PACRA)</td>
<td>PACRA</td>
<td>Joint venture (Fitch IBCA)</td>
<td>Bonds, preferred stock, and time deposits</td>
</tr>
<tr>
<td>Peru</td>
<td>Duff &amp; Phelps del Peru S.A.</td>
<td>Duff &amp; Phelps de Peru S.A.</td>
<td>Local</td>
<td>Bonds, financial institutions, bonds, shares, stocks, all debt instruments</td>
</tr>
<tr>
<td></td>
<td>Apoyo and Asociados International S.A.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Equilibrium Bank Watch</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Class and Asociados S.A.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philippines</td>
<td>Credit Information Bureau, Inc.</td>
<td>Credit Information Bureau, Inc.</td>
<td>Local</td>
<td>Bonds and commercial paper</td>
</tr>
<tr>
<td>Portugal</td>
<td>Companhia Portuguesa de Rating S.A.</td>
<td>Sociedade de Avaliacao de Empresas e Risco, Lda.</td>
<td>Local</td>
<td>Bonds and commercial paper</td>
</tr>
<tr>
<td>South Africa</td>
<td>CA-Ratings</td>
<td>CA-Ratings</td>
<td>Local</td>
<td>Bonds</td>
</tr>
<tr>
<td></td>
<td>Fitch IBCA South Africa (Pty.) Ltd.</td>
<td>Fitch IBCA</td>
<td>Subsidiary</td>
<td>Bonds</td>
</tr>
<tr>
<td>Thailand</td>
<td>Thai Rating &amp; Information Services Company Ltd.</td>
<td>Thai Rating &amp; Information Services Company</td>
<td>Local (3-year Strategic Partnership with Fitch IBCA)</td>
<td>Bonds</td>
</tr>
<tr>
<td>Tunisia</td>
<td>Maghreb Rating</td>
<td>Inter Arab Rating Company</td>
<td>Joint venture (Fitch IBCA)</td>
<td>Bonds</td>
</tr>
<tr>
<td>Venezuela</td>
<td>Duff &amp; Phelps de Venezuela, S.A.</td>
<td>A qualified group of local professionals</td>
<td>Joint venture (Duff &amp; Phelps)</td>
<td>Bonds</td>
</tr>
</tbody>
</table>

The 1990s have witnessed a growing reliance on credit ratings in the regulatory process in many mature and emerging markets. Although ratings were first utilized in prudential supervisory regulations, they have also been employed by self-regulatory bodies. Credit ratings have typically been used to prohibit certain institutions from holding low-rated (often non-investment-grade) securities, to modify disclosure requirements (with investment-grade issuers allowed to use simplified disclosure statements), and to adjust capital requirements (with holdings of low-rated securities being subject to higher capital requirements). Such requirements have been viewed as a vehicle for increasing creditworthiness awareness, limiting imprudent behavior, and introducing elements of market discipline. While ratings have been employed most extensively by regulatory agencies in the United States, and to a lesser extent in Japan, there has been expanded use of ratings in Latin American and Asian emerging markets (Annex VI). More recently, the Task Force on the Future of Capital Regulation of the Basel Committee on Banking Supervision has proposed using ratings to help determine sovereign and private sector risk weights in a revision of Basel capital requirements (Box 4.2 in Chapter IV).

The use of ratings in the regulatory process has been subject to some controversy, and the major rating agencies have concerns about using ratings in this way. In part, there are concerns about how accurately credit ratings reflect underlying risks (particularly for sovereigns). Moreover, it has been argued that the linkages between regulatory requirements and rating

1) Annex VI provides more detailed information on the use of ratings in the regulatory process.
2) In S&P’s ratings system, a speculative- or non-investment-grade rating is any rating below BBB-. For Moody’s, any rating below Baa3 is noninvestment grade.

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Table 5.2. Rating Categories

<table>
<thead>
<tr>
<th>Moody’s</th>
<th>Standard &amp; Poor’s</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aaa</strong></td>
<td>Issues rated Aaa offer exceptional financial security. While the creditworthiness of these entities is likely to change, such changes as can be visualized are most unlikely to impair their fundamentally strong position.</td>
</tr>
<tr>
<td><strong>Aa</strong></td>
<td>Issues rated Aa offer excellent financial security. Together with the Aaa group, they constitute what are generally known as high-grade entities. They are rated lower than Aaa entities because long-term risks appear somewhat larger.</td>
</tr>
<tr>
<td><strong>A</strong></td>
<td>Issues rated A offer good financial security. However, elements may be present that suggest a susceptibility to impairment sometime in the future.</td>
</tr>
<tr>
<td><strong>Baa</strong></td>
<td>Issuers rated Baa offer adequate financial security. However, certain protective elements may be lacking or may be unreliable over any great period of time.</td>
</tr>
<tr>
<td><strong>Ba</strong></td>
<td>Issuers rated Ba offer questionable financial security. Often the ability of these entities to meet obligations may be moderate and not well safeguarded in the future.</td>
</tr>
<tr>
<td><strong>B</strong></td>
<td>Issuers rated B offer poor financial security. Assurance of payment of obligations over any long period of time is small.</td>
</tr>
<tr>
<td><strong>Caa</strong></td>
<td>Issuers rated Caa offer very poor financial security. They may be in default on their obligations or there may be present elements of danger with respect to punctual payment of obligations.</td>
</tr>
<tr>
<td><strong>Ca</strong></td>
<td>Issuers rated Ca offer extremely poor financial security. Such entities are often in default on their obligations or have other marked shortcomings.</td>
</tr>
<tr>
<td><strong>C</strong></td>
<td>Issuers rated C are the lowest rated class of entity, are usually in default on their obligations, and potential recovery values are low.</td>
</tr>
</tbody>
</table>

**Sources:** Moody’s, and Standard & Poor’s.
changes can have a sharp impact on market dynamics, both within national markets and across borders. For example, one concern is that if a sovereign is suddenly downgraded from investment to non-investment-grade in the midst of a crisis, then a number of institutional investors could be faced with either higher capital charges or prohibition on continued holdings of the sovereign's securities. The ensuing portfolio adjustments could limit the funding available to sovereigns and/or impose higher borrowing costs.

In the past, the major rating agencies opposed the use of ratings in the regulatory process because of the potential effects on the incentive structures confronting the agencies and their customers. For example, when ratings are mandated by regulation, issuers and intermediaries could be encouraged to engage in rating shopping—a process in which the issuer searches for the least expensive and/or least demanding rating. Such rating shopping can be particularly dangerous when the ratings are used as a substitute for adequate disclosure requirements. Moreover, linking investments and/or issuance activities to the rating process implicitly gives the rating agencies the right to grant a government license to undertake those investments and/or activities. The importance of the resulting regulatory-driven revenue stream could shift the focus of the agencies away from serving the informational needs of savers. In addition, the agencies are concerned that the growing use of ratings in the regulatory process will lead to calls for official supervision and/or regulation of their industry.

Despite their earlier concerns about the use of ratings in the regulatory process, some of the rating agencies have indicated that the new Basel Committee proposals for using credit ratings to determine risk weights in capital adequacy requirements will have positive implications for bank credit strength and risk strategies. For example, Moody's (1999b) has argued that under the Basel Committee proposals there would be extra incentives for banks to focus on the quality of their borrowers and counterparties. Moreover, the new capital framework could result in lower loan-loss provisions to the extent that banks increase their focus on risk at the beginning of the loan relationship rather than at a later stage in that relationship. In addition, the agency argued that banks would also face increased regulatory deterrents for undertaking high-risk lending.

**Rating Process**

The rating agencies view their ratings as providing a forward-looking indication of the relative risk that a debt issuer will have the ability—and willingness—to make full and timely payments of principal and interest over the life of a particular rated instrument. The agencies do not regard their ratings as providing either a prediction of the timing of a default or an indication of the absolute level of risk associated with a particular financial obligation. The absolute level of the default risk is seen as being influenced by the state of the business and credit cycles. During the Great Depression of the 1930s, even highly rated corporates were more likely to default than in other periods; but the agencies would expect that a more highly rated firm would default with less frequency than a lower-rated firm during even difficult times. Nonetheless, in assigning ratings, the agencies indicate that they try to see through economic, political, credit, and commodity cycles. Thus, a recession or decline in the terms of trade should not, by itself, bring about a rating change if it has been anticipated by the agency. Moreover, the agencies' concept of default is not based on a legal definition. A default is viewed as taking place when there is either a failure to meet a principal or interest payment on the due date or a distressed/coercive rescheduling of principal and/or interest on terms less favorable than those originally contracted.

The major rating agencies had initially provided ratings free of charge and financed their operations through the sale of publications. Since these publications could easily be copied, they were not a steady and expanding source of revenues. Faced with the conflict between demands for more comprehensive and expanded coverage and limited revenues, the agencies began to charge issuers for ratings. The major agencies acknowledge that 90 percent or more of their total revenues currently come from the fees they charge for issuing ratings. Some market participants have argued that charging issuers for their ratings could offer the agencies an incentive to assign higher ratings than warranted by fundamentals. However, the agencies have argued that they have an overriding incentive to maintain a reputation for high-quality accurate ratings. Issuers were to lose confidence in an agency's ratings, issuers would no longer believe they could lower funding costs by obtaining a rating. In addition, inaccurate ratings might expose the agency to costly legal claims. Following the defaults of the Washington Public Power Supply System in 1983 and Executive Life in 1991, class action suits were brought against rating agencies, but these cases were dropped before verdicts were reached. Given the overriding incentive for the agencies to maintain their credibility, it seems unlikely

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16. Agencies charge fees that vary with the size and type of issue. Typically, there is both a floor and a ceiling on the charge for any single bond issue, and frequent issuers can negotiate rates. Treacy and Carey (1998, p. 911) reported that S&P's fees for rating a public corporate debt issue ranges from $25,000 to more than $125,000, with the usual fee being 0.0325 percent of the face amount of the issue. A recent survey (Cantwell, 1998) found that in the United States banks tend to pay the highest fees (often over $100,000 a year per agency), due largely to the amount of debt being issued. Utilities and industrials paid each agency on average between $25,000 and $100,000 a year.
that they would trade off their credibility in return for short-term revenue gains.17

The rating process for an entity can be viewed as consisting of an initial credit rating (the timing of which is typically controlled by the issuer) and subsequent rating reviews and changes (which are usually initiated by the rating agencies). While rating practices tend to differ somewhat across agencies, those employed by the two largest agencies—Moody’s and S&P’s—are representative of the most common procedures. In both agencies, the initial rating process begins with meetings between the agency’s staff and the management of the company (if a private entity) or government officials (if a sovereign or sovereign entity). These meetings are used to gather what the agencies regard as the private and public information (discussed below) needed to evaluate the company’s or sovereign’s creditworthiness and to gain an understanding of the firm’s corporate strategy or the policies the authorities intend to pursue. The analysts then use this information to prepare a presentation for the rating committee, which determines the rating to be assigned. In some cases, the agencies provide a brief time period (typically a week) during which issuers can discuss pending events that might influence the rating before the rating is made public.18

In recent years, both Moody’s and S&P’s have supplemented their ratings with watches and outlooks, respectively, designed to indicate the agencies’ perspectives on factors that might prompt a rating review over the next 6 to 24 months. Such reviews usually denoted as positive (implying an improving situation), stable, or negative (implying deteriorating fundamentals).19

Following the initial rating, the rating agencies continue to monitor the economic and financial condition of the issuer. Subsequent rating changes are said to occur only if the agencies’ analysts come to the conclusion either that there has been a sudden material change in the issuer’s economic situation or that cumulative developments have forced a revision. The agencies usually announce that such a review is under way, with Moody’s placing the rating “under review” and S&P’s changing the “outlook” on the rating or putting an issuer on “creditwatch.” The agencies often indicate the likely direction of the rating change that they anticipate will occur. Moody’s has indicated that roughly two-thirds of all reviews result in a rating change.

In some markets, the rating agencies will provide unsolicited ratings. For example, S&P’s rates all taxable securities issued in the U.S. markets that are registered with the Securities and Exchange Commission (SEC), even if the rating is not solicited. However, S&P’s will not rate issues in the U.S. finance or structured finance sectors or non-U.S. debt markets without a rating request. Moody’s also rates all taxable, SEC-registered securities in the U.S. markets, but it sometimes provides unsolicited ratings for structured financing. Both agencies argue that they are able to effectively rate SEC-registered securities because there are excellent disclosure standards for these securities.20

Sovereign ratings can be provided for both domestic and foreign currency debt issues, and the sovereign rating can have a major impact on the ratings for other entities in the country—via the so-called “sovereign ceiling.” Until recently, the sovereign rating set a ceiling on the rating that could be achieved by other domestic entities, under the assumption that the sovereign has first claim on available foreign exchange and controls the ability of any resident to obtain funds to repay creditors. Both Moody’s and S&P’s have now indicated that in certain circumstances domestic issuers could be more highly rated than the sovereign. In terms of domestic currency ratings, a private entity could be seen as more creditworthy than the sovereign if it has more assets (relative to its liabilities) and more liquidity available to it than does the government. The situation is more complex for foreign currency issues because the government could potentially impose severe capital controls that would prevent private sector payments (transfer risk). As a result, only structured products or stand-alone vehicles that allow the private party to mitigate transfer risk can achieve a higher rating than the sovereign. Such structured products typically provide offshore collateral and/or revenues that are protected from sovereign seizure or third-party guarantees of payment by highly rated entities.

The ratings on long-term bonds issued by sovereigns and corporates (Table 5.2) extend from those that the issuer is relatively unlikely to default (Aaa or AAA) down to those that have a relatively high risk of

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17Kreps and Wilson (1982) have shown that a reputational effect can be a common feature of markets where there is imperfect information.

18Recently, S&P’s has begun to issue “public information” (denoted on the rating by “pi”) ratings for financial institutions in emerging markets (such ratings are also issued for some mature-markets entities). S&P’s has for some time maintained a policy of differentiating between those ratings based solely on public information from those that incorporate the information from discussions with the management of the institution. Institutions that receive “pi” ratings are chosen to provide broad coverage of financial institutions for potential counterparties and other subscribers. Ratings with a “pi” are reviewed annually based on a new year’s financial statements, but may also be reviewed on an interim basis if a major event that may affect the institution’s credit quality occurs. Outlooks are not provided for ratings with a “pi” subscript, nor are these ratings subject to potential creditwatch listing.

19S&P’s also uses the designation developing to indicate that the future rating trend could be positive or negative.

20A recent survey of issuers in U.S. markets (Cantwell, 1998) found that 9 percent had received unsolicited ratings from S&P’s, but that other agencies were even more prone to issue unsolicited ratings. Eleven percent of the respondents reported unsolicited ratings by Moody’s, and 40 percent of the issuers reported that their initial rating by Fitch IBCA was not requested.
default (C or CC). Sovereign ratings have a more checkered history than those for corporates. For example, S&P’s predecessors (Standard Statistical Company and Poor’s Publishing Company) began rating sovereigns in the 1920s. These early ratings relied solely on public information and were not based on discussions with the authorities. Most sovereign ratings were lowered during the 1930s depression, with Germany’s and Japan’s ratings falling into the speculative grade. As World War II approached, the ratings for the European nations declined rapidly and, by 1939, all ratings in the region except that of Great Britain were speculative grade. Germany was moved to the default category in October 1939, and by June 1940, Standard Statistics suspended most of its sovereign ratings. After the war, S&P’s began to rate Yankee bonds (foreign bonds denominated in U.S. dollars issued in the United States) launched by a number of mature economies. However, once the United States imposed an interest equalization tax in 1963, investor interest in Yankee bonds waned and S&P’s suspended issuing sovereign ratings in 1968 (except for in Canada). S&P’s resumed rating sovereigns in 1974, and by 1980, 30 countries had sovereign ratings (all at Aaa level). By early 1999, the total number of sovereigns that were rated reached 79.

The 1990s have also witnessed an increase in the number of sovereigns that are rated at the non-investment-grade level (Figure 5.5). This development has primarily reflected not downgrades but rather an increased number of non-investment-grade sovereigns seeking ratings to enhance access to private capital flows.

The agencies argue that the level of a sovereign’s rating is determined by a variety of political and economic factors. They regard as important both global systemic factors, which influence the timing and magnitude of sovereign defaults, and country-specific factors, which influence the sovereign’s ability and willingness to service its obligations. The agencies recognize that the analysis of sovereign creditworthiness is inherently more complex than that for corporations. While corporates have the primary objectives of profit maximization, sovereigns must trade off between multiple objectives—economic, political, and social. Government stability and unity, policy consensus and consistency, and policy response capacity are therefore viewed as key analytical factors in rating sovereigns. However, these political and policy factors are regarded as the most challenging to assess and are thus subject to wide margins of error.

Local currency ratings are influenced by such factors as the stability of political institutions and the degree of popular participation in the political process; income and economic structure; fiscal policy and budgetary flexibility; monetary policy and inflationary pressures; and public and private sector debt burdens and debt-service track record. A country would have a higher rating if the government was perceived as stable and responding rapidly to economic problems, the standard of living was improving, inflation was low, public and private sector debt burdens were low, and any fiscal imbalance was of modest size and used to fund productive expenditures. The sovereign’s ability to service its domestic currency obligations (because it has the power to tax and to print money) is typically seen as greater than its capacity to service external obligations.

The same factors influence a sovereign’s foreign currency rating, but additional consideration is given to the effects of policies and other economic conditions that affect trends in public and private sector external debt. Both private and public sector debts are examined because private debts have been assumed by the public sector in a variety of countries during crises. Another key consideration is the scale of the country’s foreign exchange reserves and the country’s access to funding from the IMF and other multilateral institutions.

A survey of the analytical methodologies employed by the four largest rating agencies undertaken by the staff indicates that these agencies do not use specific models to assign sovereign ratings (see Annex V). Instead, they aim to assess the multiplicity of qualitative factors and quantitative indicators described above that affect sovereign default risk. However, to date, the agencies generally do not conduct extensive scenario analyses and stress testing, and they only rarely assign probabilities to specific risk factors and scenarios when assigning and monitoring ratings.

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21Annex V lists the various factors that S&P’s identify as ratings determinants.

22This set of factors is given in S&P’s (1998b).
Although the rating agencies stress that they do not use a specific formula to combine their evaluations of the political and economic factors to derive the overall rating, there have been a number of empirical studies of which factors have historically received the greatest weights in the decision-making process. In particular, Cantor and Packer (1996, 1997), Reisen and von Maltzan (1999), and Juttner and McCarthy (1998) examined the determinants of the levels of Moody’s and S&P’s ratings for a range of mature and emerging market economies in the mid-1990s (see Annex V for an analysis of these studies). The results that were statistically significant indicated that a high rating was associated with a high per capita income, more rapid growth, low inflation, a low ratio of foreign currency debt to exports, the absence of a history of defaults since 1970, and a high level of economic development (as measured by the IMF’s classification as an industrial country). However, the fiscal position (as measured by the average annual central government budget surplus relative to GDP in the three years before the rating year) and the external position (as measured by the average annual current account surplus relative to GDP in the three years before the rating year) were statistically insignificant.

**Rating Accuracy and Market Response**

The usefulness of rating agencies to market participants in terms of overcoming problems created by asymmetric information is ultimately tied to how accurately the rating agencies measure the relative default probabilities associated with different issuers. Moody’s maintains a database on corporate bond ratings and defaults that covers the period since 1920 and encompasses about 15,200 issuers of rated debt and some 2,200 defaulting issuers. Default rates are calculated by dividing the number of issuers that defaulted at a particular time by the total number of issuers that could have defaulted. The incidence of defaults has been uneven, with large numbers of defaults in the 1920s, the depression of the 1930s, and then again in the late 1980s and 1990s (Figure 5.6). When examined in terms of rating categories, the 5-, 10-, 15-, and 20-year cumulative default rates are illustrated in Figure 5.7. There is clearly a much higher default rate for the lower-rated categories. For example, the average default rates for five-year holding periods rises from 0.1 percent for the Aaa rating category to nearly 28 percent for the B category (Figure 5.7). In addition, there is much greater volatility in the default rates as the ratings move from investment to non-investment-grade levels (Figure 5.8). These mean and variance characteristics of the distribution of corporate defaults have implications for the pricing of corporate securities. To the extent that portfolio managers are risk adverse, the returns on lower-rated debt must compensate them not only for the higher average risk of default, but also for the increased risk that the default rate could differ significantly from its historical average.

Even if the ratings are historically accurate, there is still the issue of the degree to which they influence

23This database is described in Moody’s (1999a). Annex V also provides comparable information on S&P’s experience with defaults, which is quite similar.

24Cumulative default rates represent the proportion of the issuers in a particular rating’s category that default during the specific time period considered.
asset prices. There have been a number of studies of the relationship between corporate rating changes and the adjustments in the prices of the firms' bonds, equities, and commercial paper (see Chandra and Nayar, 1998; Hand, Holthausen, and Leftwich, 1992; Matolcsy and Lianto, 1995; and Wansley and C laurette, 1985). These studies have often focused on the issue of whether changes in ratings convey information not already incorporated into prices from other sources. While the empirical results are not uniform, they typically find (1) a more significant effect from a downgrade rather than an upgrade and (2) the largest effect when the rating change is "unexpected."25

In examining the relationship between changes in ratings and the change in the spread between the yields on sovereigns, U.S. dollar-denominated eurobonds, and comparable U.S. treasury bonds, somewhat mixed results were obtained. For example, Cantor and Packer (1996) concluded that (1) announcements of upgrades in the agencies' ratings were followed by declines in yield spreads that were statistically significant, but downgrades did not produce significant effects; and (2) the impact of rating announcements on spreads was much stronger for non-investment-grade than for investment-grade sovereigns. In contrast, Reisen and von Maltzan (1999), employing a somewhat larger and later sample period, found that a significant change in the yield spread in the expected direction occurred only when a country was put on review for a possible downgrade. However, they also found that the largest announcement effects were for emerging market sovereign spreads. As noted above, Cantor and Packer (1996) found the largest effects for non-investment-grade bonds, which were primarily those issued by emerging market sovereigns.

Emerging Market Sovereign Ratings in the 1990s

The 1990s have witnessed a sharp increase in the number of rated emerging markets sovereigns, as well as considerable variability in the average level of these ratings. For both Moody's and S&P's there has been almost a sevenfold increase in the number of emerging market sovereigns that have received a rating on their foreign currency issues (Figure 5.5). The most rapid growth in the number of ratings occurred in the period 1993 to 1997, as a growing number of emerging market sovereigns began to tap global bond markets, and portfolio flows to emerging markets rose from $117 billion in 1993 to $286 billion in 1997. For example, there were 11 emerging market sovereigns that were rated at the beginning of 1990, which included seven Asian countries and four other countries (Figure 5.9). In the early 1990s, the Asian countries had an average...
Moody’s rating of A3, which rose to A2 by late 1994. However, as the Asian crisis intensified, the average rating for these countries declined sharply, reaching Baa2 (still investment grade) in late 1998. The non-Asian countries that were rated in the early 1990s had an average rating of B1 (non-investment-grade) but improved gradually to Baa2 before the events in Russia and Brazil created uncertainties that led to a decline in the average rating to the Ba3 level. Sovereigns that were rated in the mid-1990s tended to start at the low end of the investment-grade range (Baa3) and to improve slightly before declining as the Asian crisis deepened.

**Rating Changes During Recent Crises**

In examining the experience with sovereign ratings for emerging markets in the late 1990s, it is important to first note that, historically, sovereign ratings have been relatively stable. Indeed, since the agencies argue that they try to see through economic political credit and commodity cycles, a recession or tightening of global liquidity should not, in itself, be an occasion for a downgrade. Rating changes should thus be tied to fundamental factors, such as secular trends or unanticipated policy responses. Table 5.3 indicates that sovereigns have typically stayed in the same rating category for extended periods, although ratings are more likely to change as one goes down the rating ladder.

In the period prior to the Asian crises, there had been only relatively modest rating actions and most Asian countries had investment-grade ratings. Moody’s placed Thailand on watch for a possible downgrade in February 1997 and subsequently downgraded Thailand from A2 to A3 in April 1997. However, the only other rating action was to upgrade the Philippines (to Ba1 in May 1997) and to assign a rating to Vietnam (Ba3).

S&P’s did not make any rating downgrades on Asian economies in the first half of 1997, although it also upgraded China (to BBB+ in May 1997), the Philippines (to BB+ in February 1997), and Hong Kong SAR (to A+ in May 1997). Most market participants have argued that these rating actions gave only a limited warning of the subsequent market turmoil and rating adjustments that were to follow. Moreover, a number of observers have argued that, in the agencies’ reports on the Asian countries, there was seemingly a “disconnect” between the often critical, and subsequently proven accurate, assessments of the financial sector weaknesses in the Asian economies and the investment-grade ratings that they were assigned.

Against this background of rating stability, the rating changes on Asian emerging markets observed during the period between July 1997 and November 1998 were, collectively, the largest and most abrupt downgrades in the modern history of sovereign credit ratings (see Annex V, Figures 2–11). The ratings of Indonesia, Korea, Malaysia, and Thailand fell by an average of five “notches” (a one-step movement in the rating). In the course of these downgrades, Moody’s reduced Indonesia, Korea, and Thailand to non-investment-grade; whereas S&P’s reduced Indonesia and Korea to non-investment-grade but assigned the lowest possible investment-grade rating to Malaysia and Thailand. Korea was returned to investment grade (BBB−) by S&P’s in January 1999. These rating adjustments were accompanied by virtually simultaneous increases in interest rate spreads (see Annex V, Figures 2–12). By the beginning of 1998, spreads were between 3 (for Malaysia) and 8 (for Indonesia) times the levels observed in early July 1997.

The largest rating downgrades typically occurred following the revelation of what the agencies regarded as material new information. Both Moody’s and S&P’s (as well as some of the other agencies, such as Fitch IBCA) have argued that major rating reviews were triggered by the reports on the size of the Bank of Thailand’s forward foreign exchange position; the

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**Table 5.3. Sovereign Foreign Currency Ratings: Average One-Year Transition Rates by Rating Category**

(In percent)

<table>
<thead>
<tr>
<th>Rating at Beginning of Year</th>
<th>AAA</th>
<th>AA</th>
<th>A</th>
<th>BBB</th>
<th>BB</th>
<th>B</th>
<th>CCC</th>
<th>SD</th>
<th>OR</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rating at year-end</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AAA</td>
<td>97.5</td>
<td>2.7</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
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<td>0.0</td>
</tr>
<tr>
<td>AA</td>
<td>0.0</td>
<td>96.9</td>
<td>0.8</td>
<td>0.0</td>
<td>0.8</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>A</td>
<td>0.0</td>
<td>4.6</td>
<td>95.3</td>
<td>3.1</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>BBB</td>
<td>0.0</td>
<td>0.0</td>
<td>5.1</td>
<td>88.1</td>
<td>5.1</td>
<td>1.7</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>BB</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>6.0</td>
<td>85.1</td>
<td>4.0</td>
<td>1.5</td>
<td>1.5</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>B</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>20.0</td>
<td>75.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>CCC</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Source: Standard & Poor’s.

Ratings from 1975 to 1998.

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China, Hong Kong SAR, Indonesia, Korea, Malaysia, Singapore, Taiwan Province of China, and Thailand all carried investment-grade ratings at the beginning of July 1997.

Other market analysts and asset prices also provided little warning of the impending crises. Surveys of analysts at major international commercial and investment banks published just prior to the crises by the Institutional Investor and Euromoney indicated that these analysts gave high creditworthiness ratings to all the Asian countries receiving investment-grade ratings by Moody's and S&P's (see Annex V). Indeed, the most common criticism of the rating agencies by other market participants during this period was that the agencies were being too "conservative" in not upgrading some of the countries. Moreover, as illustrated in Figures 2–12 of Annex V, interest rate spreads for most emerging markets (not just those in Asia) were declining or stable and had reached levels that were amongst the lowest observed in the 1990s.

Although Russia's crisis and the near-failure of LTCM triggered extensive turmoil in global financial markets and a further spike in the interest spreads, credit ratings remained relatively stable across all regions (see Annex V, Figures 2–12). As Brazil's exchange rate arrangements came under pressure, there were concerns that there would be large, abrupt adjustments in the ratings of Brazil and other Latin American emerging markets. Nonetheless, even the subsequent Brazilian depreciation was accompanied by only modest rating adjustments in Latin America and elsewhere. While Brazil was downgraded by Moody's (to B2 in September 1998) and by S&P's (to B+ in January 1999), there were cumulatively only four "notches" of rating changes between October 1998 and May 1999 for the 66 emerging markets rated by Moody's. Such stability would be consistent with the historical pattern of relatively gradual changes in sovereign ratings.

The experience in the period since 1997 has provoked extensive debate about the specific role of the credit rating agencies in the evaluation of sovereign credit risks and, more generally, about how well market participants assess the risks associated with cross-border capital flows. Critics have said that agencies gave too little early warning before the crisis and overreacted once the crisis emerged. This is particularly the case for Korea, where one critic argued that "any agency which rated Korea at the high investment-grade rating of AA- (in the case of Fitch IBCA and Standard & Poor's) or A1 (in the case of Moody's) before the crisis and downgraded at the worst point of the crisis before Christmas to a speculative grade B-, B+, and Baa1, respectively, was clearly wrong either initially or subsequently."27

These criticisms raise the issue of how the performance of the rating agencies should be evaluated.28 One cannot examine the actual experience with default rates and rating levels (as can be done for corporate ratings) to see if there is a statistically significant relationship for two reasons. First, as noted earlier, there has been only limited experience with sovereign ratings, both in terms of the length of time since the ratings began (for most emerging market countries, since the early 1990s) and the number of countries that have been rated. Moreover, under the definitions of default employed by the agencies, there were no sovereign defaults on any rated foreign-currency-denominated security in the period 1975–98.29

One starting point is to consider what the agencies have said about their performance during the crisis and what changes they have made in their analysis of sovereign credit risks. For example, Moody's30 argued that ratings are not intended to predict the precise timing of either when a given borrower might default or when a borrower may face a financial crisis. Moreover, the most abrupt changes in ratings will occur when the authorities reveal new information that has a significant impact on the short-term liquidity position of the sovereign. In the case of Thailand, the most serious rating deterioration occurred after the size of the central bank's forward foreign exchange position was revealed. In the case of Korea, Moody's argued that the crisis intensified when it was revealed that the authorities had deposited most of their international reserves with offshore Korean banks, which implied that these funds were not liquid. If this type of material information is concealed by the authorities, then Moody's argued that one should always expect at least a review and most likely an abrupt change in a country's rating when it is revealed.

Nonetheless, Moody's indicated that there was a need for a "paradigm shift" in its rating technology as a consequence of the abrupt withdrawal of short-term credit, which produced crises whose severity was far in excess of any previous credit experience. This change will involve (1) greater analytic emphasis on the risks associated with reliance on short-term debt for otherwise creditworthy countries; (2) greater emphasis on the identity and creditworthiness of a country's short-term borrowers; (3) a greater appreciation of the risks posed by a weak banking system (includ-


28Annex V has a more detailed discussion of potential evaluation criteria, including those that have recently been proposed by the Basel Committee on Banking Supervision.

29Both Moody's and S&P anticipate that, with the growing scale of non-investment-grade sovereign issues, there will be some defaults in the near future, the first of which occurred (under the agencies' definition) on May 14, 1999 when Russia failed to make a principal payment on its U.S. dollar-denominated Ministry of Finance (MinFin) Series III bonds.

30Moody's views are given in a special "white paper" (Moody's, 1998).
V EMERGING MARKETS: NONSTANDARD POLICY RESPONSES AND THE ROLE OF CREDIT RATING AGENCIES

...ing the contingent liabilities of such weakness for the authorities); (4) identification and consideration of the likely behavior of foreign short-term creditors; and (5) increased sensitivity to the risk that a financial crisis in one country may be contagious for its neighbors. Moreover, Moody's is considering the introduction of sovereign financial strength ratings, which would provide an indication of a country's ability to "stand alone" in the absence of outside credit support from international organizations or other countries.

Recent experience has led S&P's to put renewed emphasis on banking system soundness and to place greater importance on the financial contingency plans of countries with significant cross-border financing needs in its rating process. Banking system soundness is essential to a country's macroeconomic stability, effective demand management, and sustained economic growth. The level and rate of growth of leverage in an economy are seen as the key determinants of the likelihood of stress in the financial systems. In turn, trends in credit growth (to the private and public sectors), corporate and household indebtedness, asset-price inflation, and external funding of financial institutions are viewed as the key indicators of leverage. To gauge the likely costs associated with financial system weaknesses, S&P's has begun to publish estimates of the potential level of gross problem assets in the financial system in a reasonable worst-case economic recession or slowdown, expressed as a percentage of domestic credit to the private sector and nonfinancial public enterprises. S&P's also argued that one of the key reasons for the rating downgrades was that the response by a number of countries had fallen short of what was required to manage the crisis without a lasting impairment to their credit standing.32

Fitch IBCA has also acknowledged that it needs to change some aspects of its rating methodology in light of its experience since 1997.33 Sovereign credit risk analysis will always be inherently more difficult than that of corporates and financial institutions because the agencies need to focus on the willingness to pay as well as the ability to pay when analyzing sovereigns. It was noted, however, that this is well recognized by the markets, and this is reflected by the fact that emerging market sovereigns always pay an interest rate risk premium relative to comparably rated U.S. corporates. In terms of the specific lessons from the Asian crisis, Fitch IBCA first argued that inappropriate exchange rate policies had played a key role in determining the severity of the crisis. In particular, the pegged exchange rates maintained by a number of Asian countries were seen as encouraging the private sector to ignore exchange rate risk and borrow in U.S. dollars to take advantage of a slight gain in interest costs. As a result of this experience, it has emphasized that private as well as public sector debt matters for sovereign credit ratings.34 Moreover, Fitch IBCA had underestimated the importance of the share of short-term debt in total external debt. One of the important lessons this agency had drawn from the Korean experience is that in the future its staff must look closely at any country with a high proportion of short-term debt in its external liabilities, even if its overall indebtedness is modest.

Fitch IBCA will also give renewed emphasis in sovereign analyses for all countries, not merely that of emerging markets, to vulnerability to liquidity crises. Particular attention needs to be given to the level of official foreign exchange reserves, especially in light of the maturity structure of the economy's foreign currency debt. For the agency to make an accurate evaluation of an economy's external asset and liability position, however, it views transparency—in both the data and the policy framework—as vital. Finally, the most difficult element of the recent crises for the analyst to assess has been contagion. The agency argued that it will maintain lower ratings for countries that are particularly vulnerable to contagion.

Another means of gauging whether the adjustments in ratings during the recent crises were "excessive" is to examine whether the empirical models that have been used to identify the relationship between the ratings and economic fundamentals have remained stable and would predict the types of rating changes that have occurred. Juttner and McCarthy (1998) recently examined this issue by first reestimating the model developed by Cantor and Packer (1996)35 using the 1995 sovereign ratings given by Moody's and S&P's for 46 countries. Their estimates are quite similar to those obtained by Cantor and Packer. In particular, five of the macroeconomic variables had significant explanatory power, namely, positive effects associated with the level of per capita income and being an industrial country, and negative effects associated with a high rate of inflation, a high ratio of external debt to exports, and a previous default (as defined by the agencies) on external obligations. The authors then reestimated these equations with data from 1996, 1997, and 1998, and they used these regression results to examine whether the predictive power of the estimated equations declined over time and to identify the largest outliers from the regressions. Juttner and McCarthy were particularly interested in whether the regressions could explain "rating crises" (i.e., a three-"notch" sovereign credit rating downgrade on

31This concept was originally discussed in S&P's (1997).
33These views are expressed in Fitch IBCA (1998).
34In this regard, Fitch IBCA criticized the IMF's Special Data Dissemination Standard (SDDS) for only including data on public but not private sector external debts.
35See Annex V for a more detailed discussion of these results.
long-term foreign currency debt over any six-month period). While the estimation results for both 1996 and 1997 are similar to the 1995 results, the number of significant variables and the proportion of the variation in the ratings explained by the regression declined significantly for 1998. Moreover, for 1998, the empirical model predicted the rating levels for Indonesia and Korea at five and four notches higher, respectively, than the average of the ratings assigned by Moody’s and S&P’s.

In addition to concerns about the performance of the credit rating agencies, there has been more general criticism that market sources of public information on emerging markets have systematically failed to produce accurate and adequate amounts of the type of information and analysis that savers need to make appropriate portfolio allocation decisions. Moreover, it has been argued that, even when appropriate analysis was available, there was underutilization of such analysis in the decision making by savers and institutional managers.

The key market failure is the “free-rider” problem, which has two dimensions. First, it is virtually impossible to impose a fee on public information once it is made available. Second, given this inability to capture the value from the information that is produced, Karacadag and Samuels (1998) have argued that there has been a general market failure to assess investment risks adequately. This market failure reflects underinvestment in the human, information, and technological resources needed for proper analysis of political, economic, and financial risks. The pressures for quick decisions limit the time that can be devoted to research and processing of information and, as a result, telling a defensible story takes precedent over deeper analytical work. It has been argued that the problem of understaffing is compounded by the inexperience of analysts, which reflects both budget constraints and the limited supply of seasoned analysts. As a result of these severe resource constraints, many market analysis attempt to “free ride” from those that do more in-depth analysis, but, to the extent that most analysts do the same, market participants are left with suboptimal, mirror-image analysis on which to base portfolio decisions.

The acute underinvestment in analysis by each institution is nonetheless seen as leading to overinvestment in aggregate production. Critics argue that the market for investment analysis is characterized by a multiplicity of “production” centers producing similar but superficial analysis. The analysis is flawed in part because much of the “sell-side” analysis originally was aimed at helping institutions market securitized assets that they no longer want to hold on their books and currently is biased by the motive of generating transaction business.

Another fundamental problem in financial markets is the challenge of assessing and pricing the uncertainty surrounding risk factors. Even when information asymmetry problems are overcome, several sovereign risk factors, including political stability and policy response under stress, are inherently difficult to evaluate and predict, and subject to a wide range of outcomes. Critics have argued that the higher the uncertainty of a specific outcome, the less likely it is to be incorporated into the analysis of investment risks. The disconnect between rating agency reports—which highlighted banking and short-term debt risks prior to the Asian crisis—and actual ratings may in part have reflected the challenge of incorporating possible but uncertain events into ratings, especially given strong economic management track records. One way around this may be to ensure that analytical and pricing methods are based on probabilistic approaches, to ensure that low- and high-probability events are assessed and priced.

Another fundamental problem lies in the utilization of available (and sometimes high-quality) risk analysis in decision making by savers and portfolio managers. The concern is that a variety of nonanalytical factors, such as competitive pressures, herd behavior, and meeting short-term performance benchmarks, often play decisive roles in portfolio allocation, regardless of what fundamental analysis would dictate.

To address these concerns, members of the country risk profession have recently sought to identify weaknesses in their analytical methods and institutional procedures and to recommend “best practices” that can address these shortcomings. For example, a series of roundtable discussions between September 1998 and April 1999 were conducted by members of the country risk profession under the auspices of the Council on Foreign Relations.36 In addition, the Report of the Task Force on Risk Assessment set up by the Steering Committee on Emerging Markets Finance of the Institute of International Finance (IIF) in 1999 has also examined methods for improving risk management practices in emerging market finance. While the scope of the two reports differed, key weaknesses were identified in the areas of country risk analysis methods, the structure of the country risk analysis profession, and the use of country risk analysis in decision making.

First, developments in the global economy have outpaced improvements in the analytical capacity of the country risk profession. This situation has reflected such factors as the increased complexity and global interdependence of national economies, the rapid expansion and growing complexity of global financial markets, and, often, the unavailability of timely, accurate, and relevant financial and economic

36 The results of these discussions are summarized in Samuels (1999).
data. These weaknesses should be addressed through the use of techniques that incorporate uncertainty, such as the development of scenarios, sensitivity analysis, and threshold testing. Moreover, greater attention needs to be given to the identification and incorporation of nonquantifiable variables such as political risk and liquidity analysis. There were also calls for improvements in the timeliness and comprehensiveness of the data on the websites of the international financial institutions and national authorities.

A second weakness was seen in the structure of the country risk profession, which has evolved to support securitization and trading, and has thereby decreased the individual analyst's capacity to openly provide independent, long-term assessments of country fundamentals. It was argued that this should be addressed through the establishment and dissemination of "best practices" for the country risk profession.

A third weakness was that, even when available, quality country risk assessments were often not adequately integrated in decision-making processes. Competitive pressures, herding, and efforts to match a benchmark return have led portfolio managers to ignore quality analysis. To correct this system, it will be necessary to alter the incentives for using quality risk assessment by revising performance benchmarks, to have national and international regulatory regimes reinforce the use of such assessments, and to make efforts to tie asset pricing more closely to risk assessments. In contrast to the solutions proposed for the first two weaknesses, these measures cannot be accomplished solely by the efforts of the credit risk profession but would require the assistance of other agencies, particularly regulators.

In reviewing developments since the beginning of the Asian crises, the staffs of the credit rating agencies and, more generally, the credit risk profession have identified a number of economic factors that will receive increased emphasis in any evaluation of a country's creditworthiness: these are quite similar to those receiving increased attention in IMF surveillance. Financial system weaknesses, particularly in the banking system, have been viewed as a key source of vulnerability. Similarly, reliance on short-term external debt and other "confidence-related" capital flows by either the private or the public sector imply that a country can face an abrupt loss of market access. Moreover, it is now recognized that a financial crisis in one country can be contagious to its neighbors. There has also been a clear recognition of the need for greater transparency by countries with regard to both data and policies. In this regard, the Special Data Dissemination Standard (SDDS) has been viewed as making an important contribution to transparency, but there have been calls for increased coverage and shorter reporting lags, particularly for data on international reserves and private as well as public sector external debt.

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VI
Summary and Conclusions

The last year has been one of extraordinary turbulence in international financial markets, as spillovers from the crisis that began in Asia in 1997 threatened to engulf the advanced countries in the aftermath of Russia’s unilateral debt restructuring and the problems at LTCM. As a result of timely action by a number of central banks and the international community, a full-blown global crisis was avoided, and greater stability has returned to international financial markets in recent months. Nevertheless, a number of vulnerabilities remain in both the advanced and emerging market countries, and capital flows to the emerging markets remain well below their levels a few years ago.

The main immediate risks in the outlook are related to uncertainty about the extent to which the ongoing global reappraisal of risk—and the associated deleveraging—has run its course. In the larger advanced countries, the risks are manifested in concerns about the sustainability of the current configuration of high U.S. equity prices and dollar strength. There are also risks for the emerging markets as regards the reduced investor base, the level and structure of external financing, and cutbacks in market making in external debt markets.

The turbulence and severe spillovers have raised issues about the market dynamics associated with highly leveraged financial systems, the adequacy of current approaches to assessing systemic risk, and the sources of spillovers to and across emerging markets. Previous International Capital Markets reports have focused on several aspects of these challenges, and this year’s report considers, in particular, the public policy issues posed by the role of off-balance-sheet leverage in modern finance, the impact of HLIs on small and medium-sized markets, emerging market responses to severe external pressure, and the performance of the major credit rating agencies during the emerging market crises.

Mature Markets

A key risk—and one which has heightened in the last 12 months—is the possibility of a large correction in the U.S. equity market, with the risks of a spontaneous correction in the other advanced markets some-what lower. Following a brief interruption during last year’s turbulence, U.S. equity prices and measures of stock-market valuation have continued to surge to new highs with significant gains in the past 12 months. Uncertainty about the outlook for corporate earnings has, however, increased, given the advanced stage of the U.S. business cycle and the fact that the decline in long-term interest rates has recently reversed. An alternative explanation for the recent gains—a further compression in the equity risk premium—is difficult to reconcile with the evident ongoing global repricing of risk, although the increased participation of individual investors in the equity market implies that the equity risk premium may have declined somewhat.

Conflicting signs of a turning point in the inflation and monetary policy cycles and uncertainties about the size and extent of leverage in the global financial system complicate the assessment of the likelihood and implications of any equity-market correction. The small increase in the federal funds rate at the end of June was accompanied by a statement that the U.S. monetary authorities would be especially vigilant about the potential emergence of inflationary pressures. The unusually favorable inflation performance during the past few years may, however, have led some market participants to underestimate the extent of tightening that may be eventually needed. The 1998 turbulence demonstrated how a shock can be amplified and propagated across leveraged financial systems, giving rise to volatility in far-flung markets. A steep correction in the U.S. equity market would likely have serious consequences in a similarly leveraged system. Researchers have suggested that leverage and imbalances have been reduced since the turbulence; against this, there are also indications that some channels for leverage (such as the yen carry trade) saw renewed activity in the first part of 1999, and that banks in mature markets have recently increased their exposures to securities markets. Absent comprehensive information about the extent of leverage in the major financial systems, the vulnerability of those systems and the emerging markets to a correction in the U.S. equity market may be considerable.

There is also the possibility of sharp adjustments in the dollar if tensions between near-term and medium-term pressures are resolved abruptly. For example,
while cyclical differences have kept the dollar strong in effective terms in the last couple of years, current account imbalances suggest a weaker dollar over the medium term. If this tension is reconciled abruptly—or if the realignment is amplified by leverage or other technical features of foreign exchange markets—exchange rate volatility could result, with an associated risk of spillovers into other markets.

The international financial system also faces risks from the Y2K problem. Owing to strong and early efforts by many national authorities, most financial institutions in the major countries will have prepared their own systems in time for the millennium, so that technical risks stemming from their own failures appear to be small. However, financial institutions in mature markets, still face risks stemming from technical failures in those nonfinancial corporations and emerging market financial institutions with whom they have important business relationships; the relatively limited transparency about preparations in these areas adds to concerns. All financial institutions face risks stemming from an adverse market reaction (whether warranted or not), as tensions will likely build up in the run-up to the millennium: market liquidity and the appetite for risk could decline, and liquidity may command an increasing premium. Market reactions could range from a moderate flight to quality to an extreme flight to cash and large cutbacks by major banks in their exposures to emerging markets. In view of these risks, and the limited time remaining, it is encouraging that financial institutions and authorities in the mature markets have recently increased their efforts at contingency planning, including to manage liquidity pressures and to ensure business continuity around the date change. Such efforts should be intensified in the regions and sectors where preparations have lagged.

**Emerging Markets**

The pickup in emerging market asset prices in the first half of 1999 has occurred despite restricted access to global financial markets (especially for nonsovereign issuers) and a diminished investor base. While improving macroeconomic conditions in a number of emerging markets (particularly in Asia) and in Japan could further strengthen the asset price recovery, a number of factors pose risks. As noted earlier, a pickup in inflationary pressures in the United States could lead to a further tightening of monetary policy and a rise in global market interest rates. Historically, a tightening of monetary conditions in mature markets has often been accompanied by a slowdown in capital flows to emerging markets and a widening of interest rate spreads in emerging markets securities. Recent empirical studies suggest that a rise in mature market interest rates not only raises the base cost for emerging market borrowing but also increases the spread on that borrowing, and that a tiering of issuers tends to take place (with less creditworthy borrowers not attempting to access global bond markets). Moreover, a sharp adjustment in equity prices in advanced countries such as the United States could have strong negative repercussions on emerging equity markets.

Another development that is drawing increasing attention is the state of the corporate sector in some emerging markets. While there is a perception that limited progress has been made in restructuring Asian corporates, there is also concern that a growing number of Latin American corporates may have difficulties meeting their obligations if external financing remains tight. The deteriorating position of the Latin American corporates is viewed as reflecting the slowdown in economic activity in the region, the presence of high real interest rates in some countries (such as Brazil), and the restricted access to credit from either global markets or domestic banks. These concerns about corporate sector weaknesses are also leading investors to focus on the ability of some banks to absorb a higher level of nonperforming loans.

More generally, the adjustment in the investor base for emerging markets securities is still under way. One concern is that a “vicious circle” has been evident in the period since the Russian debt restructuring. The sharp increase in interest rate spreads and asset price volatility led many investors to reassess the risks associated with holding and trading emerging market securities. For some institutional investors, the higher asset price volatility required a decision as to whether to close out their positions in emerging market securities or to devote more capital to supporting these positions. In many cases, the decision was made to close out the positions. Moreover, some investment banks decided to shut down their emerging market trading desks. As the number of investors actively trading and holding emerging market securities has declined, liquidity in those markets has diminished, which has resulted in higher bid-ask spreads and increased asset price volatility. This adjustment is still not complete, but its ultimate outcome will have important implications for both the terms and conditions of market access and the sustainable level of capital flows to emerging markets.

**Private and Public Policy Challenges Raised by Highly Leveraged Institutions and Activities**

The turbulence following Russia’s unilateral debt restructuring and devaluation has raised a number of questions about the adequacy of current lines of defense against systemic risk and the factors contributing to the rapid dynamics and spillovers that characterize modern financial markets. The three lines of defense
against systemic risk—market discipline, prudential supervision and regulation, and macro-prudential surveillance—proved inadequate to prevent a buildup in leverage. Moreover, both policymakers and market participants were caught by surprise by the spillovers during the turbulence. As a rapid process of portfolio rebalancing and deleveraging was triggered by a sharp increase in risk aversion.

The turbulence has raised a number of important challenges for public policy and the private sector. One important issue is to understand better the broad features of the environment that contributed to a buildup in leverage before the turbulence, with a view to strengthening the ability to avoid similar vulnerabilities in the future. A second is to identify the specific changes in private incentive structures and information disclosure that could facilitate a greater role for the market in containing excessive and imprudent risk taking, and allow prudential supervision and market surveillance to be more proactive. The third is the need to balance the efficiency-enhancing aspects of modern financial practices with the risk that they may exacerbate the short-run effects of shocks and contribute to spillovers across markets.

The main proposals that have been advanced, or are under consideration, in various forums to contain excessive leverage appropriately emphasize the importance of a significant strengthening of market discipline. For the most part, the proposals do not call for greater direct regulation over hedge funds, since hedge funds are seen as only one of many institutions employing leverage, and a number of difficult issues are posed if attempts are made to directly regulate these funds. Moreover, it is envisaged that banks should tighten controls on their exposures to hedge funds and through this means contain the risk of a buildup in excessive leverage. The proposals appropriately note that improvements in market discipline require a significant increase in the amount of information that financial institutions, including hedge funds, should regularly provide to their counterparties and to markets. Less attention has been given to the improvements in supervision and surveillance that could help better monitor the buildup and concentration of leverage and help identify problems at an early stage (the second and third lines of defense).

Even though current proposals make substantial progress identifying means to improve the lines of defense, a number of important challenges remain.

- **Analytical framework.** There is now no agreed analytical framework for understanding the role of off-balance-sheet leverage, assessing the conditions under which it might rise to levels that pose systemic risk and, more generally, for assessing ex ante when it has become unsustainable. Such a framework is needed by private market participants to assess the riskiness of their own positions and also by national authorities charged with supervision and market surveillance. One important reason such a framework does not exist is that the recent increases in financial market complexity and the range of instruments by which leverage can be acquired have made it difficult to measure and assess when leverage may become excessive. In these circumstances, most of the proposals for reform focus on the shortcomings in private risk management and information disclosure that are thought to contribute directly to excessive risk taking, under the assumption that improvements in these areas will help avoid too much leverage. It would clearly be desirable, however, to have a better understanding ex ante of when leverage is rising to levels that could pose systemic risks.

- **Incentive structures.** Understanding of both private and regulatory incentive structures needs to be improved. In particular, the shortcomings in incentive structures within private firms, which contribute to lax risk management practices and poor controls on counterparty exposures, need correction. In addition, there is the issue of how supervisory and regulatory frameworks may have influenced and possibly distorted private incentive structures. The various proposals that have been made to improve risk management are beginning to address the changes in incentives that will be required within firms to ensure the adequate monitoring and control of risk, but the key to their success will be to increase the role of the stakeholders in these firms in imposing effective and timely discipline.

- **Information.** The types and frequency of information needed to bolster market discipline and improve supervision and surveillance need to be better understood. Key issues include the nature and form in which off-balance-sheet exposure information is to be presented and the role to be played by value-at-risk and stress testing information. There are, in addition, a range of issues related to the assessment and presentation of information on potential future exposures and what information supervisors might disclose to the market. An important next step will be to reach agreement on a core set of data that could be disclosed to markets on firms' risk exposures and the frequency with which such data should be made available.

The need to bolster systemic or macro-prudential oversight (third line of defense) introduces a number of other important areas that need to be addressed.

One issue concerns the nexus between monetary and financial policies and the role that liquidity conditions played in the buildup in leverage before the Russian crisis. Market participants frequently described global liquidity as unusually abundant during this period, as reflected in relatively low interest rates in many of the advanced countries. These favorable liquidity conditions were thought to have contributed to the high levels of leverage within advanced countries and the surge in capital flows to the emerging markets.
markets. Closer monitoring of global liquidity conditions and assessments of the implications for financial markets could play a potentially important role in financial market surveillance and in alerting official sectors to the possible buildup of imbalances. This would allow supervision and market surveillance to become both more proactive and countercyclical and would lead to intensified surveillance during periods when liquidity is abundant.

Second, there is the issue of whether national authorities are adequately exploiting the synergies between prudential macro-surveillance and the supervision of individual financial institutions. In particular, supervisors of individual financial institutions might benefit from greater use of the broader market intelligence obtained through market surveillance in seeking to identify a buildup in vulnerabilities across institutions and markets. In addition, those undertaking market surveillance would benefit from the information supervisors obtain when considering each institution individually. Greater exploitation of such synergies might, for example, have helped identify the buildup in leverage last year and the concentration of positions in particular markets and vis-à-vis particular institutions. Given that such synergies increasingly exist both within and across national borders, they imply a need for closer cooperation among supervisors and market surveillance across countries.

There is also the problem that the ongoing rapid pace of financial innovation and globalization is leading to widening gaps between what regulators need to know to supervise internationally active financial institutions and the information set and capabilities of the institutions themselves. These problems are accentuated by the growing scope that financial innovation and globalization are giving to regulatory arbitrage, and they imply that efforts to regulate one set of institutions or activities can be undone and have unintended consequences. As the rapid pace of innovation and globalization continues, these problems will likely worsen, suggesting the need for additional consideration of how regulators can stay abreast in an increasingly dynamic and interrelated global financial system. There are unlikely to be simple solutions, and supervisors will invariably be at a significant information disadvantage relative to the institutions they supervise. Nevertheless, improved understanding of the risk control mechanisms within firms and emphasis on the adequacy of risk control practices can help limit the risks from these informational asymmetries.

Another important issue is the role that the heavy reliance on modern risk management practices might play in exacerbating and propagating financial turbulence. As noted in previous International Capital Markets reports, these practices have been introduced over time by the private sector to manage and control risk, including in helping to facilitate the timely identification of emerging difficulties. In the context of adverse capital market shocks such as those in 1998, however, there is the possibility that the rigid use of these practices—together with frequent marking to market—may exacerbate financial market strains because of the speed with which they call for portfolio rebalancing and deleveraging. There is no unambiguous answer to the “optimal” design of risk control mechanisms and the balance between the “slow” adjustment to shocks that has traditionally characterized relationship banking and the rapid adjustment in modern dynamic capital markets. Recent experience points to the importance of not relying rigidly on risk models, given their limitations, and the need for judgment and flexibility in managing risk. At the same time, an important consideration is the apparent inability of risk models to play a larger role in the avoidance of excessively risky positions. Given the high level of leverage that had been allowed to build up before last year’s turbulence, a significant adjustment was probably inevitable, and the key to avoiding the resulting kinds of turbulence is a strengthening ex ante of risk management and control procedures.

In addition to the systemic issues posed by high levels of leverage, a number of small and medium-sized countries have expressed concern that their markets have been pushed around by HLIs, including hedge funds. In particular, Australia, Hong Kong SAR, Malaysia, and South Africa have argued that some of these institutions cooperated in quietly building up short positions in their foreign exchange or domestic asset markets and then sought to close out their positions at a profit by spreading false or misleading information. Efforts to evaluate these concerns have been compounded by a lack of transparency about the activities of HLIs and the paucity of data on transactions in OTC markets. Moreover, the activities of concern have tended to occur during unsettled market conditions, when it is difficult to distinguish between speculative activity based on fundamentals and more aggressive tactics. These are also periods when it is not easy to distinguish between collusive behavior and herding.

Even though there has been only limited analytical work on private foreign exchange market manipulation, there is a relatively strong presumption that because the underlying assets—domestic and foreign money—are widely held and the macro information that usually drives these markets is generally widely available, foreign exchange markets are less prone to private manipulation than are individual domestic asset markets. Furthermore, in the case of a pure floating exchange rate regime, any speculators attempting to build up large short positions in a currency would find that the exchange rate would move against them. The situation is more complicated in the case of pegged or managed exchange rate regimes since official exchange market intervention can influence the profitability of these strategies, and ill-founded, as
well as solid, rumors about exchange rate policy can be an important driving force in short-run exchange market pressures. Based on preliminary discussions with various market participants and national authorities, the IMF staff's view is that the concerns expressed about the activities of some HLIs cannot be easily dismissed and that important issues are raised by the apparent large size and concentration of the positions of some HLIs in certain markets. Substantive questions remain about whether attempts at exchange rate policy can be used as a source of volatility and whether the efforts are systematically able to generate profits for speculators. The possibility that such tactics may be employed from time to time—especially in unsettled market conditions—is, however, a source of concern, and such aggressive tactics may contribute to excessive and unnecessary volatility.

Reforms to deal with the systemic and other issues raised by HLIs and highly leveraged activities are currently being actively discussed in a number of national and international forums, including the Financial Stability Forum. In the IMF staff's view, the systemic issues posed by high levels of leverage can, in principle, be addressed through significant enhancements in market discipline, supported by improvements in disclosure and transparency, more rigorous creditor and counterparty assessments of exposures, and strengthened private risk management and control systems. In addition, more proactive prudential supervision and market surveillance can play a key role in helping to detect and avoid a buildup in vulnerabilities associated with high leverage. The important next steps involve identifying the specific measures and incentives that will be required to encourage and lock in improvements in these areas, including the kinds of information that should be more frequently disclosed to markets and counterparties. Should strengthened risk management and control by banks not prove sufficient to contain excessive leverage and risk, consideration would need to be given to the feasibility and desirability of additional measures, possibly including tighter direct controls on hedge funds and other HLIs.

While improvements in the above mentioned areas should help address the systemic issues associated with high leverage, it is not obvious that they will deal with the concerns that a number of countries have expressed about the impact of HLIs on their markets. Against this background, further work is needed to better understand the conditions and circumstances under which HLIs activities could destabilize small and medium-sized markets and the approaches countries could take to deal with such activities. The solutions adopted will need to balance valid concerns about market integrity with the need to ensure appropriate stabilizing speculation. Among the measures that are being considered by some countries are large-position reporting requirements. Higher

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Emerging Markets and the International Financial System

Nonstandard Policy Responses

Extraordinary external pressures and, in some cases, concerns about the aggressive tactics of speculators led a number of emerging markets countries during 1998 to adopt what could be characterized as relatively nonstandard policies. While the classic speculative attack takes place through on-balance-sheet sales of the targeted currency, speculative attacks are increasingly being carried out through a variety of derivatives, such as currency forwards and futures, equity and bond futures, and total rate of return swaps. In response, national authorities are dealing with external pressures by expanding the range of instruments and markets in which they intervene and are becoming more aggressive.

Three recent examples of relatively nonstandard responses to severe external pressure include the intervention during 1998 by the HKMA in the spot and futures markets for domestic equity to counter the implications of the so-called double play on Hong Kong SAR's markets: interventions by Brazil in the Brady bond market to impose a squeeze on speculators short-selling Brazilian paper; and Malaysia's decision in late 1998 to impose wide-ranging foreign exchange and capital controls to insulate its onshore markets from external pressures and effectively close down the offshore ringgit market. These measures have expanded the menu of responses that countries use during periods of pressure and have potentially altered risk-return trade-offs in markets, with implications for asset prices and market liquidity.

Several observations can be made about these nonstandard interventions:

• In all cases, the interventions took place in circumstances where the authorities believed there was a significant mispricing of assets, volatility was high, and there was a wide divergence of views between the official and private sectors about the economic outlook. In the event, and owing to some degree to subsequent improvements in the global environment, the assets acquired by the HKMA in its inter-

Over the last couple of years, there have also been a number of other nonstandard responses by emerging markets, including Korea's decision to use its foreign exchange reserves to support domestic banks operating offshore and Thailand's efforts during 1997 to squeeze speculators in the offshore market for the Thai baht. See International Monetary Fund, International Capital Markets: Developments, Prospects, and Key Policy Issues, World Economic and Financial Surveys (Washington, September 1998).
vention subsequently appreciated in value, implying that the intervention was profitable. Conversely, the capital controls imposed by Malaysia were never really put to the test as many foreign investors had already reduced their exposure to Malaysia, and the partly exogenous improvement in the environment meant that external pressures independently eased. Nonetheless, given the uncertain outlook for emerging markets at the time, the Malaysian authorities put the measures in place as an insurance policy against a further worsening of the external situation.

- The imposition of capital controls by Malaysia was fundamentally different from the interventions by Hong Kong SAR and Brazil. Since the Malaysian move reduced the options and choices available to the private sector by constraining the taking of positions. The asset market purchases by the HKMA and Brazil, on the other hand, did not limit the ability of the private sector to adjust its portfolio, although they influenced the risk profile.

- In those cases where the authorities purchased assets (Hong Kong SAR and Brazil), the acquisitions were financed in part by foreign exchange reserves or by assets held by other state entities. This potentially reduced the flexibility of the authorities' capacity to respond to future adverse shocks since it reduced the liquidity and/or size of reserves. Whereas Hong Kong SAR was transparent about its intervention and had ample reserves, Brazil's purchases took place at arm's length and—together with its intervention in other markets—might have reduced its foreign asset cushion.

- Even though the market reaction to the interventions was initially quite negative, sentiment was subsequently influenced importantly by the underlying policies adopted by the authorities. Hence, for example, markets eventually responded relatively positively to Malaysia's decision to use the window of opportunity provided by capital controls to move forward on financial and corporate restructuring; sentiment began to turn around in Hong Kong SAR as the authorities explained the rationale for their actions and took steps to set up an agency to manage their acquired equity holdings. Conversely, market sentiment moved strongly against Brazil when doubts surfaced about its commitment to address its underlying fiscal problems.

Ultimately, the assessment of the nonstandard policy responses needs to take into account the fact that a number of emerging markets faced enormous external pressures last year. Such circumstances may indeed have justified policy responses that go beyond the orthodox interest rate increases and foreign exchange market intervention, but nonstandard responses also carry risks. The judgment about the particular measures adopted by the authorities needs to be set against the menu of other policy instruments or circuit breakers potentially available to deal with extreme asset price volatility. Looking ahead, an understanding of the longer-term implications of these interventions, and an improved ability to differentiate between economic fundamentals and situations of unwarranted volatility, would help guide the kinds of policies needed to maintain orderly market conditions without interfering with efficient market functioning.

Credit Ratings

As emerging markets have increasingly been brought into the orbit of international capital markets, the major credit rating agencies have become important providers of independent assessments of these countries' credit risk. Credit ratings are also becoming increasingly integrated into the regulatory process in both the advanced and emerging markets, and the Basel Committee on Banking Supervision has proposed that ratings should become a key determinant of the amount of capital banks are required to set aside to cover their exposures to sovereign and other borrowers. The most likely new area of growth in the activities of the credit rating agencies will be in Europe, where, spurred by the adoption of the single currency, capital markets are expected to record significant medium-term growth and development. Against this background, increasing attention is likely to be paid by national authorities and regulators to the credit rating process.

While the rating agencies correctly identified growing weaknesses in Asian financial systems, the maintenance of high ratings for many countries right up to the brink of the crisis did little to moderate the large-scale capital inflows and excessive compression in interest rate spreads. Moreover, the subsequent sharp downgrades were clearly an element contributing to the abrupt reversal of capital flows. Rather than being an important independent stabilizing force, the major credit rating agencies did not behave very differently from the vast majority of market participants. While the ratings assigned prior to the crisis were too high, it is arguable that the agencies overreacted and in some cases went to the other extreme. In the aftermath of the spillover of pressures to Latin America following the Russian crisis, a number of countries expressed concern that they might be downgraded by the major agencies as they were increasingly caught up in the global liquidity squeeze. The major credit rating agencies, however, made few changes to their ratings at that time, as they generally looked beyond short-run liquidity pressures and assessed countries' ability to weather the storm.

The reasons why the major agencies missed the Asian crisis and the subsequent contagion are complex and not altogether different from why the IMF and many others were caught out. Moreover, the key lessons the ratings agencies have drawn are not unlike those that have been drawn for IMF surveillance. The
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Key changes the agencies are making in response to the experience include greater attention to banking sector weaknesses and the associated contingent public sector liabilities: to the structure as well as the overall levels of public and private external debt, including the dependence on confidence-driven flows and short-term borrowing; and to assessments of countries’ contingency plan—and track records—for dealing with external pressures. In addition, the agencies intend to place much more emphasis on transparency, especially as regards countries’ foreign exchange reserves and external debt positions. The major agencies are continuing to struggle with how to deal with contagion, but the increased attention that will be given to confidence-driven capital flows is intended, at least in part, to allow for the importance of spillover effects.

The prospect of an even greater role for the credit rating agencies in the regulatory process places a premium on the enhancements the agencies are currently making to the rating process. An important question in this connection is whether the changes being made will adequately address the underlying factors that contributed to the shortcomings in ratings for Asian countries before the crisis. The importance of this issue is underscored by the fact that if the new proposed Basel risk weights (based on credit ratings) had been in effect in 1997, they would not necessarily have called for more capital to be held for sovereign exposures to countries such as Korea on account of its high rating, and might only have increased the risk weight after the crisis erupted.

While the changes agencies are making go a substantial way to improving the ratings process, there are at least three areas of potential concern.

- It is being increasingly recognized by the country risk profession that developments in the global economy have been outstripping their analytical capacity and that there is the need for significant improvements in risk assessment techniques. The situation has reflected the increasing global interdependence of national economies and the rapid expansion and growing complexity of global financial markets and instruments. Credit rating agencies will need to continue to address these changes through country risk assessments that more fully incorporate uncertainty, including the greater use of alternative scenarios, sensitivity analysis, and macroeconomic stress testing.

- The intention of the agencies to put more emphasis on data transparency is appropriate, but significant further progress on data disclosure is required of many countries. In this connection, the agencies have underscored the importance they attach to the SDDS adequately coveting reserves and short-term external debt and, more generally, the need for greater transparency in data if there is to be more stability in ratings and avoidance of the kind of abrupt changes that occurred during the Asian crisis.

- Because of the increasingly interrelated and complex global economy, there is also the issue of whether the major agencies assign adequate resources to the country rating process. The agencies’ resource decisions are, of course, ultimately determined by profit maximization and reputational considerations—and at least one of the major agencies has recently expanded staff—but the assignment by the major agencies on average of only one professional to cover as many as seven countries appears low.

The expected increased use of credit ratings in the regulatory process in the wake of the recent Basel proposals will raise a number of issues for the major credit rating agencies. From the regulatory perspective, ratings are a private indicator of credit risk that have (at least in the case of corporates in the United States and some other advanced countries) a reasonable track record, and could be considered for use by banks that have not developed effective internal rating systems or internal credit risk models. In the past, however, major credit rating agencies have expressed concern that the increased regulatory use of ratings may lead to shopping for ratings and generate pressure for the regulation and/or supervision of the agencies themselves. These concerns are not unfounded, and it will be important for national authorities to balance the need to ensure that sound ratings are used for regulatory purposes with the continued independence of the ratings agencies.

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The agenda for the public and private sectors coming out of the recent turbulence and emerging markets crises is a long and ambitious one. Beyond improving our understanding of the market dynamics of increasingly integrated financial markets, there are important challenges related to improvements in surveillance and regulatory regimes, ensuring the adequate dissemination of information and standards, and enhancing market discipline. Within the private sector, there is the need to build upon initiatives already under way to strengthen risk management and control and to adapt to the changing nature and complexity of financial markets. While these efforts will obviously not eliminate financial crises, they can play an important role in reducing the frequency and amplitude of such episodes and allow all countries—including emerging markets—to benefit from participation in global capital markets without exposing themselves to high risks.

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2 More specifically, in the case of Korea, the sovereign credit risk weight could have been zero before the crisis under the Basel proposal (the same as under the current approach), on account of the high investment-grade rating assigned to Korea by all the major agencies. As Korea was downgraded during the crisis, the sovereign risk weight would have risen to about 100 percent by the end of 1997. Of course, if the new weights also take into account SDDS participation and compliance with the Basel principles, as proposed, these effects could be mitigated.
Annex I
Progress with European Monetary Integration

A milestone in European integration was achieved when the third and final stage of EMU began on January 1, 1999, with the introduction of the euro. This annex provides a progress report on several aspects of EMU: European financial market integration; implementation and performance of the EMU payments and securities settlement systems; the outlook for pan-European capital markets; banking system consolidation and restructuring; and broader financial policy issues, including financial supervision, regulation, and crisis management.

The launch of the euro went smoothly, reflecting careful preparations for the considerable operational and logistical challenges of the conversion weekend. In the first months of EMU, the TARGET payment system effectively transferred liquidity between participating countries, and arbitrage substantially equalized money market interest rates across the euro area. Even with these early successes, it should not be surprising that a single pan-European capital market has not yet emerged from the previous 11 national markets. Some features of the EMU infrastructure may be impeding the full integration of money and capital markets, especially for secured (repo) transactions, but these obstacles do not seem insurmountable and initiatives are under way to eliminate them. The consolidation and integration of bond, equity, and derivatives markets may be delayed, reflecting remaining challenges in removing problems related to the incomplete and inefficient cross-border links between securities settlement systems. Meanwhile, consolidation and restructuring in the European banking sector are taking place mainly within national boundaries, but it is likely that the single currency will gradually increase pressures for cross-border mergers and the creation of pan-European institutions. National supervisors and regulators are stepping up their coordination efforts, and important agreements have been reached in the area of crisis management.

Money Market Integration and EMU Financial Infrastructure

Progressive Integration of the EMU Money Market

The introduction of a single currency has had an immediate impact on the money markets of the countries participating in EMU. Starting on January 1, 1999, national central banks (NCBs) could no longer tailor monetary policies to the needs of their national economies. While NCBs still implement monetary policy decisions, the ECB decides the timing and the size of refinancing operations on the basis of EMU-wide considerations. Therefore, effective links between national money markets are necessary to redistribute liquidity across national borders whenever national banking systems experience asymmetric liquidity shocks or do not obtain sufficient liquidity through the Eurosystem repo auctions.

The experience of the first months of EMU has been positive. The TARGET system has provided an effective means for cross-border payments. European private repo and money markets have been distributing liquidity across borders to ensure the convergence of overnight rates across participating countries. Financial systems and institutions that have excess liquidity are able to supply it to those that need liquidity across the euro area.

At the same time, some elements of the financial infrastructure are impeding full integration. Market participants have noted that some features of the euro financial infrastructure impede cross-border business within the euro area, especially when it involves cross-border transfer of collateral. These features include differences in market structure (such as the extent of bilateral interbank credit lines), national differences in infrastructure (such as payment and securities settlement systems), and national differences in policies (tax, legal, and regulatory environments, including differences in the legal treatment of repo operations). As a result, single integrated markets for money, repo, and securities will probably not emerge until many of the

1The only additional remaining step is the introduction of notes and coins, which will take place by 2002. The “Eurosystem,” which comprises the ECB and the 11 national central banks of the participating member states, has responsibility for monetary policy for the entire euro area. The Governing Council of the ECB (formed by the governors of the 11 participating national central banks and the six members of the ECB’s Executive Board) has responsibility for formulating monetary policy. The main institutional features of EMU and implications for financial markets are discussed in International Monetary Fund (1997), pp. 169–213, and International Monetary Fund (1998), pp. 104–110.
differences in market structure, infrastructure, and financial policies are fully worked out. Some of these features will be difficult and time-consuming to change, reflecting technical problems as well as conflicting interests between EMU financial centers.

**The Supply of Liquidity: ECB's Auctions and Standing Facilities**

Eurosystem instruments and operating procedures influence the initial distribution of liquidity to the euro-area banking systems and also affect the functioning of unsecured and secured (repo) interbank markets in EMU. In addition, banks' bidding behavior at repo auctions and their recourse to the marginal lending and deposit facilities provide useful indirect information on the conditions in the money market.

**ECB's Main Refinancing Operations and the "Overbidding Problem"**

The Eurosystem provides the bulk of liquidity to the banking system through weekly main refinancing operations (MRO), based on repurchase agreements with a maturity of two weeks. These tenders have been conducted as fixed-rate rationed allotment auctions, in which a fixed amount of liquidity is offered at a fixed interest rate. Banks bid for a share of liquidity by offering collateral. If total bids exceed total liquidity on offer, each bank receives a pro rata share of the liquidity, proportional to its share in the overall amount of collateral bid by all banks. For example, if a bank bids 10 percent of the overall collateral bid by all banks, it receives 10 percent of the liquidity offered by the ECB.

With this auction system, there may be incentives for banks to bid for a larger amount of liquidity than they actually need. Before the start of EMU, overbidding characterized Bundesbank repo auctions, which were conducted with a similar approach. At the start of EMU, banks were bidding more aggressively than pre-EMU German banks. During the first five months of EMU, the average allotment ratio (the ratio of allotted funds to total bids) was only 9.7 percent in EMU, compared with 18.4 percent in Germany during 1998. The stepped-up pace of overbidding might reflect the greater interest of EMU banks in obtaining liquidity directly from the Eurosystem, which may, in turn, result from concerns about the ensuing redistribution of funds by the interbank market, at least during the first months of EMU.

The fixed-rate auction system allows banks with the most collateral to collect more liquidity than needed at the auction, leaving some banks short of liquidity at the end of the auction. In the first months of EMU, this was to some extent a problem for a number of reasons. First, some banks from countries that had previously not used a fixed-rate rationed allotment auction did not allow for the fact that they might have to bid for more liquidity than needed. Second, after the beginning of EMU, some banks had insufficient cross-border credit lines or credit limits. Finally, in the first two months of EMU, it was costly for the less collateral-rich banks to acquire liquidity in the unsecured market, instead of at the ECB’s auctions. During January and February 1999, the average overnight rate was some 10 basis points above the main refinancing rate (and exceeded it by 20 basis points for the first two weeks; see the top panel of Figure A1.1). These data are consistent with large banks crowding out both small banks and banks in countries with less eligible collateral.

More recently, these problems have eased, possibly reflecting an ECB policy directed at holding the overnight rate below the main refinancing rate for most of the maintenance period that ended on March 23, which made it unprofitable for some banks to obtain more liquidity than needed at the repo auctions and to lend excess funds in the overnight market. The decline in the overnight rate below the main refinancing rate was likely a consequence of the large amounts of liquidity that the ECB injected during March. In recent months, despite persistent overbidding (as shown by the still very low allotment ratios), the consequences of any potential crowding out have subsided as the ECB has been able to reduce the spreads between the overnight rate and the main refinancing rate.

To eliminate at the source the distribution problems associated with overbidding in fixed-rate fixed-

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2These procedures are described in European Central Bank (1998).

3The fixed amount of liquidity to be allotted is not announced before the ECB has received all the bids. In principle, this would allow the ECB to vary the quantity of liquidity supplied on the basis of banks’ bidding behavior. In practice, however, the very low allotment ratios (see below) suggest that the ECB’s policy is far from giving banks all the liquidity they demand.

4The list of assets eligible for the Eurosystem’s monetary policy operations is updated monthly on the ECB website. Both public and private assets are eligible. Initial margins and valuation haircuts serve as risk control measures.

5At the beginning of February, the ECB clarified that banks did not actually need to have collateral covering the full value of their bids, but only enough collateral to cover the allotted amount. Nevertheless, the variability of allotment ratios, ranging from 6.1 to 33 percent in the first six months, and reaching 100 percent on one occasion (April 6), makes it unlikely that banks bid greatly in excess of their available collateral.

6According to market participants, in this respect, the structure of the euro money market is not much different from the structure of domestic money markets prior to EMU. In domestic markets, large banks tended to collect most of the liquidity and could squeeze smaller banks in the unsecured market.

7Some observers have noted that because the overnight rate is an unsecured rate (unlike the MRO rate), the overnight rate should normally trade slightly above the MRO rate.

8The first maintenance period of the euro era ran from January 1 to February 23. Subsequent maintenance periods run from the 24th of the month to the 23rd of the following month.
quantity auctions, the ECB could shift to flexible-rate or variable-quantity tenders that could encourage banks to bid only for the liquidity they actually need. The ECB has indicated it is likely to retain the current fixed-rate fixed-quantity auction format for the time being, as it allows the ECB to both signal its view on the appropriate level of interest rates and convey the information it has about the liquidity needs of the euro system. In addition, experience with fixed-rate variable-quantity auctions (in Finland, for example) indicates that such operations could increase volatility in interest rates in unsecured money markets and could require frequent fine-tuning operations to reduce volatility.

Recourse to ECB’s Standing Facilities

Banks in EMU can resort to the ECB’s marginal lending and deposit facilities to borrow or deposit overnight liquidity with the Eurosystem. As the recourse to these facilities is unrestricted for a bank having sufficient eligible collateral, the interest rates on them define the floor and the ceiling for overnight rates. In principle, banks would use these facilities only when market rates approach those available through the facilities; otherwise, banks could obtain better terms in the market. In practice, during the first months of EMU, banks made extensive use of the deposit and lending facilities even when overnight rates substantially differed from the rates on the facilities (see bottom panel of Figure A.1.1). These episodes cannot be easily explained by intraday interest rate developments. On several occasions, both facilities were used for considerable amounts on the same day. There have also been instances of spikes in the overnight rate despite apparently ample aggregate liquidity in the system. These occurrences—whose frequency has diminished in recent months—suggest that, at the start of EMU, the interbank market may not yet have been intermediating funds effectively. Moreover, in countries with relatively efficient interbank markets, deposit and lending facilities have been utilized less frequently and to a lesser extent, although the heavy reliance on standing facilities mainly reflects start-up inefficiencies of EMU payment systems and banks’ problems in managing payments flows in the new single currency environment.

TARGET: Prerequisite for Money Market Integration

The launch of TARGET went relatively smoothly. Fewer problems were encountered than some market participants had expected, and some minor glitches were attributable to operational errors by banks rather than shortcomings of the system. The only exception was the January 29 breakdown of the link between the French real-time gross settlement (RTGS) system and

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9Prior to EMU, “American” flexible-rate tenders (in which allotments are made at the individual rates bid by participants) were mainly used in Austria, Italy, Portugal, and Spain. “Dutch” flexible-rate tenders (in which allotments are made at a common rate) were used in Ireland: fixed-rate tenders, with either fixed or variable quantities, were mainly used in Finland, France, Germany, and the Netherlands. (See Aspeisberger, 1996, Table 3): The choice between fixed-rate and flexible-rate tenders mainly reflects the central bank desire of providing clear interest rate signals, while the choice between “American” and “Dutch” flexible-rate tenders depends on their impact on central bank revenues.

10See Box 3 in European Central Bank (1999b), p. 42.
12In Italy, for example, whose electronic interbank market is generally perceived as one of the most efficient in EMU, banks’ recourse to the marginal lending and deposit facilities in the first four months of EMU accounted only for 1.7 percent and 7 percent of the total respectively, while the funds intermediated by the Italian banking system were more than 10 percent of those of the entire EMU area (see Banca d’Italia, 1999, p. 183).
13For a description of the TARGET payment system, see International Monetary Fund (1997. 1998).
TARGET, which resulted in a number of rejected payments and a greater-than-usual recourse to the Eurosystem standing facilities.

Some market participants had suggested before the launch of EMU that the opportunity cost of the collateral needed to obtain intraday credit in TARGET, and its relatively high price per transaction, might encourage banks to send high-value payments—the kind of payments with potential systemic risk—through alternative netting schemes. The first months of EMU have helped dispel these concerns, as most cross-border high-value payments have been sent through TARGET (Figure A1.2).

The statistics on the first five months of operation of TARGET are reassuring, but it may take some time before judgment can be reached on the role that TARGET will play. First, the distribution of payments observed in the first five months might change—increasing or diminishing the share of TARGET—when the total number, and value, of cross-border payments sent via TARGET, the clearing system of the European Bankers’ Association (EBA), Euro Access Frankfurt (EAF), and the French Paris Net settlement (PNS) will increase in future months with the gradual closure of the numerous remaining correspondent banking accounts. (This prospect is made more likely by the fact that the total volume of cross-border payments sent via the four main payment schemes is currently well below that estimated before the start of EMU.) Second, in view of some technical problems encountered in the initial phase (see below), the overwhelming concern with cross-border payments has so far been timing rather than cost: this may have favored TARGET.

The multiplicity of payment systems available for sending cross-border payments within EMU and the preference of different groups of banks for different systems have created some problems in the coordination between paying and receiving banks. In the absence of priority rules regarding the system through which cross-border payments are to be sent, in the first few months after the launch of the euro, a receiving bank did not know whether it would receive funds directly via TARGET, through one of its correspondent banking accounts, or in the account of another branch of the same bank. These difficulties prompted some bank associations to forge common understandings and practices, which have helped to ease some of these problems.

A remaining issue concerns the timing of payments. In an RTGS system, payments could, in principle, be evenly distributed during the day. Within TARGET, however, there has been a tendency for some large payments to be sent late in the day, which often causes banks to scramble to meet obligations just before closing. Such timing problems seem to stem from a number of factors, including preferences to delay pay-

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**Figure A1.2. Distribution of Cross-Border Payments in EMU Between EBA and TARGET, January–May 1999**

<table>
<thead>
<tr>
<th>Volume (Number of transactions)</th>
<th>TARGET 31%</th>
<th>EBA 69%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>TARGET 69%</td>
<td>EBA 33%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Average Value per Transaction (In millions of euros)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TARGET</td>
</tr>
<tr>
<td>EBA</td>
</tr>
</tbody>
</table>

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15The main competitor of TARGET for cross-border payments is the net clearing system of the European Bankers’ Association (EBA). In addition, cross-border payments can be processed also by the net clearing system owned by the Landeszentralbank in Hessen (Germany) called Euro Access Frankfurt (EAF), and the French Paris Net settlement (PNS), formerly called Système Net Protégé. Whereas EBA payments can all be classified as cross-border and TARGET cross-border payments are clearly identified in the ECB’s statistics, it is not possible to know the cross-border share of EAF and PNS payments, part of which are domestic.
16Some payments recorded in TARGET are actually transactions within the same banking group. An example are the €13.14 billion of TARGET payments between U.K. banks and their branches on the continent that are exchanged at the beginning and end of each day.
ments and thus minimize demand for costly intraday liquidity.\textsuperscript{17} If all banks pursued such a liquidity management policy, there would be a substantial risk of gridlock. Concerns have also been raised about the impact of some bank practices on liquidity within TARGET. Banks reportedly minimized their need for costly collateral by requesting payments via TARGET, which settles during the day, while making payments with EBA, which settles at the end of the day.

In sum, while TARGET seems to have worked reasonably well during its first months of operation, some issues associated with the existence of multiple competing payment systems and the cost of intraday liquidity in TARGET remain. An option for EMU policymakers is to promote more orderly competition among payment systems. Discretion about the timing of payments, and the large number of alternatives for routing payments, may be unduly complicating liquidity management for European financial institutions at a time when the complexity of banks' treasury operations has already increased owing to the new environment created by the introduction of the euro.\textsuperscript{18}

\section*{Progress Toward a Single EMU Money Market}

\subsection*{Cross-Border Interbank Loans and Deposits}

Although liquidity factors and the outcome of ECB repo auctions may result in an unequal initial distribution of liquidity across banks and banking centers, an integrated and efficient EMU-wide interbank money market could help to effectively transfer liquidity to where it is most needed. The need to redistribute liquidity across national borders will likely lead to a larger share of cross-border interbank loans and deposits vis-à-vis other euro-area countries. By contrast, domestic interbank transactions will likely diminish. In the first three months of EMU, these tendencies were clearly recognizable in Italy and, to a smaller extent, in Germany and France, but no major or sudden change in the pattern of cross-border inter-

\begin{table}[h]
\centering
\caption{Distribution of Interbank Loans and Deposits Across EMU Countries Before and After EMU (In percent)}
\begin{tabular}{|l|c|c|c|c|c|c|}
\hline
 & \multicolumn{2}{|c|}{Interbank Loans} & \multicolumn{2}{|c|}{Interbank Deposits} \\
 & Before & After & Before & After \\
\hline
\textbf{France} & & & & \\
Domestic & \ldots & \ldots & 87.0 & 86.0 \\
Other euro area & \ldots & \ldots & 13.0 & 14.0 \\
\hline
\textbf{Germany} & & & & \\
Domestic & 90.8 & 89.1 & 87.4 & 84.8 \\
Other euro area & 9.2 & 10.9 & 12.6 & 15.2 \\
\hline
\textbf{Italy} & & & & \\
Domestic & 71.0 & 66.0 & 61.0 & 58.0 \\
Other euro area & 29.0 & 34.0 & 39.0 & 42.0 \\
\hline
\end{tabular}
\end{table}

bank flows seems to have taken place at the start of EMU (Table A1.1).

\subsection*{Interest Rates in the Unsecured Interbank Market}

Whereas quantity data on the recourse to the Eurosystem marginal facilities and cross-border interbank flows suggest that banks in each country still tend to deal primarily with their NCBs and with other domestic banks (as opposed to foreign banks), overnight interest rates data indicate that existing cross-border flows have been sufficient to largely eliminate differentials between countries in the unsecured money market. Figure A1.3, which plots the EONIA (the weighted average of the rates on unsecured overnight contracts reported by a panel of 57 major institutions in the euro area) against selected indices of national overnight rates, confirms that overnight rates in EMU have substantially converged.\textsuperscript{19}

Although interbank average rates are well-aligned across markets, and volatility around policy rates is not large, it is not clear that the 11 national money markets linked by TARGET are operating fully as a

\textsuperscript{17}Late payments in TARGET are also said to be partly related to (1) the repatriation of intraday liquidity, which the out-NCBs have to raise; (2) the concentration of end-of-day liquidity positions of banks and their branches at one location (to centralize overnight liquidity management); (3) the fact that many banks have not yet implemented tools allowing dynamic intraday liquidity management; and last but not least, (4) the fact that other large-value systems close at 4:00 p.m., whereas TARGET closes at 6:00 p.m. This last has a twofold effect: (1) the balances of those systems are settled via TARGET and therefore induce cross-border TARGET payments between 4:00 p.m. and 4:45 p.m.; and (2) between 4:00 p.m. and 6:00 p.m., TARGET has a monopoly position.

\textsuperscript{18}The ECB itself has acknowledged remaining problems in European Central Bank (1999c), p. 48. "The present lack of market conventions has resulted in imbalances between payment systems and makes it difficult for banks to manage their payment flows efficiently. Therefore, the ECB is urging the industry to make a considerable improvement in this field very soon."

\textsuperscript{19}The coverage of the national indices used in Figure A1.3 is likely to differ from that of the EONIA panel. The ECB does not publish interest rates for the national components of the EONIA, but it has indicated that the dispersion among the average national interest rates reported by the credit institutions in the panel is minimal. After the first week of EMU, their weighted standard deviation fell below 2 basis points and stabilized around that level thereafter (see Box 2 in European Central Bank, 1999b, p. 35).
ANNEX I PROGRESS WITH EUROPEAN MONETARY INTEGRATION

Figure A1.3. Overnight Rates on Unsecured Interbank Funds in the Euro Area, January 4–June 10, 1999
(In percent)

Sources: Bloomberg Financial Markets L.P.; and Datastream.

Single market. Bid-ask spreads, for example, are wider in some markets than in others, possibly suggesting that some markets are more efficient than others in intermediating liquidity (Table A1.2). Moreover, whereas bid-ask spreads in EMU countries are not unusually large in relation to U.S. or U.K. spreads, in
some countries they are higher than in pre-EMU Germany.20

Progress Toward Integration of Money Markets

The observation that in EMU there is not a single money market located in one of the EMU financial centers but rather 11 national markets linked to each other by reasonably efficient arbitrage may reconcile the evidence based on quantities (recourse to the Eurosystem marginal facilities and cross-border interbank flows) and interest rates. The initial distribution of liquidity at the ECB auctions would not be an issue if the redistribution of liquidity in the unsecured money market were fully efficient. That there were concerns (among market participants and NCBs) during the start of EMU about the initial distribution of liquidity suggests possible inefficiencies, which may reflect two factors. First, as the data on cross-border interbank deposits and loans seem to indicate, there may still be relatively few bilateral cross-border interbank credit lines to support cross-border lending in the unsecured interbank market. The limited number of such credit lines is partly a legacy of the pre-euro system; until December 31, 1998, the overwhelming majority of interbank credit lines were between banks in the same country, and it will take time for banks to establish new interbank relationships and assess the associated counterparty risks. In this regard, it is also possible that a single consolidated payment system for all EMU countries could have encouraged banks to extend cross-border credit lines more rapidly than in the current, nationally focused, system. A single European electronic money market, linked to a single real-time gross payment system, could also address some of the shortcomings of the current interbank market.

Table A1.2. Bid-Ask Spreads of Overnight Interbank Rates for Selected Countries, 1998–99

<table>
<thead>
<tr>
<th>EMU Countries</th>
<th>Mean 1998</th>
<th>Median 1998</th>
<th>Mean 1999</th>
<th>Median 1999</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>14.9</td>
<td>15.0</td>
<td>10.0</td>
<td>10.0</td>
</tr>
<tr>
<td>France</td>
<td>10.4</td>
<td>10.0</td>
<td>11.8</td>
<td>12.0</td>
</tr>
<tr>
<td>Germany</td>
<td>6.5</td>
<td>5.0</td>
<td>...</td>
<td>6.0</td>
</tr>
<tr>
<td>Portugal</td>
<td>...</td>
<td>...</td>
<td>7.0</td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>6.4</td>
<td>5.0</td>
<td>9.1</td>
<td>10.0</td>
</tr>
</tbody>
</table>

Non-EMU countries

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>United Kingdom</td>
<td>11.6</td>
<td>12.5</td>
<td>15.3</td>
<td>12.5</td>
</tr>
<tr>
<td>United States</td>
<td>...</td>
<td>6.3</td>
<td>...</td>
<td>6.3</td>
</tr>
</tbody>
</table>

Sources: Bloomberg Financial Markets L.P.; Datastream; Federal Reserve Bank of New York; Reuters; and IMF staff estimates.

21There are already several means—such as becoming a member of a foreign securities settlement system or engaging the services of a private sector custodian—by which a counterparty in one country

The development of a single EMU market for private repo transactions would appear to be more challenging than the development of a single unsecured interbank market because of the additional complexities associated with back-office functions within financial institutions and securities settlement systems. While national overnight repo rates seem to have largely converged across EMU (see, for example, Figure A1.4, which compares French and Spanish rates), the main issue regarding EMU repo markets is the absence of reliable and efficient links between national securities settlement systems, which appears to be hampering the cross-border use of collateral.

European securities are now deposited in 31 continental and national depositories in Europe (compared with 3 in the United States) and in a few international depositories (Euroclear and Cedel). While technology permits a single EMU-wide trading platform for all types of securities, it would be difficult to create a system from existing national systems that would clear and settle cross-border transactions with speed and safety. To support pan-European repo trading, these systems could be connected by real-time delivery-versus-payment links or consolidated into a few securities settlement systems.21 Market participants have
ANNEX I PROGRESS WITH EUROPEAN MONETARY INTEGRATION

Figure A1.4. France and Spain: Overnight Repo Rates, January 4, 1999—June 11, 1999
(In percent)

Sources: Bloomberg Financial Markets L.P.; and European Central Bank.

suggested that the choice between a centralized or decentralized market structure for securities settlement systems seems to be a politically sensitive issue because of its implications for competition among financial centers. So far, the decentralized model has prevailed, but existing national systems are being linked and the legal problems associated with a multiplicity of different national repo contracts are being addressed. Initially, these links will not be delivery-versus-payment, so that the cross-border use of securities will remain subject to credit risk (loss of principal) and, at a minimum, to liquidity risk. For this reason, counterparties are still reluctant to use these links for operations other than monetary policy operations.

To allow for the cross-border use of collateral in monetary policy operations and intraday credit operations in TARGET from the very start of Stage Three of EMU, the Eurosystem created the correspondent central banking model (CCBM). Non-euro-area NCBs also participate in the CCBM for the provision of intraday credit operations in TARGET from the very start of Stage Three of EMU, reflects a common set of features in these markets: the fragmented structure of trading and counterparty relationships and the fragmented (and in some cases weak) supporting infrastructures. Including

Enhancing Efficiency and Integration of Unsecured and Secured EMU Money Markets

The limited integration of unsecured and secured money markets in Europe, particularly at the start of EMU, reflects a common set of features in these markets: the fragmented structure of trading and counterparty relationships and the fragmented (and in some cases weak) supporting infrastructures. Including

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clearing, settlement, and payment systems. These features reflect to a certain extent the decentralized operating procedures for the distribution of liquidity used by the Eurosystem. By entrusting the implementation of monetary policy to NCBs, the framers of EMU have (in effect) supported a level playing field in the competition among European financial centers. On the other hand, they have helped to perpetuate the nation­ally oriented infrastructure of payments and securities settlement systems, as this infrastructure is used to implement monetary policy in a decentralized fashion.

Summarizing the preceding discussion, there are three measures that might make the current system of European money and private repo markets more unified and efficient. The first measure could be the creation of a single, Europe-wide electronic market for unsecured funds. A second measure might be the improvement of the infrastructure for clearing and settlement. A third could be the creation of incentives to encourage more orderly competition among payment systems. At present, competition among payment systems allows discretion about the timing of payments and the large number of alternatives for routing payments are unduly complicating liquidity management for European financial institutions.

Outlook for Pan-European Capital Markets

The development of pan-European capital markets also seems to face some impediments, notwithstanding substantial pressures for consolidation in the European securities markets. As in other areas of financial services, there is excess capacity. Europe has about 25 derivatives exchanges, 20 derivatives clearing houses, and 15 stock exchanges. This fragmentation is costly to market participants that seek pan-European exposures. In an environment in which financial services such as insurance, investment banking, and asset management are increasingly offered by pan-European institutions to customers across Europe, consolidation would help to achieve market depth and reduce costs.

There appear to be some important obstacles to the creation of pan-European securities markets at two levels: technical obstacles that are (in principle) straightforward to overcome; and policy-related obstacles that will be more difficult to overcome, particularly as they may serve to protect domestic markets.

As with the money markets, problems in securities settlement systems and other back-office functions are likely to impede the creation of single pan-European markets for bonds, equity, and derivatives. For example, market participants suggested that the main difficulties in creating a pan-European market for blue-chip stocks are related to back-office problems and incompatibilities, particularly in the area of securities settlement. Some technical problems are related to differences in trading platforms across exchanges.

Some technical problems could be overcome, in part, through linkages among exchanges, as well as through outright mergers. However, the technical capabilities of linked systems would tend to be constrained by the weakest system. Alternatively, the success of prominent initiatives, such as Eurex, Euro­MTS, and the London-Frankfurt stock exchange initiative, might establish standards that could be adopted across Europe. Successful Europe-wide initiatives could also encourage the creation of new pan-European systems to handle back-office functions, including clearing and settlement systems for bonds, equities, and derivatives.

Second, and more important, there are a number of policy-related impediments to consolidation of exchanges across Europe. Among these are differences in tax regimes and in legal and regulatory environments across countries. These differences can raise considerable legal uncertainties about cross-border transactions. Regulatory arbitrage can create incentives for exchanges to migrate outside of EMU. There have been some official efforts to encourage harmonization, notably the EU's Investment Services Directive (ISD) and the Financial Services Action Plan of the European Commission, which was approved by the ECOFIN Council on May 25, 1999. In some cases, the national implementation of this directive has been helpful in fostering European securities markets; for example, the "remote membership" provision of the ISD, which permits electronic access to foreign securities exchanges, contributed to the success of Eurex (a fully electronic exchange). In general, however, progress in harmonization has been slow. Market participants have noted that this degree of inertia might reflect the reluctance of some domestic authorities to level the playing field, because impediments serve to protect domestic markets and market infrastructures from competition.

As it is unlikely that these impediments will be addressed soon, market participants themselves may find ways around these barriers. For example, the owners of the successful Euro-MTS system for trading benchmark European government bonds incorporated their company outside of EMU (in the United Kingdom) as a broker-dealer for regulatory reasons. Exchanges could also be located outside the EU or offshore in order to avoid impediments.

The overall degree of integration is limited and varies from market to market. In the bond markets, no clear national center appears to be emerging for bond

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25Despite these obstacles, there are some reports of increased cross-border trading, especially in the repo markets, and reports that market participants have set up new or increased existing bilateral limits to spur trading in the unsecured interbank market.

26When ministers of finance or economic affairs meet as the EU Council of Ministers on issues in the domain of fiscal or macroeconomic affairs, the Council is referred to as the ECOFIN Council.
trading. In part, this may reflect differences in back-office functions, as custody, clearing, and settlement appear to continue to be organized largely along national lines. It may also reflect past practices, including the concentration of portfolios in domestic securities. As currency matching rules within EMU have become irrelevant with the introduction of the euro, institutional government-bond portfolios are becoming increasingly diversified, and pressures for a single European bond market will grow. One possibility is that a system such as Euro-FTS could evolve into a platform for pan-European trading in a variety of European government securities, although competitors of Euro-FTS are likely to emerge in the near future.27

In the equity markets of continental Europe, although there are some precedents for foreign listings, trading is still largely organized along national lines. The increased focus on credit risk rather than currency risk, the shift from country to sector analysis, and the growth of institutional funds will provide a strong stimulus to the growth of European equity markets. The expansion of asset management and institutional investment is likely to create demand for a single liquid market in large-capitalization stocks. The realization of such a market is the objective of the London-Frankfurt alliance, although the precise timetable for full integration of the two exchanges remains unclear. In May 1999, discussions on the modalities of the initiative were opened to six new participants (the Amsterdam, Brussels, Madrid, Milan, Paris, and Zurich stock exchanges); it remains to be seen how broader participation will affect the pace of decision-making in the alliance. If the alliance moves forward, the European equity market may evolve into a three-tier system with small-cap stocks traded on Easdaq, AIM, or the Euro.NM system, mid-caps traded on domestic exchanges, and large-caps traded on the London-Frankfurt system.

In the derivatives markets, Eurex (formed by the merger of the DTB and SofTex) is widely regarded as a success. Rivaling or exceeding other global exchanges in terms of turnover, Eurex has taken a clear lead over its U.K. rival Liffe in long-term fixed-income products, although Liffe retains the lead in short-term fixed-income products. Liffe and other continental exchanges have expressed interest in alliances with Eurex, and Eurex is receptive to such arrangements, but little progress has been achieved. At the same time, Matif has formed an alliance with exchanges in Singapore and Chicago (SIMEX and CME) to trade their most popular products (the "Euro Globex" initiative). Italian and Spanish derivatives exchanges (MIFF and MEFF) would be included at some point as well, while Matif’s planned alliance with Eurex appears to have stalled.

Looking ahead, and in view of the substantial impediments to full pan-European markets and the limited amount of consolidation that has taken place thus far, the most likely prospect might be the emergence of a two-tiered system of securities markets. At the top tier, one or two systems in each market could serve as centers for trading European benchmarks. For example, euro-area sovereign bonds may be traded principally on Euro-FTS: large-cap equities on the London-Frankfurt exchange; and derivatives on Eurex (particularly long-term fixed-income derivatives) and Liffe (particularly short-term fixed-income derivatives). A second tier of exchanges could handle securities that are of national but not European-wide importance, including non-benchmark government bonds, small- and mid-cap equities, and various derivatives.

Nevertheless, without pan-European banks, there will be limited pressure for the removal of the impediments that are preventing the formation of truly pan-European markets. As discussed above, some national authorities appear to sustain interest in continuing national securities markets and settlement systems. While cross-border trading platforms (like Euro-FTS in the bond market) help to integrate the “front-end” of securities markets, “back-end” inefficiencies in settlement systems remain. Until pan-European banks are formed, progress in the elimination of these settlement problems may be slow, and the potential efficiency gains from the introduction of the euro may not be fully realized.

Banking System Consolidation and Restructuring

For the time being, both official preferences and market forces are encouraging consolidation and restructuring of European banking systems within national markets rather than across borders.28 There are economic reasons for domestic consolidation, including the existence of economies of scale and scope from mergers of retail and universal banks within

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27There are notably the case of Broker Tic, an electronic platform for trading of European and U.S. bonds developed by a group of large investment banks, whose introduction has been postponed to early 2000 to avoid overlap with Y2K preparations.

28The exceptions to this trend are the Scandinavian and Benelux countries, where some cross-border mergers have occurred, and, to some extent, Italy, where foreign participation is substantial. Italian banks with a significant participation of foreign investors account for close to half of the domestic deposits. However, apart from one holding of 22 percent (by France’s Crédit Agricole), this mainly reflects a substantial number of holdings of just under 5 percent, the level at which Banca d’Italia approval must be sought. The role of foreign partners is still modest in France and negligible in Germany. In the case of France, however, the core shareholder group of the privatized Crédit Lyonnais, which controls 33 percent of the capital and voting rights, comprises three foreign banks and the French arm of a German insurance company, together with three French institutions. Some banks from Spain and Scandinavia have instead expanded cross-border into non-EMU (and, indeed, non-EU) countries with the objective of preserving profitability and increasing their size and market value as a possible defense in the ongoing process of consolidation.
highly fragmented national systems. There are also cultural and legal features that discourage cross-border mergers. Importantly, authorities in some countries seem to be reluctant to allow increased foreign participation until the process of domestic consolidation has produced “national champions” that are judged large enough both to discourage takeovers by foreign banks and to potentially undertake cross-border acquisitions themselves.

While there may be reasons for consolidation to continue within national banking systems, there are constraints on the extent and the nature of domestic consolidation. For example, in France and Germany a majority of domestic banking assets are located with banks with legal and ownership structures that largely insulate them from the consolidation efforts of commercial banks. Absent a change in these institutional factors, the pressures to increase size might inevitably lead large banks to look beyond national boundaries even in the face of incomplete domestic consolidation. Further, once one big merger shows that cross-border consolidation is under way, the relatively small number of attractive targets in some countries may lead to a “floodgate” effect as banks will wish not to be left out of the process.²⁹

There are indications that national authorities sometimes influence the consolidation process involving domestic entities, as in the case of the declared opposition of some supervisors and regulators to hostile takeovers in the banking sector. In France, the authorities expressed a desire for the three large banks (BNP, Société Générale, and Paribas) involved in takeover bids to come to an amicable agreement. In Italy, the authorities expressed a desire for further consolidation, but the Banca d’Italia’s opposition to two proposed mergers (Unicredito and Banca Commerciale Italiana, and San Paolo-IMI and Banca di Roma) was in part attributed by market participants to the hostile nature of the bids.³⁰

Against the background of these trends, there have been some important recent developments in the restructing of the banking sector in continental Europe, especially in France and Italy. Privatization in France has culminated in the sale of Crédit Lyonnais and the intended sale of Crédit Foncier in July 1999. Meanwhile, reform of the publicly controlled savings bank system has made headway. Pending legislation will transform the savings bank system into a cooperative system, with state participation limited to a core minority interest held by the state-owned Caisse des Dépôts et Consignations. Consolidation, however, remains elusive. Most recent mergers and acquisitions either involved firms with little overlap in lines of business or were conducted under the assumption that redundant employees would not be aggressively shed. One cross-border merger involving the specialized segment of credit to local governments has, however, performed well and is expected to be further advanced by the future introduction of mortgage bonds in France.

The reorganization of the banking sector in Italy has perhaps been the most accelerated in Europe, as illustrated by the 54 mergers that occurred in 1998, the successful privatization of the Banca Nazionale del Lavoro (BNL), and legislation providing incentives for “charitable foundations” to relinquish controlling stakes in banks in the next four years. Moreover, at end-June 1999, Banca Intesa and Banca Commerciale Italiana announced their plans to merge, creating Italy’s largest banking group and one of the ten largest in Europe.

Foreign participation in Italian banks continued to grow, and minority interests of banks from several European countries in BNL, Banca di Roma, and numerous large Northern banks rose. Foreign investment has helped to foster mergers and acquisitions among large banks, some of which have also acquired smaller institutions. Mergers among top banks have, nonetheless, been hampered by two factors. First, several large institutions are linked through cross-shareholdings stemming from historical relationships, and minority interests have often diverged from one another. Second, the Banca d’Italia has indicated to market participants that it does not favor hostile takeovers in the banking sector. Market participants view these factors as temporary hurdles, which may influence the pairing of specific banks but will not stop the consolidation of the sector.

The scope for consolidation is likely to increase with the sale of shares in banks that are currently controlled by “foundations,” as new legislation will force foundations to relinquish their interests in banks to retain the special tax status they currently enjoy.

By contrast, bank consolidation in Germany—while progressing—remains constrained. Growing pressure on cooperative banks—heightened by, inter alia, the phasing in of more sophisticated risk-management requirements—has resulted in mergers (168 in 1998) among cooperative (or mutual) banks. These mergers, however, did not lead to the development of centralized structures that would save operational expenses (e.g., the unification of back-office and other support activities). Furthermore, these mergers have largely taken place within the umbrella organization of cooperative banks (Genossenschaftsbanken), rather than involving commercial banks. Some concerns have also been raised about the interest rate risk incurred by mortgage banks, owing to their increasing lending to regional banks. Through the issuance of sought-after mortgage bonds (Pfandbriefe). In Germany, there is apparently little concern about the possibility of foreign takeovers, possibly reflecting low interest mar-

²⁹In a related context, it has been suggested that the recent large Spanish merger (Banco Santander and BCH) may have acted as a trigger for the subsequent domestic merger activity in France and Italy discussed below.
³⁰See also Fazio (1999).
Financial Supervision, Regulation, and
Crisis Management

Will Supervisory and Regulatory Frameworks in EMU Keep Pace?

National supervision and regulation in many countries is being challenged by the increased blurring of commercial banking, investment banking, insurance, and asset management. Challenges are also likely to emerge within the euro area from the likely tendency toward greater reliance on securitized, market-oriented finance than on bank-intermediated finance, the likely emergence of pan-European exchanges for securities and derivatives trading, and cross-border mergers between financial institutions.

National-level structures in most European countries divide supervisory and regulatory responsibilities among several agencies (with the notable exceptions of Denmark, Luxembourg, Norway, Sweden, and the United Kingdom, all of which recently introduced a single regulator). While European authorities consider the existing division of responsibilities at the national level to be working reasonably well, some rationalization is probably desirable and might enhance supervision. However, full-fledged reforms such as those associated with the Financial Services Authority in the United Kingdom seem unlikely in the near future; some uncertainty about the outcome of the U.K. reform is encouraging a wait-and-see attitude among most continental European authorities.

As for structures at the euro-area level, although the 11 EMU countries have transferred national monetary sovereignty to the European level, supervisory and regulatory responsibilities have remained a national responsibility. Cooperation currently occurs mainly through bilateral arrangements and meetings in multilateral forums. In the case of banking and securities regulators, there are now bilateral memorandums of understanding between virtually all EMU (and pre-in) countries, providing for both regular meetings and cooperation and information exchange when there are specific concerns or issues. Although memorandums of understanding are typically not legally binding arrangements, cooperation with counterparts in other countries is considered to have worked smoothly. For European banking supervision, the two major multilateral forums are the Banking Supervision Committee of the ECB, a senior-level committee for cooperation between national supervisors, and the Groupe de Contact, a lower-level group that addresses cases involving individual banks. European authorities are generally satisfied with the way EMU-wide cooperation has been taking place within these groups.

As long as banking systems remain primarily national and banks’ businesses are mainly traditional (with limited reliance on both on- and off-balance-sheet securities transactions involving cross-border exposures), the current decentralized approach that relies on cross-border cooperation will most likely remain workable and effective. As pan-European financial markets and institutions emerge, and the reliance on securitized market-oriented finance expands, pan-European financial supervision and regulation may become more desirable and necessary. European officials have acknowledged these possibilities and seem to be taking a pragmatic approach to enhancing cooperation and coordination, and to considering alternative institutional arrangements. Recent developments in this area include (1) in February 1999, the signing of a multilateral European memorandum of understanding among securities supervisors that are members of FESCO (Forum of European Securities Commissions); (2) discussions about a strengthening of the multilateral mode of cooperation and information sharing among banking supervisors; and (3) the creation of a high-level group of representatives of EU finance ministers focusing on supervisory developments in EMU (e.g., consolidated in addition to sectoral supervision, the appropriate relationship between the central bank and the supervisory authority, and the need for some form of European-level supervision).

There seem to be different degrees of enthusiasm among European officials about centralization, and the development of a single euro-area supervisor seems to be a long way off. By contrast, once a pan-European exchange for securities—like the pan-European platform for blue chips currently under preparation by the London Stock Exchange and the Deutsche Börse—is created, a central securities supervisor and regulator would become more likely.

Crisis Management

There has been agreement within the Eurosystem on crisis management procedures along the following lines. The ECB regards the adequacy of financial institutions’ own risk controls as of utmost importance for financial stability. Where supervisory authorities are not satisfied that institutions’ risk management is adequate, they will use available tools to avoid excessive risk taking. The Eurosystem believes it has mechanisms in place to contribute to the smooth conduct of

31 The members of FESCO are Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, and the United Kingdom.
policies by the competent authorities relating to the prudential supervision of credit institutions and the stability of the financial system. The main guiding principles underlying these mechanisms are as follows:

- the provision of emergency liquidity assistance if and when appropriate is primarily a national responsibility;
- the associated costs and risks are borne at the national level; and
- mechanisms ensuring an adequate flow of information are in place so that any potential liquidity impact can be managed in a way consistent with the maintenance of the appropriate monetary policy stance, and any cross-border implications can be dealt with.

This agreement clarifies the framework for crisis management within EMU. Two issues remain: (1) whether decentralized arrangements will remain appropriate when pan-European institutions and markets emerge; and (2) whether arrangements are in place—although not spelled out to maintain “constructive ambiguity”—to ensure that the Eurosystem will effectively coordinate with the II national supervisory authorities, treasuries, deposit insurance schemes, and EU authorities, in the event of a crisis involving a potentially insolvent institution.

While a decentralized framework may be adequate to manage a crisis involving a traditional bank operating at the national level with few cross-border interbank links, it may pose challenges in the event of a crisis with EMU-wide systemic implications. In a decentralized framework, it may be difficult to fully internalize the systemic implications of a bank failure. National authorities are likely to take into account the potential costs—which would be borne at the national level—of assisting a troubled institution, but it is not obvious that they would fully consider the benefits of avoiding the cross-border systemic implications of its failure. It is also not unreasonable to expect, even in the absence of pan-European institutions, that the introduction of the euro would increase the potential for systemic events in the European banking industry.32 As discussed, banks are in the process of increasing the number and size of their cross-border interbank credit lines to ensure that they can borrow from and lend to banks across EMU. This implies a need for more cross-border interbank lines than before EMU, with a correspondingly higher systemic risk in case of financial problems in one banking system. To be in a position to assess systemic risk in a timely manner, there are arrangements to exchange information within the Eurosystem and with banking supervisors.

Work is currently under way to enhance the capabilities of the ECB and the Eurosystem to monitor the EU financial system as a whole in cooperation with the NCBs and national supervisors.

For dealing with potentially insolvent institutions, the institutional framework in the EU is decentralized and relies on national legislation and arrangements, the exchange of information in the Banking Supervision Committee, and bilateral agreements to cope with cross-border spillovers. Although the Eurosystem will most likely be involved in crisis management, its actual involvement is not spelled out in laws and regulations. This decentralized approach is relevant in part because of practices associated with “constructive ambiguity,” which introduces a degree of uncertainty about the conditions under which emergency liquidity assistance would be provided to individual institutions or more widely through markets in crisis situations. Constructive ambiguity is regarded by some, but not by all, as a way to limit the adverse potential consequences of moral hazard. As has been discussed before (IMF, 1998, and Prati and Schinasi, 1999), in cases where constructive ambiguity is used to promote strategically a degree of uncertainty, there should be no ambiguity about the mechanisms or the allocation of responsibilities that will be called upon to resolve problems and crises.

References


———, 1999a, Monthly Bulletin (Frankfurt, March).

———, 1999b, Monthly Bulletin (Frankfurt, May).

———, 1999c, Monthly Bulletin (Frankfurt, June).


32See also Padoa-Schioppa (1999), p. 6.
Annex II
Banking System Developments and Corporate Sector Restructuring in Japan

The Japanese authorities have put in place over the past year a framework for addressing long-standing banking system problems. These measures, together with tighter prudential bank regulation and supervision, also added momentum to corporate restructuring in Japan. Legislation was enacted in October 1998 that sharply increased public funds available to deal with banking problems, toughened the conditionality for bank recapitalization with such funds, and created the mechanism for temporary nationalization of failed banks. In addition, supervision improved under the newly established Financial Supervisory Agency (FSA). Looking ahead, the principal remaining challenges for banks are to set aside adequate provisions for loan losses, address other sources of capital weakness, and restore core profitability. Progress in these areas is important given the planned reintroduction of limited deposit insurance coverage after March 2001.

Japanese nonfinancial companies have started to take decisive steps toward restructuring. Since the beginning of 1999, the authorities have moved to introduce several measures to facilitate this process, including the drafting of a more workable insolvency law to support firms’ financial reorganization and measures to facilitate labor mobility and the scrapping of excess capacity. In the period ahead, the priorities for corporations are to focus on their core business and strengthen their balance sheets.

Overview of Banking System Issues

During much of 1998, market perceptions of the financial soundness of most major banks deteriorated.¹ Bank stock prices fell, credit ratings were downgraded, and funding spreads widened (Figure A2.1). The visible difficulties of one of Japan’s major banks and the apparent political deadlock over plans to inject public money into troubled banks contributed to the intensification of market concerns.

In response to continued banking system problems, legislation was enacted in October 1998 that provides a broad framework for resolving banking problems. The authorities have started to apply the new instruments: two major banks were nationalized in late 1998, most remaining major banks were recapitalized with public funds in March 1999, and the authorities have begun addressing problems in regional banks. In addition, the FSA conducted on-site inspections of all major banks in the summer and fall of 1998 and of all regional banks in the winter and spring of 1999. The expectation of public capital injections helped strengthen bank equity prices, and the loosening of monetary policy in February 1999 contributed to the disappearance of the Japan premium.

Performance of major banks in FY1998 remained weak, although virtually all major banks reported capital ratios above 10 percent for March 1999 after the injection of public funds. Major banks’ loss-loss charges were, however, more than double their operating profits, resulting in substantial net losses (Figure A2.2). The banks’ net losses would have been even larger in the absence of an accounting change that allowed them to post large deferred tax credits in their unconsolidated accounts. Public funds and deferred tax assets together accounted for more than half of Tier I capital as of March 1999.

Notwithstanding recent progress, Japan’s banking problems continue to be a source of concern for macroeconomic performance, pointing to the importance of restoring the full functioning of financial intermediation and ensuring continued financial stability. The need for action is highlighted by the expiration of the current blanket coverage of deposit insurance in April 2001. Weaknesses remain in three key areas:

- Bad loans are still not fully recognized or adequately provisioned. The scale of uncovered losses remains a major source of uncertainty.
- Capital adequacy remains unclear, reflecting not only possibly inadequate provisioning, but also unusually large deferred tax assets and the use of book rather than market valuation of securities holdings.
- Core profitability is weak, owing in particular to the large scale of corporate lending, which earns thin interest margins.

Asset Quality

While supervisory standards have improved, concerns remain that uncovered losses from bad loans

¹Major banks refer to city banks, long-term credit banks, and trust banks. Data on these banks were obtained from Fitch IBCA unless otherwise stated.
could be substantial. There are three main measures of problem loans in Japan (Table A2.1). The Federation of Bankers' Associations (FBA) disclosure standard includes loans to borrowers in legal bankruptcy, past due loans in arrears by three months or more, and restructured loans. According to these rules, major banks reported in their financial statements non-performing loans totaling ¥20.3 trillion (6.3 percent of total loans) for March 1999. A second, somewhat broader measure is based on the recently enacted Financial Reconstruction Law. Under this measure, major banks' nonperforming loans amounted to ¥28.0 trillion (8.7 percent of total loans) in March 1999. Finally, the aggregate figure of banks' own self-assessments of asset quality provided by the FSA,
ANNEX II   BANKING SYSTEM DEVELOPMENTS AND CORPORATE SECTOR RESTRUCTURING IN JAPAN

Figure A2.2. Japan: Major Banks' Profits, FY 1988–99
(In trillions of yen)

Source: Fitch IBCA.

which covers watchlist, doubtful, and unrecoverable
loans, indicated that major banks' classified loans
amounted to ¥44.2 trillion (13.8 percent of total
loans) in September 1998, net of collateral, guaran­
tees, and specific loan-loss provisions.

The size of uncovered losses associated with prob­
lem loans is uncertain. A conservative estimate can be
derived from banks' self-assessment results (Table
A2.2). Using actual provisioning rates for various
categories of loans, disclosed by the Financial Recon­
struction Commission, and a Bank of Japan study of
banks' loss experience, the classified loans for Sep­
tember 1998 (latest available) would imply a total un­
covered loss in all banks of ¥14 trillion (about $120
billion or 3 percent of GDP).

While substantial additional provisions have been
made since September 1998, remaining uncovered
losses could be considerably higher for three reasons:
(1) banks may have been overly optimistic in loan
classification, especially with regard to the impact of
the current recession on loan quality; (2) loss rates—
especially for Class 2 loans—may be higher in the fu­
ture than during the mid-1990s, when banks were not
actively disposing of bad loans (even taking into ac­
count the special provisions made in 1995 and cap­
tured in some of the figures used in the Bank of Japan
study); and (3) possible uncovered losses in credit co­
operatives are not included (based on data for March
1998, including credit cooperatives would boost un­
covered losses by about ¥3 trillion).

Table A2.1. Japan: Estimates of Problem Loans for the Major Banks

<table>
<thead>
<tr>
<th>Source</th>
<th>Federation of Bankers' Associations (FBA)</th>
<th>Financial Reconstruction Law</th>
<th>Banks' Self-Assessments of Asset Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Features</td>
<td>Includes loans to borrowers in legal bankruptcy, past-due loans in arrears by three months or more, and restructured loans.</td>
<td>Requires the disclosure of unrecoverable loans (Class 4), doubtful loans (Class 3), and watchlist loans that are in arrears by at least three months or for which there has been a change in terms or conditions beneficial to the debtor (the substandard portion of Class 2 loans).</td>
<td>Covers watchlist loans (Class 2), doubtful loans (Class 3), and unrecoverable loans (Class 4).</td>
</tr>
<tr>
<td>Changes and notes</td>
<td>(1) The rule for charging off nonperforming loans (NPLs) was relaxed. Starting in March 1999, banks were allowed to charge off problem loans that were fully covered by specific reserves even before legal proceedings were completed. This reduced reported NPLs but also decreased reported reserves. (2) The definition of NPLs was broadened. Also starting in March 1999, some banks began to include loans to bankrupt or potentially bankrupt borrowers on which interest was not yet overdue. This increased reported NPLs.</td>
<td>This definition is somewhat broader than the FBA measure because it includes claims other than loans, such as guarantees.</td>
<td>Banks are not required to publicly disclose this information, but the Financial Supervisory Agency reports aggregate amounts for groups of banks with a delay of about four months.</td>
</tr>
</tbody>
</table>

Overall, despite the substantial charge-offs already effected, provisions in coming years are likely to remain significant relative to banks’ operating profits, possibly requiring further capital injections in selected banks.

Capital Position

Notwithstanding banks’ relatively high reported capital ratios, concerns remain about capital adequacy. The failure of LTCB demonstrated that measured capital adequacy may overstate a bank’s true financial position: LTCB reported a capital adequacy ratio of 10.3 percent for March 1998, but was subsequently found to have negative net worth of ¥2.7 trillion (equivalent to 15.3 percent of risk assets) as of October 1998. It is unlikely that the entire deterioration in the bank’s capital strength occurred just during this seven-month period. While inadequate loan loss provisions are clearly a primary concern, there are three other important concerns.

- **Deferred tax assets**: which arise mainly from loan loss provisions, amounted to about one-third of major banks’ Tier 1 capital as of March 1999.\(^4\)

\(^4\)Banks were allowed to adopt the deferred tax accounting method for their unconsolidated accounts for their FY 1998 financial statements (this method was already used for consolidated accounts).

Given that the realization of these credits depends on future taxable income, and that the prospects for bank profitability are uncertain, the regulatory ceiling on deferred tax assets of five years’ taxable profit would appear high. For example, in the United States, deferred tax credits are limited to 10 percent of Tier 1 capital or one year’s taxable profit, whichever is smaller.

- **Unrealized losses on securities holdings**. Banks are allowed to value securities holdings at cost, rather than the lower of cost or market, and in practice only one major bank—Bank of Tokyo-Mitsubishi—still uses the latter system. Although major banks in aggregate had net unrealized gains on listed securities as of March 1999, several banks carried unrealized losses. Moreover, major banks’ large equity holdings (whose market value is roughly 2/3 times banks’ own equity) imply a significant exposure of capital to market risk.

- **Provisions against Class 2 loans**: are considered to be general provisions and are therefore allowed to be counted as Tier 2 capital. However, such provisions are specific to a group of assets and should arguably be excluded from capital.\(^5\) Although provisions against Class 2 loans are currently only a small fraction of risk-weighted assets, they are becoming larger as loan provisioning standards are tightened.

Profitability

Japanese major banks’ core profitability remains weak compared with large banks in other industrial countries. Although Japanese banks have huge asset bases, they have relatively low revenues and consequently relatively low returns on equity or assets— their return on assets is about one-third to one-half that of large U.S. banks.\(^6\) A key reason for major banks’ low revenues is that their primary business is wholesale corporate lending, on which interest margins are as thin in Japan as they are in other industrial countries. While large-scale, low-margin corporate lending was important in other countries in the past, over time banks have expanded their retail lending operations and moved into more profitable lines of business, such as the production of “leveraged loans,” that is, loans that are repackaged and sold to institutional investors and other nonbank institutions (through securitization), freeing capital and increasing fee in-

\(^5\)Although provisions against Class 2 loans are currently only a small fraction of risk-weighted assets, they are becoming larger as loan provisioning standards are tightened.

\(^6\)For example, Bank of Tokyo-Mitsubishi has twice the assets of Citibank, but produces only one-third of the revenues.

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**Table A.2. Japan: Estimated Uncovered Loan Losses, September 1998**

<table>
<thead>
<tr>
<th></th>
<th>Classified Loans</th>
<th>Total Losses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Class 2</td>
<td>Class 3</td>
</tr>
<tr>
<td>All banks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classified loans(^1)</td>
<td>66.1</td>
<td>6.9</td>
</tr>
<tr>
<td>Uncovered losses(^2)</td>
<td>10.3</td>
<td>3.3</td>
</tr>
<tr>
<td>Major banks(^3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classified loans(^1)</td>
<td>45.5</td>
<td>5.7</td>
</tr>
<tr>
<td>Uncovered losses(^2)</td>
<td>7.1</td>
<td>2.7</td>
</tr>
<tr>
<td>Regional banks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classified loans(^1)</td>
<td>20.5</td>
<td>1.2</td>
</tr>
<tr>
<td>Uncovered losses(^2)</td>
<td>3.2</td>
<td>0.6</td>
</tr>
<tr>
<td>Provisioning rates</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actual(^4)</td>
<td>2</td>
<td>52</td>
</tr>
<tr>
<td>Historical(^5)</td>
<td>17</td>
<td>75</td>
</tr>
</tbody>
</table>


\(^1\)Net of specific provisions.

\(^2\)Uncovered losses are the difference between appropriate and actual provisions. In turn, actual provisions are equal to gross loans minus net loans. So, uncovered losses = (appropriate rate – actual rate)*(net loans)/(1 – actual rate).

\(^3\)Including Long-Term Credit Bank and Nippon Credit Bank.

\(^4\)Based on loan-loss provisions at major banks.

\(^5\)Derived from Bank of Japan study. Based on historical three-year cumulative loan write-offs at a sample of 18 banks.

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come. In addition, in other countries, increased competition has generally resulted in exit, and consolidation also contributed to a widening in interest margins.

Besides the need for a strategic reorientation, banks must compete in mortgage lending with the Government Housing Loan Corporation and in deposit taking with the Postal Savings System. Outstanding mortgages by the Government Housing Loan Corporation exceed those by domestically licensed banks. Postal Savings deposits have two main advantages over deposits at private institutions: (1) they are viewed as backed by the full faith and credit of the government; and (2) long-term deposits are very liquid, as they can be redeemed without penalty after six months, which provides an attractive hedge against an increase in interest rates.7 In addition, the Postal Savings system pays no taxes or deposit insurance premia and is not subject to the same capital adequacy requirements. Although the interest rate on postal saving deposits is set as a fraction (usually about 90 percent) of the average three-year deposit rate at private banks, the differential appears inadequate—especially when interest rates are low—to compensate for the nonpecuniary benefits of postal saving deposits. As a result, the share of personal deposits with the postal saving system in total personal deposits increased sharply during the 1990s, as market interest rates fell and concerns about the financial positions of some private institutions increased (Figure A2.3).

**Main Policy Developments in Banking**

The authorities have made important progress in addressing banking problems during the past year. A framework—backed by public money and administered by the FRC—was created to resolve banking problems. Through its on-site inspections of all major and regional banks, the newly established FSA improved the recognition of the bad loan problem. Partly as a result, major banks made loan-loss charges of ¥10 trillion in FY1998, bringing cumulative loan-loss charges since April 1990 to over ¥47 trillion (9½ percent of GDP).8 Together, an improved resolution framework and strengthened supervision laid the groundwork for recapitalization of weak but solvent major banks, nationalization of two insolvent major banks, and interventions in regional banks. Banks receiving public funds announced restructuring plans that point in the right direction. These actions stabilized the banking system—as reflected in the virtual disappearance of the Japan premium—and are providing a window of opportunity for further reform.

**Legislative Framework**

Legislation approved in October 1998 expanded and strengthened the framework for ensuring banking system stability. The legislation had three main components.

- The amount of public funds available to cover banking sector losses was doubled to ¥60 trillion ($500 billion or 12 percent of GDP). Of this, ¥25 trillion was allocated for recapitalization of weak but solvent banks, ¥18 trillion for financial revitalization activities such as temporary nationalization and state administration of banks, and ¥17 trillion for special financial assistance exceeding the pay-off costs.
- A new high-level body, the FRC, was established to oversee banking system stability and restructuring. The FRC, headed by a cabinet-level minister, is responsible for inspection and supervision, recapitalization, and resolution of failed institutions. The FSA, which assumed inspection and supervisory responsibilities from the Ministry of Finance in June 1998, was placed under the FRC.
- Two bad loan collection and disposal agencies (the Resolution and Collection Bank and the Housing Loan Administration Corporation) were consolidated into a new agency, the Resolution and Collection Corporation. This new agency has expanded authority to purchase bad loans not only from failed banks but also from solvent institutions.

**Supervision**

The FSA conducted special on-site inspections of major banks in the fall of 1998 and of regional banks in the winter and spring of 1999. These inspections
were more intensive than in the past and provided the authorities with effectively simultaneous evaluations of banks' asset quality. Following the inspections, the FSA sent letters to banks, detailing its evaluation of each bank's loan classification. Banks were required to respond within a month and were encouraged to incorporate recommendations into subsequent loan classification exercises. The FSA's policy is not to comment publicly on any individual bank (with the exception of nationalized banks), but the FSA retains the ability to use market pressure to encourage compliance, for example through frequent examinations, which would become known in the financial community.

The FSA found that major banks had understated classified loans by ¥5.4 trillion in March 1998 (Table A2.3). However, the bulk of the FSA's reclassification (¥3.6 trillion) was from Class 1 to Class 2, which implied little additional provisioning, and the only significant reclassification (¥1.6 trillion to Class 3) applied mainly to banks that were subsequently nationalized. Similarly, the FSA found significant discrepancies in loan provisioning only in the nationalized banks. These results were not surprising, given that the FSA's evaluation of the adequacy of loan classification and provisioning was based on banks' own criteria. The FSA also found that regional banks had understated their problem loans as of March 1998, with the amount of reclassification (1.4 percent of loans) being similar to that in major banks.

A new inspection manual was issued in April 1999 and will become effective in July. Although the new manual is intended to clarify—rather than strengthen—existing standards, it will effectively tighten standards by removing loopholes. The new manual is not expected to have a large impact on loan loss provisioning.

The increase in supervisory resources will allow for more frequent regular on-site inspections. Staff of the FSA's Inspection Department are to increase from 165 to 249. Although about 90 percent of current FSA staff are on secondment from other ministries, most are expected to remain at the FSA because it is already the principal agency for financial issues and will acquire the financial planning system function from the Ministry of Finance in 2000. The FSA's current objective is to inspect all major banks and about half the regional banks every year, and to inspect the remainder of the regional banks (generally the stronger ones) every other year. In addition, special inspections will focus on particular issues, such as Y2K preparedness.

**Nationalization of Two Major Banks**

The new bank legislation and the special inspections prepared the ground for the temporary nationalization of two major banks. LTCB's stock price had started to drop sharply in June 1998 on reports that the bank was having difficulties raising funds. The authorities' initial plan—announced at the end of June—was to merge LTCB with smaller Sumitomo Trust Bank, but this plan was eventually abandoned, in part because Sumitomo Trust was reluctant to take over LTCB's substandard loans. The failure in September of Japan Leasing, one of LTCB's main affiliates with more than ¥1.5 trillion in debt (including ¥256 billion to LTCB and ¥150 billion to Sumitomo Trust), left little doubt that LTCB was insolvent and contributed to the buildup of market pressures. After LTCB applied for nationalization on October 23, the Deposit Insurance Corporation acquired all the outstanding shares and provided financial support, thus allowing LTCB to continue its regular operations and meet all of its obligations.

LTCB's capital turned out to be much lower than originally believed. LTCB reported a capital adequacy ratio of 10.3 percent for March 1998 and 6.3 percent for September 1998. At the time LTCB was nationalized in October, the FSA's special inspection found that the bank had negative net worth of ¥340 billion (about 1.9 percent of risk-weighted assets) as of end-September, including unrealized losses on securities holdings. In March 1999, the FRC declared that LTCB's negative net worth was in fact ¥2.7 trillion (15.3 percent of risk-weighted assets as of end-September) as of October 1998. LTCB's losses were borne in part by its former shareholders, as the share price for the nationalization was set at zero.

LTCB's government-appointed management is currently seeking a buyer for the bank with the assistance of a foreign investment advisor. To increase its attrac-

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**Table A2.3. Japan: Financial Supervisory Agency's Special Inspections of Major Banks, December 1998**

<table>
<thead>
<tr>
<th>Total credit</th>
<th>FSA</th>
<th>Banks</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTCB and NCB</td>
<td>394.2</td>
<td>394.2</td>
<td>0.0</td>
</tr>
<tr>
<td>Class 1</td>
<td>344.7</td>
<td>300.1</td>
<td>-54</td>
</tr>
<tr>
<td>LTCB and NCB</td>
<td>19.6</td>
<td>21.5</td>
<td>-1.9</td>
</tr>
<tr>
<td>Class 2</td>
<td>43.8</td>
<td>40.2</td>
<td>3.6</td>
</tr>
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<td>LTCB and NCB</td>
<td>5.2</td>
<td>5.0</td>
<td>0.2</td>
</tr>
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<td>Class 3</td>
<td>5.3</td>
<td>3.1</td>
<td>1.6</td>
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<td>LTCB and NCB</td>
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<td>1.4</td>
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<td>0.1</td>
<td>0.3</td>
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<td>LTCB and NCB</td>
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<td>0.0</td>
<td>0.3</td>
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<tr>
<td>Required loan-loss provisions</td>
<td>8.6</td>
<td>7.6</td>
<td>1.0</td>
</tr>
<tr>
<td>Of which:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LTCB and NCB</td>
<td>1.6</td>
<td>0.8</td>
<td>0.8</td>
</tr>
</tbody>
</table>

Source: Financial Supervisory Agency (FSA).

Note: LTCB stands for Long-Term Credit Bank; NCB stands (here) for Nippon Credit Bank.

*Classified loans are reported net of specific provisions.*
Credit Bank following the FSA's special inspection. The Bank of Tokyo-Mitsubishi-did not express interest in LTCB, the original goal of finding state control.

The authorities acted more swiftly with Nippon Credit Bank following the FSA's special inspection, the bank had negative net worth as of March 1998, this bank had struggled through a series of attempts to restructure, including the complete withdrawal from overseas operations and cuts in employment and salaries, with financial assistance from other commercial banks and the Bank of Japan. The FSA notified Nippon Credit Bank in November that, based on its special inspection, the bank had negative net worth as of March 1998. Nippon Credit Bank failed to develop an acceptable remedial action plan; on December 14, the authorities put the bank under state control.

### Public Capital Injections into Major Banks

The banks that applied for public funds were largely those that had received public money under the previous recapitalization scheme in March 1998; the main exception—the Bank of Tokyo-Mitsubishi—did not apply for the more recent recapitalization. As in the 1998 recapitalization exercise, to qualify for public funds, banks had to demonstrate positive net worth and the ability to generate long-term profits.

The standard for determining net worth was more rigorous than in March 1998, as the FRC included all unrealized losses on securities holdings and applied somewhat stricter provisioning standards for classified loans. Specifically, the FRC called for 70 percent coverage of the unsecured portion of Class 3 (doubtful) loans and 15 percent coverage of the unsecured portion of substandard Class 2 (special mention) loans. However, the base for the higher provisioning ratios was rather narrow—the unsecured portion of substandard loans was only about 10 percent of Class 2 loans—so the net impact on provisioning was small compared with the magnitude of potential uncovered losses. Major banks made provisions and charge-offs of about ¥10 trillion in FY1998.

Banks submitted detailed restructuring plans to show long-term profitability (Table A2.4). These had four main components:

- **Expansion of profitable activities.** Gross income is to be raised on average by about 3 percent per year, by increasing housing loans and loans to small enterprises, expanding ATM networks and business hours, offering private banking services to wealthy clients, and selling investment trusts (mutual funds). These efforts will occur against the background of strong competition in retail banking; regional banks have large branch networks and finance companies dominate the technology-inten-
Table A2.5. Japan: Public Capital Injections, March 1999
(In billions of yen, unless otherwise specified)

<table>
<thead>
<tr>
<th></th>
<th>Total Funds</th>
<th>Conventional Preferred Shares</th>
<th>Nonconventional Preferred Shares</th>
<th>Subordinated Debt</th>
<th>Average Yield</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Amount</td>
<td>Grace period</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Number of months)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>City banks</strong></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Dai-Ichi Kangyo</td>
<td>900</td>
<td>400</td>
<td>64</td>
<td>300</td>
<td>200</td>
</tr>
<tr>
<td>Fuji</td>
<td>1,000</td>
<td>500</td>
<td>66</td>
<td>300</td>
<td>200</td>
</tr>
<tr>
<td>Sakura</td>
<td>800</td>
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<tr>
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<td>700</td>
<td>600</td>
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<tr>
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<td>501</td>
<td>501</td>
<td>37</td>
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<tr>
<td>Asahi</td>
<td>500</td>
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<td>39</td>
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<tr>
<td>Dawa</td>
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<td>3</td>
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<tr>
<td>Tokai</td>
<td>600</td>
<td>600</td>
<td>39</td>
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<tr>
<td><strong>Long-term credit banks</strong></td>
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<td></td>
</tr>
<tr>
<td>Industrial Bank of Japan</td>
<td>600</td>
<td>350</td>
<td>51</td>
<td></td>
<td>250</td>
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<tr>
<td><strong>Trust banks</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
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<td>300</td>
<td>200</td>
<td>52</td>
<td></td>
<td>100</td>
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<tr>
<td>Sumitomo Trust</td>
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<td>100</td>
<td>24</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>Mitsui Trust</td>
<td>400</td>
<td>250</td>
<td>3</td>
<td></td>
<td>150</td>
</tr>
<tr>
<td>Chuo Trust</td>
<td>150</td>
<td>150</td>
<td>3</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Toyo Trust</td>
<td>200</td>
<td>200</td>
<td>3</td>
<td></td>
<td>0</td>
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<tr>
<td><strong>Regional bank</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bank of Yokohama</td>
<td>200</td>
<td>100</td>
<td>25</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>7,459</td>
<td>5,559</td>
<td>. .</td>
<td>600</td>
<td>1,300</td>
</tr>
</tbody>
</table>


1Some banks issued two tranches of convertible preferred shares, with different convertibility dates. In these cases, the time to the first date is shown in this column.

sive consumer loan business. Also, the weak economic environment may continue to depress interest margins, while alternative strategies to raise profitability beyond that in retail banking, such as derivatives trading, are usually associated with greater risk.

• Cost reduction accounts for much of the projected improvement in net income. Operating expenses are projected to be reduced on average by about 8 percent over four years, mostly through cuts in personnel costs. The number of bank branches is expected to decline, with a sharp reduction in overseas branches, though all but one major bank expect to remain internationally active. Room for cost cutting may be limited by the fact that, compared with other international banks, Japanese banks already have low costs and need to upgrade information technology.9

• Strategic alliances. Trust banks have been especially active in strategic alliances. Yasuda Trust has become a subsidiary of Fuji Bank, and Mitsui Trust and Chuo Trust plan to merge in April 2000.

• Balance sheet adjustments. Banks are planning to increase sales of distressed unsecured loans and loans secured by real estate, and some banks are planning to reduce their holdings of equities. The announced plans to sell equity holdings appear modest (¥100-200 billion per year for five years) and do not involve selling the shares of keiretsu members.

In addition to restructuring, banks applying for public funds agreed to seek new capital from private sources (about ¥2 trillion) and to increase lending by ¥6.7 trillion in FY1999. of which nearly half (about ¥3 trillion) is earmarked for small and medium-sized businesses.

The public capital injections in March 1999 amounted to ¥7.5 trillion, about four times the amount injected in March 1998 (Table A2.5).10 In contrast to last year's, the bulk of the public funds in 1999 were structured as convertible preferred stock, which—in principle—will give the authorities considerable leverage over banks that fail to perform. If the government converted its entire holdings of preferred stock into common stock (at book values), it would gain majority stakes in three major banks and a near-majority stake in a fourth. The government could ex-

9For example, Sanwa Bank as a whole reportedly spends less on information technology than does the Tokyo office of Goldman Sachs.

10In addition, during FY1998, banks raised about ¥2.5 trillion in Tier I capital from private sources mostly related companies: about ¥1.4 trillion in common shares and about the same amount in higher-yielding preferred securities.
ercise its right to convert stock at these four banks as early as July 1999: conversion dates are longer—up to seven years—for stronger banks. The average yields to be paid on the public funds are low—even lower than the interest rates on last year’s injections of subordinated debt—and little differentiated across banks. The injections were funded by the Deposit Insurance Corporation, which borrowed ¥6.3 trillion from private financial institutions with a government guarantee.

Application of Prompt Corrective Action to Regional Banks

The regulatory authorities began implementing the prompt corrective action (PCA) framework for domestically active banks in April 1999 (internationally active banks became subject to PCA in April 1998). On the basis of the FSA’s special inspections, three second-tier regional banks—Kofuku, Kokumin, and Tokyo Sowa—have been declared insolvent and three more have been required to implement a capital enhancement plan. The authorities confirmed that all deposits would be fully protected and appointed receivers to manage the banks’ operations while buyers are sought. Receivership can last up to one year, though a bridge bank can take over within one year, and the banks are expected to sell their bad loans to the Resolution and Collection Corporation. Three more banks—first-tier Hokkaido Bank and second-tier Niigata Chuo and Namihaya—have been ordered to increase their capital to meet the newly effective 4 percent capital adequacy ratio for banks that only operate domestically.

Measures to Facilitate Debt Workouts and Bad Loan Disposal

The tax code was amended in June 1998 to facilitate debt workouts. Specifically, banks were permitted to deduct from taxable income the losses incurred from out-of-court debt restructuring agreements, and debtors were allowed to offset the corresponding windfall gains against past losses. To benefit from this favorable tax treatment, the debt workout agreement must involve a comprehensive restructuring plan and be approved by all creditors. The October 1998 bank legislation aided disposal of bad loans by legalizing private loan collection companies. Until recently, only lawyers had been allowed to collect loans on behalf of financial institutions. Under the new law, private companies not only may collect loans on behalf of financial institutions but they may also buy collateralized loans from financial institutions and collect loans on their own account. Thus far, the Ministry of Justice has licensed 4 companies and expects to license about 30 altogether by the summer.

Legislation enacted in June 1998 facilitated the creation of special purpose vehicles. The new securitization law, which regulates securities backed by loans collateralized by real estate, enhances the special purpose vehicles’ ability to secure claims on specific assets by creating a centralized system for registering secured interest in (or ownership of) specified financial assets. Under the new law, the original borrowers no longer need to be notified about the sales of their loans. Favorable tax treatment was also granted to special purpose vehicles and related transactions.

Implementation of Big Bang Reforms

The “Big Bang” financial reforms remain on schedule. Following the enactment of the Financial System Reform Law in June 1998, most remaining measures were implemented during the course of FY1998. Important recent changes include allowing banks to sell investment trusts (mutual funds), establishing investor protection schemes for the life insurance, non-life insurance, and securities industries, abolishing the securities transaction tax, instituting market pricing of short-term government financing bills, and allowing finance companies to issue bonds to raise funds for lending. Among the remaining reform measures, three major ones are scheduled to take effect in October 1999: commercial banks will be allowed to issue straight bonds, restrictions on the stock brokerage business of banks’ securities subsidiaries will be lifted, and brokerage commissions will be fully liberalized. Cross-sectoral competition between banks and insurance companies will be allowed at some time in the future.

Remaining Challenges

Planned Removal of Blanket Deposit Insurance

The planned removal of blanket deposit insurance in 2001 is refocusing attention on banking sector restructuring. Given that there are potential uncovered losses and given the uncertainty about banks’ future profitability, the planned replacement of blanket deposit insurance with limited insurance in April 2001 is

11For details of the PCA framework, see International Monetary Fund (1998).
Bank Restructuring

Major banks' restructuring plans by themselves may not boost core profitability. Market participants consider that banks need to more aggressively consolidate (to generate economies of scale), securitize corporate loan portfolios, and expand fee-based income. Although the mergers announced so far are welcome, they are probably not sufficient to eliminate the excess capacity in the banking system. The authorities could facilitate restructuring in three ways. First, the injection of further public funds could be tied to a market test, such as a requirement to raise matching funds from private markets. Second, the early exit of nationalized banks from the marketplace could be encouraged, for example, by allowing them to cease function as ongoing concerns while selling off their assets and liabilities. Finally, strategies to reduce the role of the public sector in financial intermediation (e.g., the Postal Savings system) could be considered.

Disposal of Bad Loans

The pace of bad loan disposal remains slow. Analysts have often noted the importance of sales of loans and collateral to introduce better recognition of value and to establish realistic floors on asset prices. Delayed progress on this front is impeding restructuring in banks and nonfinancial corporations. The main obstacle is inadequate recognition of bad loans, as disposal would force banks to realize additional losses. In addition to ensuring the full recognition of loan losses, the authorities could encourage the Resolution and Collection Corporation to periodically auction bad loans that it has acquired from failed financial institutions.

Financial Reorganization and Corporate Restructuring

Japanese corporations have lagged behind their counterparts in several large industrial countries throughout the 1990s. While a number of large export-oriented companies remain international leaders, a general concern has surfaced that many Japanese firms are too highly leveraged, inefficient, and in need of real or financial restructuring. The depletion of many firms' financial resources and a gloomy profit outlook have led to a persistent decline in equity prices since their high at the start of 1990. Credit ratings have been reduced for many Japanese corporations—including major trading companies. Indeed, the consequences of the large expansion of credit during the years of rapid increases in asset prices (notably land) in the 1980s, and the surge in investment that accompanied it, continue to have ramifications throughout the corporate sector, contributing to low corporate profitability. A reallocation of resources continues to be hindered by several factors, including shortcomings of existing insolvency laws, the weak capital position of banks, and firms' reluctance to shed labor. Several factors have raised concerns about the Japanese corporate sector. First, the high level of corporate investment during the late 1980s yielded low real rates of return; much of this investment was directed to sectors in which Japan likely did not have a comparative advantage, and similar diversification strategies pursued by many large firms led to excess capacity in several markets. Second, Japanese com-

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13Improved supervision is especially important in light of the Big Bang financial reforms that expand banks' range of activities.

14The recent tax change that allows banks to deduct debt forgiveness did not address the deductibility of provisions. Currently, provisions are automatically deductible only under certain narrow circumstances; otherwise tax deductibility depends on rulings by the tax authorities.

15See, for example, Mitsuhito (1994); and Moriyaki and Yoshinobu (1997).
companies have recently been adversely affected by cuts in credit availability and widening credit spreads linked to Japanese banks' attempts to maintain adequate capital. Third, the economic slowdown in Japan has been accompanied by deflationary pressures that have contributed to an imbalance between firms' cashflow and debts. These problems have been compounded by the weakness of corporate accounting systems and financial control mechanisms, as well as by the accumulation of corporate pension liabilities. For example, when accounting rule changes cause firms to disclose the size of corporate pension underfunding, market pressures may spur firms to take steps to improve profitability.

Pressures in the corporate sector have resulted in a string of recent announcements of restructuring plans, mainly by major corporations. Market reaction to these announcements has generally been positive, but concerns remain, reflecting doubts about whether the degree of planned restructuring is on par with the magnitude of the challenges. The Economic Planning Agency has estimated that corporate restructuring could entail asset write-downs totaling up to ¥85 trillion (about $700 billion), and market analysts have suggested that top companies might need to shed 10-15 percent of their employees to achieve average historical rates of return similar to those observed in the 1980s.

There have also been official initiatives to encourage corporate restructuring in Japan. The government has considered measures to facilitate restructuring of corporate assets and liabilities, as well as reallocation of labor across sectors. A three-pillar strategy appears to be emerging, which can be summarized as follows. First, several tax incentives have been proposed to reduce production capacity. Second, the government is working toward introducing measures to address the debt overhang. Measures are likely to include reforms of the bankruptcy law to simplify reorganization procedures, financial cushions for creditors and small enterprises, changes in the commercial code and other laws to facilitate debt-for-equity swaps, corporate spin-offs, and exchange of stocks for debt in connection with firms' restructuring. Third, the government has announced that additional funds will be provided for retraining programs and is considering measures to reinforce the social safety net.

Approaching a Crossroad

The Degree of Leverage in the Corporate Sector

Aggregate corporate leverage is higher in Japan than in the United States and the United Kingdom, although less than in continental Europe. The aggregate figure is boosted by the leverage of small and medium-sized firms (which is about 600 percent and about twice that of large firms). Moreover, the most indebted large Japanese firms are becoming more leveraged over time: the average net debt-equity ratio of the top quartile (in terms of indebtedness) of firms listed in the TSE1 First Section of the Tokyo Stock Exchange has increased by about one-third since 1992.

The main sources of corporate leverage in Japan are bank credit and intercorporate credit. Roughly 70 percent of bank corporate loans in Japan are to small and medium-sized firms. Although banks are an important source of financing to large corporations, bond issuance has increasingly been substituted for bank finance by many large firms. Corporate indebtedness also varies across sectors of the economy. As is typical in most countries, leverage in Japan is higher in nonmanufacturing than in manufacturing. Average leverage has been pushed up by increases in leverage in the construction sector (a fourfold increase since 1990), the retail and trading sectors, and some segments of the manufacturing sector (e.g., electrical machinery and pulp and paper).

The high leverage of Japanese corporations can be attributed in large part to two factors: Japanese firms have relied more on external sources of funds than is the case for firms in some other major economies, and Japanese firms have historically had high levels of investment. For most of the post–World War II period, retained earnings were insufficient to finance the investment plans pursued by Japanese firms: internal funds accounted for less than 60 percent of corporate investment in nonfinancial assets in the late 1980s (a

16Several changes in accounting rules are scheduled to take effect in 1999-2002. At the end of FY1999 the publication of consolidated accounts will become mandatory. The new rules will require the consolidation of the accounts of all firms over which a company exercises effective control, including through minority participation. Starting with FY2000, firms will have to mark to market all their financial assets (except for cross shareholdings, marking to market of which will become mandatory at the end of FY2001). The disclosure of corporate pension liabilities will also become mandatory at the end of FY2001.

17In the case of nonfinancial firms listed in the TSE1 First Section of the Tokyo Stock Exchange, for example, their liabilities are estimated at ¥50-80 trillion, while current profits earned by those firms were less than ¥10 trillion in 1998, and after-tax profits were about ¥1 trillion.

18See Morgan Stanley Dean Wuer (1999).

19Direct comparisons across countries are difficult because of differences in definitions and reporting procedures. The aggregate debt-equity ratio of Japanese corporations is close to 450 percent, while the ratio of liabilities to net worth of U.S. corporates is about 200 percent, and the ratio of debt to own funds of firms in western Germany is somewhat above 300 percent. By contrast, the average debt-equity ratio of TSE1 companies (350 percent) is actually lower than that of the U.S. firms included in the S&P Industrial Index (450 percent) or of large German nonfinancial firms (460 percent).

20The net debt-equity ratios for the nonmanufacturing and manufacturing sectors are, respectively, 250 percent and 60 percent.
Strains Caused by High Debt Loads

Until recently, leverage in the Japanese corporate sector was not a major issue, in part because of the relief provided by declining interest rates—a trend that has now ended. Average interest rates on loans declined from 8 percent to 2 percent during 1991–97, allowing the ratio of gross interest expenses to revenues to decline by 40 percent. Despite the deterioration of firms' revenues during this period. Beginning in late 1997, the impact on banks of financial turbulence and the tightening of regulatory standards have changed the dynamics of corporate debt. Credit spreads have widened and credit lines have been curtailed. Adding to pressures on debt service, sales have declined by 6 percent and profits have dropped by more than 30 percent over this period. In sum, despite further declines in market interest rates through 1998, the ratio of interest payments to sales has begun to increase.

Widespread corporate losses and troubles in the banking system have weakened traditional sources of mutual support among corporations. Historically, firms belonging to an economic group (kogyo shudan and associated keiretsus) could count on support from their peers, parents, and main banks when facing financial distress. The financial deterioration of banks and nonfinancial corporations has weakened this support mechanism. This development underlies warnings by credit agencies that the relationship between Japanese firms' credit ratings and their leverage will converge toward that of U.S. firms if the trend continues. As a consequence, Moody's downgraded 82 Japanese nonfinancial corporations between February 1998 and March 1999, while Standard & Poor's placed 22 companies on CreditWatch in late 1998, and eventually lowered the ratings on more than two-thirds of these companies.

The growth rate of new corporate bankruptcies peaked at 35 percent (year-on-year) in May-July 1998. Moreover, for the first time, some large firms have declared bankruptcy, which has contributed to the growth in the aggregate debt of failing companies; in 1997–98, such debt stood 70 percent above 1995–96 levels. In the second half of 1998, several steps were taken to cap the rise in corporate bankruptcies. They included Bank of Japan credits to banks that extended new corporate loans, widespread loan guarantees for small and medium-sized enterprises, and special credit lines for some firms facing redemption of maturing bonds.

Directions for Change

How Much Restructuring Will Be Needed?

The deterioration of corporate balance sheets appears to largely reflect overcapacity in several industries. Return on equity in Japan has dropped from about 7.5 percent in the late 1980s to an average of 2.8 percent in FY1991–98. The capital-output ratio in Japan is currently above trend and capacity utilization in the manufacturing sector is below trend. Excess capacity is greatest in many industries in which capacity increased the most in the 1990s, and arguably cannot be fully attributed to cyclical factors.

The burden of excess capacity has been compounded by a rise in labor costs that has outpaced sales. In the 1990s, corporate sales have grown by a cumulative 2 percent, while labor costs among large Japanese companies and their subsidiaries have increased by more than 25 percent. Although a large part of the increase in labor costs occurred in the early 1990s, and reductions in bonuses have recently contributed to a decline in labor costs, the disconnect between costs and revenues has become more prominent with time. For instance, in 1998, labor costs declined by 1 percent, but sales dropped by 6 percent.

Increasing corporate return on assets to international levels would require substantial real restructuring. Since 1990, return on assets for Japanese firms has halved to about 2 percent, compared with 5.5 percent for U.S. companies. According to some financial analysts, restoring the return on assets to its historical average would require (assuming constant revenues) a 15 percent reduction in total labor costs, or asset write-downs equivalent to $5 trillion.

Institutional Factors and Recent Restructuring Measures

Traditionally, corporate sector adjustment in Japan has followed a pattern in which large firms use their intra-group relationships to internalize adjustment costs (e.g., reshuffling labor), whereas small and medium-sized companies downsize or exit. That pattern was broadly maintained through mid-1998, but since then new patterns of corporate restructuring have emerged. In particular, some large firms have undertaken significant efforts to restructure, while small and medium-sized firms have been given some breathing room by temporary special loan guarantees.

The number of announced corporate restructuring plans surged in 1999. The announcing firm's stock price rose when markets viewed its plans as underpinned by genuine change (Box A2.1). The surge in...
Box A2.1. Stock Market Reaction to Recent Restructuring Announcements in Japan

During the first three months of 1999, several listed Japanese firms announced restructuring plans, often coinciding with the forecast of large losses for the fiscal year. Many plans involved marginal adjustments, such as a reduction in labor through attrition. Other plans involved improved corporate governance mechanisms, including a reduction in the size of the board of directors (which, in Japan, often include more than 50 directors comprised of present and past managers). Several firms appeared to take larger steps, including major structural changes aimed at refocusing businesses’ activities, notably through divestment of non-core businesses and consolidation of subsidiaries. Mergers and acquisitions figured prominently among recent announcements, in some cases reflecting increased reliance on foreign partners, and in a few cases the outright transfer of control to them. Some plans took advantage of the upcoming introduction of consolidated accounts to simplify corporate structures and establish “in-house” units aimed at identifying cost and profit centers, which are key ingredients, together with the clarification of lines of authority, for restoring the profitability of Japanese firms.

The ultimate effectiveness of these plans is difficult to discern, although they certainly indicate an incipient change in attitude. Changes in stock prices in reaction to announcements are one way to gauge the potential effectiveness of these plans, because they provide insight into the market’s reaction to these announcements. An event study, based on a sample of about 60 announcements made in the first two-and-a-half months of 1999, is therefore undertaken here.

Event studies are a standard method to identify the information content of market news by measuring abnormal returns on stocks around corporate actions or announcements. In these studies, the actual return on a share within a time window around the event day is computed and compared to the prediction of some benchmark model such as the Capital Asset Pricing Model (CAPM) portfolio model. Here, abnormal returns are also computed against the average returns in the second half of 1998, in order to address the possibility that the results using the CAPM might be biased by the cumulative effect of announcements on overall market sentiment.

Variables that reflect the nature of the announced plan, recent changes in the firm’s profitability, and the firm’s industry sector are used to assess market reactions. Plans were grouped into five categories: and firms were grouped in three sectors: manufacturing (37 observations), finance (13 observations), and other sectors (construction, services, and light industry) (20 observations). Two financial variables were used: the percentage change in earnings per share between FY1998 and FY1999, and a discrete variable indicating whether or not the 1999 dividend was expected to be zero. The allocation of plans into the five categories was based on news reports and comments by market analysts from major investment banks in Japan, which unavoidably involved some judgment. For example, major restructuring plans typically involved reductions in the labor force and divestment in non-core activities, and divestment of single lines of business could be considered a merger and acquisitions activity. Results were, however, broadly unchanged by the reclassification of some plans that had ambiguous features. Also, the results using the CAPM and those based on historical average returns were similar.

The results suggest that markets were in general cautious about restructuring announcements, particularly those of financial institutions. Only a small fraction of announcements resulted in cumulative abnormal returns during the subsequent four days that were in excess of two standard deviations from those predicted by the CAPM or from the average return on individual stocks in the second half of 1998. It is noteworthy that some of the largest increases were associated with an announced acquisition by a foreign firm. It should also be noted that the low significance of stock price changes around announcements could also reflect information leakage, market skepticism, and simply the high level of volatility of Japanese stock prices in recent months owing to macroeconomic factors that are not captured fully by the CAPM.

announcements was in part because of the magnitude of losses that many firms expected to incur in 1998—99, and possibly in part because of the example set by a few large, profitable firms that have announced restructuring plans. In the past, the majority of restructuring plans were aimed at restoring near-term solvency rather than improving longer-term profitability. By contrast, more recent plans have increasingly focused on the establishment of clear lines of authority and stronger mechanisms for financial control, withdrawal from non-core business lines, and the forging of links with foreign partners.

Bank-led informal reorganizations, which have been hindered in recent years by banks’ weak financial condition, have also picked up recently, owing to the injection of public funds into major banks and recent tax provisions associated with asset write-downs by banks. About a dozen mid-sized companies, notably in the construction and trade sectors, reached

22Recurrent profits of nonfinancial listed corporations fell 26 percent and total profits dropped by 70 percent in 1998 compared with 1997.
### Japan: Stock Price Reaction to Recent Restructuring Announcements

<table>
<thead>
<tr>
<th>Variable</th>
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<tbody>
<tr>
<td></td>
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<tr>
<td>Percent change in earnings per share</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>No dividend in 1999</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Financial sector</td>
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<tr>
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</tr>
<tr>
<td>Industry</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Attrition</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Governance</td>
</tr>
<tr>
<td>Divestment</td>
</tr>
<tr>
<td>Merger/acquisition</td>
</tr>
<tr>
<td>Major restructuring</td>
</tr>
</tbody>
</table>

Note: Numbers in brackets indicate the significance level of the estimated coefficient. 
1 Industry excludes construction and beverage.

An alternative to the above approach is to assess the qualitative reaction of markets rather than the magnitude of these effects. A probit model can be used for this purpose. The probit analysis indicates that an announcement by a financial institution involving a reorganization plan was viewed by the market, more often than not, less positively than those made by other companies. A second finding from the probit analysis is that announcements of major restructuring plans, mergers and acquisitions, and the sale of non-core businesses were generally favorably viewed by the market, while plans based on attrition were associated with a decline in stock prices. The coefficient on the variable indicating plans based mainly on a multiyear reduction in the workforce through attrition was significantly negative in all model specifications. In contrast, the coefficient associated with plans based on other strategies was uniformly positive. A third finding is that financial variables appear to suggest that market discipline contributed to more vigorous corporate restructuring: expected declines in earnings per share were negatively correlated with changes in stock prices.

Corporate restructuring, nonetheless, still faces significant institutional impediments. One major impediment is the high cost to firms of reducing employment. Job separation from large Japanese firms has historically been voluntary. Court rulings in the late 1970s made dismissals cumbersome (thus favoring the shift of labor across subsidiaries), which has led firms to offer voluntary early retirement programs. The typical early retirement program is estimated to cost about ¥22 million ($180,000) a worker. Although financial analysts have noted that the recent performance of some companies suggests that the payback period of eliminating redundancies could be as short as three years, cash-strapped firms may have trouble financing such cuts. Other impediments to restructuring include the low net tax benefits to restructuring; remaining obstacles to securitization (despite the 1998 law promoting asset-backed securities) that include multiple liens on loan collateral and inadequate loan documentation; inadequate debt segregation within companies (parent companies often offer loans or comprehensive loan guarantees to subsidiaries); and the lack of effective bankruptcy proceedings.

Reform of bankruptcy laws is an important priority for public policy because of weakness in the banking sector and the general lack of other mechanisms that enable debtors to engage creditors in negotiations. There are three laws regulating corporate financial re-
Table A2.6. Japan: Legal Procedures for Insolvent Companies

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Bankruptcy</th>
<th>Liquidation</th>
<th>Composition</th>
<th>Reorganization</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Application</strong></td>
<td>Similar to U.S. Chapter 7 although inspired by German law. Can be transformed into a reorganization. Conversely, it may result from the failure of reorganization efforts.</td>
<td>Applicable to companies being wound up that are considered to be insolvent. Any joint stock company may use it. It is more efficient than bankruptcy if the creditors are cooperative.</td>
<td>Popular system where an arrangement with creditors can allow the firm to continue in business.</td>
<td>Reorganization occurs under minimal supervision by the court. Can be used only by unanimous agreement among creditors. Typically applied to small and medium-sized companies.</td>
</tr>
<tr>
<td><strong>Control of the firm</strong></td>
<td>A trustee (a lawyer) is appointed, who will liquidate the company independently of the creditors and distribute money pro rata.</td>
<td>A former director of the company is chosen as liquidator; no trustee is appointed.</td>
<td>An appointed trustee retains the power of administration over the firms' assets (management retains some control over ordinary business actions).</td>
<td>The company retains its administrative powers, except if the court decides otherwise.</td>
</tr>
<tr>
<td><strong>Secured credits</strong></td>
<td>May be executed separately.</td>
<td>Separate execution may be restricted by court order.</td>
<td>May be executed separately.</td>
<td>Separate execution may be restricted by court order.</td>
</tr>
<tr>
<td><strong>Unsecured creditors</strong></td>
<td>Participate in the procedure. Seniority rights not absolute.</td>
<td>&quot;Equality&quot; is required by law, but may be adjusted reflecting agreement by a majority of creditors.</td>
<td>Absolute priority subject to trustee's decision.</td>
<td>Individual execution of claims is suspended, but the firm may repay specific debts (preferential).</td>
</tr>
<tr>
<td><strong>Voting</strong></td>
<td>—</td>
<td>Votes equivalent to three-fourths of claims required.</td>
<td>Votes equivalent to three-fourths of claims required.</td>
<td>Unanimity.</td>
</tr>
<tr>
<td><strong>Power to ratify plans</strong></td>
<td>Amounts recovered are divided by the court; typically they add to less than 10 percent of the claim.</td>
<td>Payments will be made according to a convention approved by the legal majority of creditors after approval by the court.</td>
<td>The court approves the sharing arrangement; subject to agreement by creditors.</td>
<td>The firm has discretion on which payments it makes, subject to agreement by creditors.</td>
</tr>
</tbody>
</table>

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organization in Japan, in addition to two laws regulating liquidations (Table A2.6). Under current laws, debtors in Japan face numerous restrictions and incur large risks when they attempt to initiate formal reorganization procedures.\textsuperscript{24} Formal reorganization procedures are thus seldom used in Japan: only about 300 petitions are filed in a typical year, of which a large number are withdrawn before proceedings actually start. By contrast, some 20,000 petitions for reorganization under Chapter 11 of the U.S. Bankruptcy Code were filed every year in the United States during 1983–93. In the past, the lack of effective formal procedures might not have posed a major problem because banks were not financially constrained and thus could initiate necessary workouts.

**Official Initiatives**

The Ministry of International Trade and Industry has issued a set of proposals in advance of the introduction of government legislation to facilitate corporate restructuring. The following are among proposals that reflect early suggestions made by the Economic Strategy Council, and have in part been incorporated in recent government plans:

- **Tax incentives to reduce production capacity and promote corporate reorganization.** The measures include exemptions of capital gains realized in connection with the transfer or reorganization of subsidiaries and divisions; an extension of favorable tax treatment of land transactions not involving sales (such as in-kind transfer of land to newly incorporated firms); tax breaks for asset write-offs in connection with the scrapping of production capacity (e.g., a firm absorbing a loss-making operation could carry losses forward for 10 years rather than 5 years). Consideration has also been given to shifting corporate income taxation to a consolidated basis. This would permit firms to offset taxable income from one subsidiary with losses in other subsidiaries, and could lead to uniform corporate tax rates and fewer subsidiaries (small firms are currently subject to lower corporate tax rates).

- **Legal changes to facilitate corporate reorganization and change in corporate ownership structures.** These include proposals to permit banks to exceed the 5 percent limit on equity holdings in a nonfinancial firm in the event of a swap of debt for equity;\textsuperscript{25} more flexible implementation of antimonopoly laws, to permit Japanese companies competing in the global economy to hold a large share of the Japanese market; and changes in the Commercial Code to facilitate change in ownership structures (that includes broadening the ability of corporate boards to dispense with a general shareholders’ meeting when deciding on the sale of businesses or other restructuring steps, to force minority shareholders to sell their shares when a bidder has acquired over 50 percent of company shares, and to allow payment in shares of the acquiring firm for corporate acquisitions).

- **Use of public funds,** such as a public lending facility to finance capacity reductions at special interest rates; subsidies to firms that increase employment (in designated sectors); and the financing of individual training.

The authorities are also reviewing bankruptcy laws with the aim of improving the efficiency of corporate rehabilitation procedures. Specifically, the Ministry of Justice has announced the acceleration of plans to complement the law typically applied to small and medium-sized companies (the Composition Law) with a new Financial Rehabilitation Law. The latter would incorporate several provisions paralleling those in Chapter 11 of the U.S. code (see Table A2.7). Although some of the proposed provisions already exist in Japanese law, they are scattered over three different laws and are therefore not fully operational. Main proposed features include:

- **Relieving debtors of the need to prove that their firm is insolvent (or nearly insolvent) when petitioning for court protection, and embracing the debtor-in-possession principle.** This principle permits incumbent management to maintain control of the firm during the procedure, and to propose the reorganization plan; it is also associated with the granting of seniority of debt acquired after filing for court protection over previous debts.

- **Greater protection against creditors,** by allowing the court to stay secured creditors, thus reducing the risk of the firm being stripped of essential assets and winding up in liquidation. Also, a (qualified) majority of creditors will suffice for approving reorganization plans, rather than the unanimous consent of creditors.

- **Priority rules will be weakened** to permit debt-for-equity swaps whereby debt would be converted into equity through the issuance of additional equity, rather than by replacing existing equity (i.e., absolute priority would not be observed); and debtors will be able to satisfy claims of secured creditors by paying off the current (estimated) value of the collateral and equity when the going-concern value of a distressed debtor was higher than its liquidation value. Banks usually agreed to swaps when other creditors also participated in the workout.

\textsuperscript{24}Rehabilitation procedures using bankruptcy laws aimed at small and mid-sized firms focus on protecting secured debtors.

\textsuperscript{25}This change is expected to aid corporate reorganization. The experience in the United States may be illustrative. James (1995, 1996) shows that U.S. banks were willing to participate in debt-equity swaps of severely impaired claims and take advantage of exemptions to the U.S. law banning banks from holding corporate
Table A2.7. Japan: Features of Reorganization Procedures in the United States and Germany and the Prospective Financial Rehabilitation Law in Japan

<table>
<thead>
<tr>
<th></th>
<th>United States</th>
<th>Germany</th>
<th>Japan</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Procedure</strong></td>
<td>Chapter 11 of Bankruptcy Code</td>
<td>1994 Bankruptcy Code</td>
<td>(Prospective) Financial Rehabilitation Law</td>
</tr>
<tr>
<td><strong>Main objective and application</strong></td>
<td>Reorganization of the firm as an ongoing concern: only indirect consideration for stakeholders other than the debtor.</td>
<td>Liquidation, reorganization (composition), or possible auction: some consideration for “social” and other external objectives.</td>
<td>Financial rehabilitation of individuals, unincorporated firms, and corporations through a streamlined procedure.</td>
</tr>
<tr>
<td><strong>Solvency and other requirements</strong></td>
<td>Firm need not be insolvent; protection is often sought by debtor.</td>
<td>Firm cannot meet payments or is overindebted. It needs to prove it has enough funds to pay for procedural costs (after netting out secured assets).</td>
<td>Solvent firms can apply if debt burden becomes excessive; prepayment of court costs is likely to still be required.</td>
</tr>
<tr>
<td><strong>Control rights and authority to propose a reorganization plan</strong></td>
<td>Debtor in control: in 50 percent of cases, previous managers retain control; in remainder, new managers are appointed by debtors. Managers have 120 days after the filing (extendable by the court) to present reorganization plan. The 1995 reform somewhat increased the power of creditors to reject that plan.</td>
<td>Power is shared. Court appoints a creditors' committee and an administrator, who proposes a reorganization plan to the creditors' assembly within three months. If the plan is rejected, the administrator may be allowed to propose a new plan or a chance can be offered for the debtor to take the lead.</td>
<td>Debtor-in-possession principle is embraced: similar to current practice under the commercial code, incumbent managers may retain control of the firm, with some supervision from the court, and propose the reorganization plan. Implementation of the plan will be overseen by court, but without deep involvement.</td>
</tr>
<tr>
<td><strong>Automatic stay against creditor claims</strong></td>
<td>Most creditors' claims and the service of those claims are stayed (with exceptions such as lease payments).</td>
<td>Automatic minimum three-month stay for all claims; stay can be extended by creditors' assembly.</td>
<td>Stays against secured creditors are not automatic, but are expected to be granted liberally and expeditiously by courts (comprehensive stays will substitute for the current system where the debtor has to seek individual injunctions against each creditor).</td>
</tr>
<tr>
<td><strong>Renegotiation of liabilities and voting rights</strong></td>
<td>Great discretion to renegotiate debt contacts. Impaired creditors vote by class; plan is approved by simple majority by number and 2/3 majority by claim, subject to court confirmation. Court can “cram down” junior creditors.</td>
<td>Ample scope for renegotiation (in the past, essentially only the repayment schedule of claims could be renegotiated). Creditors vote by class; plan is approved by simple majority by number and by size of claim, and subject to court confirmation.</td>
<td>Creditors are likely to vote as one class, with plans to be approved by a qualified majority by number and size of claim. Firms will be able to be sold as going concerns during the procedure.</td>
</tr>
<tr>
<td><strong>New financing</strong></td>
<td>New financing is easily accommodated because it has priority over existing claims, under the debt-in-possession (DIP) statute.</td>
<td>New senior financing allowed (it was the case in the old code).</td>
<td>New financing to receive senior status.</td>
</tr>
<tr>
<td><strong>Preservation of residual claims on equity holders and deviations of absolute priority</strong></td>
<td>Equity often retains value, usually through creditor's consent, and sometimes through a court “cram down.” Junior creditors may be paid while senior creditors may not be paid in full, when the latter were underecorrected, or made concessions.</td>
<td>Deviations can be proposed, but must be agreed by a creditor's vote. In compositions, they tended to occur.</td>
<td>Deviation from absolute priority expected, e.g., debtors will be able to satisfy the claims of secured creditors by paying off the actual value of the collateral (arbitrated by a third party) and debt-for-equity swaps will not require the wiping out of shareholders' wealth.</td>
</tr>
<tr>
<td><strong>Other options for distressed firms and their main objectives</strong></td>
<td>&quot;Prepackaged&quot; Chapter 11 (in which impacted creditors agree on a plan before filing); informal debt workouts, including through the exchange of claims liquidation under Chapter 7 of the Bankruptcy Code.</td>
<td>The new code combined the compulsory liquidation (Konkursordnung) and composition (Vergleichsordnung) procedures; informal debt workouts most common.</td>
<td>All existing legislation (Composition, Rearrangement, and Corporate Reorganization Laws) will remain in place until they are fully revised and possibly unified within a 3-5-year horizon.</td>
</tr>
</tbody>
</table>

aggregating the residual part of the loan with other unsecured debts. This provision may be important because, given the decline in land prices since 1999, banks often consider holding a title on a loan with real estate collateral to be akin to holding an option on the value of that land. By permitting debtors to satisfy the secured part of those claims by paying cash for the current value of collateral, the law provides a way for companies to eliminate that option and creates an incentive for banks to renegotiate.

**Prospects and Risks**

Official proposals to encourage financial and real restructuring in the Japanese corporate sector are, on
balance, positive. The government has recognized the importance of establishing an environment conducive to corporate restructuring, while ensuring that primary responsibility for initiatives rests with individual firms. For the most part, the government appears to have resisted the temptation to provide direct corporate subsidies. In addition, current proposals may stimulate restructuring efforts and the implicit fiscal contribution may help the corporate sector to absorb the costs of restructuring. These fiscal measures could reduce the burden on banks and possibly also reduce the magnitude of required public injections of capital into the banking system. The possible expansion of the social safety net could help cushion the social impact of dismissals while helping to promote the needed reallocation of labor in the corporate sector: it could also dampen the rise in precautionary saving, reducing downward pressures on prices and corporate revenues. On the other hand, provision of public loans to firms undergoing reorganization could become a lifeline to impaired businesses that are not financially viable. Similarly, subsidization of jobs in designated sectors has the potential to introduce distortions into the market mechanism.

The reform of bankruptcy laws points in the right direction, but efficiency considerations highlight the importance of also fostering a market for corporate control. The incorporation of several Chapter II mechanisms into the new Financial Rehabilitation Law would tend to encourage the early use of formal procedures that could help mitigate the existing debt overhang problem. By giving protection to incumbent management, these provisions could favor firms that are not viable and should exit rather than be reorganized. The new German bankruptcy code addresses these issues, inter alia, by giving prominence to creditors' committees in the decision about whether to reorganize or liquidate the firm. The new law in Japan is expected not to include explicit mechanisms such as those in the German code. Hence, greater reliance on a strong market for corporate control might be required, as suggested by the experience in the United States, where the existence of such a market has been an important factor to balance any pro-management bias in the law.

The effectiveness of new bankruptcy laws will also hinge on the amount of resources made available for their implementation. Key factors in the success of bankruptcy laws in the United States are the powers embodied in bankruptcy courts and the role of private trustees in relieving judges of much of their administrative responsibilities. In Japan, there are only two specialized bankruptcy courts. As a consequence, debtors may be discouraged from more use of formal procedures against creditors because of perceptions that the courts may not be expeditious. A review of court procedures and available resources, including in the legal profession, may therefore help improve the legal resolution of financial reorganizations.

Effective corporate governance is also an important factor in facilitating restructuring of the corporate sector. An increasing number of Japanese companies have professed that their main goal is to maximize shareholder value. Nonetheless, mechanisms to enforce management accountability remain limited. The high degree of corporate cross-shareholding significantly limits the scope for hostile takeovers. Although the forthcoming mandatory marking to market of cross-shareholdings could create incentives for firms to unwind them, prospective measures that would allow companies to reduce their exposure to these assets by shifting the ownership rights of stockholdings to trusts (to fund corporate pension commitments), but retain the associated control rights, may perpetuate this problem. On the other hand, the new holding-company law as well as the possible move toward consolidated corporate taxation have helped spur the reorganization of large firms into vertical organizations under holding companies, which may facilitate managerial accountability.

Further development of domestic capital markets could improve corporate governance and the efficiency of Japanese firms. For example, increased market incentives from well-functioning corporate debt and equity markets for small firms could facilitate the streamlining of existing keiretsus through an aggressive divestment policy supported by the redirection of domestic savings to new financial instruments (also helping address potential concerns of excessive ownership concentration on the heels of a relaxation of the antimonopoly law). Wider use of these markets could also provide a potentially lucrative advisory business to banks, while submitting a larger share of the corporate sector to the discipline and disclosure implied by the reliance on public corporate instruments. Debt-for-equity swaps could also play an important role in supporting financial reorganization in Japan, provided other constraints on corporate restructuring are addressed. Specifically, banks may be reluctant to engage in such operations with firms that are limited in their ability to shed labor or take other measures to improve their performance.

In summary, there are encouraging signs that further restructuring will occur. There is recognition of the need for restructuring, and firms are increasingly committed to change. The Japanese authorities have shown increasing resolve in advancing that process, for example, by encouraging large firms to restructure, considering an expansion of the social safety net to protect dislocated workers, and introducing measures to stimulate the development of start-up firms. Nevertheless, some observers have noted that the positive reaction of markets to steps taken to date could result in complacency. Although a rapid restructuring could lead to a temporary contraction in GDP, this shock may be partially cushioned by public policies.
By contrast, a greater risk could arise from delaying corporate restructuring, as that might dampen economic growth for many years and entail considerable fiscal costs.

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Annex III
Developments in Emerging Market Banking Systems

The turbulence in global markets in the aftermath of Russia's devaluation and unilateral debt restructuring imposed severe pressures on most systemically important emerging market banking systems, which was reflected in weaker earnings and asset quality. Many Asian and Latin American banks experienced substantial cuts in international interbank credit lines and losses in international repo lines, but their domestic deposit bases proved resilient to the turbulence in 1998—in many cases aided by extensive government guarantees. Banks' responses magnified the transmission of the external liquidity squeeze to local capital markets and the real economy, as they scrambled to restore the liquidity of their balance sheets shifting funds away from the corporate sector and into government securities. Losses in some banks' securities portfolios were followed by increased delinquencies in their loan portfolios owing to a deteriorated operating environment.

Emerging market banking systems outside of Asia weathered the consequences of capital outflows reasonably well, but the recovery of the domestic credit cycle has been elusive—with the exception of some central European banks. Most banks in emerging Asia remained focused on restructuring their bad loans, and uncertainties about the creditworthiness of the (unrestructured) corporate sector kept lending flows subdued. The lack of progress in corporate debt restructuring across the region remains one of the key risks to the strengthening of banks' balance sheets. The largest banking systems in Latin America have shown an enhanced ability to withstand the external liquidity squeeze, but the pronounced slowdown in economic activity has not yet been fully reflected in banks' balance sheets and is leading to further consolidation in the systems. The healthiest banking systems in emerging Europe have continued to attract sizable capital flows and to expand credit to a fledging corporate sector, as competition grows and foreign banks contribute to a more stable and efficient financial intermediation.

Most emerging market banking systems strengthened their regulatory and supervisory frameworks and many are in the process of phasing out full deposit insurance schemes. Following the imposition of extensive guarantees in the wake of financial crises, many emerging market banking systems are considering or have even announced effective timetables to limit the coverage of these guarantees. Large losses in Latin American banks' securities portfolios led to some degree of regulatory forbearance in the immediate aftermath of the Russian unilateral debt restructuring, but regulators moved subsequently to enhance regulation on the classification and valuation of securities, as well as on capital requirements for market risk. Emerging markets in central Europe have strengthened their regulatory frameworks, but significant challenges remain as they face the prospect of full capital account liberalization and contemplate joining the EU. In particular, capital adequacy requirements need to be broadened to include market risks and off-balance-sheet exposures, which are growing in most countries.

Asia

Bankers and government officials in the Asian crisis countries are dealing with the task of bank restructuring and recapitalization, as the credit cycle lags relative to the recovery in financial markets and capital flows. Different countries have followed diverse approaches to financial sector restructuring, but results have been slower than expected. Korea and Malaysia have followed more interventionist approaches to financial restructuring that are producing balance sheet results faster than in Thailand, which has followed more market-driven changes that are likely to prove more resilient. The former countries, which forced banks to reserve/write-off nonperforming loans or to sell them to asset management companies, have made substantial progress in strengthening banks' balance sheets and have successfully encouraged mergers and acquisitions. Both countries also have fairly effective bankruptcy and foreclosure laws, but concerns remain about the extent and depth of their achievements in corporate restructuring—especially among Korean chaebol. Analysts worry that the rapid results of this strategy may lead to a recurrence of problems and further rounds of recapitalization. Indonesia has closed

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1See IMF (1998) for the importance of securities in emerging market banks' portfolios and for related innovations in market risk regulation.
several banks, but widespread insolvencies and low loan recoveries are hampering progress in financial restructuring. Foreign participation in bank recapitalization has not been large, and more government support than originally expected has been needed. Despite the recovery in financial markets and economic activity in most of the crisis countries, the turnaround in the credit cycle has yet to happen and asset quality is only now starting to bottom out.

China has begun to set up individual asset management companies to tackle the bad loan problems of the state banks and while the bankruptcy of Guangdong ITIC has reduced foreign banks’ exposures to mainland borrowers, Hong Kong SAR banks have continued to handle the deflationary pressures well. Banks in Singapore are preparing to face increased competition after the authorities’ gradual move to liberalize the banking sector.

**Indonesia**

The resolution of the insolvent Indonesian banking system has left the government as the owner of more than 80 percent of the system’s assets and the implied costs—currently estimated by rating agencies at more than 50 percent of GDP—could continue to escalate unless a forceful loan collection strategy is implemented. The authorities announced a bank recapitalization program in August 1998, which was refined in December 1998. The plan aimed to recapitalize state and local government banks and those private banks that had met minimum capital requirements and had fit and proper managers and shareholders, a viable business plan, and owners that could supply 20 percent of the costs of recapitalization. On March 14, 1999, the authorities announced that 38 banks would be closed, 7 would be taken over by the Indonesian Bank Restructuring Agency, and 9 private banks would be recapitalized. The government will subscribe for up to 80 percent of the banks’ rights issues by issuing bonds and the original shareholders will subscribe to the other 20 percent and will have an option to buy back the government shareholding within three years at cost plus a premium (based on an average bond yield). The banks also signed performance contracts that stipulated that banks would reach a capital adequacy ratio of 8 percent, return on equity of 20 percent, and nonperforming loans of less than 5 percent by 2001. Analysts perceive these targets set by the central bank as too optimistic. While the merger of four state banks to create Bank Mandiri—which will have 30 percent of the deposit market—is moving ahead, the restructuring of three other large state banks and 12 Indonesian Bank Restructuring Agency banks has been delayed. In their latest letter of intent to the IMF, the authorities stated that the large state-owned banks would start proceedings against their 20 largest debtors by end-August 1999, and a consistent strategy to improve loan recoveries includes the closely intertwined task of accelerating corporate restructuring (see Box A.3.1). The successful completion of the second interbank debt exchange is expected to contribute to the restructuring of the banking system, but foreign participation in the bank recapitalization process has been minimal so far. The Indonesian authorities and the Bank Steering Committee reached an agreement on a second interbank exchange offer on March 29, 1999, and most of the $3.8 billion of Indonesian bank external debt due through December 2001 has been rescheduled under better terms than the first exchange. Of the eight private banks that had deposited additional capital under the recapitalization program, only one included the entry of a major international bank. However, some market participants believe that this particular transaction could provide a significant psychological boost to the recapitalization process, and two foreign financial institutions have reportedly expressed an interest in taking a stake in another of the medium-sized private banks. Two large banks that were nationalized last year are slated for privatization in the second half of 1999.

**Korea**

The Korean authorities have completed the initial stages of the process of recapitalization and restructuring of the banking system, but much remains to be done, in particular on corporate debt restructuring, the cleanup of nonbank financial intermediaries, and the efficiency of the intermediation process. After the closure of five insolvent banks and their absorption by healthier institutions, six other commercial banks were persuaded to merge in 1998 and a four-bank merger was completed in early May 1999—to bring the number of commercial banks to 17 (from 27 in December 1997). The government spent W 41 trillion last year (and plans to spend another W 23 trillion this year) to rehabilitate the banking system—roughly half spent in nonperforming loan purchases and the other half used to pay for deposits and junior new capital in restructuring banks—to own more than 90 percent of the equity of the second- and third-largest banks. Korea’s Financial Supervisory Commission estimates that nonperforming loans amounted to 7.4 percent of outstanding loans at the end of 1998 after the Korea Management Corporation (KAMCO) purchases of...
bad loans. Bank analysts estimate that the actual nonperforming loan ratio is much higher and, more important, is likely to increase once corporate restructuring takes hold, loan classification is tightened to reflect capacity to repay, and public guarantees for small- and medium-enterprise loans are limited. Banks are downsizing, cutting costs (employment is down by one-third and a number of branches were closed), and effecting some changes in management. However, building up risk management and credit assessment skills will be further hauled by the resources involved in the process of corporate restructuring (see Box A3.1).

As foreign confidence in the Korean economy improved in the first half of 1999, the external funding profile of the banking system strengthened considerably. Rollover rates for financial institutions' term loans continued to increase in 1998 and net flows turned positive in January 1999 for the first time since the crisis began. The improved short-term external liquidity position allowed the banks to repay $3.8 billion in one-year foreign debts rescheduled as part of the March 1998 landmark agreement with 134 foreign creditors. Foreign ownership in Korean banks has increased and will continue to drive the reform process. However, as of June 1999, negotiations to sell two large nationalized banks had not been concluded. Apart from strategic foreign investments in nationalized and private banks, foreign ownership of shares in many of the top-tier banks exceeds one-third of total shares.

Malaysia

The Malaysian authorities have moved decisively to restructure the banking system, have established a coherent approach to financial sector restructuring, and are moving rapidly to implement it. However, some analysts remain concerned about the loosening of prudential requirements and moral suasion to expand lending in a still over-leveraged environment. The condition of the banking system deteriorated quite rapidly during 1998, and by end-1998 the nonperforming loan ratio reached 20 percent—using the three-month default period and including loans sold to Danaharta, the government-run asset management company. The combined efforts of Danaharta (which by end-June had bought about 30 percent of the banks' nonperforming loans), and Danamodal (which has recapitalized 10 banks) have contributed to the rehabilitation of the banks and the investors' perception of the country and its banking system. Some analysts believe the 37 percent average discount on the purchase of nonperforming loans has been fairly generous, but the authorities are confident that the discount will be moving up as the acquisition phase is completed. Banks are allowed to amortize the resultant losses over a maximum five-year period, and Danaharta will attempt to restructure the acquired bad loans and if possible avoid auction them off at an early stage—with a view to maximizing the recovery value of its assets. Although shareholders absorbed losses before receiving Danamodal's funds, the authorities have been more cautious about removing managers owing to the relative lack of local banking skills—and are hoping to use their role as strategic shareholders to effect internal changes in banks' lending and risk management practices. In early April, the central bank announced new regulatory measures, including higher capital adequacy ratios for banks with higher risk profiles, disassociating banks from entities (such as securities houses) not supervised by the central bank, disallowing lending to controlling shareholders, intensifying on-site bank examination, and reviewing the performance of bank directors and managers biannually. Market participants worry that the latter could be used to press banks to meet the targeted 8 percent lending growth, a potentially dangerous goal in the context of prescribed maximum lending margins and overleveraged corporations.

Thailand

The severe recession and liquidity squeeze suffered by the Thai corporate sector in the aftermath of the financial crisis, together with a breakdown in the repayment culture, have led to large operating losses and a massive deterioration in Thai banks' asset quality. Nevertheless, nonperforming loans seem to have peaked in February–March 1999, when they reached 52 percent of total commercial lending. The deterioration in economic conditions has been exacerbated by the weak legal infrastructure, which gives creditors scant power over delinquent debtors. The weak legal environment has allowed even healthy borrowers to avoid repaying loans, the so-called "strategic nonperforming loans." Analysts estimate that while roughly 40–50 percent of the banks' nonperforming loans are distressed but fit for restructuring, 30 percent of nonperforming loans are not, and about 20–30 percent are "strategic" nonperforming loans that could easily become performing with a tightening of the legal/judicial environment. To speed up the debt restructuring process (see Box A3.1), the Bank of Thailand has relaxed the rules on the classification of nonperforming loans: instead of waiting for three months of renewed debt service on a restructured loan, these will now be

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1 As of end-February 1999, KAMCO had purchased W 44 trillion of loans for W 20 trillion, a 55 percent discount. Total disposals and collections were just W 17 trillion, but the agency has so far recovered more than it had paid on the most desirable properties.

2 The discount is 61 percent if one large loan bought for a nominal amount is included.
Box A3.1. Corporate Debt Restructuring in Asia

Corporate debt restructuring is an essential complement to bank recapitalization, and slow or uneven progress in either one is likely to lead to renewed financial distress and continuing vulnerability. Two factors that make corporate debt restructuring in Asia a major challenge are the lack of an institutional framework to address the issue and the systemic nature of the problem—related to the large number of cases and the involvement of foreign creditors.

Many countries have moved ahead in improving the institutional framework, and the degree of government involvement in the restructuring process differs across countries. Most countries are following a market-based, voluntary approach to debt restructuring, where the government plays the role of a facilitator of both formal and informal debt workouts. Formal debt workouts require an effective bankruptcy procedure, that is, one that has clear liquidation and rehabilitation procedures, where the latter attempts to maximize the ex post value of the firm while preserving the ex ante bonding role of debt. The presence of an effective bankruptcy system creates appropriate incentives for debtors and creditors to reach out-of-court (or informal) debt restructuring, and most Asian countries have adopted variants of the so-called "London Approach" to facilitate voluntary debt workouts in an environment where courts lack the experience or resources to handle a large number of cases. Government agencies coordinate, mediate, and arbitrate (and sometimes even dictate) negotiations between debtors and creditors, encouraging also the use of standard agreements to speed up the process. In Korea, the government has played a much more direct role than elsewhere, imposing quantitative targets for the deleveraging of corporates and using its increased position as bank shareholder to encourage restructuring by withholding credit.

A fundamental problem with the voluntary market-based approach is that the London rules were not designed for systemic corporate debt crises, and a case can be made for a bigger government role and a limited use of taxpayer resources in resolving the corporate debt problem (such as the provision of guarantees on exchange rate risk). While this may create moral hazard, there is also the need to recognize that overburdened debtors and creditors have little incentive to arrive at voluntary agreements when the debt overhang problem is related to macroeconomic developments beyond their control. This was recognized in the restructuring of corporate debts in Chile and Mexico in the early 1980s and is behind the government exchange rate guarantees of the Indonesia Debt Restructuring Agreement.

The establishment of an adequate institutional framework is just a first step toward an efficient debt-restructuring process, and implementation is critical. The extent of progress is small relative to the severity of the underlying problems, which makes banks weak and vulnerable to future shocks. In what follows, we briefly describe the main features of the Asian crisis countries' frameworks for corporate debt restructuring and the extent of progress.

Indonesia

Indonesia has moved to increase the flexibility of a comprehensive framework for debt restructuring that has so far shown few concrete results. A framework for the voluntary restructuring of corporate debt—the Jakarta Initiative—was announced in September 1998 to complement the Indonesia Debt Restructuring Agency (INDRA) scheme and the amended bankruptcy law. The INDRA scheme provides exchange rate risk protection to private debtors who agree to restructure their external debts, while the Jakarta Initiative provides a set of principles to guide and streamline out-of-court corporate restructuring. In late March 1999, the authorities announced modifications to the INDRA scheme to make it more attractive, including an extension of the deadline for entry to end-1999, which remove election-related uncertainties, cap debtors' annual payments to INDRA during the grace period, and reduce the minimum maturity for rescheduled foreign debt if the original debt is reduced through debt forgiveness or debt-equity swaps. As of end-April, 170 companies owing $20.6 billion in foreign currency debt (an estimated 28 percent of the total corporate external debt) had signed up with the task force in charge of managing the Jakarta Initiative, although only 16 firms had reached agreements in principle and just 4 had standstill agreements. A recent Supreme Court ruling in favor of creditors has reduced negative market perception of the implementation of the bankruptcy law, but market participants are skeptical about many more deals being settled before the elections. Analysts worry that if it takes too long to make further progress on debt restructuring through this largely voluntary process the government might be forced to adopt a more interventionist role.

Korea

Corporate restructuring in Korea is proceeding on two separate tracks: (1) a debt workout framework for the smaller chaebol and other large corporations, which follows the London Approach in its voluntary and extra-judicial nature; and (2) a different approach for the top five chaebol, which relies on heavy government involvement. A Corporate Restructuring Agreement has been signed by 200 financial institutions, under which the institutions agree to follow specific procedures for debt workouts—including an automatic standstill on debt repayments and emergency (syndicated) loans—and to subject themselves to binding arbitration by the Corporate Restructuring Coordinating Committee. Lead banks or groups of institutions holding more than 25 percent of a corporation's debt can form a creditors' committee and the lead bank—assisted by a group of foreign advisors—
negotiates with the debtor corporation. The authorities negotiated with the top five chaebol the so-called “big deals”—swaps of subsidiaries and affiliates—and, more recently, Capital Structure Improvement Plans, designed to reduce the number of subsidiaries and affiliates and to reduce their total debt-to-equity ratios to below 200 percent by the end of 1999.

The results so far under this framework are mixed, showing some progress with the smaller chaebol under the voluntary debt workout framework and little progress with the top five chaebol. As of end-December 1998, workouts for 45 companies had been agreed under the Corporate Restructuring Agreement, but a number of weaknesses emerged from the completed workouts—including concerns about the quality of due diligence and workout proposals, the banks’ reluctance to disclose information and fully integrate their foreign advisors in the process, and the low level of debt write-downs. The unwinding of cross-guarantees has proceeded rapidly but the “big deal” swaps and other aspects of the restructuring of the top five chaebol have faced a series of economic and political hurdles and progress has been slow. The authorities’ success early in the year in forcing one chaebol to comply with the terms of its “big deal” obligations, by ordering the chaebol’s principal bank to suspend its credit lines, is encouraging, but rating agencies remain uncertain whether similar results can be achieved for the others. As of December 1998, the debt-equity ratio of the top 30 chaebol had declined to 380 percent (and that of the top five to 335 percent), from 519 percent in 1997, but rating agencies have suggested that substantive deleveraging and restructuring has not yet occurred and that it is likely that the banks will bear a disproportionately share of the debt-reduction burden.3

Malaysia

The legal framework in Malaysia is relatively effective but only a few cases have been resolved so far. Following amendments to Section 176 of the Companies Act in late 1998, a series of loopholes have been tightened, and creditors now have a reasonably effective legal framework to work out debt problems. Previously, a highly leveraged company could seek protection against its creditors without the creditors’ consent or even knowledge. A company now applying for protection under Section 176 would first have to seek the consent of creditors amounting to more than 50 percent of its liabilities. Arrangements would have to be formalized within a stipulated period, and creditors’ rights have been greatly enhanced (with debtors facing stricter requirements in terms of disclosure and asset sales during the 60-day standstill period). Despite the creation of a Corporate Debt Restructuring Committee to encourage informal debt restructuring arrangements, as of mid-March 1999 only 48 companies had applied for such arrangements and only two restructuring plans have been implemented. As of end-June 1999, the committee has been able to implement a total of 10 debt restructuring plans.

Thailand

The institutional framework for debt restructuring has recently been strengthened in the context of a mostly voluntary, market-based approach. The new Bankruptcy Law, approved in April 1998, has recently been strengthened with the approval of amendments to remove uncertainties on the degree of protection afforded to new money and the establishment of a specialized bankruptcy court. Also, creditors’ rights legislation has been amended, with a view to facilitating foreclosure on assets. The creation of a Corporate Debt Restructuring Advisory Committee and the introduction of intercreditor and debtor-creditor agreements is expected to speed up out-of-court debt restructuring. The intercreditor agreement provides a model for an arbitration panel to seek consensus on a restructuring plan when there is agreement of at least half the creditors holding more than 50 percent of total outstanding debt (but less than the 75 percent required under the Bankruptcy Law). Under the debtor-creditor agreement, individual debtors are encouraged to sign debtor-creditor mediation contracts, whereby a legally time-bound resolution process automatically triggers intercreditor arbitration contracts. This contract-driven process is intended to result in debt restructuring or automatic filing for liquidation within six months: much of the restructuring completed so far has taken more than a year to accomplish.

Progress has been slow, but the authorities have taken further steps to accelerate corporate debt restructuring. As of end-April 1999 about 48 percent of the total non-performing loans had entered the restructuring process but only about 15 percent had been successfully restructured. While no comprehensive database on the terms of the restructuring is available, anecdotal evidence points to small debt reductions for the case of extension in maturities and discounts of about 30 percent in the case of debt-to-equity conversions (reaching as high as 80 percent in at least one prominent case). To accelerate the process, the Corporate Debt Restructuring Advisory Committee has extended its mandate to take on additional cases, has introduced abbreviated versions of the intercreditor and debtor-creditor agreements to cover small firms, is in the process of hiring its own advisors and professional mediators—deal-makers—to guide debtors and creditors toward early settlement, and has eased rules on the classification of restructured loans. Also, the Stock Exchange of Thailand has announced that listed firms under rehabilitation have until the end of the year to reach agreements with creditors before they risk being delisted.
classified as normal as soon as the loan restructuring is approved. While this relaxation should encourage debt restructuring, analysts fear that it may not resolve the bad loan problem and runs the risk of encouraging banks to disguise loan restructurings as a way of avoiding loan-loss provisioning, without regard to the debtor's repayment capacity. The Bank of Thailand has introduced safeguards to prevent such potential abuses in the reclassification of restructured loans, such as requiring that restructurings be done under the Corporate Debt Restructuring Advisory Committee framework or through the judicial courts.

Progress in bank recapitalization has been relatively slow, but a successful initial deal under the state-supported capitalization program and other private initiatives may serve as blueprints for other banks to follow. However, the banking system remains very weak, and current levels of capital and reserves are considered to be far short of the amount by which loans will have to be written down—especially in the mid-sized and intervened banks. So far, only three of Thailand's smaller banks have been successful in forging partnerships with foreign banks, as the privatization of three nationalized banks—originally scheduled for March 1999—was delayed to decide the details of the guarantees to be offered to cover nonperforming loans. The government is committed to sell the three banks in the next several months. During the first quarter of 1999, the three largest private banks raised capital using hybrid financial instruments in an attempt to avoid the loss of control (see Box A3.2). In late April, the country's fourth-largest bank completed a landmark $1.8 billion capital-raising deal whereby the government matched the share purchases of private institutional investors to become the largest shareholder in the bank. Provisioning levels would be raised after the capital injection, reducing the dilution born by the original shareholders.

China

The Chinese banks' asset quality continued to deteriorate in 1998 and the authorities are trying to hold back the rise in nonperforming loans by creating asset management companies in the four state-owned commercial banks. Analysts believe that the four state-owned commercial banks' financial fundamentals have continued to deteriorate in 1998 as a result of falling profitability—which hinders loan provisioning and write-offs—and continued policy lending. While there is a perception outside China that the country is making little progress on financial reforms, the authorities have taken their most aggressive step to date to stem the rising nonperforming loans: the establishment of asset management companies to repackage and sell the problem loans of the big four banks. In a pilot scheme, China Construction Bank's nonperforming loans will be sold to Cinda Asset Management, which was established in April to either collect what it can from these loans or repackage them and sell them off at a discount. The government has reportedly given Cinda the power not only to force the restructuring of state-owned enterprises—including forcing layoffs—but also to convert unpaid debt into equity—although enabling legislation has yet to be enacted. However, analysts have raised doubts about whether China has the financial infrastructure to enable the asset management companies to work properly and they foresee problems in the valuation, pricing, and management of the assets. Also, even if the asset management companies were to relieve the banks of their old bad debts, preventing them from generating new problem loans would be a more difficult task. To improve asset quality and profitability, the four banks will sign "governance contracts"—setting out performance goals and supervisory boards—and are in the process of developing new accounting systems, setting up risk management divisions, and cutting back branches and employment.

The closure and bankruptcy of Guangdong ITIC prompted a reduction in foreign banks' exposure and an increasing differentiation between sovereign and nonsovereign entities in China, but, despite the external financing pressures, the domestic deposit base remained stable. Foreign creditors have complained of a lack of transparency in the liquidation of Guangdong ITIC (see Box 3.4, Chapter III) and are calling for a clear definition of repayment priorities. Several other ITICs have encountered liquidity pressures in recent months and total ITIC external debt—including Guangdong ITIC—is estimated by the authorities at $12 billion—but analysts estimate it could reach $20 billion with the inclusion of unregistered external claims and guarantees. However, only about 20 ITICs (out of a total of 240) have borrowed abroad and the ITICs together account for only about 5 percent of total assets of the financial system. The People's Bank of China has announced that the ITIC sector will be restructured through mergers and the reduction in the scope of ITICs' operations. There have been reports of

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6 See Moody's (1999b).
7 While the People's Bank of China estimates nonperforming loans to be 20 percent of total loans, most analysts believe the actual figure is significantly higher. To better gauge the banks' asset quality, this year the People's Bank of China will require them to reclassify their loans into the standard five categories, but officials have not made public the results of banks that experimented with the plan last year in Guangdong province. Also, RMB 270 billion of Special Treasury Bonds have been issued to recapitalize the four state-owned commercial banks.
a migration of corporate deposits from small and medium-sized financial institutions to the large state commercial banks, but domestic deposits in the system as a whole have continued to grow.

**Hong Kong SAR**

The exposures of banks in Hong Kong SAR to the ITICs appear to be manageable and those to the property sector are beginning to recover. Moreover, these risks have to be judged relative to the banks' individual strengths: while nonperforming loans jumped in 1998 to 5.1 percent of total loans—from 1.8 percent in 1997—the average capital adequacy ratio stood at a healthy 18.6 percent by end-1998. The direct exposures of the Hong Kong SAR banks to mainland China entities are relatively small (around 4.5 percent of total assets) and market participants estimate that the indirect exposures (through a slowdown in mainland China) are unlikely to do more than slightly delay the recovery in Hong Kong SAR. The property market appears to have bottomed out in the first half of 1999 and, in particular, residential prices—where the majority of the property exposures are—have rebounded since the last quarter of 1998 (see Figure 3.10, Chapter III).

**Singapore**

Singapore's banks were adversely affected by the Asian financial crisis and the authorities have moved ahead with reforms to enhance financial sector transparency and position the financial sector for the next wave of regional growth. A sharp increase in nonperforming loans combined with conservative provisioning contributed to a large fall in profits in 1998. The authorities have been promoting consolidation in the sector, and two mergers last year saw the number of domestic banks decline to five. In 1998, the Monetary Authority of Singapore raised disclosure standards for...
banks and announced plans to fully liberalize the banking system within five years. In mid-May 1999, the Monetary Authority removed the 40 percent cap on foreign investors’ total shareholdings in local banks, and over 1999–2001 the authorities will issue up to six licenses to foreign banks to designate them as “qualified full banks,” allowing them additional branches and automatic teller machines. Singapore will also raise the number of restricted banks from 13 to 18 by 2001, while offshore banks will gain greater flexibility in Singapore-dollar wholesale business—including larger lending limits and freedom to engage in Singapore-dollar swaps. Meanwhile, the Monetary Authority of Singapore is expected to further ease capital adequacy requirements—currently at 12 percent of risk-adjusted assets—to boost the attractiveness of Singapore to foreign banks and to enhance domestic banks’ regional competitiveness.

**Latin America**

In most Latin American banking systems, the extent of reforms after the Tequila crisis—including increased foreign ownership—and the commitment to improvements in prudential supervision and regulation have served to enhance the resilience to external liquidity pressures and domestic volatility. Although Brazilian banks were most affected by the retrenchment of international banks from Latin America after August 1998, banks in Argentina and Mexico also suffered external liquidity pressures as well as a flight to quality that concentrated external flows in the largest banks. The reductions in international interbank exposures, and subsequent pressures in currency and securities markets, led to losses in the banks’ securities portfolios that were absorbed through a reduction in earnings and the equity accounts—and, in the case of Mexico, through regulatory forbearance and central bank support. The persistence of high real interest rates and of the recession has reversed the recent recovery in asset quality across the region, but analysts believe most large banks have adequate capital bases to withstand the increases in delinquency rates. Nevertheless, foreign banks with operations in the region remain extremely cautious about lending decisions, and have reportedly shelved expansion plans to the middle market and consumer sectors and focused on consolidating big corporate clients, asset management, and private banking activities.

**Argentina**

While Argentine banks faced liquidity pressures from cuts in international interbank credit lines and losses of repo lines following the Russian crisis, the deposit base remained relatively stable even after Brazil’s devaluation. This was in sharp contrast to the experience during the Tequila crisis, when the Argentine banking system lost nearly 20 percent of its deposits. This stability reflected a number of factors. There has been a drastic improvement in prudential regulation since the Convertibility Plan was introduced, with capital adequacy requirements exceeding minimum Basel Committee recommendations, much improved disclosure and oversight, and liquidity requirements amounting to 20 percent of deposits and other liabilities of less than 90 days’ residual maturity. Moreover, as banks became increasingly concerned about spillover effects from Brazil, they sharply increased their holdings of liquid assets to levels above those required by official liquidity requirements. Despite the difficulties associated with maintaining the external contingent repo facility (see Box 3.8, Chapter III), the facility enhanced the perceived liquidity cushion for Argentine banks since it would allow the central bank to make credit lines available to domestic banks in times of a severe liquidity crisis. Also, the periodic disturbances since the Tequila crisis generated several flights to quality that resulted in a concentration of deposits in the top-tier banks that are mostly foreign-owned institutions. Finally, a number of banks have been forced to close since 1997, and the authorities have shown an increasing capacity to respond quickly to these situations—particularly in finding buyers to take over the banks’ branch networks—avoiding spillovers to other banks and providing further resilience to the system.

In addition to building up their liquidity positions, banks responded to the combination of reduced external credit and greater market volatility by reducing the flow of domestic lending. What lending did take place was directed to the top corporates, which had for some time been directly accessing international capital markets. This re-intermediation of the top corporates through the domestic banking system has continued to squeeze the small and medium-sized enterprises that have all but lost access to private credit. The pronounced slowdown in economic activity has not yet been fully reflected in banks’ balance sheets, and non-performing loans increased slightly to just above 10 percent at end-December 1998 from 9.5 percent in September 1998.11

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10The top 10 banks accounted for 69 percent of total deposits at end-1998, compared with 50 on the eve of the Mexican crisis. Foreign banks hold about 40 percent of total deposits.
11Net of provisions, nonperforming loans increased from 3.2 percent of total loans to 3.3 percent, over the same period. Moreover, banks continue to be well capitalized, with the capital adequacy ratio (calculated according to Basel rules) steady at 19.8 percent—well above international standards and the requirements of local legislation.
to securities faced a reduction in earnings or deferred the losses by shifting securities into investment accounts. In response to these developments, a few weak banks being taken over were allowed some time to bring their liquidity requirements up to the norm. In a further strengthening of the regulatory framework, capital requirements for market risk and changes to the accounting standards for securities—initially scheduled for 1998 and aimed at the elimination of the "available-for-sale" account—were implemented on March 1, 1999. The requirement that banks issue 2 percent of their liabilities as marketable debt securities was also implemented on that date, and banks that were unable to issue such securities at that time incurred an increase in both liquidity and capital adequacy requirements of 1 percentage point each.

**Brazil**

The generalized reassessment of international banks' exposure to emerging markets strongly affected the external liquidity position of Brazilian banks, but the pressures somewhat subsided after the arrangement of an IMF-led financial package in mid-November 1998 and its revision in mid-March 1999. Following a gradual process of reduction in international banks' exposures to Brazil in the third quarter of 1998, the process intensified between mid-October and mid-November 1998, and rollover rates on interbank credit lines for a group of 10 large international banks declined to less than 20 percent. The process of reduction in interbank exposures was particularly pronounced for international banks with significant local operations, a result of head offices' reduction of funding to local offices on concerns about a possible forced rollover. The announcement of the details of the authorities' IMF-supported adjustment program in mid-November allied these concerns, and rollover rates on interbank credit lines increased to more than 70 percent in December. The uncertainties surrounding the devaluation of the real prompted another reduction in the rollover of interbank credit lines to about 65 percent in January and February 1999, but in mid-March the authorities obtained assurances from several creditor banks on the maintenance of their interbank and trade credit lines to Brazilian borrowers for at least six months at levels outstanding at end-February 1999. Also, some large Brazilian banks regained access to the international bond market, with issuance rising to $850 million in the first half of 1999 (through end-May) compared with $2.2 billion in the same period of 1998 (and just $130 million in the second half of 1998).

Brazilian banks have weathered the economic downturn and market volatility reasonably well, and although analysts expect a deterioration in their financial fundamentals, most market participants perceive systemic risks to be relatively low. Most Brazilian banks adopted a cautious approach to new lending in response to the poor operating environment in 1998 and applied surplus liquidity to building up holdings of high-yielding short-term government securities. Nonperforming loans rose from 6 percent of the total loan portfolio in mid-1997 to 9.5 percent by end-1998, but the level of provisioning remained above 120 percent of total nonperforming loans. Most banks were protected against the devaluation by means of hedge mechanisms and long U.S.-dollar positions and recorded extraordinary profits during the first quarter of 1999. The ratio of nonperforming loans is expected to increase, especially in those banks with large U.S.-dollar-indexed leasing and consumer portfolios, and rating agencies worry about the repayment capacity of banks' borrowers and the fact that debt refinancings may not be adequately captured in the delinquency ratios. However, total loans account for a small part of the loan portfolio and banks continue to report capitalization in excess of both BIS and local requirements, which may cushion them against the expected increase in delinquencies. Considering the fact that banks are the main holders of government securities, with nearly 60 percent of the total stock, some analysts continue to perceive a government debt restructuring as the main risk to the banking system—but attach a very low probability to such event. Other analysts do not believe that there is any imminent risk of default by the federal government.

**Chile**

The low reliance of Chilean banks on short-term external financing shielded them against the external liquidity squeeze affecting most markets in the region, but the combination of a tightening of domestic liquidity and a sharp deterioration in economic activity damaged the banks' asset quality. To prevent a...
sharp peso depreciation following a severe terms of trade deterioration, the monetary authorities increased interest rates several times in the first three quarters of 1998, which adversely affected those banks whose liabilities repriced faster than their assets. As a result, profitability in the banking system fell during 1998, while lending increased only slightly and nonperforming loans increased to 1.5 percent in 1998 (from 1 percent in 1997). Nevertheless, provisions rose to 147 percent of impaired loans and the system capital adequacy ratio reached 12.5 percent of risk-weighted assets. Moreover, banks tightened underwriting guidelines and restricted lending to high-risk sectors such as consumer and middle-market. In response to market volatility, new regulations were introduced to allow banks to classify securities as held for trading (with unrealized gains and losses charged to earnings) or held to maturity (with unrealized gains and losses charged to equity), while all securities of less than one year maturity are marked to market.

Mexico

The Mexican banking system had a diminished role in the transmission of the international liquidity squeeze because its role in the credit process continued to shrink, and losses in securities portfolios prompted further official support for the sector. As the financial intermediation activities of the Mexican banking system stagnated after the crisis of the mid-1990s and gradually shifted offshore and to nonbank financial intermediaries, banks focused on purchasing government securities and only recently started to lend to the upper segment of the corporate sector. Also, banks had gradually extended the duration of their securities portfolios in the first half of 1998, demonstrating limited concern about downside risks. As interest rate spreads on emerging market securities widened in the aftermath of the Russian unilateral debt restructuring and the central bank tightened monetary policy, domestic interest rates rose sharply, and the ensuing losses in banks' securities portfolios wiped out the capital of some institutions and prompted the authorities to allow retroactive changes in the classification of securities in banks' portfolios—from trading (marked to market) to investment accounts (valued at cost). In addition, the central bank engaged in floating-for-fixed-rate swaps to adjust assets down.

offset the incentives created by unlimited guarantees and regulatory forbearance. The approval in December 1998 of the IPAB Law allows banking reform to go forward by providing a clearer institutional framework to address bank problems and a timetable for the phasing out of unlimited guarantees (see Box A3.3). During 1998, banks continued to be hampered by both economic and political factors, and profitability remained very low. While asset quality has improved since the Tequila crisis, bankers reported that during the past year, expectations of a further bailout program led debtors to reduce their debt-service payments, and past-due loans edged up to 11.3 percent of total loans by end-December 1998—from 10.7 percent at end-June 1998. Analysts argue that if banks were solvent and others seriously undercapitalized. In April 1999, the Bankers Association estimated that the industry must boost overall capitalization by at least $5 billion over the following 12 to 24 months to complete the unfinished cleanup of loan portfolios and to build up an adequate capital base to resume normal lending operations. More recently, Moody's estimated the capital gap of the system to be about US$13 billion.

In conjunction with the IPAB Law, the authorities approved the Punto Final program, which provides government-subsidized debt relief for mortgage holders, small and medium-sized businesses, and agricultural and fishing entities. Mexican banks have a large share of their assets frozen as a result of the FOBAPROA programs, and IPAB is set to convert the illiquid FOBAPROA notes into liquid securities. Also, the Law has lifted foreign ownership constraints in Mexican banks—prompting talk of a merger between the country's two largest banks—and has paved the way for the resolution of some smaller banks.

15Under the law passed in December 1998, the Fondo Bancario de Protección al Ahorro (FOBAPROA) liabilities were transferred to the Instituto de Protección del Ahorro Bancario (IPAB), which will have two units: one charged with liquidating the assets currently in the hands of FOBAPROA and another that will be responsible for deposit insurance.


17Moody’s estimates of economic capital in the Mexican banking system make a series of adjustments to reported capital, including (1) a more realistic view of certain impaired assets; (2) adjusting the unreserved portion of past-due loans; and (3) adjusting assets downward for intangibles and deferred tax credits. The agency believes that the estimates are conservative, and the exclusion of franchise values in the calculations is based on the severity of the legacy of impaired assets and the very weak capital-producing earnings after the 1994–95 crisis (see Moody’s, 1999c).

18Borrowers that are current or bring their accounts current by end-September 1999 will qualify for discounts of 45 percent for small business loans, 50 percent for mortgages, and 60 percent for farm and fisher's loan balances up to specified ceilings.
Venezuela

Instability in international markets, coupled with political uncertainties and tight monetary policy, precipitated an economic slowdown and a relatively pronounced deterioration in Venezuelan banks' asset quality, which is likely to accelerate the consolidation of an overbanked banking system. Although loan growth was very strong in 1997 and the first half of 1998, it slowed down considerably during the second half of 1998 as interest rates peaked and macroeconomic conditions worsened. Asset quality deteriorated, with nonperforming loans increasing to 5.5 percent by end-1998, up from 2.8 percent at end-1997. The ratio of provisions to nonperforming loans fell slightly to 123 percent of nonperforming loans, while the capital adequacy ratio increased to 17.7 percent by end-1998—from 13.3 percent and 16 percent, respectively, at end-1997. The deterioration in asset quality was larger in some small and medium-sized banks with sizable consumer loan portfolios, which continue to represent the system's main weakness. However, analysts believe that, given the structural improvements, this weakness would be more likely to intensify the trend to consolidation than to provoke a systemic crisis. The ratio of net worth to risk-weighted assets was 15.9 percent in March 1999, and liquid assets (reserves at the central bank, holdings of central bank paper, and net foreign assets) represented 36 percent of banks' total deposits. In addition, the authorities have taken measures to help accelerate the consolidation and have continued to improve the revamped regulatory and supervisory framework—including the marking to market of securities and inflation-adjusted accounting. Still, the system continues to be relatively inefficient, owing in part to high reserve requirements and deposit insurance contributions, as well as a recently approved tax on bank debits.

Central Europe

After 10 years of transition in the region, restructuring and privatization have strengthened the banking systems in Hungary and Poland more than that in the Czech Republic. The three banking systems continued to receive sizable foreign capital inflows, but exposures to Russia uncovered the fragilities of the largely state-owned Czech banks and have prompted the authorities to relaunch the bank privatization process. Capital inflows supported strong loan growth in Hungary and Poland, while competition has led to declining profits and a search for higher yields through lending to the small and medium-sized corporate and consumer segments. Losses in brokerage subsidiaries of foreign-owned banks in Hungary led to funding support from head offices in the wake of capital outflows during the Russian crisis, providing an example of the resilience afforded by this ownership structure. All countries have strengthened their regulatory and supervisory frameworks, but significant challenges remain as they face the prospect of full capital account liberalization and contemplate joining the EU. In particular, capital adequacy requirements need to be broadened to include the market risks and off-balance-sheet exposures that are growing in most countries.

Czech Republic

The onset of economic recession and exposures to Russia uncovered weaknesses in the Czech banking system and prompted the authorities to relaunch the bank privatization program and a revision of the regulatory framework. The Czech banks showed an increasing liquidity preference during 1998 and, as a result, total lending fell in real terms. Bank capital positions therefore improved, even though the operating environment deteriorated. While nonperforming loans remained stable at about 18.5 percent of total loans, the banks' average capital adequacy ratio rose to 12 percent at end-1998 from 9.5 percent at end-1997. Despite the stable asset quality, banks' profits in 1998 were negative for the second year in a row, with losses amounting to 0.2 percent of assets. This dismal performance led the authorities to relaunch the bank privatization program. Following the sale of one of the four large state-owned banks in early 1998, the government sold the fourth-largest bank in early June 1999 and announced a timetable for the privatization of the other two—to be completed in 1999. One of the latter two banks—indeed, the second-largest in the country—incurred large losses in Russian securities and derivatives markets and had to be recapitalized by the government at end-1998. The other is also likely to receive an injection of government funds to improve its risk profile in the run-up to privatization. A second revision to the Act on Banks, which strengthened bank licensing and supervision, became effective in September 1998, but more changes are needed to comply with the EU directives—including on accounting standards. Also, in June 1998 the central bank imposed stricter loan-loss-provisioning requirements, disallowing the netting out of collateral from loans overdue more than 365 days.

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Box A3.3. Deposit Insurance: Issues for Emerging Markets

Recent developments in emerging market banking systems have led to a reassessment of the optimal design of bank safety nets, in particular deposit insurance systems. Several academics and rating agencies have stressed that moral-hazard-driven lending played an important role in the Asian banking crises, adding to the existing evidence that explicit deposit insurance increases the probability of systemic banking problems. In part recognizing this role, many of the countries suffering from recent banking crises are considering or even have effective timetables to limit the coverage of their deposit insurance systems. In addition, the results of a recent survey suggest a trend toward the adoption of explicit deposit insurance systems, to make them compulsory (to avoid adverse selection), funded (but, in most cases backed up by governments), and to have risk-based pricing—all elements that improve the incentive effects of the deposit insurance system. However, despite some convergence to best practice among the emerging markets, improvements are still needed in many countries, and several proposals to improve the deposit insurance system have emerged.

Full Coverage During Crises and the Moral Hazard Issue

The immediate consequences of recent banking crises seem to support a strengthening of guarantees during crisis periods, but doubts remain on the feasibility of ameliorating the moral hazard effects during and after a crisis. The example of Indonesia, where the closure of only a few banks—when the solvency of many others was questionable on the basis of information available to depositors—led to bank runs, would suggest that less-than-full insurance under incomplete information on banks’ asset quality may be quite costly. However, private information about banks’ assets is one key feature of banking, and the historical evidence suggests that the fragility of banking systems in the absence of a government safety net may be overstated. Moreover, full coverage during crises means that guarantees are strengthened precisely when incentive problems are worse—that is, when banks’ capital is very low. Also, a tightening of supervision and regulation to prevent the “gambling for recovery” of insolvent banks may be economically undesirable and politically infeasible, as it would require banks to either raise capital in a very difficult environment or reduce loans in a procyclical way.

The recent experience of Mexico and Turkey provides clear examples of the problems created by extensive guarantees several years after a crisis. Both countries suffered severe banking crises in 1994–95 and established full deposit guarantees thereafter. The incomplete cleanup of their banking systems has meant that, as the international capital markets dried up last year, some small and insolvent banks raised interest rates to levels substantially above that of interest rates offered by larger and relatively more solvent banks. As the distortionary effects of the former banks’ pricing behavior in the interbank and money markets grew, the government reportedly provided assurances of official support in the case of one Mexican institution to ensure the availability of credit lines, and many Turkish banks were placed under enhanced surveillance.

Limited Deposit Insurance and the Exit Issue

In an attempt to balance the benefits of avoiding bank runs and the costs of increased risk-taking, many countries have limited deposit insurance coverage. Indeed, 62 out of 68 countries surveyed in Garcia (1999) already cover only a fraction of the depositors’ accounts, on the grounds that large, informed depositors would exert market discipline on the banks. Also, all of the Asian crisis countries—which are excluded from the survey—as well as Mexico, have announced their intention to limit the coverage of their deposit insurance schemes.

Although a precommitment to limit deposit insurance in countries that already have an explicit deposit insurance scheme entails some risks, it also helps focus reform efforts and muster the support to effectively clean up the system and make it more transparent. Japan is an example where the expectation that the full guarantee of deposits will be eliminated by 2001 has contributed to reform attention and efforts on restructuring and recapitalization.

Hungary

The strong growth in the external liabilities of the Hungarian banking system was slowed marginally in the aftermath of the Russian crisis, and the repercussions of the events in Russia on local capital markets demonstrated the resilience imparted by a strong foreign presence in the banking sector. Banks’ foreign liabilities increased by 18 percent (adjusted by the forint depreciation) in 1998, despite declining marginally in the period after the Russian crisis. The Russian crisis and its spillovers to Hungarian money...
The functional approach is based on the view that there are significant costs in maintaining the current institutional structure. It holds that an efficient solution is for commercial lending to be financed by standard instruments such as debt, preferred stock, and equity, and for deposit insurance to be limited to institutions or accounts that collateralize demand deposits with liquid, riskless securities—such as U.S. treasury securities. This proposal is similar to the "narrow-banking" proposals, but allows institutions that take transaction/demand deposits to also engage in other financial activities, including risky lending. It avoids the difficulties inherent in an effective marking to market of the early intervention/closure proposals, but is subject to the credibility problem that, in the event, other liabilities used to finance loans may end up also being fully guaranteed by the government.

The market-discipline approach attempts to combine government deposit insurance and regulation, with monitoring and discipline imposed by the market. The key to this approach is to require banks to maintain minimum ratios of subordinated debt relative to insured deposits, such that private agents that do not share on the upside of bank risk-taking behavior have an incentive to constrain that behavior. The proposal requires that the subordinated debt be rolled over gradually—to avoid sudden rollover crises and allow time for corrective action; that it be subject to a maximum spread over a riskless instrument and that it be held by parties unrelated to the bank holding company or the government—preferably, by foreign banks or institutional investors. Argentina has implemented some of the elements of this proposal, together with the requirement that banks obtain and make publicly available ratings from two well-established private rating agencies. Although some Argentine banks have had difficulties issuing such subordinated debt, this was a result of the currently difficult international environment—which has restricted access to most private entities—and the good reception of the Thai hybrid capital instruments—which include a subordinated debt component (see Box A3.2)—suggest that it may be feasible for emerging markets to follow this approach.

*See Calomiris (1999).*  
*See Merton and Bodie (1993).*  
*See Calomiris (1997, 1999).*

The recent proposals to modify the Basel Accord incorporate the use of credit ratings for all sovereign lending and for a limited amount of corporate lending (see Chapter IV).

and capital markets resulted in a decrease in profits and substantial shifts in banks' balance sheets. The share of foreign currency assets rose to 36 percent of total assets at end-1998—roughly the same as that of foreign currency liabilities—from 30 percent at end-June 1998, led mostly by strong growth in foreign-currency-denominated loans. Also, the share of government securities increased to 14 percent of total assets, from 11 percent at the end of the first half of the year. Banks experienced a significant decrease in profits, owing to a deterioration in the quality of their portfolios, the introduction of country risk provision-
ing, and losses in trading and brokerage operations. Problems at banks' brokerage subsidiaries, as a result of defaults of highly leveraged retail investors, did not lead to many closures, as parent banks—including the head offices of many foreign banks, which dominate the Hungarian banking sector—transferred funds to support their securities subsidiaries. Brokerage losses and the failure of the second-largest retail bank—which was recapitalized by the authorities at year-end—prompted changes to a still well-regarded supervisory and regulatory framework.

Poland

International bank exposure to Polish banks increased during 1998, in part owing to the stable bank relationships with western European banks and the prospects of EU accession, and contributed to strong lending growth. Strong capital inflows led to persistent excess liquidity in the banking system, which was offset by central bank sterilization and through the maintenance of high reserve requirements. Combined with strong competition, this fueled aggressive credit growth—especially in foreign-currency-linked loans to (generally unhedged) borrowers; strong growth in off-balance-sheet activities, albeit from very low levels; and a 35 percent decline in net profits. Restrictions on foreign participation in the banking sector were lifted early last year, and as of end-1998 foreign banks with wholly owned subsidiaries or major equity stakes in privatized banks accounted for 44 percent of total share capital. Foreign ownership is bound to increase substantially with the privatization of the country's largest bank by mid-1999 and that of the last of the nine regional banks later in the year. As a result of the growth in off-balance-sheet positions, the authorities have introduced prudential regulations to limit derivative transactions to 30 percent of equity and have extended solvency requirements to encompass counterparty risks related to off-balance-sheet positions. Although securities are almost one-third of the banks' balance sheet, no capital adequacy requirements for market risk have yet been implemented. Also, while the Polish banking system is evolving rapidly toward a universal banking model, financial sector supervision in Poland is not carried out on a consolidated basis.

Turkey

The Turkish banking system faced increased funding and credit risks during 1998, owing to curtailed access to international funding by the lower-tier banks, higher domestic interest rates, and an economic downturn. However, the strength of a core group of well-managed top-tier banks, the treasury's readiness to accept high interest rates, and the stability of the depositor base allowed the banking system to weather the global crisis well. Despite substantial capital outflows in the aftermath of the Russian crisis, external liquidity pressures abated in the last quarter of 1998, and international syndicated loans to the top-tier Turkish banks were rolled over at a higher-than-expected rate. The predominant reason for the renewal of credit lines was relationship banking with international banks, aided by the sophisticated and flexible risk management of the top-tier banks and the treasury's readiness to accept high interest rates in the scheduled bills and bond auctions. The high domestic interest rates have raised questions about the dynamics of the government's debt, but this has so far not been a key concern with the domestic investor base. Domestic depositor confidence was supported by the blanket guarantee of deposits, which allowed some smaller banks and the state-owned banks to offer above-market interest rates to attract deposits (see Box A3.3). Despite concerns about the available resources of the deposit insurance fund, the interventions in two banks that experienced runs were relatively smooth, and some twelve unidentified banks have reportedly been on the treasury's watchlist of financially weak institutions. The maturity mismatch in the sector is not large—except for a few banks that rely heavily on repo transactions—but the large currency mismatch remains a source of concern, despite the tighter regulations that attempt to bring the open positions to 30 percent of equity. As the economy slowed down, asset quality—widely perceived to be overestimated—deteriorated, with the biggest credit risk being the concentration of intragroup lending and guarantees that are not readily apparent in the analysis of banks accounts. Market analysts see the approval of a new banking law that calls for the establishment of an independent bank supervisory body as a crucial step toward reforming the Turkish banking system.

References


22Turkish banks are the treasury's largest creditors as they hold an estimated three-fourths of the lira-denominated government debt. Because of the importance of government securities in the banks' portfolios, any disturbance to the domestic treasuries market entails serious liquidity risks for the banks.

23The real level of problem loans is estimated to be a multiple of the banks' reported ratio of 2 percent of total loans, once restructured credits and bad loans to state enterprises are included.
Brock, Philip, ed., 1992, "If Texas Were Chile: A Primer on Banking Reform" (San Francisco, California: Institute for Contemporary Studies Press).


Annex IV

Proposals for Improved Risk Management, Transparency, and Regulatory and Supervisory Reforms

Dynamic changes in financial institutions and capital markets are posing increasingly complex challenges for financial regulation and supervision. Wider circles of counterparties now interact with each other in a larger number of business lines; financial instruments have become more complicated; and financial intermediation relies increasingly on fast-changing financial markets. Consequently, the distinction between commercial banks, securities firms, insurance companies, and other financial institutions has become blurred, and large diversified financial conglomerates have been created that span the spectrum of financial services and global markets. Highly leveraged activities and institutions engaged in these activities, including unregulated hedge funds, have emerged on a scale that could pose systemic risks. All in all, financial innovation (especially off-balance-sheet activities) and globalization may have reduced the transparency of the global financial system and increased challenges for market participants and supervisory agencies alike. This annex briefly describes the proposed revisions to the Basel Accord on Capital Adequacy and the newly established Financial Stability Forum and then summarizes regulatory and supervisory developments during the past year in the following areas: (1) risk management and internal control systems; (2) disclosure and market discipline; (3) HLIs, including hedge funds; and (4) the supervision of financial conglomerates and international accounting standards (see Table A4.1). The summary focuses on the broad issues and does not cover regulatory developments in particular countries.

Most of the regulatory and supervisory issues are part of the wider agenda on the international financial architecture. Key pillars of the reform agenda are the development, dissemination, and adoption of internationally recognized standards, and the promotion of greater private sector transparency to bolster market discipline. In the wake of the 1997 Asian crisis, numerous regulatory initiatives were proposed, mostly targeted at setting global standards and guidelines that are in many cases derived from practices in developed countries. These standards were gathered in the Core Principles for Effective Banking Supervision and have recently been extended in some areas, such as bank transparency. In addition, the 1998 financial market turbulence and in particular the near-collapse of LTCM spawned a wave of regulatory and supervisory reports, guidelines, and forums in both the public and private sectors that are primarily directed at improving risk management, strengthening market discipline by increased transparency and disclosure, improving oversight of banks' interaction with HLIs, and enhancing consolidated supervision of financial conglomerates.

The supervisory authorities strive to bring regulatory standards up to date with financial innovations that often seem a step ahead. To adapt regulations flexibly to the increasing pace of innovation and change, supervisors have shifted away from specific regulatory rules and have moved toward a more risk-focused approach to regulation. A key development is the proposed revision to the 1988 Basel Accord on Capital Adequacy that aims at correcting weaknesses in the existing capital regulations and would adapt them to financial innovations and changed banking practices. The consultative paper A New Capital Adequacy Framework, issued by the Basel Committee on Banking Supervision in June 1999, proposes capital adequacy rules that would be more closely aligned with risk profiles. The new framework would rest on three pillars: minimum capital requirements that expand the “standardized approach” in the current Accord; supervisory review of a bank’s capital adequacy and internal assessment processes; and strengthened market discipline as a lever to encourage prudent and sound banking practices. The Committee proposes to use external credit assessments for determining risk weights for claims on sovereigns and banks, and to some extent for claims on corporates. For some sophisticated banks, the Committee believes that, subject to supervisory approval, internal ratings could form the basis for setting capital charges more closely aligned with underlying...
Table A4.1. Key International Supervisory and Regulatory Reports and Guidance Notes

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<thead>
<tr>
<th>Subject</th>
<th>Document</th>
<th>Date Issued</th>
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<tr>
<td>Capital Adequacy</td>
<td>A New Capital Adequacy Framework</td>
<td>June 1999</td>
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<tr>
<td>Risk Management and Internal Controls</td>
<td>Credit Risk Modelling: Current Practices and Applications</td>
<td>April 1999</td>
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<td>Framework for Internal Control Systems in Banking Organisations</td>
<td>September 1998</td>
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<td></td>
<td>Operational Risk Management</td>
<td>September 1998</td>
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<td></td>
<td>Risk Management and Control Guidance for Securities Firms and Their Supervisors</td>
<td>May 1998</td>
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<tr>
<td>International Organization of Securities Commissions (IOSCO)</td>
<td>Supervisory Letter 99-3</td>
<td>February 1999</td>
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<tr>
<td>Institute of International Finance</td>
<td>ISDA 1999 Collateral Review</td>
<td>March 1999</td>
</tr>
<tr>
<td>International Swaps and Derivatives Association (ISDA)</td>
<td>Recommendations for Public Disclosure of Trading and Derivatives Activities of Banks and Securities Firms</td>
<td>February 1999</td>
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<tr>
<td>Disclosure and Market Discipline</td>
<td>Enhancing Bank Transparency</td>
<td>September 1998</td>
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<tr>
<td>Basel Committee on Banking Supervision and the IOSCO Technical Committee</td>
<td>Supervisory Information Framework for Derivatives and Trading Activities</td>
<td>September 1998</td>
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<td>Highly Leveraged Institutions (HLIs)</td>
<td>Banks’ Interactions with Highly Leveraged Institutions</td>
<td>January 1999</td>
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<tr>
<td>Basel Committee on Banking Supervision</td>
<td>Sound Practices for Banks’ Interactions with Highly Leveraged Institutions</td>
<td>January 1999</td>
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<tr>
<td>United States President’s Working Group on Financial Markets</td>
<td>Hedge Funds, Leverage, and the Lessons of Long-Term Capital Management</td>
<td>April 1999</td>
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<tr>
<td>Deutsche Bundesbank</td>
<td>Hedge Funds and Their Role in the Financial Markets</td>
<td>March 1999</td>
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<tr>
<td>Reserve Bank of Australia</td>
<td>Hedge Funds, Financial Stability and Market Integrity</td>
<td>March 1999</td>
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<tr>
<td>Supervision of Financial Conglomerates and International Accounting Standards</td>
<td>Financial Instruments: Recognition and Measurement</td>
<td>March 1994</td>
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<tr>
<td>International Accounting Standards Committee</td>
<td>Supervision of Financial Conglomerates</td>
<td>February 1999</td>
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<td>Basel Committee on Banking Supervision</td>
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The financial turbulence of 1998 revealed scope for strengthening efforts to identify incipient vulnerabilities in national and international financial systems. To that end, the Financial Stability Forum was established in February 1999 (following the Tietmeyer Report to the G-7 Finance Ministers). It comprises representatives of national and international authorities responsible for questions of financial stability (ministries of finance, central banks, and supervisory authorities of, initially, the G-7 industrial countries, and representatives from international financial institutions and international regulatory groupings). While there is a multitude of national and international bodies that regularly monitor aspects of financial system stability, none was thought to have the breadth of information and capacity to assess evolving risks comprehensively. Regulatory bodies deal primarily with micro-prudential issues pertaining to the stability of individual institutions, but it has become increasingly important to consider micro-prudential policies in a

4In addition, representatives from Australia, Hong Kong SAR, the Netherlands, and Singapore have been invited to participate in the Forum’s meeting on September 15, 1999.
wider market-based setting. The Forum would also identify gaps in international standards and codes of conduct and ensure that consistent international rules and arrangements apply across all types of significant financial institutions. Three working groups have been established. One working group has been asked to recommend measures to reduce the destabilizing potential of HUs. A second working group will evaluate measures to reduce the volatility of capital flows and the risks of excessive short-term external indebtedness. The third working group will investigate the impact of offshore financial centers on global financial stability and assess progress in enforcing international prudential standards by offshore centers.

Proposals to Strengthen Risk Management and Internal Control Systems

Market disturbances in 1997 and 1998 revealed weaknesses in counterparty credit risk and market risk assessments. Analyses since the market turbulence have noted that risk management systems failed in part because of technical weaknesses—for example, correlations across market prices behaved erratically and other key assumptions underlying the techniques proved incorrect. The interaction of financial institutions with hedge funds and other HUs also revealed the close link between market risks and credit risks. Moreover, seemingly adequate amounts of collateral and margins proved insufficient. These and other shortcomings point to the need to also improve internal control systems. The major challenge is therefore how to adapt risk management tools and internal controls to increasingly global and interrelated markets, new financial products, and potentially more volatile market conditions (including the potential loss of market liquidity).

New supervisory initiatives that have recently been brought under way also aim at narrowing the gap between leading-edge risk management practice and the average industry standard. In part owing to significant losses at some banking institutions, banking supervisors are putting more emphasis during inspections on the review of a banking organization’s risk management and internal control processes. To underpin these efforts by national supervisors, international forums of regulatory authorities (such as the Basel Committee on Banking Supervision and the International Organization of Securities Commissions (IOSCO)) and private groups (such as the IF and the Counterparty Risk Management Policy Group) have drafted reports and guidelines on various aspects of risk management.

Public Sector Reports

The Basel Committee’s report on Credit Risk Modelling: Current Practices and Applications (April 1999) assesses the state of the art in credit modeling with a view to judging whether existing credit risk models could be used in the regulatory oversight of banking organizations and whether internal credit modeling approaches could serve as the basis for formal regulatory capital requirements to cover credit risk. To be used for that purpose, the report emphasizes that models should be “conceptually sound, empirically validated, and produce capital requirements that are comparable across institutions.” At this point, the Basel Committee sees significant hurdles, principally concerning data availability and model validation. As to data limitations, most credit instruments are not marked to market, and credit risk predictions can typically not be derived from statistical projections of future prices based on a comprehensive record of historical prices. The validation of credit risk models is more difficult in part because backtesting needs to rely on a longer time horizon (typically one year or more) than market risk models (a few days).

The Basel Committee’s Framework for Internal Control Systems in Banks (September 1998, previously issued for consultation in January 1998) complements the Basel Core Principles on issues of internal controls. Recognizing that sound internal controls are essential for the prudent operation of banks and for promoting financial system stability, the paper emphasizes that an effective system of internal controls must be consistent with the nature, complexity, and risk inherent in the bank’s on- and off-balance-sheet activities. It outlines 13 principles for use by supervisors to evaluate banks’ internal control systems. The principles stress the role of management oversight in understanding the major risks run by a bank, and in taking steps necessary to identify, measure, monitor, and control these risks. A precondition is that the material risks that could adversely affect the bank are being recognized and continually assessed. Control activities should be an integral part of daily activities of a bank, with controls defined at every business level. The principles also stress that reliable information systems and effective communication channels should be in place. The paper recommends that the effectiveness of the banks’ internal controls be monitored on an ongoing basis by an internal audit unit that reports directly to the board of directors or its audit committee.

The Basel Committee’s paper on Operational Risk Management (September 1998) reports the results of a survey among some 30 major banks. While there is no universally agreed upon definition of operational risk, it is largely considered to be risk arising from human or technical error. Managing operational risk is becoming more difficult as financial instruments and institutions become more complex. Many banks in this survey expected most operational risk events to be associated with internal control weaknesses or lack of compliance with existing internal control procedures. The survey also indicates that while awareness of op-
Proposals to Strengthen Risk Management and Internal Control Systems

Operational risk among senior bank management was increasing, banks were only in the early stages of developing operational risk measurement and monitoring systems. Some conceptual difficulties that need to be overcome stem from the fact that, unlike market and credit risk, operational risk factors are largely internal to the bank. In light of these problems, many banks thought that the processes were not sufficiently developed for bank supervisors to mandate guidelines specifying particular measurement methodologies or quantitative limits on operational risks.

The IOSCO document on Risk Management and Control Guidance for Securities Firms and Their Supervisors (May 1998)—like the Basel Committee paper on internal controls—provides guidance to securities firms and supervisors about internal controls and risk management. It echoes many of the themes in the Basel documents and outlines recommendations and identifies elements of effective risk management and control systems designed to serve as benchmarks. The recommendations stress that controls should be set and monitored at the senior management level. Risk management and controls should include loss tolerance limits at the level of the firm and individual trading desks and should cover market, credit, and operational risk, as well as liquidity and legal risk. Written documentation on control procedures should contain general guidance at the most senior levels and more specific and detailed guidance for smaller business units and trading desks. Firms and supervisors should ensure that control policies, once established, are effectively applied and keep pace with new products and industry technology. Firms also need to establish mechanisms that ensure that inadequacies and breakdowns in controls are reported to senior management on a timely basis.

The U.S. Federal Reserve and the U.S. Office of the Comptroller of the Currency (OCC) have issued guidance notes on risk management that echo many of the messages contained in international regulatory initiatives. In the U.S. Federal Reserve Supervisory Letter 99-3 (February 1, 1999), the Federal Reserve points to "substantive lapses in fundamental risk management principles regarding counterparty risk assessments, exposure monitoring, and the management of credit risk limits" revealed by the turbulence in both emerging and mature markets during 1997 and 1998.

The Federal Reserve provides guidance on two elements of counterparty credit risk management that may need special attention: adequate internal policies and sufficient internal controls to ensure that practices comply with these policies. As to the assessment of counterparty creditworthiness, supervisors and examiners should pay close attention to the appropriateness, specificity, and rigor of the policies, procedures, and internal controls used to assess counterparty risks. In particular, general policies that broadly apply to all types of counterparties may prove inadequate, as the example of hedge fund counterparties has demonstrated. Examiners should ensure that bank policies address the risk profiles of particular types of counterparties and instruments. Internal controls, in the form of periodic independent reviews by internal auditors, are necessary to ensure that practices conform with stated policies. As to the measurement of credit risk exposures, the standard calculation of potential future exposures can be inadequate and may need to be supplemented by more realistic measures of collateralized exposures in times of market stress. Credit enhancements, such as collateral arrangements and contractual closeout provisions, can mitigate but cannot eliminate credit risks. Institutions should ensure that over-reliance on collateral does not compromise other elements of sound counterparty credit risk management, such as due diligence. Examiners should focus special attention on meaningful exposure measures, exposure monitoring, and limit systems, which are considered central to the effective management of counterparty risk.

In the same vein, the OCC Bulletin 99-2 (issued on January 25, 1999) provides new risk management guidance on derivative and other bank activities. It highlights weaknesses in existing risk management systems and identifies sound practices for banks’ derivatives and trading activities. While the bulletin focuses primarily on credit risk, it also addresses other sources of risk, including market, liquidity, transaction, and compliance risks. The OCC outlines five key risk management principles:

- Banks must fully understand the strengths and weaknesses of their risk management systems.
- Risk outputs (e.g., value at risk) must be stress tested. Stress testing is an essential component of the market and credit risk management process, and requires the continuing attention of senior management.
- Due diligence, careful customer selection, and sound credit risk management—not competitive pressures—should drive the credit decision process.
- Risk oversight functions must possess independence, authority, expertise, and corporate stature to provide to senior management effective early warning of negative market trends.

Private Sector Reports

Parallel to official reports and guidelines, private institutions and ad hoc working parties are also analyzing the issues surrounding risk management practices. In March 1999, the IIF and the International Swaps and Derivatives Association (ISDA) released reports on risk management and collateral management, respectively. Recently, the Counterparty Risk Management Policy Group, which had been formed by 12 large financial institutions, published a comprehensive list of recommendations.
The Counterparty Risk Management Policy Group (co-chaired by Gerald Corrigan, Goldman Sachs, and Stephen Thieke, J.P. Morgan) released its report on *Improving Counterparty Risk Management Practices* in June 1999. The report contains a set of recommendations for effective management of counterparty credit risk, market risk, and liquidity risk. The Group emphasizes the need for constant adaptation and modification of risk management practices as financial environments evolve. The Group is, therefore, critical of any attempt to codify risk management practices. The quality of risk management is not only viewed as a matter of improving the sophistication and precision of risk estimation models but also as dependent on experience and sound judgment. The Group links the key elements of its recommendations through a conceptual framework that rests on six building blocks:

1. **Information sharing between counterparties (particularly credit providers and credit users)** constitutes the foundation of effective risk management. The Group therefore proposes to intensify the exchange of information, but it recognizes that the required intensity of information sharing is a function of, inter alia, the credit exposure, the liquidity of the underlying transactions, and the degree of independent oversight of the counterparty. The paper proposes safeguards to protect proprietary client information.

2. **The Group outlines an integrated analytical framework for assessing the consequences of leverage on various forms of risk, including credit, market, and liquidity risk.** It points out that leverage is not a separate source of risk but a factor that can amplify market and credit risk. Financial institutions should take steps to manage the magnifying effect of leverage on their market risk, funding arrangements, and asset liquidity risk.

3. **Measures of counterparty exposures should include liquidity-based potential exposures that take account of the potential for adverse price movements and the liquidity characteristics of contracts and collateral.** Stress tests should be based on meaningful customized scenarios. These tests have to be integrated into the firm’s risk management process so that risk managers together with trading and credit managers develop stress scenarios that probe for vulnerabilities within and across key portfolios.

4. **Strong internal credit practices should combine the various risk elements and take account not only of current creditworthiness but also of potential future exposures.** Credit intensive transactions with counterparties that rely heavily on leveraged portfolios should be supported by initial collateral. Appropriate internal cost allocation and valuation practices of counterparty credit risk could provide incentives for traders and credit risk managers to manage counterparty risks proactively.

5. The Group notes scope for improved information for senior management and, potentially, for the regulatory authorities. An independent risk management function should provide relevant information to enable top management to monitor the firm’s risk profile. Senior management should convey clearly the overall tolerance for risk. Financial institutions with significant counterparty risk and market risk exposure should be prepared to meet informally with their primary regulator to discuss their principal risks. Clear understandings between the financial institution and its supervisor should detail permissible use of such information.

6. The Group identifies scope for improvements and harmonization in standard industry documents, including the need to ensure that netting arrangements can be carried out in a timely fashion. Financial institutions should have in place written policies to manage documentation risk.

The report contains a set of recommendations for both financial institutions and policymakers. Financial institutions are advised to perform comprehensive stress testing regularly to assess the potential impact of extreme events on portfolios and risk profiles. The report also urges integration of country economic analysis with stress testing and scenario analysis. Communication between senior management, portfolio managers, and line managers needs to be adequate, and a strong independent risk control unit should be in place. Methods need to be developed to improve the integration of market and credit risk, and the understanding of the relationships between market movements, liquidity risk, and credit risk. To strengthen public policy, the IIF advocates changes in regulation to enhance transparency in financial markets (including consolidated financial statements), which is viewed as essential to determine potential credit exposures. Emerging market countries should issue long-dated domestic debt instruments and eliminate impediments to the development of local capital markets. Robust legal frameworks need to clarify bankruptcy proceedings and enforce netting arrangements.

The International Swaps and Derivatives Association, as part of its 1999 *Collateral Review*, issued an assessment of how collateral management performed during the periods of market volatility in 1997–98. The review finds that the use of collateral proved to be a successful risk-mitigating tool, but also emphasizes that it creates risks of its own, primarily legal and operational risk. Other risks can arise from asset concentrations and correlations between an underlying exposure and collateral to mitigate that exposure, as well as potential difficulties in selling collateral assets. In light of the survey results, the ISDA provides a series of guidelines and best practices for managing collateral effectively.
of recommendations concerning, inter alia, the management of the risks associated with collateral, dispute resolution, initial margins, and cross-product netting and collateral use.

**Disclosure and Market Discipline**

Meaningful, accurate, and timely information provides an important foundation for the decisions of market participants and thus is indispensable for imposing market discipline on the conduct of financial institutions. The national and international proposals focus on several aspects of the connection between disclosure and transparency. They emphasize that to achieve transparency the information must be timely, accurate, and relevant to users trying to make proper assessments about financial institutions and their risk profiles. Well-informed market participants can bolster financial institutions’ incentives to operate prudently and can reinforce effective supervision and regulation. Lack of transparency may also be a source of excessive price movements, because asymmetric information can contribute to herd behavior (when some investors’ valuation of assets are based not on fundamentals but rather on their expectations of the behavior of others). By contrast, the reports indicate, promptly disclosed and disseminated information can enable market participants to react more appropriately before economic difficulties reach the point of having systemic implications. Recent initiatives recognize this channel for potentially beneficial interaction of prudential supervision and market discipline in promoting financial stability.

Concerning public disclosure, the Basel Committee and the IOSCO Technical Committee jointly issued a consultative paper on *Recommendations for Public Disclosure of Trading and Derivatives Activities of Banks and Securities Firms* (February 1999). The recommendations relate to two areas: information on trading and derivatives activities, and disclosure of internal risk measurements. The Committees emphasize that institutions should disclose meaningful summary information, both quantitative and qualitative, on the scope and nature of their trading and derivatives activities and information of the major risks associated with these activities. Second, institutions should disclose information produced by their internal risk management systems about their risk exposures and the actual performance of exposure management.

The Basel Committee’s guidance note on *Enhancing Bank Transparency* (September 1998) complements the Basel Core Principles in this area. The guidelines are based on the premise that there are significant benefits of transparency from a supervisory point of view as well as from a financial stability perspective. The report provides recommendations—albeit rather general—in six broad categories of information: financial performance, financial positions (including capital), risk management practices, risk exposures, accounting policies, and management and corporate governance. The document provides general guidance to banking supervisors, legislators, and standard setters to improve the regulatory framework for supervisory reporting and public disclosure, and to the banking industry on standards for public information disclosure. The report points out that enhanced public disclosure allows market discipline to work earlier and more effectively, thus reducing the severity of market disturbances. Conversely, market disruptions are likely to be greater if the flow of information is irregular. But the report also acknowledges potential drawbacks of public disclosure, including the potential for market overreaction to adverse information about a bank and the possibility of contagion that could spread to healthy institutions. But the report claims that contagion is less likely “in an environment of adequate ongoing disclosure.”

Specifically on supervisory information, the Basel Committee and the IOSCO Technical Committee jointly released a revision to the *Supervisory Information Framework for Derivatives and Trading Activities* (September 1998). In a continuing effort to monitor the trading and derivatives activities of banks and securities firms, this revised standard (to the 1995 framework) is designed to bring the framework in line with current practice in risk management, particularly market risk. The new supervisory framework presents first a catalogue of data considered important for an evaluation of risks. Second, a common minimum framework, designed to serve as an internationally harmonized baseline, contains information items useful for assessing institutions’ involvement in derivatives activities and their credit risk and for assessing market risk inherent in trading and derivatives activities.

Among ongoing initiatives are the activities by the *G-10 Committee on the Global Financial System* (formerly the Euro-currency Standing Committee) and its various working groups. The Working Group on Enhanced Disclosure by Individual Institutions (the “Fisher Group,” chaired by Mr. Peter Fisher of the Federal Reserve Bank of New York) aims to increase transparency and strengthen market discipline by determining useful disclosure standards and practices. The working group’s mandate is to identify information suitable for public disclosure that would provide an accurate picture of an institution’s exposure to market and credit risk; to explore good practices for public disclosure; and to identify steps toward implementation of such practice. The working group is developing a model template for public disclosure that
would include information on credit, market, and liquidity risk (such as the aggregate VaR). Another working group, the Working Group on Enhanced Transparency Regarding Aggregate Positions (the “Patat Group,” headed by Mr. Jean-Pierre Patat of the Banque de France), is investigating the usefulness of aggregate position data for improving financial system transparency, particularly given the large number of OTC trades. The working group is also analyzing foreign exchange positions in small markets to examine whether concentrations in holdings can be identified as precursors to market turbulence.

**Highly Leveraged Institutions**

Last year’s financial turbulence, and in particular the near-collapse of LTCM, has cast the spotlight on the highly leveraged activities of largely unregulated hedge funds and revealed potential systemic risks for the global financial system. An important issue raised by the LTCM incident and highlighted by several reports is the control of leverage and risk taking by unregulated financial institutions so that they do not become a source of systemic risk. But transactions with HLIs pose special challenges to the risk management process of counterparties, given the opaqueness of the activities of HLIs and the dynamic nature of their trading strategies. In particular, standard accounting and balance-sheet concepts do not reveal meaningful details about a fund’s risk profile and concentration of exposures in certain markets.

Since the turbulence revealed a breakdown of the disciplining power of market forces, supervisors and regulators have embarked on efforts to promote market discipline, guided by the view that it presents the most immediate and effective way to minimize the potential for systemic risks arising from the activities of HLIs. International supervisors have recommended that market discipline be made more effective by improving risk management practices of creditors and counterparties of hedge funds and by increasing disclosure of information on the risk profiles of hedge funds and their creditors—to the extent that a hedge fund’s proprietary information is not compromised. Timeliness of disclosure is particularly important since funds can alter their positions quickly and frequently.

Except for some debate coming out of Europe, direct regulation of HLIs, by contrast, is currently not being considered since most regulators are concerned that it would significantly weaken market discipline by creating and exacerbating moral hazard. It would also risk moving HLIs offshore—beyond the reach of any substantive (indirect) supervision. However, as explicitly stated by the Basel Committee on Banking Supervision and by the U.S. President’s Working Group on Financial Markets, the indirect approach, which relies on the risk management of HLI counterparties, does not exclude the possibility of introducing more direct regulation of HLIs if the indirect measures prove to be insufficient.

A Working Group of the Basel Committee, chaired by Mr. Jan Brockmeijer, released a report on Banks’ Interactions with Highly Leveraged Institutions (January 1999), which evaluates the potential risks from the activities of HLIs, assesses deficiencies in banks’ risk management practices vis-à-vis HLIs, and evaluates alternative policy responses to address these risks. The report concludes that recent events, most notably the near-collapse of LTCM, have highlighted deficiencies in banking institutions’ risk management. It therefore urges supervisors to put in place incentives, procedures, and standards to encourage prudent management of bank exposures to HLIs. The report identifies deficiencies in due diligence procedures and in the ongoing exposure monitoring. As a result of limited financial information, credit decisions were, to some degree, based on nonsystematic and largely qualitative assessments of risks and on the reputation and perceived risk management capabilities of the HLIs concerned. Collateral management systems appeared to adequately provide cover for direct exposures, but not necessarily for secondary market exposures. Banks generally obtained little information on HLIs’ off-balance-sheet exposures or risk management strategies.

The report compares features of possible indirect and direct policy measures for HLIs. Concerning indirect approaches, which would focus on the major counterparties of HLIs, the report concludes that many of the risks associated with HLIs can be addressed through better risk management at banks and securities firms. The report recommends standards for sound practices in dealings between banks and HLIs, and a more comprehensive due diligence process and stress testing, as well as improved measures of potential future exposure. The Committee notes that more prudent risk management by banks could also limit the leverage of HLIs. Among measures to enhance the transparency of HLI activities, the report discusses, inter alia, public disclosure by global players and a credit register for bank loans to HLIs. According to the report, direct regulation of HLIs, such as through licensing requirements and minimum standards for capital and risk management, may be necessary, if the indirect measures together with enhanced transparency should prove to be insufficient. The report notes, however, key obstacles for direct regulation, in-
including arriving at a workable definition of HLIs and establishing jurisdiction over the activities of institutions that are located in offshore centers.

In a companion paper, the Basel Committee outlined Sound Practices for Banks’ Interactions with Highly Leveraged Institutions (January 1999). The paper contains sound practice standards for the management of counterparty credit risk inherent in banks’ trading and derivatives activities with HLIs. Among other items, these sound practices call upon banks to:

• establish clear policies and procedures governing their involvement with HLIs;
• adopt credit standards addressing the specific risks associated with HLIs;
• develop meaningful measures of potential future exposure resulting from trading and derivatives transactions;
• establish meaningful overall credit limits, incorporating the results of stress testing;
• link credit enhancements, including collateral and early termination provisions, to the specific characteristics of HLIs; and
• frequently monitor exposure vis-à-vis HLIs.

The report Hedge Funds, Leverage, and the Lessons of Long-Term Capital Management by the U.S. President’s Working Group on Financial Markets (April 1999) focuses on the systemic issues raised by hedge funds and points out that the impact of HLIs on market dynamics needs further study. The report concludes that the central policy issue raised by the events in global financial markets in the summer and fall of 1998 is how to constrain excessive leverage more effectively—an issue not limited to hedge funds. The Working Group recommends a number of measures to constrain excessive leverage. These measures are designed to improve transparency in the system, enhance private sector risk management practices, develop more risk-sensitive approaches to capital adequacy, support financial contract netting in the event of bankruptcy, and encourage offshore financial centers to comply with international standards. The Working Group does not recommend direct government regulation of hedge funds at this time. However, it indicates that if indirect approaches are not effective, direct regulation may be given further consideration. Specific recommendations were made in the following three areas.

Public disclosure
• Hedge funds should be required to disclose their financial statements to the public; and
• all public companies, including financial institutions, should publically disclose a summary of their direct material financial exposures to significantly leveraged financial institutions.

Risk management
• Financial institutions should enhance their practices for counterparty risk management (the report suggests areas where private risk management can be strengthened);
• regulators should encourage improvements in the risk-management systems of regulated entities; and
• regulators should promote the development of more risk-sensitive but prudent approaches to capital adequacy.

Other areas
• Regulators’ authority to obtain financial information about unregulated affiliates of broker-dealers and futures commission merchants should be enhanced;
• the close-out netting regime for financial contracts should be reformed;
• the interplay between bankruptcy laws across countries should be improved; and
• through stronger incentives, offshore financial centers should be encouraged to comply with international standards.

A report by the Deutsche Bundesbank on Hedge Funds and Their Role in the Financial Markets (March 1999) points out that, on balance, hedge funds contribute to greater market efficiency but their investment strategies may contain specific risks. The available evidence, the article notes, suggests that hedge funds played a major role in the 1992 ERM crises but that appeared not to be the case in recent episodes of financial turmoil such as the Mexico crisis and the East Asian crisis. The systemic risks associated with hedge funds depend crucially on the degree of the financial integration of the funds with the banking sector. According to the Bundesbank, calls for regulation of hedge funds appear warranted since the insolvency of hedge funds could jeopardize the stability of the financial system. To enable counterparties of hedge funds and supervisory authorities to assess the risks involved, the Bundesbank suggests that it would be desirable if hedge funds would have to comply, under direct supervision, with extended reporting rules and possibly also with investment and capital requirements. But the Bundesbank acknowledges that at a practical level questions remain on how regulatory measures could be made effective in the context of globalized markets and complex investment strategies. Nonetheless, owing to potential conflicts of interest if banks are at the same time investors in and lenders to hedge funds, relying solely on the disciplining effects of the market is unlikely to suffice. The Bundesbank proposes the introduction of an international credit register for large exposures to provide banks with an efficient monitoring system, which—together with better risk management—could contribute to crisis prevention.

A Reserve Bank of Australia report on Hedge Funds, Financial Stability and Market Integrity (March 1999) found that large hedge funds are systematically important institutions that can affect the stability of the financial system and could potentially un-
The report, therefore, concludes that there is a strong case for a public policy response to the emergence of hedge funds. Although regulation of some types of hedge funds may be warranted, the report acknowledges considerable practical difficulties, including the possible move by hedge funds to nonregulated offshore centers and the emergence of new institutions outside the regulatory framework. Therefore the most effective approach, according to the report, would include improving disclosure standards, enhancing the risk monitoring by the creditors of hedge funds, and removing distortions in the Basel capital framework that favor bank exposures to hedge funds.

The report notes that more disclosure is required in three areas: information on market concentration; information for sound counterparty risk assessments; and information to assess the health of financial markets. The report proposes, inter alia, large position reporting requirements, an international credit register, and disclosure of information on risk exposures and stress test results. Regulators could enforce disclosure standards by a penalty capital charge on exposures to noncompliant counterparties. The BIS could expand its banking and derivatives statistics coverage to investment banks, hedge funds, and other institutional investors. The report also emphasizes that supervisors have a role in ensuring sound risk assessment by bank management and that regulation should not encourage inappropriate risk taking. In this context, the paper notes that, according to the current Basel Accord on Capital Adequacy, inter alia, banks' derivative exposures to nonbanks receive only a 50 percent risk weight (implying a 4 percent capital requirement compared with the standard 8 percent for claims on the private sector), that short-dated foreign exchange contracts are zero weighted, and that on-balance-sheet exposures to hedge funds are treated just like any other claim on the private sector. Notwithstanding ongoing efforts toward international coordination, the report points to scope for unilateral action by national regulators, particularly in the United States, with beneficial effects for the global financial system.

Supervision of Financial Conglomerates and International Accounting Standards

Supervision of the global financial system is still largely fragmented both functionally and geographically, while global financial markets are becoming increasingly integrated. In response, efforts at international coordination of regulation and supervision (of banks, securities firms, and insurance companies) are being accelerated to improve supervision both across functional lines and across borders. Given the increasing emergence of large global financial conglomerates that are supervised by numerous supervisors of different industries and nationalities, in February 1999 the Joint Forum on Financial Conglomerates issued a set of papers on the Supervision of Financial Conglomerates (which had previously been issued for comments in February 1998). The papers cover issues of capital adequacy, fit and proper principles for top management, and the sharing of supervisory information with the objective to work toward a more effective supervisory framework for financial conglomerates that stretches across various lines of business and national borders.

The papers concerning capital adequacy outline measurement techniques and principles to assess capital adequacy on a group-wide basis for financial conglomerates. A paper on fit and proper principles provides guidance for supervisors to assess the competence of the management of the various separate entities of a financial conglomerate. Two papers deal specifically with facilitating information sharing between supervisors of regulated entities within internationally active financial conglomerates by outlining a framework and by providing guiding principles for such information sharing. In certain circumstances it might be beneficial to designate one supervisory agency involved in supervising a conglomerate as a coordinator to facilitate information sharing. One of the papers provides guidance on the choice of a coordinator. It points out that the choice of coordinator and the design of its responsibilities are influenced by the trade-off between the benefits of improved coordination and the risks of creating (or appearing to create) a new layer of supervisory oversight or an extension of a government safety net to normally unprotected entities within a conglomerate.

Although sound loan accounting and disclosure practices are essential to ensure transparency and to facilitate effective supervision and market discipline of financial institutions, national rules and practices on the recognition of deteriorating credit quality vary widely. To address this issue, the Basel Committee on Banking Supervision released a paper on loan valuation, loan-loss provisioning, and credit risk exposure, entitled Sound Practices for Loan Accounting and Disclosure (July 1999). The paper complements the Basel Core Principles for Effective Banking Supervision and is designed to advance international harmonization.

*The recent Basel Committee paper on revisions to the Basel Accord (Basel Committee on Banking Supervision, 1996c) suggests abolishing the 50 percent cap on the risk weights of OTC derivative exposures and introducing a new 150 percent risk weight category for poor-quality corporate claims (see Box 4.2 in Chapter IV).

*The Joint Forum on Financial Conglomerates, which comprises representatives of the Basel Committee on Banking Supervision, IOSCO, and the International Association of Insurance Supervisors, as well as national supervisors, was established in 1996.
nization in loan valuation and accounting. The paper
provides guidance on key loan accounting issues, such
as the recognition and valuation of loans, the estab-
lishment of loan-loss allowances, and credit risk
disclosure.

On accounting standards more generally, the Inter-
national Accounting Standards Committee (IASC) has
been in the process of developing a core set of inter-
national accounting standards. In March 1999, it
published a comprehensive standard on accounting for
financial instruments, including derivatives such as
futures, forwards, swaps, and options contracts. The
new standard IAS 39 (Financial Instruments: Recog-
nition and Measurement) requires that all financial as-
sets and liabilities be recognized on the balance sheet,
including derivatives. IAS 39 significantly increases
the use of fair-value accounting for financial instru-
ments, and it permits hedge accounting, provided that
the hedging relationship is clearly defined, measure-
able, and actually effective. The Technical Committe
of IOSCO has begun its assessment of the standard to
decide whether to recommend that IOSCO members
permit foreign issuers to use IASC standards in lieu of
national standards for cross-border offering and listing
purposes.

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Annex V

Credit Ratings and the Recent Crises

This annex provides background material to Chapter V. The first section covers factors considered by rating agencies in sovereign credit ratings and empirical studies of the determinants of such ratings. The second section provides a chronology of sovereign credit ratings during the recent financial crises in emerging markets. The third section proposes criteria by which to evaluate rating agencies and attempts to assess recent sovereign rating trends. A survey of credit rating agencies’ methodology and resources is provided in the final section.

Factors in Sovereign Ratings and Empirical Studies of Determinants

In assessing the solvency and liquidity of sovereigns, rating agencies have focused on a number of factors that are quite distinct from those that apply to corporates. Notably, political risk as well as overall pressures on the balance of payments and the macroeconomic situation have been the focus of attention. The list in Table A5.1, from S&P’s, illustrates which factors agencies focus on when rating sovereigns. Boxes A5.1 and A5.2 provide the definitions of S&P’s and Moody’s issuer ratings.

The rating agencies emphasize that they do not use a specific formula to combine the various political and economic factors in deciding on an overall rating. However, a number of empirical studies can help illuminate which factors have historically received the greatest weights in the decision-making process. In particular, Cantor and Packer (1996) and subsequently Juttner and McCarthy (1998) examined the determinants of the levels of Moody’s and S&P’s ratings for a range of mature and emerging market economies in the mid-1990s.

Cantor and Packer (1996) used ratings from Moody’s and S&P’s on 49 countries as of September 1995. After converting these ratings to a numerical scale (with the highest Aaa/AAA = 16 and the lowest B3/B- = 1), they regressed these ratings on a set of economic variables that had been identified by the agencies as influencing the level of a sovereign’s rating. The results indicated that high ratings were associated with high per capita income, low inflation, more rapid growth, a low ratio of foreign currency external debt to exports, the absence of a history of defaults on foreign currency debt since 1970, and a high level of economic development (as measured by the IMF’s classification as an industrial country). The coefficients on the fiscal position (as measured by the average annual central government budget surplus relative to GDP in 1992–94) and the external balance (as measured by the average annual current account surplus relative to GDP in 1992–94) were statistically insignificant. The statistical analysis also suggested that Moody’s and S&P’s broadly shared the same rating criteria, but Moody’s appeared to place more weight on external debt and less weight on default history as negative factors than did S&P’s.

In a follow-up study, Juttner and McCarthy (1998) found that the factors identified by Cantor and Packer continued to adequately explain ratings in 1996 and 1997, but that this relationship broke down in 1998, in the wake of the Asian crises. For 1998, additional variables appeared to have come into play—notably, problematic bank assets as a percent of GDP and the interest rate differential (a proxy for expected exchange rate changes).

The above studies focused on the use of the ratings of the two largest rating agencies—Moody’s and S&P’s—and this raises the issue of whether there are significant differences between the ratings issued by these agencies and those of other rating agencies. Al-

Table A5.1. Variables Used in Sovereign Rating Analysis by Standard & Poor’s

<table>
<thead>
<tr>
<th>Political risk</th>
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</thead>
<tbody>
<tr>
<td>Form of government and adaptability of political institutions</td>
</tr>
<tr>
<td>Extent of popular participation</td>
</tr>
<tr>
<td>Orderliness of leadership succession</td>
</tr>
<tr>
<td>Degree of consensus on economic policy objectives</td>
</tr>
<tr>
<td>Integration into global trade and financial system</td>
</tr>
<tr>
<td>Internal and external security risks</td>
</tr>
<tr>
<td>Economic factors</td>
</tr>
<tr>
<td>Income and economic structure</td>
</tr>
<tr>
<td>Fiscal flexibility</td>
</tr>
<tr>
<td>Public debt burden</td>
</tr>
<tr>
<td>Price stability</td>
</tr>
<tr>
<td>Balance of payments flexibility</td>
</tr>
<tr>
<td>External debt and liquidity</td>
</tr>
</tbody>
</table>

Source: Standard & Poor’s (1998).
Box A5.1. Standard & Poor's Issuer Ratings

Issuer Credit Rating Definitions

An S&P's Issuer Credit Rating is a current opinion of an obligor's overall financial capacity (its creditworthiness) to pay its financial obligations. This opinion focuses on the obligor's capacity and willingness to meet its financial commitments as they come due. It does not apply to any specific financial obligation, as it does not take into account the nature and provisions of the obligation, its standing in bankruptcy or liquidation, statutory preferences, or the legality and enforceability of the obligation. In addition, it does not take into account the creditworthiness of the guarantors, insurers, or other forms of credit enhancement on the obligation. The Issuer Credit Rating is not a recommendation to purchase, sell, or hold a financial obligation issued by an obligor, as it does not comment on market price or suitability for a particular investor.

Counterparty Credit Ratings, ratings assigned under the Corporate Credit Rating Service (formerly called the Credit Assessment Service), and Sovereign Credit Ratings are all forms of Issuer Credit Ratings.

Issuer Credit Ratings are based on current information furnished by obligors or obtained by S&P's from other sources it considers reliable. S&P's does not perform an audit in connection with any Issuer Credit Rating and may, on occasion, rely on unaudited financial information. Issuer Credit Ratings may be changed, suspended, or withdrawn as a result of changes in, or unavailability of, such information, or based on other circumstances. Issuer Credit Ratings can be either long term or short term. Short-Term Issuer Credit Ratings reflect the obligor's creditworthiness over a short-term time horizon.

Long-Term Issuer Credit Ratings

AAA
An obligor rated AAA has extremely strong capacity to meet its financial commitments. AAA is the highest Issuer Credit Rating assigned by S&P's.

AA
An obligor rated AA has very strong capacity to meet its financial commitments. It differs from the highest-rated obligors only in small degree.

A
An obligor rated A has strong capacity to meet its financial commitments but is somewhat more susceptible to the adverse effects of changes in circumstances and economic conditions than obligors in higher-rated categories.

BBB
An obligor rated BBB has adequate capacity to meet its financial commitments. However, adverse economic conditions or changing circumstances are more likely to lead to a weakened capacity of the obligor to meet its financial commitments.

Obligors rated BB, B, CCC, and CC are regarded as having significant speculative characteristics. BB indicates the least degree of speculation and CC the highest. While such obligors will likely have some quality and protective characteristics, these may be outweighed by large uncertainties or major exposures to adverse conditions.

BB
An obligor rated BB is less vulnerable in the near term than other lower-rated obligors. However, it faces major ongoing uncertainties and exposure to adverse business, financial, or economic conditions which could lead to the obligor's inadequate capacity to meet its financial commitments.

B
An obligor rated B is more vulnerable than the obligors rated BB, but the obligor currently has the capacity to meet its financial commitments. Adverse business, financial, or economic conditions will likely impair the obligor's capacity or willingness to meet its financial commitments.

CCC
An obligor rated CCC is currently vulnerable, and is dependent upon favorable business, financial, and economic conditions to meet its financial commitments.

CC
An obligor rated CC is currently highly vulnerable.

Plus (+) or minus (−)

Ratings from "AA" to "CCC" may be modified by the addition of a plus or minus sign to show relative standing within the major rating categories.

An Issuer Credit Rating is withdrawn upon the first occurrence of any of the following events: (1) a payment default on any financial obligation, rated or unrated, other than a financial obligation subject to a bona fide commercial dispute; (2) a voluntary bankruptcy filing by the issuer or similar action; or, (3) in the case of banks, upon seizure of the bank by a regulator, or, in the case of insurance companies, upon placement of the insurer under regulatory supervision due to its financial condition.

Public Information Ratings

Ratings with a "pi" subscript are based on an analysis of an issuer's published financial information, as well as additional information in the public domain. They do not, however, reflect in-depth meetings with an issuer's man-

(continued on next page)

though this issue has not been addressed in the case of sovereign ratings, Cantor and Packer (1997) compared the corporate ratings from Moody’s and S&P’s with those from Duff & Phelps Credit Rating Agency (DCR) and Fitch Investor Service for ratings published at the end of 1993. If all agencies rated all firms, then differences in the ratings could be analyzed directly to see if there are differences in ratings scales. However,
B. A5.1 (concluded)

agreement or incorporate material nonpublic information, and are therefore based on less comprehensive information than ratings without a "pi" subscript. Ratings with a "pi" subscript are reviewed annually based on a new year’s financial statements, but may be reviewed on an interim basis if a major event that may affect an issuer’s credit quality occurs. Ratings with a "pi" subscript are not modified with ‘+’ or ‘－’ designations. Outlooks will not be provided for ratings with a "pi" subscript, nor will they be subject to potential CreditWatch listings.

Short-Term Issuer Credit Ratings

A-1
An obligor rated “A-1” has strong capacity to meet its financial commitments. It is rated in the highest category by S&P’s. Within this category, certain obligors are designated with a plus sign (+). This indicates that the obligor’s capacity to meet its financial commitments is extremely strong.

A-2
An obligor rated “A-2” has satisfactory capacity to meet its financial commitments. However, it is somewhat more susceptible to the adverse effects of changes in circumstances and economic conditions than obligors in the highest rating category.

A-3
An obligor rated “A-3” has adequate capacity to meet its financial obligations. However, adverse economic conditions or changing circumstances are more likely to lead to a weakened capacity of the obligor to meet its financial commitments.

B
An obligor rated “B” is regarded as vulnerable and has significant speculative characteristics. The obligor currently has the capacity to meet its financial commitments; however, it faces major ongoing uncertainties which could lead to the obligor’s inadequate capacity to meet its financial commitments.

C
An obligor rated “C” is currently vulnerable to non-payment and is dependent upon favorable business, financial, and economic conditions for it to meet its financial commitments.

An Issuer Credit Rating is withdrawn upon the first occurrence of any of the following: (1) a payment default on any financial obligation; rated or unrated, other than a financial obligation subject to a bona fide commercial dispute; (2) a voluntary bankruptcy filing by the issuer or similar action; or (3) in the case of banks, upon seizure of the bank by a regulator, or, in the case of insurance companies, upon placement of the insurer under regulatory supervision due to its financial condition.

Local Currency and Foreign Currency Risks

Country risk considerations are a standard part of S&P’s analysis for credit ratings on any issuer or issue. Currency of repayment is a key factor in this analysis. An obligor’s capacity to repay foreign currency obligations may be lower than its capacity to repay obligations in its local currency, owing to the sovereign government’s own relatively lower capacity to repay external versus domestic debt. These sovereign risk considerations are incorporated in the debt ratings assigned to specific issues. Foreign currency issuer ratings are also distinguished from local currency issuer ratings to identify those instances where sovereign risks make them different for the same issuer.

Rating Outlook Definitions

An S&P’s Rating Outlook assesses the potential direction of a long-term credit rating over the intermediate to longer term. In determining a Rating Outlook, consideration is given to any changes in the economic and/or fundamental business conditions. An Outlook is not necessarily a precursor of a rating change or future CreditWatch action. Positive means that a rating may be raised. Negative means that a rating may be lowered. Stable means that a rating is not likely to change. Developing means a rating may be raised or lowered. N.M. means not meaningful.

CreditWatch

CreditWatch highlights the potential direction of a short- or long-term rating. It focuses on identifiable events and short-term trends that cause ratings to be placed under special surveillance by S&P’s analytical staff. These may include mergers, recapitalizations, voter referendums, regulatory action, or anticipated operating developments. Ratings appear on CreditWatch when such an event or a deviation from an expected trend occurs and additional information is necessary to evaluate the current rating. A listing, however, does not mean a rating change is inevitable, and whenever possible, a range of alternative ratings will be shown. CreditWatch is not intended to include all ratings under review, and rating changes may occur without the ratings having first appeared on CreditWatch. The "positive" designation means that a rating may be raised; "negative" means a rating may be lowered; and "developing" means that a rating may be raised, lowered, or affirmed.

Box A5.2. Moody’s Issuer Ratings

Foreign Currency

Moody’s Foreign Currency Issuer Ratings are opinions of the ability of entities to honor senior unsecured financial obligations and contracts denominated in foreign currency. These ratings are subject to Moody’s Foreign Currency Country Ceilings. Issuer Ratings are unlike Moody’s long-term debt ratings in that they are assigned to issuers rather than specific debt issues. Specific debt issues of the issuer may be rated differently, and are considered unrated unless individually rated by Moody’s. Unless specified, obligations guaranteed by the issuer are considered unrated and are not covered by the issuer rating.

Domestic Currency

Moody’s Domestic Currency Issuer Ratings are opinions of the ability of entities to honor senior unsecured financial obligations and contracts denominated in their domestic currency.

Rating Symbols

Moody’s rating symbols for Issuer Ratings are identical to those used to show the credit quality of bonds. These rating gradations provide creditors a simple system to measure an entity’s ability to meet its financial obligations.

Aaa Issuers rated Aaa offer exceptional financial security. While the creditworthiness of these entities is likely to change, such changes as can be visualized are most unlikely to impair their fundamentally strong position.

Aa Issuers rated Aa offer excellent financial security. Together with the Aaa group, they constitute what are generally known as high grade entities. They are rated lower than Aaa entities because long-term risks appear somewhat larger.

A Issuers rated A offer good financial security. However, elements may be present which suggest a susceptibility to impairment sometime in the future.

Baa Issuers rated Baa offer adequate financial security. However, certain protective elements may be lacking or may be unreliable over any great period of time.

Ba Issuers rated Ba offer questionable financial security. Often the ability of these entities to meet obligations may be moderate and not well safeguarded in the future.

B Issuers rated B offer poor financial security. Assurance of payment of obligations over any long period of time is small.

Caa Issuers rated Caa offer very poor financial security. They may be in default on their obligations or there may be present elements of danger with respect to punctual payment of obligations.

Ca Issuers rated Ca offer extremely poor financial security. Such entities are often in default on their obligations or have other marked shortcomings.

C Issuers rated C are the lowest rated class of entity, are usually in default on their obligations, and potential recovery values are low.

Moody’s Short-Term Prime Rating System—Taxable Debt and Global Deposits

Moody’s short-term debt ratings are opinions of the ability of issuers to repay punctually senior debt obligations. These obligations have an original maturity not exceeding one year, unless explicitly noted.

Moody’s employs the following three designations, all judged to be investment grade, to indicate the relative repayment ability of rated issuers.

Prime-1

Issuers rated Prime-1 (or supporting institutions) have a superior ability for repayment of senior short-term debt obligations. Prime-1 repayment ability will often be evidenced by many of the following characteristics:

- Leading market positions in well-established industries.
- High rates of return on funds employed.
- Conservative capitalization structure with moderate reliance on debt and ample asset protection.
- Broad margins in earnings coverage of fixed financial charges and high internal cash generation.
- Well-established access to a range of financial markets and assured sources of alternate liquidity.

Prime-2

Issuers rated Prime-2 (or supporting institutions) have a strong ability for repayment of senior short-term debt obligations. This will normally be evidenced by many of the characteristics cited above but to a lesser degree. Earnings trends and coverage ratios, while sound, may be more subject to variation. Capitalization characteristics, while still appropriate, may be more affected by external conditions. Ample alternate liquidity is maintained.

Prime-3

Issuers rated Prime-3 (or supporting institutions) have an acceptable ability for repayment of senior short-term obligations. The effect of industry characteristics and market compositions may be more pronounced. Variability in earnings and profitability may result in changes in the level of debt protection measurements and may require relatively high financial leverage. Adequate alternate liquidity is maintained.

Not Prime

Issuers rated Not Prime do not fall within any of the Prime rating categories.

Watchlist Definitions

UPG on Review for Possible Upgrade
DNG on Review for Possible Downgrade
UNC Direction uncertain

Source: Reproduced from www.moodys.com

Note: Moody’s applies numerical modifiers 1, 2, and 3 in each generic rating category from Aa to Caa in the corporate finance sectors, and from Aa to B in the public finance sectors. The modifier 1 indicates that the issuer is in the higher end of its letter rating category; the modifier 2 indicates a mid-range ranking; the modifier 3 indicates that the issuer is in the lower end of the letter ranking category.
sis would produce biased estimates of the factors influencing each agency’s rating process and the differences between processes. Cantor and Packer used a two-step procedure developed by Heckman (1979) to eliminate sample selection bias. They first sought to identify those factors that influence a firm’s decision to seek a rating, and then analyzed whether there were significant differences between the ratings by Moody’s and S&P’s and the other two agencies. The empirical results indicated that firms were more likely to obtain two or more ratings if they were large and experienced issuers in capital markets. However, there was little evidence that third agencies were employed either to resolve ex ante uncertainty about ratings outcomes or to clear regulatory hurdles. Moreover, while the rating scales of the third agencies appeared to be somewhat higher than others, there was little evidence that decisions of issuers to use them were influenced by that factor.

Figure A5.1 provides a graphical analysis of the variables identified by the Cantor and Packer studies as well as by Juttner and McCarthy. The figure also analyzes a number of other economic determinants of ratings. It uses the average performance of emerging markets rated investment grade (the base group) as a metric to compare the macroeconomic fundamentals on the eve of the Mexican, Asian, and Russian crises. For each macroeconomic variable, the value of that variable for a particular country at any time is normalized using the mean and standard deviation of that variable for the base group. These normalized or standardized variables are then plotted in the figures with a movement away from the origin signifying a deterioration and a movement toward the origin signifying an improvement. For example, the value of 1 calculated for the current account for Mexico in 1994 implies that Mexico’s current account balance lay 1 standard deviation below the average for the base group in 1994.

The analysis shows that the determinants of ratings were stable through 1997 and that ratings were generally consistent with economic fundamentals. This held for investment- and non-investment-grade countries on average, as well as for the countries involved in the recent financial crises.

The first row traces the evolution of the fundamentals of investment-grade countries over time and shows that there is little difference over time (up to 1997) in their fundamentals, with the exception of investment, savings, the current account, and the government budget, which deteriorate somewhat for investment-grade countries between 1994 and 1996.

The second row tracks the fundamentals of non-investment-grade countries relative to investment grade countries. It shows that there are marked differences in fundamentals, notably in the level of growth, inflation, debt, savings and investment, and macro-imbalances (current account, budget balance) between investment- and non-investment-grade countries. Over time, lending to the private sector also becomes a differentiating fundamental.

The third row shows the fundamentals of the countries most affected in the recent financial crises. It shows that Mexico, which was rated as non-investment-grade at the time of its balance of payments crisis, had generally worse fundamentals than investment-grade countries; that the affected Asian countries, which were rated investment-grade, had fundamentals similar to the average for investment-grade, and that Russia, which was rated non-investment-grade, had generally worse fundamentals than investment-grade countries (with the exception—not surprisingly, given its early stage in transition—of lending to the private sector).

Dynamics of Ratings Changes

An interesting question is whether credit rating agencies can add to the dynamics of—i.e., either accentuate or attenuate—balance of payments crises. A necessary condition for this to occur is the existence of causality from ratings to spreads. A number of studies shed light on this issue using event studies and Granger causality studies.

Cantor and Packer (1996) studied the effects of rating announcements (both outlooks (S&P’s term)/watches (Moody’s term) and implemented ratings)\(^1\) on spreads (the differential between yields on sovereign dollar-denominated eurobonds and on comparable U.S. treasury bonds), using daily data covering the periods before and after the 79 announcements covered by their 35-country sample. They found that (1) positive announcements in the agencies’ ratings were followed by statistically significant bond yield movements in the expected direction, but that negative changes did not produce significant effects; and (2) the impact of rating announcements on spreads was much stronger for non-investment-grade than for investment-grade sovereigns.

Reisen and von Maltzan (1999), using data on 29 sovereigns from 1989 to 1997 and 152 rating announcements (of which 97 were for emerging markets), conducted a two-part study. First, they examined the interaction between spreads on sovereign bonds (specifically, the differential between yields on U.S. dollar-denominated sovereign bonds and on 10-year U.S. treasury bonds) and implemented credit ratings, after allowing for the influence of macroeconomic country risk determinants. In particular, they considered whether credit ratings Granger-caused\(^2\)

\(^{1}\)See Box A5.2 for definitions.
\(^{2}\)A variable \(x\) is said to Granger-cause another variable \(y\) if prediction of the current value of \(y\) is enhanced by using the past values of \(x\). This definition is usually implemented by regressing \(y\) on past values of \(x\) andy and possibly a number of control variables. If past values of \(x\) help explain \(y\) (as measured by an F-test), \(x\) is said to Granger-cause \(y\) (Kennedy, 1985).
Factors in Sovereign Ratings and Empirical Studies of Determinants

Figure A5.1. Emerging Markets: Sovereign Ratings and Fundamentals

Legend
PCG = Claims on private sector as a percent of GDP growth rate, 5-year moving average.
Y = GDP growth rate, 5-year moving average.
INF = CPI inflation rate.
I = Gross fixed capital formation as a percent of GDP.
S = Gross saving as a percent of GDP.
CGB = Central government balance as a percent of GDP.
CA = Current account as a percent of GDP.
FDI = Foreign direct investment as a percent of GDP.
EDX = Total external debt as a percent of exports.
DS = Debt service ratio.
RSD = Total foreign exchange reserves as a percent of short-term debt.
RM = Total foreign exchange reserves as a percent of broad money.
R1 = Total foreign exchange reserves as a percent of imports.


*The figures plot a standardized value, lying between +3 and -3, for each macroeconomic variable. Note that for all variables a movement away from the origin signifies a deterioration. See text for full explanation.
sovereign interest spreads after controlling for macroeconomic indicators available at a monthly frequency. These latter variables included the total stock market return, foreign exchange reserves, the real exchange rate, the terms of trade, and industrial production. The authors concluded that credit ratings Granger-cause yield spreads (and vice versa).

The authors also undertook an event study similar to that undertaken by Cantor and Packer (1996). In this sample period, a significant change in the yield spread in the expected direction occurred during the announcement period only when a downgrade was implemented. These results are in sharp contrast with those of Cantor and Packer, who found significant effects only for positive announcements. However, one similarity between the two studies is that Reisen and von Maltzan find that the largest announcement effects are for emerging market sovereign spreads. As noted above, Cantor and Packer found the largest effects for non-investment-grade bonds, which correspond to those issued by emerging market sovereigns.

**Review of Ratings During the Crises**

Figures A5.2–A5.12 summarize the ratings actions (changes both in outlooks and in long-term issuer ratings) taken by Moody’s and S&P’s for selected sovereigns in Asia, Latin America, emerging Europe, and Russia during the 1990s, as well as changes in yield spreads.3

**Asian Crises**

In the period leading up to the Thai crisis, the agencies began to express concern about weaknesses in the Thai financial system and the buildup of short-term debt in 1996. For example, Moody’s cited these concerns in both its May and September 1996 and February 1997 comments on the Thai situation. Its first rating action was to place Thailand’s short-term rating on review for a downgrade in May 1996, and it was subsequently lowered in September 1996 (to Prime 2—still investment grade). In February 1997, Moody’s placed Thailand’s A2 long-term rating on review for a downgrade, which took place in April 1997 (to A3—still investment grade). Throughout this period, yield spreads on long-term Thai sovereign bonds remained essentially stable until July 1997. S&P’s made no ratings changes in the period between 1994 and July 1997. No further rating changes occurred during the severe speculative attacks on the baht in May and the subsequent floating of the baht in July 1997. Interest rate spreads began to rise in the third week of August prior to the downgrade of Thailand’s rating by S&P’s.

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3 Yield spreads refer to the difference between sovereign yields and U.S. treasury bill yields of the same maturity. In Malaysia, sovereign yields are not available and the yield on a public enterprise issue (Perdana) is used.
(to A- on September 3) and the placement of Moody's rating on review for a downgrade on September 18 (with the rating subsequently lowered to Baa1 on October 1). In the midst of the speculative attacks on Hong Kong SAR in October, S&P's lowered the long-term foreign currency rating for Thailand to BBB (on October 24); and Moody's placed the Thai rating on review on October 23 and downgraded the rating to Baa3 (on November 27). The Moody's rating was further reduced to Ba1 (non-investment-grade) on December 21, 1997. Subsequently, interest rate spreads declined from 500 basis points in early January 1998.
to 300 basis points in late February without any ratings actions taking place.

S&P’s initially downgraded Indonesia’s rating in early October 1997 (to BBB–) with only limited increases in yield spreads. Spreads rose sharply in late October, though there were no rating actions, and again in mid-December 1997 prior to the downgrades by both Moody’s (to B1) and S&P’s (to BB+) in late December to below-investment-grade. The subsequent simultaneous downgrades on January 9, 1998 (to BB by S&P’s and to B2 by Moody’s) coincided with the peak in spreads. Indonesia was further downgraded in...
March and May 1998, and downgraded to “selective default” in March 1999.

In Korea, despite the growing awareness of financial sector vulnerabilities following the collapse of Hanbo Steel in January 1997, there were no actions by the ratings agencies until Moody’s placed it on a negative outlook in June 1997. The downgrade on October 24 by S&P’s (from AA- to A+) was accompanied by a sharp rise in yield spreads. Similarly, there were sharp increases in bond spreads as Korea was downgraded repeatedly in November and December by Moody’s (to A3 on November 27, to Baa2 on December 10, and to
Bal on December 21) and S&P's (to A1 on November 25, to BBB– on December 1, and to B+ on December 22). As was the case in Thailand and Indonesia, Korea was not downgraded to non-investment-grade until late December. A number of market observers have argued that the Korean downgrade was perhaps the largest and sharpest in the history of sovereign ratings.

**Russian Crisis**

A year ahead of Russia's August 1998 financial crisis, rating agencies viewed the sovereign as being of below investment grade. Moody's rated Russia Ba2 and S&P's BB– in August 1997. In the wake of the Asian crisis, during which Russia lost a sizable
amount of reserves and spreads roughly doubled, S&P's changed its outlook to negative in December 1997, whereas Moody's downgraded the sovereign to Ba3 in March 1998. When concerns about debt sustainability led to pressures on the exchange rate and reserves in May, to which the Russian central bank reacted by tripling key interest rates to 150 percent, Moody's downgraded the sovereign to B1 (along with several large banks) on May 29, and on June 9, S&P's followed suit with a downgrade to B+.

A financial crisis was narrowly avoided during May-July, as it became clear that additional financing, including from the IMF, would be mobilized. However, pressures built up again in August over concerns

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**Figure A5.11. Ratings Actions by Moody's and Standard & Poor's and Changes in Yield Spreads: Thailand**

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**Figure A5.12. Ratings Actions by Moody's and Standard & Poor's and Changes in Yield Spreads: Turkey**

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about the government's ability to roll over its maturing debt and the decision by the state-owned Savings Bank not to roll over its maturing treasury bills. Russia lost over $5.5 billion in reserves while spreads reached as high as 2,500 basis points. 4 Financier George Soros' call in his August 13 Financial Times article for a 25 percent devaluation, which included a warning about financial sector weaknesses, also unsettled the markets. During this period, there was a rapid succession of downgrades—characteristic also of the Korean crisis. On August 13, S&P's downgraded the sovereign to B— with a negative outlook, and downgraded domestic debt from a B to a C. The same day, Moody's downgraded Russia to B2. Moody's cited "concerns about the potential systemic effects of the financial crisis," while S&P's referred to liquidity problems "compounded by the banking crisis and the likelihood that further sharp declines in output and living standards will weaken domestic support for the Yeltsin administration's economic reform program."

Further downgrades followed after the ruble was effectively devalued when the upper band for the ruble was raised by 50 percent and a conversion of GKOs to longer-term paper was announced along with a 90-day moratorium on external debt payments, leading to fears of generalized default. S&P's downgraded the sovereign on August 17 to CCC with negative outlook, and to CCC— with negative outlook on September 16, 1998. Moody's downgraded the sovereign on August 21 to B3. S&P's assigned a rating of selective default for both foreign and local currency debt on January 27, 1999; spreads reached a record that day.

Brazilian Crisis

In January 1998, a year ahead of the onset of its financial crisis, Brazilian sovereign issues were perceived as relatively risky by the rating agencies (Moody's B1/S&P's BB—). Subsequently, Moody's lowered its rating to B2 on September 3, 1998, in response to concerns that the Russian crisis might spread to Brazil. Spreads mirrored this concern, rising to 1,500 basis points in end-August. Throughout October and November, spreads declined following President Cardoso's reelection and the negotiation of the US$41.5 billion international package, but then rose rapidly again in December in response to capital outflows as markets worried about the fiscal situation and political wrangling with the states. Pressures mounted for a devaluation in the hope that this would arrest reserve losses and help reduce interest rates. After the real was devalued by 8 percent on January 13, S&P's downgraded Brazil to B+. Over the next two weeks, the real lost an additional 30 percent of its value—and did not stabilize until after the appointment of Arminio Fraga as Governor of the central bank and the resumption of the IMF-supported program in March. No further downgrades were implemented during this period.

Evaluating Rating Agencies:
By What Criteria?

The expanding role of rating agencies in global capital markets, particularly with the steep rise of emerging market borrowing in the 1990s, has propelled the agencies to the spotlight and earned them much criticism for their performance. Criticism has been most intense during the Mexican and Asian crises, where the agencies have been blamed for failing to signal to investors the risks present in the Mexican and Asian economies prior to their eruption.

The failure to predict the Mexican and Asian crises has been attributed to a number of factors. First, rating agencies are said to be influenced by the compensation they receive from rated issuers. 5 According to this argument, the agencies would hesitate to downgrade issuers from fear of spoiling business relationships that underpin their income stream. Second, the agencies purportedly are reluctant to downgrade sovereigns for fear of precipitating self-fulfilling crises. Indeed, it is not uncommon for downgraded sovereigns to blame the rating agencies, among others, for their troubles. 6 Finally, some argue that the rating agencies are inadequately staffed and therefore not up to the task. Critics contend that the agencies are unable to match the salaries offered by Wall Street firms to attract highly skilled analysts. 7 As such, the issue of inadequate staffing deserves scrutiny, and is analyzed in greater depth in the "Survey of Credit Rating Agencies" section below.

However, a strong case can be made that disincentives to downgrade are outweighed by the incentive for rating agencies to build and maintain their reputation and credibility in the eyes of investors. Absent credibility, which is the pillar of their franchise value, demand for ratings would fall, and along with it, the raison d'être of the agencies. Rating agencies, therefore, are unlikely to trade off their credibility in return for short-term revenue gains.

Regardless of the merits of various criticisms of rating agencies, the debate has progressed without proper context, namely, a set of explicitly defined criteria and standards by which the performance of agen-

4For a detailed account of developments during this period, see the World Economic Outlook (IMF, 1998), pp. 49-53.

6Prime Minister Mohamed Mahathir's public condemnation of the agencies following Malaysia's downgrade is a prime example of this during the Asian crisis.
7On Watch" (1999), p. 82.
cies should be evaluated. Absent a predetermined set of criteria, the criticisms themselves have lacked credibility and utility.

We propose the following set of interrelated criteria for evaluating rating agencies.

**Track Record**

The starting point of evaluating ratings is their track record in capturing default risk. Lower-rated issuers would be expected to have defaulted more frequently than higher-rated ones. Ultimately, ratings are probabilistic statements of the likelihood of default, and default alone. They are not meant to predict financial crises per se.

In this context, it is important to address the misconception that highly rated countries are not suppose to experience financial crises. Surely, highly rated countries can be expected to have fewer crises, but more importantly, more creditworthy sovereigns are thought to have stronger political, economic, and social capacities to manage a crisis than are less creditworthy issuers. Similarly, to the extent that market risks, liquidity risks, currency risks, and transfer risks affect default risk, ratings necessarily should reflect such risks as well.

The record on ratings and actual defaults for corporates in the past shows a high correlation between credit quality and default remoteness: the higher the rating, the lower the probability of default, and vice versa. On this score, ratings, on average, are a good indicator of relative creditworthiness. (See Figure A5.13.)

Evaluating the performance of ratings in the sovereign sector is more problematic than for corporates, however. To date, among rated sovereigns, only Russia has defaulted (as defined by the rating agencies) on unrated foreign currency debt, and only three, Indonesia, Pakistan, and Russia, have defaulted on unrated foreign currency debt. Moreover, the small sample size of rated sovereigns, at 80–100, would preclude a meaningful statistical analysis of default rates when they occur. However, given the equivalence of default risks across issuers, where in principle a AAA-rated sovereign has the same probability of default as a AAA-rated corporation, one can infer from Figure A5.13 the implied default probabilities for sovereigns. For example, sovereigns rated investment grade (BBB and higher) are supposed to have very low (1–5 percent) chances of default, even over 15 years.

In the context of the recent financial crises, several observations can be made. First, Thailand, Korea, and Indonesia’s investment-grade ratings before the crisis failed to capture the risks of both their intense financial crises and initial crisis mismanagement, which subsequently were reflected in sharp downgrades. Hong Kong SAR and Malaysia’s investment-grade ratings, by contrast, arguably better reflected their stronger crisis management capacities and vulnerability to crisis (i.e., modest external debt), respectively. Second, Brazil and Russia’s initially low ratings in the non-investment-grade category adequately reflected the relatively high possibility of crisis and/or crisis mismanagement, which have since been validated.

**Durability**

Another criterion by which to evaluate ratings is their durability. Presumably, the stronger the predictive value of ratings, the more durable they are and the less frequently they will change. Although ratings are inevitably influenced by cyclical factors, rating agency officials point out that long-term ratings, where possible, try to see through cycles. Admittedly, the durability criterion can falsely imply that a stable rating is “correct,” even where the lack of a rating change reflects a gross error in analytical judgment or belated recognition of growing risks.

On this score, ratings are fairly stable. According to rating transition data from S&P’s for all issuers, two facts emerge. First, higher ratings are longer lived. Second, issuers rated investment grade have a 60–70 percent chance of still being rated in the same category five years later. Sovereign ratings also exhibit stability, with sovereigns rated investment grade having a 60–90 percent chance of still being rated in the same category three years later (Figure A5.14).

Notwithstanding the overall stability of ratings for all issuers, including sovereigns, a number of sover-

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8 A default occurs when an issuer does not make full and timely payment of interest or principal on a rated debt instrument.
eigns experienced sharp downgrades during the recent financial turmoil. “Ratings crises” (defined as in Jutner and McCarty (1998) as a downgrade of three notches or more in long-term foreign currency debt within a six-month period) were observed in Asia (Indonesia, Thailand, South Korea, and Malaysia), and later in Romania, Russia, and Venezuela. In Brazil, only one agency downgraded after the initial devaluation, and there were no further downgrades thereafter.

Market Comparison

Another important factor is the track record and durability of ratings compared to the market. Although ratings are imperfect forecasts of default risks, to the extent that they are less volatile and more accurate than the market, ratings still enhance the efficiency of capital markets.

Ratings are clearly more stable than market spreads, which fluctuate daily and sometimes by substantial amounts. An analysis of a sample of crisis and non-crisis countries shows that the variances of spreads (adjusted for the mean) were several times that of ratings. The key question then is whether ratings or spreads have greater foresight.

One year ahead of the crises in Thailand, Indonesia, and Korea, sovereign spreads were quite low (Figures A5.2–A5.12), on the order of 100–150 basis points. In Russia and Brazil, they were somewhat higher, about 300 basis points. Thus, in relative terms, the markets agreed with rating agencies, placing the probability of default in Russia and Brazil higher than in the Asian countries. Spreads did not widen much in the Asian countries by the time of the onset of their crises; as with ratings, the bulk of the deterioration came afterward. In the case of Russia and Brazil, spreads also mirrored developments in ratings, growing sizably before the onset of the crises, worsening thereafter in the case of Russia, and hardly deteriorating in the case of Brazil. The same appears to have been true for the opinions of market analysts, as we discuss further below.

The above discussion suggests that in Asia markets failed to foresee the recent financial crises and the corresponding rise in default risks, along with rating agencies. It also appears, however, that the agencies discriminated more effectively between crisis and noncrisis countries compared to the market, which almost indiscriminately priced the debt of all issuers much higher. For noncrisis countries, the average downgrade was less than one notch, yet spreads trebled between mid-1997 and end-1998 and still stand at about double what they were before the crisis (see Table A5.2).

Market analysts' views can be gauged in a summary fashion through Institutional Investor and Euromoney ratings. These institutions compile the views of economists in leading international banks and money management firms, among others, and thus can serve as a proxy for market analyst's views. Ratings are available semiannually (in March and September). Notwithstanding some reduction in its ratings of Asian countries during 1996, Institutional Investor continued to assign relatively high ratings to Thailand and Korea (63 and 72 out of 100) in the year before their crises, in September 1996, and a somewhat lower rating to Indonesia (52). Ratings were reduced substantially after the crises (Table A5.3). For Russia and Brazil, precrisis ratings were quite a bit lower (28 and 40 in September 1997, respectively). As was the case for credit ratings and spreads, after the crises, the Institutional Investor rating was reduced for Russia, but hardly for Brazil. Similar scores were assigned by economists participating in the Euromoney survey. Korea received the highest score among the Asian crisis countries (a score of 88 out of 100 for economic performance) in September 1996. Scores were subsequently lowered substantially. Russia and Brazil scored poorly ahead of their crises and also showed...

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9 The sample included the debt instruments of Argentina (10/6/06), Brazil (11/5/01), China (11/03), Colombia (6/14/01), Hong Kong SAR (MTRC: 10/01/05), Indonesia (8/3/06), Korea (KDB, 11/21/03), Malaysia (Petronas, 10/18/06), Mexico (11/15/07), the Philippines (10/16), Poland (7/1/04), Russia (1/12/01), South Africa (10/17/06), Thailand (4/15/97), Turkey (0/05/02), and Venezuela (6/18/07).

10 While in general market views on default can be inferred from spreads on foreign-currency-denominated instruments (see Cline and Barnes, 1997), and compared with rating agencies' views, such inferences need to bear in mind that liquidity is also an important determinant of spreads.
large declines over time (between September 1997 and March 1999). In the case of Brazil, most of the decline occurred as early as September 1998, in the wake of the Russian crisis, rather than after Brazil's devaluation.

To conclude, it appears that spreads as well as market analysts—as represented in Institutional Investor and Euromoney ratings—provided signals similar to those of the credit rating agencies. They failed to signal the Asian crises in advance; they down-rated these countries after their crises; they assigned a higher risk to Russian and Brazilian issues from the start; and they did not revise their views in a major way for Brazil.

**Academic Research**

Similar mixed results characterize the performance of "leading indicators" of currency crises developed in the academic literature. This empirical literature, which continues to evolve, suggests that high growth in credit to the private sector, an overvalued real exchange rate compared to trend, a high current account deficit, and low reserves relative to either broad money or short-term debt are associated with a higher probability of crisis (see, e.g., Sachs, Tornell, and Velasco, 1996). An initial systematic review of empirical work on currency crises (Berg and Pattillo, 1999) concludes, however, that the out-of-sample predictive power of models of currency crises is poor. In the Asian crisis, the approach that appears to have the best out-of-sample predictive ability is the "signals" approach of Kaminsky, Lizondo, and Reinhart (1998), in which monthly indicators signal a crisis whenever they cross a certain threshold. Even using this approach, only a small fraction of Asian crises were called. The Thai crisis was foreseeable using these models, but the Indonesian was not; Brazil was seen as vulnerable to a crisis in 1997, even though it showed resilience at the time (Berg and Pattillo, 1999).

**Proposed Use of Credit Ratings in the Basel Accord**

External credit ratings are increasingly being adopted in regulations worldwide. The most common form of regulation involves limits on exposure to non-investment-grade securities. A recent Basel Committee consultative paper proposes to expand the use of external credit ratings, by integrating external ratings in the Basel Committee risk weighting scheme. Specifically, risk weights based on sovereign credit ratings would replace the current distinction between OECD and non-OECD countries. Box A5.3 lays out the criteria that the Basel Committee proposes to use in selecting institutions eligible to produce ratings for use in the new risk weighting scheme. These selection criteria aim to determine which agencies' ratings will be eligible for regulatory purposes. As such, they are

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**Table A5.2. Rating and Spread Trends**

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<th>Rating Changes¹</th>
<th>Average Spreads²</th>
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<tr>
<td></td>
<td>(number of notches)</td>
<td>(basis points)</td>
</tr>
<tr>
<td>Noncrisis Countries³</td>
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<td>-0.6</td>
</tr>
<tr>
<td>Crisis Countries⁴</td>
<td>-1.8</td>
<td>-4.6</td>
</tr>
<tr>
<td>Total</td>
<td>-1.3</td>
<td>-1.8</td>
</tr>
</tbody>
</table>

Sources: Moody's, S&P's, various issues, and Bloomberg.

¹Average of Moody's and S&P's.

²The average spreads for "crisis" countries and the total sample are distorted by the extremely high level of Russia's spreads.

³Noncrisis countries include Argentina, China, Colombia, Hong Kong SAR, Mexico, the Philippines, Poland, South Africa, Turkey, and Venezuela.

⁴Crisis countries include Brazil, Indonesia, Korea, Russia, and Thailand.

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**Table A5.3. Market Ratings of Crisis Countries**

<table>
<thead>
<tr>
<th></th>
<th>Institutional Investor</th>
<th>Euromoney</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Precrisis¹</td>
<td>Postcrisis²</td>
</tr>
<tr>
<td>Thailand</td>
<td>63</td>
<td>48</td>
</tr>
<tr>
<td>Korea</td>
<td>72</td>
<td>54</td>
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<td>Indonesia</td>
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<td>Russia</td>
<td>28</td>
<td>20</td>
</tr>
<tr>
<td>Brazil</td>
<td>40</td>
<td>37</td>
</tr>
</tbody>
</table>

Sources: *Institutional Investor* and *Euromoney*, various issues.

¹September 1996 for Asian countries; and September 1997 for Russia and Brazil.

²September 1998 for Asian countries; and March 1999 for Russia and Brazil.
sources of rating agencies as potential areas for improvement. To this end, a survey of the leading international ratings agencies was conducted, involving several questions on information sources and access, analytical approaches and methods, and resources devoted to the analytical process. The results of the survey are reported in Table A5.4.

**Information Sources**

The principal source of information for all rating agencies is country visits, which generally occur once a year for each rated sovereign. Dynamic emerging market and crisis economies are visited more frequently, as much as two or three times a year, which complements continuous correspondence and contacts throughout the year, including when government authorities visit agency headquarters during investor road shows. During on-site visits, which usually last two to four days, the agencies interview a wide range of individuals, including finance ministry and central bank officials, private sector representatives, and political actors and observers. The agencies also gather the views of World Bank and IMF resident and desk economists, and use the publications and statistical resources of multilateral agencies, the BIS, the ILF, and the OECD.

**Information Access and Sufficiency**

The rating agencies have broad access to policymakers and independent observers and to available information on the sovereigns they rate. More important, the agencies unanimously report that they have enough information to assign and monitor sovereign ratings, especially after recent and ongoing improvements in the frequency and accuracy of foreign reserve data, and in the compilation of external debt statistics. As such, the high-profile cases of Mexico, Thailand, and Korea, where highly relevant foreign reserve figures were withheld, are exceptions rather than the rule. In this context, the agencies support the IMF’s data transparency and standardization efforts. Moreover, the agencies were unanimous in calling for the publication of IMF Article IV consultation reports.

**Analytical Methods**

The rating agencies do not use specific models (probabilistic or otherwise) to assign sovereign ratings. Instead, their analytical approaches are qualitative and aim to assess a multiplicity of qualitative factors and quantitative indicators that affect sovereign default risk. Some highlights on analytical methods include the following.

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**Survey of Credit Rating Agencies**

Earlier in this annex, we emphasized the need to concentrate on analytical methodologies and resources of rating agencies as potential areas for improvement. To this end, a survey of the leading international ratings agencies was conducted, involving several questions on information sources and access, analytical approaches and methods, and resources devoted to the analytical process. The results of the survey are reported in Table A5.4.

**Information Sources**

The principal source of information for all rating agencies is country visits, which generally occur once a year for each rated sovereign. Dynamic emerging market and crisis economies are visited more frequently, as much as two or three times a year, which complements continuous correspondence and contacts throughout the year, including when government authorities visit agency headquarters during investor road shows. During on-site visits, which usually last two to four days, the agencies interview a wide range of individuals, including finance ministry and central bank officials, private sector representatives, and political actors and observers. The agencies also gather the views of World Bank and IMF resident and desk economists, and use the publications and statistical resources of multilateral agencies, the BIS, the ILF, and the OECD.

**Information Access and Sufficiency**

The rating agencies have broad access to policymakers and independent observers and to available information on the sovereigns they rate. More important, the agencies unanimously report that they have enough information to assign and monitor sovereign ratings, especially after recent and ongoing improvements in the frequency and accuracy of foreign reserve data, and in the compilation of external debt statistics. As such, the high-profile cases of Mexico, Thailand, and Korea, where highly relevant foreign reserve figures were withheld, are exceptions rather than the rule. In this context, the agencies support the IMF’s data transparency and standardization efforts. Moreover, the agencies were unanimous in calling for the publication of IMF Article IV consultation reports.

**Analytical Methods**

The rating agencies do not use specific models (probabilistic or otherwise) to assign sovereign ratings. Instead, their analytical approaches are qualitative and aim to assess a multiplicity of qualitative factors and quantitative indicators that affect sovereign default risk. Some highlights on analytical methods include the following.

---

**Survey of Credit Rating Agencies**

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Table A5.4. Survey of Credit Rating Agencies

<table>
<thead>
<tr>
<th>Analytical Methodology</th>
<th>Changes Post-Asian Crisis (for all agencies)</th>
</tr>
</thead>
<tbody>
<tr>
<td>For all rating agencies</td>
<td>Greater emphasis on external debt and liquidity, banking soundness, corporate leverage, and policy response capabilities.</td>
</tr>
<tr>
<td>Scenario Analysis or Stress Testing?</td>
<td></td>
</tr>
<tr>
<td>Generally yes, but informal and selective.</td>
<td></td>
</tr>
<tr>
<td>Coping with Uncertainty: Probabilistic Approach?</td>
<td></td>
</tr>
<tr>
<td>Generally no. Only two of the agencies assign probabilities to risk factors for some dynamic emerging market countries.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Resources Devoted to Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sovereigns Rated (A)</td>
</tr>
<tr>
<td>Country Analysts (B)</td>
</tr>
<tr>
<td>Research Assistants (C)</td>
</tr>
<tr>
<td>Sovereigns Per Analyst and Research Assistant (A/B)</td>
</tr>
<tr>
<td>(A/C)</td>
</tr>
<tr>
<td>Average</td>
</tr>
<tr>
<td>70                                           12                                         5                                          7                                                 31</td>
</tr>
<tr>
<td>Average Ph.D.</td>
</tr>
<tr>
<td>Analyst Education and Experience</td>
</tr>
<tr>
<td>M.A.</td>
</tr>
<tr>
<td>B.A.</td>
</tr>
<tr>
<td>Work Experience3</td>
</tr>
<tr>
<td>Average4</td>
</tr>
<tr>
<td>2                                           12                                         2.5                                      10-12</td>
</tr>
</tbody>
</table>

Information, Resources, and the IMF

<table>
<thead>
<tr>
<th>For all rating agencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analytical Resources</td>
</tr>
<tr>
<td>Publish Article IV reports, facilitate the provision and standardization of data. Eforts to establish framework for debt restructuring and involve the private sector in preventing and resolving financial crises viewed as very positive.</td>
</tr>
</tbody>
</table>

1The survey comprised questions on analytical sources, processes, and methodologies; human resources devoted to sovereign analysis; rating agencies’ views on the adequacy of information and resources at their disposal and on the role of the IMF. The rating agencies surveyed include Moody's, S&P's, Fitch IBCA, and DCR.

2Includes sovereign rating group heads and deputy heads.

3Includes country analysts only and experience in country risk analysis alone.

4The average work experience figure is a weighted average of years of work experience based on the number of country analysts in each rating agency.

- Political factors, such as government stability and unity, and consensus in favor of reform and austerity have always been emphasized along with economic and financial factors, particularly in emerging market economies.
- The track record of economic policy management has also been heavily emphasized, and underpinned the (false) expectation that Asian economies would respond more quickly and forcefully to impending signs of distress.
- The prospect of an IMF-supported reform program, and the associated financing, is assessed and generally viewed positively, though only on occasion has it had a material impact on the rating decision. The prospect of IMF support had the greatest initial impact on the ratings of Russia, and moderated the magnitude of deterioration in the creditworthiness of Mexico, Thailand, and Brazil during their crises.
- The agencies do not conduct rigorous scenario analysis and stress testing, and rarely assign probabilities to specific risk factors and scenarios when assigning and monitoring ratings.
- Following the Asian crisis, the agencies are placing greater emphasis on external debt and liquidity, banking soundness, corporate leverage, and policy response capacities.15

Analytical Resources

Among the more revealing aspects of the survey is the amount of resources devoted to sovereign analysis. On average, each rating agency analyst is responsible for seven sovereigns. In terms of educational and work background, most sovereign analysts have a master's degree, and on average they have 10-12 years of work experience in country risk analysis. The average level of experience, in the case of most agencies, reflects a mix of some analysts with very high levels of experience (15-20 years) and others with much less (1-3 years). Rating agencies are unanimous in their assessment that they have adequate human resources to perform their tasks.

15 For example, see Fitch IBCA (1998) and S&P’s (1998).
In light of the survey findings, the following observations can be made:

- The agencies' unanimous position that they have enough information suggests that the real challenge of improving the predictive value of ratings and enhancing market efficiency rests more on improving the analysis of available information and less on generating more information. The agencies' call for the publication of IMF Article IV consultation reports arguably reflects their need for more sources of analysis.

- Given the importance of political factors in shaping policy decisions, policy implementation, and economic performance, the emphasis on political factors as much as economic ones seems appropriate, and a qualitative analytical approach is almost inevitable. Evaluating political factors, however, is inherently difficult, given the wide margin surrounding possible political outcomes in most developing countries. Even when they are accurately assessed, political factors may be less influential in rating outcomes because they are less tangible than economic and financial risks. It may not be coincidental that Indonesia and Russia have been among the most dynamic credit stories over the last year, driven mainly by their unstable politics.

- Similarly, the emphasis on economic management track record and the growing importance of policy responses is well placed. However, anticipating the policy responses of governments under stress is also analytically very challenging. Having managed their economies successfully for decades, Korea and Thailand were rated highly and were expected to manage their financial stresses successfully without depleting their usable reserves to the extent that they did. The subsequent rating downgrades reflected both the large scale of the crisis, but also the inadequate initial responses.

- Given the uncertainties inherent to political factors and government behavior under stress, the almost complete lack of a probabilistic approach to risk analysis is somewhat surprising, especially because ratings themselves are probabilistic statements of default risk. In the absence of a more probabilistic approach, the danger is that less tangible, but potentially important, risks may not be accorded the appropriate weight in rating decisions.

- The number of countries followed by agency analysts is excessive in light of the challenges associated with analyzing sovereigns. Global financial integration and liberalization have strengthened interdependencies to a degree that requires increasingly sophisticated risk assessment techniques, including systemic risk analysis, scenario analysis, and stress testing. The role of common lenders (commercial banks, investment banks, and hedge funds) in transmitting crises means that an intimate knowledge of lender and market behavior is also important. The excessive number of countries followed by agency analysts highlights the challenge of broadening the scope of country risk analysis and applying time-intensive techniques. As such, adequate staffing is clearly an issue to be contended with by the agencies.

- A key dimension of the resource issue is how the agencies compare to the market. To the extent that the agencies are better staffed than most market institutions, then the agencies clearly can add value, even if they are resource-constrained by some analytical or objective criteria. This issue cannot be assessed at present with the available data.

- Finally, the frequent criticism that the agencies cannot attract high-caliber analysts is not supported by the survey. Virtually all agency sovereign analysts have graduate degrees, and on average, many years of experience in country risk analysis. The issue is that more of them are needed.

**References**


Standard & Poor's, 1998, Sovereign Credit Ratings: A Primer (December).
———, 1999a, CreditWeek (March 10).
———, 1999b, CreditPro (May).
Annex VI
Use of Ratings in the Regulatory Process

The 1990s have witnessed an increased reliance on credit ratings by regulators in both mature and emerging markets. Indeed, the ratings are used in rather similar fashions in all countries. Perhaps the most extensive use of ratings has been to place investment restrictions on regulated institutions (Tables A6.1 and A6.2). Another common regulatory use of ratings relates to establishing capital requirements for financial institutions. Various countries impose lower capital ratios for banks and haircuts on securities houses when they hold highly rated securities. A third area of use relates to disclosure and issuance requirements. Initially, disclosure requirements for issuers of investment-grade securities were reduced. Subsequently, regulators specified that certain types of securities could only be issued if rated, and they often imposed a minimum rating requirement on these issues. Most regulators in emerging markets in Asia and Latin America currently impose a rating requirement on issues of nongovernment bonds and commercial paper. Self-regulatory bodies such as stock exchanges in the United States and Europe also impose rating requirements that issuers have to fulfill in order to be listed.

Most regulators stipulate a list of recognized agencies whose ratings can be used to satisfy ratings requirements. In Japan, for example, the ministry of finance has maintained a list of designated Japanese and American ratings agencies since 1986. In the United States, such agencies are referred to as Nationally Recognized Statistical Rating Organizations (NRSROs), a term introduced by the SEC in 1975. To resolve the ambiguity created by multiple and, at times, different ratings, most regulations accept the highest or second-highest rating. Most countries that assign a list of recognized agencies accept the ratings of the major international institutions (such as S&P’s and Moody’s) and those of some local agencies.

The United States pioneered the regulatory use of ratings some seven decades ago. In 1931, the OCC first used the distinction between investment- and non-investment-grade securities when it ruled that, while bonds rated BBB or better were to be carried at book values by banks, lower-rated bonds had to be written down to market value and 50 percent of the resulting losses were to be charged against capital. In 1936, the OCC and the Federal Reserve Board prohibited banks from holding bonds not rated investment grade by at least two agencies. The use of the investment- and non-investment-grade distinction to constrain institutional portfolio choices subsequently spread, particularly in the late 1980s and the early 1990s, to pension funds, savings and loans, and money market funds (see items (6), (7), (8), and (13) in Table A6.1). The use of ratings soon expanded to areas other than investment restrictions. In the early 1950s, insurance company regulators were using ratings to help determine the capital to be set aside when certain types of securities were held. In 1975, the SEC stated imposing higher haircuts on broker-dealers holding commercial paper not rated in the three highest rating categories and for nonconvertible debt securities that were not investment grade. In 1982, the SEC eased disclosure requirements for issuers of investment-grade securities, hence expanding the use of ratings to yet another new regulatory facet. This type of regulatory use was extended with the adoption of rule 3a-7 by the SEC in 1992, whereby an investment-grade rat-

1The recent proposal on capital adequacy requirements by the Basel Committee on Bank Supervision to use credit rating to determine risk weight is reviewed in Box 4.2, Chapter IV.
2The list today consists of the following agencies: Japan Rating and Investment Information, Japan Credit Rating Agency, Moody’s Investors Service, S&P’s, Fitch IBCA, DCR, and Thomson Bank Watch.
3The list of NRSROs in the United States includes the major agencies (Moody’s, S&P’s, Fitch IBCA, DCR, Thomson Bank Watch) as well as some smaller ones (McCarthy, Crisanti). Several foreign rating agencies have applications pending with the SEC to acquire NRSRO status.
4The adoption of rating-based regulations was the main force leading to the creation of rating agencies in emerging markets in Latin America and Asia; there are on average three to four such agencies per country in Latin America. In cases where the establishment and operation of a rating agency are subject to a set of rules, as is the case in Argentina, Chile, and Mexico, once such an agency is allowed to be established, its ratings are automatically recognized by regulators.
5This investment-grade distinction was also adopted by the National Association of Insurance Commissioners in 1951.
6The SEC introduced at that time the concept of an NRSRO by referring to Moody’s, S&P’s, and Fitch as agencies whose ratings it recognized for the purpose of this legislation.
Table A6.1. U.S. Regulations Making Use of Credit Ratings

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>The Office of the Comptroller of the Currency (OCC) and the Federal Reserve Board (FRB) have, since 1936, restricted banks to investing in investment-grade debt securities.</td>
</tr>
<tr>
<td>2.</td>
<td>The Federal Deposit Insurance Commission (FDIC) does not allow insured banks that are not members of the Federal Reserve System (FRS) to acquire or establish subsidiaries that trade in securities, but there are a few exceptions, such as if the securities are investment grade. The FDIC also imposes on state-chartered banks that are not members of the FRS to mark to market non-investment-grade securities in capital valuations.</td>
</tr>
<tr>
<td>3.</td>
<td>The National Association of Insurance Commissioners (NAIC) established in 1951 capital requirements for insurance companies that give the lowest requirement ratio to investment-grade debt securities.</td>
</tr>
<tr>
<td>4.</td>
<td>A 1975 amendment to rule 15c3-1 of the Securities and Exchange Commission (SEC) specifies the percentage haircut deductions that apply to broker-dealers' investment-grade bonds depending on their type. The securities that receive the lowest haircuts include commercial paper rated in one of the three highest rating categories by at least two NRSROs and nonconvertible debt securities rated in one of the four highest rating categories by at least two NRSROs.</td>
</tr>
<tr>
<td>5.</td>
<td>Since 1982, the SEC has simplified information disclosure for issuers of investment-grade securities who are allowed to register their securities using form S-3. Also, foreign issuers are automatically eligible to use the simple form F-2 to register investment-grade securities. An even simpler form, F-3, is also available for use under specific conditions, some of which are relaxed, however, if the security to be registered is investment grade.</td>
</tr>
<tr>
<td>6.</td>
<td>Since 1989, the Department of Labor has permitted pension funds to invest in asset-backed pass-through certificates if, among other conditions, these certificates are rated in one of the three highest categories by one of the four largest rating agencies.</td>
</tr>
<tr>
<td>8.</td>
<td>Under the 1991 amendment to rule 2a-7 of the 1940 Investment Company Act (ICA), money market funds are required to limit investments to securities that are rated in one of the two highest rankings by at least two NRSROs (and only up to 5 percent of investments should be in securities rated in the second rating, while only up to 1 percent of assets can be second-rating securities of a single issuer).</td>
</tr>
<tr>
<td>9.</td>
<td>Under rule 3a-7 of the 1940 ICA, adopted by the SEC in 1992, certain issuers of asset-backed securities are exempt from registration and regulation if, among other factors, their issues receive investment-grade ratings by at least one NRSRO.</td>
</tr>
<tr>
<td>10.</td>
<td>Underwriting of nonconvertible debt or nonconvertible preferred stock is allowed under rule 10b-6 of the SEC 1934 Act when the securities involved have an investment-grade rating from at least one NRSRO.</td>
</tr>
<tr>
<td>11.</td>
<td>Under rule 10b-3 of the 1940 ICA, registered investment companies cannot engage in underwriting activities if the underwriter is an affiliate or an affiliate of an affiliate. One exception to that rule, however, is if the company is acquiring investment-grade municipal bonds.</td>
</tr>
<tr>
<td>12.</td>
<td>Under rule 12d3-1 of the 1940 ICA, the rules under which an investment company can acquire securities of parties deriving more than 15 percent of their gross revenues from securities-related activities include a rating requirement: the acquired securities have to be investment grade.</td>
</tr>
<tr>
<td>13.</td>
<td>Some rules imposed on savings associations registered with the Office of Thrift Supervision make use of ratings. These associations, for example, cannot trade in corporate debt securities that are not investment grade, nor in commercial paper rated below the first two highest ratings by an NRSRO, and both types of assets can qualify as liquid to meet liquidity requirements.</td>
</tr>
<tr>
<td>14.</td>
<td>Foreign banks that want to insure their deposits with the FDIC are required to pledge a specific percentage of high-quality assets such as securities rated in one of the two highest ratings by an NRSRO.</td>
</tr>
<tr>
<td>15.</td>
<td>Several states use credit ratings in security valuations and in ruling on the type of investments eligible for various state-regulated funds and financial institutions. In California, county treasurers can only invest in money market funds that are rated by two NRSROs, and municipalities can invest up to 30 percent of their portfolios in medium-term corporate bonds if they have a minimum A rating by two NRSROs. In Vermont, domestic issuers can invest a maximum of 50 percent of their assets in investment-grade fixed-rate corporate securities; banks can invest in investment-grade interest paying corporate securities and in revenue bonds issued by out-of-state parties if they are rated investment grade.</td>
</tr>
<tr>
<td>16.</td>
<td>The New York Stock Exchange and Philadelphia Stock Exchange set margin requirements based on the type of security pledged to secure the loan. The most favorable treatment is accorded to U.S. government obligations and to mortgage-backed debt securities rated in one of the two highest rating categories by at least one NRSRO (NYSE rule 431 and PHLX rule 722).</td>
</tr>
</tbody>
</table>

Sources: Baron and Murch (1993); Cantor and Packer (1994); Dale and Thomas (1991); and conversations with representatives of the SEC and various credit rating agencies.
Table A6.2. Regulatory Use of Credit Ratings in Selected Countries

Industrial Countries

Australia: Although there are no nationwide regulations making use of ratings, the provinces of New South Wales and Victoria restrict fiduciaries to invest only in securities that have a stipulated rating (AA or higher in the first province, varying depending on the rating agency in Victoria).

Canada: More simple filing procedures apply when issuing nonconvertible debt or preferred stock in the case of companies that already have investment-grade outstanding debt.

A credit rating is required from banks when their financial condition is being examined.

Japan: The ministry of finance stipulates that any listed company can issue commercial paper provided it has an investment-grade rating from two recognized agencies.

Securities purchased, bonds borrowed, and financial instruments serving as collateral in repos undertaken by money reserve funds must be rated either long-term in the three highest rating classes or short-term in the two highest rating classes by at least two designated agencies.

Investment in Class 1 securities (rated in the two highest long-term ratings or in the highest short-term rating) cannot exceed 5 percent of net assets per issuer (except for Japanese government and government-guaranteed issues) while investment in Class 2 securities cannot exceed 5 percent of total net assets, with a single issuer limit of 1 percent of net assets.

The ministry of finance imposes on Japanese companies that want to issue nonconvertible (convertible) euroyen debt to either be rated AA (A) or above, or be rated A (BBB) and have net assets of $5 billion yen. Nonresidents can issue euroyen bonds provided they possess a rating.

Switzerland: To be listed for trading on the Zurich stock exchange, debt securities must be investment grade (or designed by the underwriter as equivalent).

E.C.: The Capital Adequacy Directive (CAD) was adopted in 1993, whereby a higher capital requirement was recommended for investment firms and credit institutions that hold low-grade securities.

France: The European CAD was adopted in 1996: the banking rule 95-02 allows for lower capital provisions for securities given at least two accepted minimum ratings by separate agencies.

The rule specifies 13 acceptable agencies and a benchmark minimum rating for each.

Commercial paper issues with maturities exceeding two years, asset-backed securities, and all bank certificates of deposits must be rated.

The Stock Exchange can request a rating from any issuer that seeks a listing, and usually does so for first-time foreign issuers.

Italy: The European CAD directive was adopted in 1997: banks can reduce capital provisions for qualified securities, which are securities that have two approved ratings by two separate accepted agencies.

The methodology followed by banks to determine the percentage deduction of own funds in the prudential provision for country risk takes into account ratings in addition to spreads.

A securitization law, currently with the parliament, states that securitized assets of banks have to be rated.

Money market funds cannot invest in paper rated below investment grade.

United Kingdom: The European CAD directive was adopted in 1996. Banks and securities firms are permitted lower capital provisions for investment-grade securities.

Emerging Markets

Asia

India: The Reserve Bank of India requires that loan and investment companies have minimum investment grade rating in order to accept public deposits. Also, the amount of such deposits that equipment leasing and hire purchase companies can accept is 2.4 times greater if they have such a rating.

Nonbank financial corporations that are either unrated or rated below investment grade must disclose their rating to potential depositors before getting their deposits.

Ratings are compulsory on all public issues of debentures with maturity exceeding 18 months. Hence, there is a rating requirement for nongovernment bonds, commercial paper, nonbank and bank deposits, and investment schemes of plantation companies.

There are two requirements for large issues (exceeding the equivalent of $25 million):

- Pension funds can only invest in securities that have two ratings.

Indonesia: There is a minimum rating requirement on commercial paper issues (A4, the local minimum investment grade rating) and a rating requirement on nongovernment bond issues. The insurance council "urges" companies to invest in investment-grade paper, and is currently proposing to use ratings as part of a system of risk-based capital provisioning for insurance companies.
Use of Ratings in the Regulatory Process

Table A6.2 (concluded)

<table>
<thead>
<tr>
<th>Country</th>
<th>Regulations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Korea</td>
<td>There is a requirement of two ratings for the issuance of nongovernment bonds and commercial paper but under discussion is the possibility to remove this requirement. The ministry of finance and economy looks at the ratings of bonds of security companies in determining net capital rules.</td>
</tr>
<tr>
<td>Malaysia</td>
<td>There is a minimum rating requirement (BBB, which is the local equivalent of investment grade) on nongovernment bonds and commercial paper.</td>
</tr>
<tr>
<td>Philippines</td>
<td>There is a rating requirement for nongovernment bond issues, and the security and exchange commission there has the discretion to mandate a rating for commercial paper issues. The social security, retirement, and separation benefits systems can only invest in commercial paper rated investment grade. The national health insurance corporation can only invest in the stock of companies with debt rating of investment grade.</td>
</tr>
<tr>
<td>Taiwan Province of China</td>
<td>There is a rating requirement on nongovernment bonds. Financial institutions that guarantee commercial paper programs must be rated. Any issuers of warrants or guarantors of warrants must be rated investment grade. Corporate bonds can be deposited with the central bank (as collateral, for example) by investment trust companies only if these bonds have been rated in the lowest A level. Issuers of bonds and stocks are allowed accelerated procedures if within the past 12 months they issued debt rated investment grade. The central bank gives credit in banks’ risk-adjusted capital calculations to holdings of debt securities rated above investment grade.</td>
</tr>
<tr>
<td>Thailand</td>
<td>The limits imposed by the Bank of Thailand on bank lending to a single borrower (25 percent of the bank’s Tier 1 capital) does not apply in case the bank is acting as an underwriter of securities issued by a company with a AA or higher credit rating. There is a rating requirement on nongovernment bonds and commercial paper publicly sold.</td>
</tr>
<tr>
<td>Latin America</td>
<td></td>
</tr>
<tr>
<td>Argentina</td>
<td>Banks must be rated by two separate agencies and have to disclose these ratings to counterparties in a transaction upon demand. In addition to banks, most types of financial institutions are subject to a rating requirement as well—except for insurance companies. Banks capital adequacy requirements are lower for loans granted to clients with ratings above the sovereign as well as for OECD government bonds rated investment grade. Liquidity requirements of banks can be met with holdings of various securities issued by A-rated firms or financial institutions. Banks cannot purchase bonds issued by (or extend credit to) related clients if these bonds are rated below BB. Banks are required to issue bonds for 2 percent of deposits, to be held by a foreign bank with an A rating or higher.</td>
</tr>
<tr>
<td>Chile</td>
<td>The issue abroad of American Depository Receipts by residents is subject to two minimum international risk-rating requirements (BBB— for banks; BB— for other firms). The sale or issue abroad of bonds or other debt securities by resident banks and firms registered with the Superintendency of Securities and Insurance is subject to a minimum rating requirement of BB— for nonfinancial institutions (BB if the bonds have less than 4-year maturity) and of A+ (BBB— in the case of subordinated bonds) for banks and financial institutions. Investment by commercial banks and other credit institutions abroad is restricted to bills and bonds issued or guaranteed by foreign governments or central banks and private enterprises with a minimum long-term international debt-risk rating (and its equivalent for short-term debt) of BBB. Pension funds and insurance companies may hold only foreign instruments of a minimum rating of A—. A credit rating is required from banks when their financial condition is being reviewed.</td>
</tr>
<tr>
<td>Mexico</td>
<td>Private pension funds can only invest in securities rated at least AA. Firms must have an investment-grade standing when they issue debt. There is one rating requirement on all debt (commercial paper, medium-term notes, and bonds) issued by companies in the public market. Debt funds have to be rated. The Superintendency of pension funds requires pension funds to be rated, but the ratings are private (only disclosed to the regulators and to the funds themselves), although there is a possibility that they will be made public soon.</td>
</tr>
</tbody>
</table>

Sources: Banco Central de Argentina (1998); Baron and Murch (1993); Callen and others (1998); Dale and Thomas (1991); Laurens and Cardoso (1998); IADB (1998); World Bank (1998); and conversations with central bank and ministry of finance officials and with representatives of various credit rating agencies.
ANNEX VI USE OF RATINGS IN THE REGULATORY PROCESS

ing for an asset-backed security allowed the issuer to use simplified registration requirements. The use of ratings subsequently expanded to use in regulation on underwriting activities (see items (10) and (11) in Table A6.1) and on restrictions related to the counterparties in security trading (see items (11) and (12) in Table A6.1).

The expanding use of ratings in regulation was also marked by a shift from the reliance on the investment-grade rating as a cut-off in rules. Alternative benchmarks became the A rating (adopted by the Department of Labor in restricting pension funds' investments as well as by the SEC in setting haircuts on commercial paper) or the AA rating (adopted by the Federal Deposit Insurance Commission in the conditionality attached to providing insurance to foreign banks' deposits as well as by the Office of Thrift Supervision in regulating the use of commercial paper both in trading and liquidity provisions by savings associations). Moreover, some regulations, instead of introducing a cut-off rating requirement, stipulated a schedule whereby various rating levels would correspond to different restrictions or charges. Hence, the SEC established different quantitative restrictions on the investments of money market funds depending on whether the securities are AAA or AA rated (see item (8) in Table A6.1).

Credit ratings were first introduced in Japan in 1974.® The first Japanese credit rating agency (Japanese Bond Research Institute) was established in 1979, and regulators began using its ratings as eligibility standards for bond issues in the early 1980s. By the 1990s, ratings completely replaced the previous standards for bond issuance based on net asset value and other firm data. Most of these extensive rating-based standards were in turn abolished in 1996, however, in a move to further liberalize financial markets. Nevertheless, the ministry of finance still relies on ratings in various ways, mainly in the prudential regulation of money reserve funds. These funds are not allowed to trade in securities rated below A (long-term) or AA (short-term). Issues of euroyen debt by domestic and foreign parties are subject to rating requirements as well (see Table A6.2 on previous page).

In the mid-1980s, the regulatory use of ratings began to spread to countries other than Japan and the United States (see Table A6.2). In Europe, this trend was primarily promoted by the 1993 Capital Adequacy Directive, which specifies capital requirements designed to ensure the safety and soundness of banks and security houses in the European Community. The 1993 Capital Adequacy Directive stipulates that these institutions should set aside more capital against their holdings of non-investment-grade securities. By 1997, most EC member countries had amended their legislation to incorporate the 1993 Capital Adequacy Directive in their surveillance of financial companies. The traditional use of ratings in investment prohibitions recurred in Italy, where money market funds are not allowed to invest in low-grade paper. In France, rating requirements were imposed on the issuance of various types of securities, such as commercial paper, asset-backed securities, and bank certificates of deposits. The use of ratings in Europe, while still limited, is rapidly expanding. The recently proposed amendment to the Basel Capital Adequacy requirements, which links risk weights with ratings (see Box 4.2 in Chapter IV), is expected to lead to greater use of ratings in the regulatory process in all countries with internationally active banks.

The regulatory use of ratings in emerging markets, particularly in Latin America, has been fostered by the process of deregulation and liberalization. In some of these markets, capital requirements have been linked to the use of ratings. In Argentina, for example, bank capital requirements are lower for loans granted to clients with ratings above the sovereign, as well as for OECD government bonds rated investment grade. However, ratings are most widely used as benchmarks in restricting portfolio investment and security issuance. Rating-based investment restrictions are imposed on pension funds in Chile and Mexico, and on the social security and worker compensation systems in the Philippines. India, Indonesia, Korea, Malaysia, the Philippines, Taiwan Province of China, and Thailand figure among the countries that impose rating requirements on security issues. In Latin America, all countries except for Brazil either have already adopted rating-based restrictions on security issuance or are considering their use. Argentina, Chile, and Mexico have implemented rules requiring banks, financial companies, and debtors to be rated for a variety of reasons, including specifying conditions under which deposits can be accepted or debt can be issued (see Table A6.2).

References


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