



# THE GLOBALIZATION OF FINANCIAL INSTITUTIONS AND ITS IMPLICATION FOR FINANCIAL STABILITY

The globalization of financial institutions appears to have accelerated over the past decade and has important implications for financial stability.<sup>1</sup> This chapter reviews developments, presents new empirical results on the link between globalization and financial stability, and discusses the key policy implications.

The analysis suggests, in particular, that the globalization of financial institutions appears to have generally helped improve financial stability from the perspective of individual institutions and in the face of relatively small-scale shocks. But it also suggests that, while generally beneficial, it cannot be taken for granted that globalization also makes financial systems as a whole more resilient in the face of extreme events. Increased international linkages within and across institutions may make crises more broad-ranging and complicated to deal with. As one commentator put it, financial systems may now be more efficient at sharing risk but also at transmitting shocks (Gieve, 2006a). If so, crises may be less common but more severe.

This underscores the importance of policymakers continuing to ensure that national legal, regulatory, and supervisory arrangements evolve to cope with the increasingly globalized nature of institutions. To ensure that the benefits of institutional globalization are maximized, and

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<sup>1</sup>The main focus in this chapter is the globalization of banking, with insurance aspects also covered. Although large investment banking firms are included in some of the banking analysis, more general trends in the activities and products of international securities firms are not covered here. Their implications for financial stability, as well as developments in various types of infrastructure and supporting industries for global finance, will be examined in future issues of the *Global Financial Stability Report*.

the potential risks contained, further work is needed to develop effective mechanisms for multinational collaboration, both in terms of ongoing supervisory coordination and crisis management and resolution arrangements.

## Background

The trend toward greater globalization of financial institutions is closely intertwined with other structural changes in the financial sector.<sup>2</sup> In addition to the increased openness to foreign intermediaries in many countries, deregulation has facilitated the emergence of conglomerates combining banking, securities, asset management, or insurance activities in one organization; merger and acquisition (M&A) activities have led to the consolidation of the industry; ongoing securitization and the expansion of derivatives markets has allowed institutions to transfer—within and across borders—a range of risks that had previously been held on their balance sheets;<sup>3</sup> and risk management capacities in general have been strengthened within institutions.

These trends have created, among other things, larger institutions with a greater international scope frequently operating in multiple sectors (known as “large complex financial institutions” or LCFIs), and increasingly relying on funding from international markets rather than domestic sources. At the same time, institutional

<sup>2</sup>Furthermore, institutional globalization is a trend that affects emerging as well as mature market economies, not just because the former are frequently important as host countries but also because some emerging market-based financial institutions increasingly operate internationally. Lower-income countries are also part of this trend, albeit generally on a smaller scale.

<sup>3</sup>Some major institutions play central roles in the markets for such products, as well as in providing services to other key players in those newer markets (e.g., prime brokerage services for hedge funds).

**Table 3.1. Financial Industry Mergers and Acquisitions (M&A), 1996–2006**

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
	<i>(In billions of U.S. dollars)</i>										
<b>By regions</b>											
Developed countries <sup>1</sup>	76.4	238.9	477.5	362.0	459.5	306.0	215.0	302.1	442.1	513.0	778.5
Cross-border	0.3	0.0	8.3	4.9	56.2	79.6	93.1	80.0	117.9	174.9	273.8
Rest of the world	2.7	4.8	23.7	16.2	42.5	70.2	44.1	28.8	57.3	85.3	124.1
Cross-border	0.0	0.2	0.0	2.0	8.5	29.5	17.6	14.8	22.2	54.6	85.6
Total	79.1	243.7	501.2	378.2	502.0	376.1	259.1	330.9	499.4	598.2	902.5
Cross-border	0.3	0.2	8.3	6.9	64.8	109.1	110.6	94.9	140.1	229.4	359.5
	<i>(In percent of total)</i>										
<b>Cross-border M&amp;A</b>											
Developed countries <sup>1</sup>	0.3	0.0	1.7	1.3	11.2	21.2	35.9	24.2	23.6	29.2	30.3
Rest of the world	0.0	0.1	0.0	0.5	1.7	7.8	6.8	4.5	4.5	9.1	9.5
Total	0.3	0.1	1.7	1.8	12.9	29.0	42.7	28.7	28.1	38.4	39.8

Source: Bloomberg L.P.

Note: Includes only deals where both the target and the acquirer are classified as a financial institution.

<sup>1</sup>Australia, Canada, Japan, New Zealand, the United States, and Western Europe.

globalization is not limited to the activities of LCFIs: another key aspect is the cross-border expansion of smaller and less complex bank groups into markets where they have become systemically important.<sup>4</sup>

Although no one indicator fully captures institutional globalization in all its aspects and forms, one telling illustration is the volume of cross-border M&A in the financial sector.<sup>5</sup> As Table 3.1 shows, M&A activity in the financial system has risen sharply since 2000, with cross-border M&A increasing from less than 1 percent to nearly 40 percent of the total value of financial sector M&A activity from 1997 to 2006. Over the same period, financial institutions in developing countries grew increasingly attractive as M&A targets. By 2006, almost one-quarter of cross-border financial M&A (or 10 percent of total financial M&A) involved institutions outside developed countries. Cross-border consolidation was particularly active in Europe, following substantial deregulation of cross-border economic activity in both financial and non-financial markets and the adoption of the euro.

<sup>4</sup>Although this chapter focuses on the impact on financial stability of the globalization of institutions, the additional trends noted here may also have important effects.

<sup>5</sup>Comprehensive financial sector foreign direct investment data are not available. See BIS Committee on the Global Financial System (2004) and Moshirian (2006).

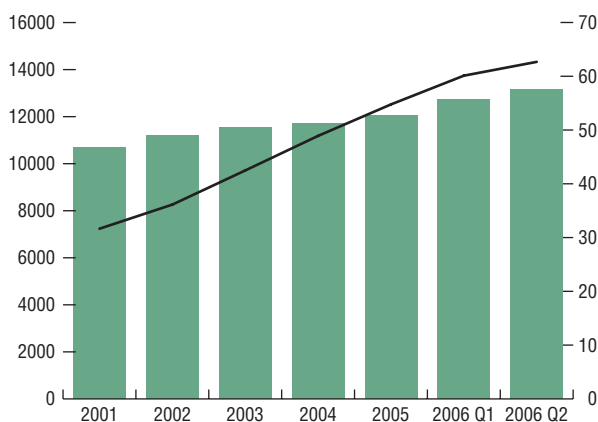
Improvements in information processing, telecommunications, and financial technologies have played an important role in spurring the globalization of financial institutions. For example, technological innovation in risk management, back-office support, and transaction processing has enabled banks and other institutions to manage risks at lower cost without geographic proximity to the customer (Berger and others, 2003). Similarly, in the insurance sector, advances in information technology have enabled consolidated cross-border databases to be maintained on actuarial, claims, underwriting, and policyholder data.

Institutions have internationalized for a wide range of reasons, including expectations that knowledge and efficiencies in undertaking business and underwriting risk in one market can be transferred into others; that economies of scale and scope can be achieved when operating multi-country operations; and that a cross-border group can better allocate a large and stable capital base profitably across business lines to those where profitability is expected to be greatest, while also diversifying risk geographically.<sup>6</sup>

<sup>6</sup>For further details on institutions' globalization strategies, see the literature on the determinants of cross-border banking, such as Buch and DeLong (2004).

Cross-border expansion into emerging market (EM) countries has often been particularly appealing. Emerging markets have been seen as offering the prospect of faster business and profit growth, especially given the relative underdevelopment of their financial markets and institutions. For many emerging European countries, the prospects of closer economic integration with the European Union—including through EU accession and eventual membership in the euro area—have been a significant driving force in this regard. In addition, such countries sometimes have demographic or socioeconomic trends that are expected to encourage increases in long-term savings, which is of relevance to, for example, the life insurance industry.

**Figure 3.1. Foreign Loans and Deposits of Bank for International Settlements Reporting Banks**



Source: Bank for International Settlements (BIS).  
 Note: Foreign loans and deposits of BIS reporting banks are represented in percent of private sector credit (bars measured on right-hand axis) and in billions of U.S. dollars (solid line measured on left-hand axis).

### Banking

Of all types of financial institutions, banks are most active in pursuing an international presence.<sup>7</sup> One measure of the rapid internationalization of banking in recent years is the rising number of foreign claims (loans made and deposits placed externally) of Bank for International Settlements (BIS) reporting banks. Figure 3.1 shows this trend both in levels and as a share of private sector credit in recipient countries. This general picture is supported by bank-by-bank data on cross-border ownership (Table 3.2). The increase in foreign ownership was particularly rapid in Eastern Europe, where the share of banking assets under foreign control increased from 25 percent in 1995 to 58 percent in 2005, and in Latin America, where that share rose from 18 to 38 percent of total bank assets. In contrast, internationalization of banking has proceeded more slowly in Africa, Asia, and the Middle East.<sup>8</sup>

The ownership picture can be complemented by an analysis of domestic, regional, and global

<sup>7</sup>There are also more data available on banks to facilitate analysis.

<sup>8</sup>Note, however, that these data reflect only the institutions covered by the Fitch-ICBA/BankScope database, and may give an unrepresentative picture for some countries.

**Table 3.2. Foreign Bank Ownership, by Region**

	1995				2005				Change in Foreign Assets (US\$ billions)	Change in Foreign Asset Share (percent)	Change in Mean Foreign Share (percent)
	Total bank assets (US\$ billions)	Foreign-controlled total assets (US\$ billions)	Total foreign asset share (percent)	Mean foreign asset share (percent)	Total bank assets (US\$ billions)	Foreign-controlled total assets (US\$ billions)	Total foreign asset share (percent)	Mean foreign asset share (percent)			
<b>Region (no. of countries)</b>											
All countries (105)	33,169	5,043	15	23	57,165	13,039	23	35	7,996	8	12
North America (2)	4,467	454	10	8	10,242	2,155	21	17	1,701	11	9
Western Europe (19)	16,320	3,755	23	24	31,797	9,142	29	30	5,387	6	6
Eastern Europe (17)	319	80	25	21	632	369	58	49	289	33	28
Latin America (14)	591	108	18	14	1,032	392	38	29	284	20	15
Africa (25)	154	13	8	38	156	12	8	35	-1	-1	-3
Middle East (9)	625	85	14	14	1,194	202	17	17	117	3	3
Central Asia (4)	150	3	2	4	390	9	2	5	6	0	1
East Asia and Oceania (13)	10,543	545	5	6	11,721	758	6	7	213	1	1

Source: IMF staff calculations based on data from *International Financial Statistics* and ©2003 Bureau van Dijk Electronic Publishing-BankScope.

activities of large banks. The results, as shown in Table 3.3, suggest that most of the business of the world's 90 largest banks is still with the home country, although there are wide differences between individual banks and across regions. Banks headquartered in North America and the Asia-Pacific region tend to be more domestically oriented, whereas European banks are far more internationalized on average, even aside from their large intra-European interests. The strategic focus of regional banks also varies considerably. While some banks have established a strong presence over a wide range of developed markets within their region, others are concentrating their activities in a selected group of countries within their region. A third group conducts a large portion of their business in emerging markets.

### **Globalization of Banks in Emerging and Developing Markets**

As noted above, the share of cross-border financial sector M&A involving target institutions in emerging markets has increased significantly (Domanski, 2005; BIS Committee on the Global Financial System, 2004 and 2005; and BIS, 2006). As a result, foreign banks have become dominant players in the 10 member states that joined the EU in 2004, for example, and accounted for 77 percent of total banking

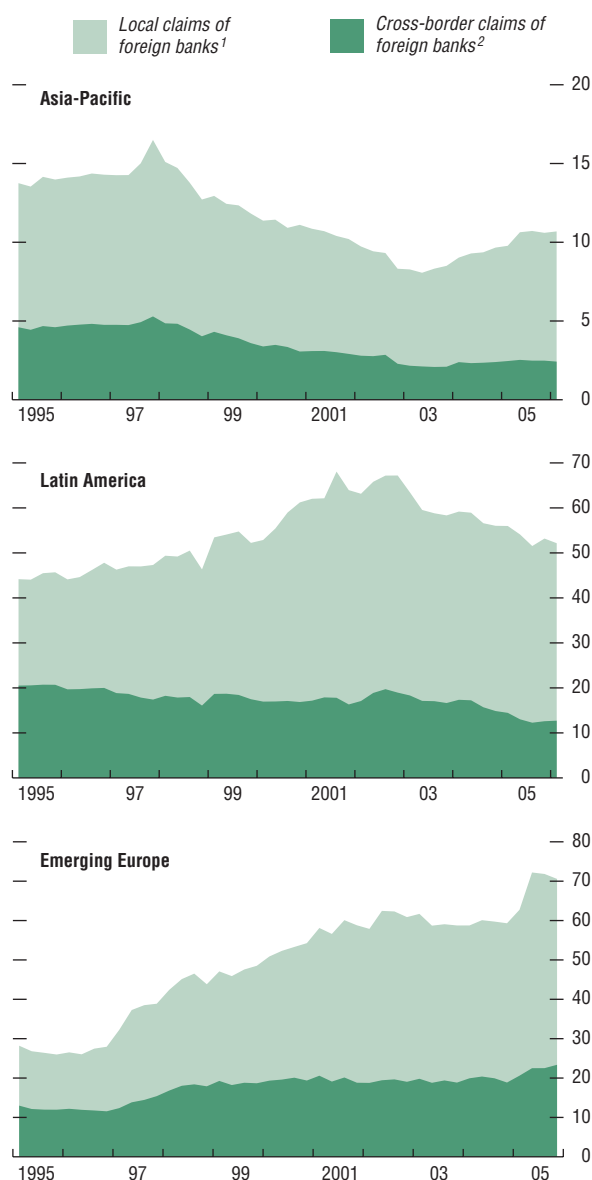
sector assets at end-2005 (European Central Bank, 2005). Similarly, in Mexico, foreign banks account for over 75 percent of total banking sector assets. However, this trend is not uniform, and in a number of other EM countries (e.g., Indonesia, Israel, Malaysia, Saudi Arabia, and Thailand), foreign bank penetration has stagnated since 1999 (BIS, 2006).

The past decade has also seen a transformation of the role of foreign banks in EMs. First, while the large international banks have continued their expansion in selected markets, a number of mid-sized banks have also become increasingly active across borders since the mid-1990s, particularly in emerging Europe. This has partly reflected limited expansion opportunities, heightened competition in home markets, and prospects of strong profitability in host markets.<sup>9</sup>

Second, there has been a significant shift toward local activities by foreign banks in EMs. Traditionally, foreign banks primarily focused on providing financial services to their inter-

<sup>9</sup>See Focarelli and Pozzolo (2005). As an illustration, data from BankScope and the RZB Group (2006) show that for four Austrian banks, the share of revenue from activities in Central and Eastern Europe was 69 percent in 2005 compared with an asset share of 39 percent; and for two Italian banks it was 19 percent compared with an asset share of 7 percent.

**Figure 3.2. Foreign Bank Participation in Emerging Countries**  
(In percent of total private sector credit)



Source: Bank for International Settlements (BIS).  
 Note: Methodology, background analysis, and data were originally published in McGuire and Tarashev (2005a and 2005b). Updated data provided by BIS staff.  
<sup>1</sup>Private sector local claims of foreign affiliates (in all currencies) as a percent of total private sector credit. While BIS data allow for netting of interbank claims in the case of cross-border claims and local claims in foreign currency, there is no sectoral breakdown available for local claims in local currency. For consistency purposes, the share of local claims in local currency to non-banks is estimated using the sectoral breakdown available for local claims.  
<sup>2</sup>Private sector cross-border claims of foreign banks as a percent of total private sector credit.

**Table 3.3 Cross-Border Activities of the 90 Largest Banks, 2005**  
(Geographical activity shares, in percent)

	Share of Activities in:		
	Home country	Rest of the region	Rest of the world
Banks based in:			
North America (20 banks)	77	8	15
Europe (50 banks)	55	24	21
Asia and Pacific (20 banks)	86	5	9

Sources: IMF staff calculations based on data from BankScope and the banks' annual reports for 2005.  
 Note: "Region" is defined as North America, Europe, and Asia and Pacific, respectively. For the purpose of this analysis, the geographical shares of a bank's activities are calculated as an unweighted average of shares of assets, revenues, and employees in a given region or country. This approach follows the methodology of the "transnationality index," developed by Sullivan (1994), and recently calculated by Schoemaker and van Laecke (2006) for a sample of 60 of the world's "top banks." Using the same methodology, the shares of activities are computed here for the largest 50 European banks, 20 Asian-Pacific banks, and 20 North American banks. The data presented for each region are weighted averages of bank-by-bank data, using the bank size (the unweighted average of its share in assets, revenues, and employment of all banks in the region) as a weight.

national corporate clients in host countries, but there is now often a growing emphasis on housing-related and other personal lending (IMF, 2006a, Chapter II). One reflection of this development is that direct cross-border lending by the head offices of international banks has been progressively overshadowed by local lending by their foreign affiliates (Figure 3.2).<sup>10,11</sup> In Latin America and emerging Europe, for example, the increased participation of foreign banks in local credit markets was fully attributable to the growth of locally extended claims by foreign affiliates (upper shaded area in Figure 3.2).

<sup>10</sup>To the extent that foreign affiliates take on currency (or other) mismatches as a result of their local activities, their status as part of a larger international group would generally make it easier to hedge or otherwise manage those mismatches—for example, by hedging with the parent.

<sup>11</sup>It seems likely that this development has also contributed to the convergence of interest rates across countries, including at the retail level, over the last decade or so. Cross-country standard deviations of real lending and deposit rates have declined both globally and in individual regions in that period. An analysis of "beta" convergence of real rates to applicable benchmark rates also strongly shows such convergence.

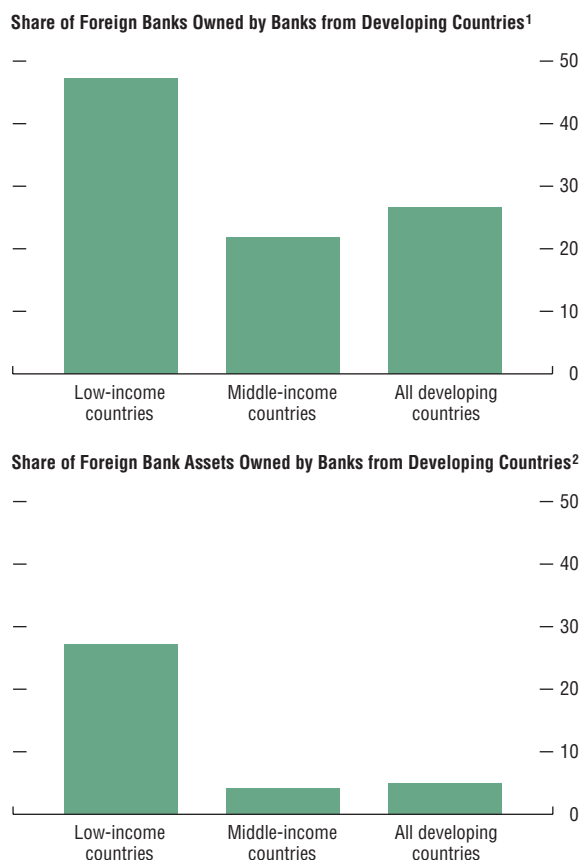
Third, although most banks entering developing countries are from industrialized countries, banks from other developing countries have recently also become active as investors (World Bank, 2006; Van Horen and Claessens, forthcoming). In 2005, 27 percent of all foreign banks in developing countries were owned by a bank from another developing country, while these banks held 5 percent in assets (Figure 3.3). Especially in low-income developing countries, the importance of developing country foreign banks is very large (47 percent of foreign banks in terms of numbers and 27 percent in terms of assets). Furthermore, this type of foreign banking is strongly regionally concentrated. As is the case with foreign entry by industrialized country banks, direct investment by other developing country banks tends to be driven by economic integration, common language, and proximity. However, developing country banks tend to invest in small countries with weak institutions where industrial country banks are reluctant to go, presumably because the developing country banks have a competitive advantage dealing with countries with a weak institutional framework (Claessens and van Horen, 2007).

### Insurers

This section concentrates on various aspects of the insurance sector, but it should be noted that other nonbank sectors of the financial industry are also increasingly globalized, in one sense or another. For pension funds and asset managers, for example, the main form of globalization is by way of increasingly internationalized asset allocations. The international investment activity of these groups is covered in Chapter II.

Insurance business is conducted across borders in one of two ways—either insurers domiciled in one country directly underwrite risks arising in other jurisdictions, or branches or subsidiaries controlled by foreign insurers underwrite domestic risks. Direct cross-border activity only accounts for a small percentage of total

**Figure 3.3. Foreign Bank Entry by Developing Countries, by Country Income Level, 2005**  
(In percent)



Source: World Bank (2006).

Note: Income classifications follow World Bank definitions as published in World Bank (2006).

<sup>1</sup>In percent of total number of foreign banks in each income level group.

<sup>2</sup>In percent of total foreign bank assets in each income level group, averaged over 2000–04.



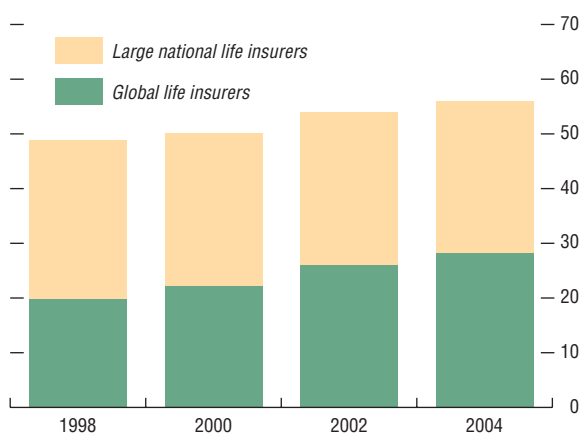
world premia,<sup>12</sup> whereas cross-border M&A activity has ensured that an increasing proportion of insurance business is now written by operations controlled by foreign parents.

In addition, insurers can reduce the geographic or sectoral concentration of their risk portfolios by laying off a proportion of their risks to reinsurers. In turn, reinsurers may then hold a diversified portfolio of less correlated, geographically spread risks, or transfer some of their exposures to investors through insurance-linked securities, including catastrophe (“CAT”) bonds. The availability of reinsurance provides insurers with some flexibility over the degree of geographic risk concentration that they are willing to hold. As a result, insurers can diversify their risk portfolio without having to globalize their own underwriting operations.

### Life Insurance

As with banking, the pattern of globalization of life insurance groups is complex, with a few large companies now operating across a number of markets and increasing their market shares, primarily through the acquisition of existing companies in foreign markets. Between 1998 and 2004, the share of global premia attributable to the 12 “global” life insurance groups (with substantial operations outside their home market and at least 1 percent of global premia) increased from 20 to 28 percent (Figure 3.4).<sup>13</sup> This increase was accounted for entirely by acquisitions of other life insurers, both domestic and foreign, as opposed to faster organic growth.<sup>14</sup>

**Figure 3.4. Worldwide Market Share of the Largest 40 Life Insurance Groups**  
(In percent)



Source: Swiss Re.

<sup>12</sup>The latest available data refer to 2000, when 0.7 percent of life insurance and 2.2 percent of non-life insurance total world premia represented cross-border insurance business (Swiss Re, 2001).

<sup>13</sup>Swiss Re (2006a, p. 18). There is a significantly lower global concentration in life insurance than in banking due to life insurance product differentiation at the national level, lower capital requirements for life insurance company start-ups, and evidence that economies of scale in life insurance extend only to national operations.

<sup>14</sup>The equity market performance of insurance companies engaged in acquisitions to expand geographically has been found to significantly outperform that of insurers engaged in cross-sectoral expansion (Bø, Hultström, and Pilskog, 2003).

Trends in foreign penetration in life insurance markets are far from uniform. From 1994 to 2003, the market share of foreign life insurance companies grew strongly in the largest life insurance markets of Japan, the United Kingdom, and the United States, remained relatively static in Germany and the Netherlands, and fell significantly in Canada and Spain. There has also been a strong rise in foreign life insurance company market share in the Czech Republic, Korea, Mexico, Poland, and Turkey, as global life insurance companies have expanded, primarily through the acquisition of existing operations (OECD, 2005, Tables 21 and 22). Cross-border insurance consolidation in Europe has been assisted by the mutual recognition of insurers by regulators across the EU and the small size of some domestic markets. It is likely to be accelerated by the EU's implementation of Solvency II, which will introduce a risk-capital framework that benefits geographical diversification of risks held and rewards economic capital management.<sup>15</sup> In Japan, the demutualization of several life insurers facilitated the acquisition of a number of life insurance companies by U.S. and European groups, and contributed to a decline in industry concentration. Acquisition, rather than start-up, has been the preferred route of foreign firms' entry into the U.S. market due to the fragmentation of state regulators raising the costs of start-up for a new entrant wishing to operate on an interstate basis. In 2004, five of the largest 10 U.S. fixed and variable annuity providers (by premia received) were foreign-owned entities, with a combined market share of over 20 percent.

### *General Insurance*

In a broad sense, the non-life insurance sector is more global than the life insurance sector, particularly with regard to the pricing of liabilities and the ability to lay off risk globally. But in terms of the institutions themselves, inter-

national experience has progressed more slowly than in other insurance segments, according to the scant cross-country data available. The internationalization of non-life insurance companies seems to reflect mostly a small number of large companies that can provide a wide range of insurance services, including global property and casualty coverage, to their corporate clients.

Market access issues may partly explain slower internationalization of non-life insurance companies (Ma and Pope, 2003). Despite ongoing progress toward harmonizing international accounting standards and insurance solvency requirements, contract laws continue to be grounded in domestic jurisdictions, significantly raising the costs of foreign expansion. Another factor reducing the incentives for cross-border expansion by general insurers is that risks can be laid off through reinsurance, or are sometimes handled through various state-run safety nets. In addition, economies of scale and risk diversification may often be achievable even in relatively small, domestic general insurance markets.

### *Reinsurance*

Given its very rationale in insurance risk diversification, "reinsurance is almost necessarily a global business" (Group of Thirty, 2006, p. 9) spreading independent risks across countries and business lines and so enabling insurers to economize on capital.<sup>16</sup> Through reinsurance, primary insurers are less exposed to insolvency risk as a result of catastrophes or unanticipated insurance losses, while reinsurers can diversify and need not be exposed to single catastrophic risks.

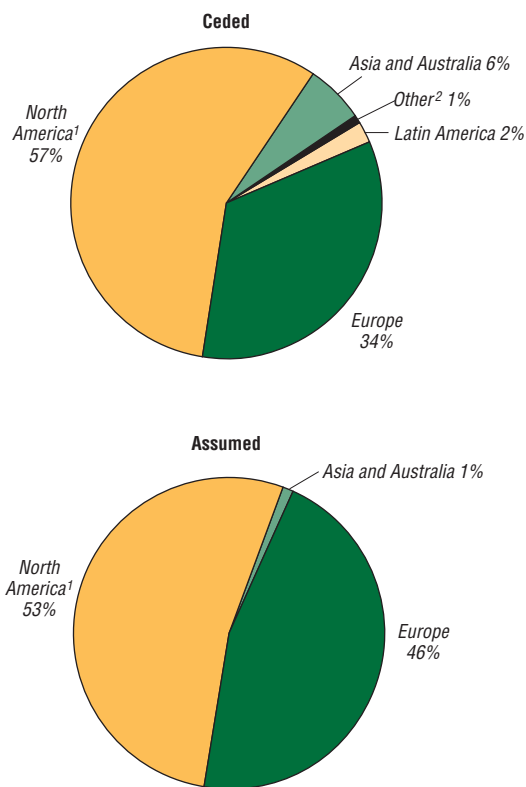
In 2005, premia paid ("ceded") to nonaffiliated reinsurers amounted to 6.2 percent of global non-life insurance premia and 1.1 percent of life premia (International Association of Insurance Supervisors, 2006; Swiss Re, 2006c).

<sup>16</sup>Swiss Re (2006b) estimates that the capital required to cover property insurance risks in 2004 in France, Germany, Italy, Japan, the United Kingdom, and the United States could have been reduced by at least 20 percent if catastrophe risk had been pooled by reinsurers across all six markets.

<sup>15</sup>Solvency II is the current project to reform the regime for EU insurers' capital. Adoption is currently scheduled for 2009–10.



**Figure 3.5. Gross Reinsurance Premiums Assumed and Ceded by Region, 2005**  
(In percent of total gross amount)



Source: International Association of Insurance Supervisors.  
<sup>1</sup>North America includes Bermuda.  
<sup>2</sup>Africa and the Middle East.

Figure 3.5 shows the regional distribution of premia ceded and assumed by reinsurers. European domiciled reinsurers have traditionally been large net recipients of risk from the rest of the world, principally Japan and the United States. However, Bermuda-based reinsurers are now substantially increasing their net acceptance of risk premia, particularly from the United States.

The global reinsurance market has become significantly more concentrated, with 10 firms now accounting for approximately 60 percent of global premia, compared with 40 percent a decade ago (Group of Thirty, 2006, p. 12). Consolidation has principally been through M&A activity, although a number of firms ceased operating in the late 1990s during the “soft” point of the reinsurance cycle when capacity was plentiful and premia were low. While this process has been driven by economies of scale and risk diversification across countries and business lines, it nevertheless means that primary insurers are increasingly dependent on a concentrating global reinsurance industry.

### How Institutional Globalization Affects Stability

There are a variety of reasons to expect that, for the most part, increasing globalization of financial institutions brings benefits in terms of financial stability as well as financial sector development and efficiency. This is certainly the case at least from the perspective of individual institutions and at the system level in relatively benign times. But a key question is whether the stability of financial systems—home, host, or internationally—might be more vulnerable to disruption in extreme circumstances, given increased cross-border interlinkages.

The literature provides conflicting analysis concerning the overall impact of institutional globalization on financial stability. On one hand, it identifies a number of potential benefits, including the following:

- Diversification gains from lower volatility of income and asset values through reduced exposure to home market conditions;

- Increased profitability of foreign operations due to the application of more sophisticated techniques and products;
- Improved risk management practices transferred to foreign operations along with an internal capital market better able to deploy capital to the firm's most profitable opportunities;
- Greater stability in credit availability due to the parent bank's distance from the domestic credit cycle in any particular country;
- Improved access to deeper international markets for funding;
- Better liquidity for investment and hedging; and
- Greater access to hedging instruments and more diversified portfolios.

In addition, EM host countries should benefit more broadly from knowledge and technology transfer via foreign financial institutions.

On the other hand, there are a number of potential problems. In particular, the parent institution may expand in a manner that wastes capital or that loses "focus" on core home markets from the point of view of equity market expectations (e.g., if banking techniques and products do not actually transfer well to specific host markets, or if management is not sufficiently attuned to host market conditions). Risk management in a complex parent group, operating across a number of cultures and time zones, may be inherently more difficult than in a simple single-country structure, notwithstanding risk management techniques improving over time. This is particularly the case in ensuring adequate operational (including reputational) and market risk management in foreign operations by parents.<sup>17</sup> Credit risk management as well may be more difficult, especially in cases where limited or unreliable information on borrowers' creditworthiness in host countries restricts the usefulness of the

<sup>17</sup>While fraud or management failures can of course be committed in purely domestic firms, risk controls can be more difficult to police in a cross-border structure. The Barings and Allied Irish Bank examples illustrate the point.

parent's risk measurement and management systems.

There is little empirical evidence to date to distinguish between these conflicting views and establish whether cross-border diversification of financial institutions reduces or increases firm-specific or systemic vulnerabilities.<sup>18</sup> A complication from the analytical perspective is that globalization of financial institutions has gone hand-in-hand with other trends, such as a trend toward greater functional diversification (e.g., from banking to nonbanking activities). There is extensive literature on diversification in firms in general,<sup>19</sup> and more recently new research has emerged on diversification costs and benefits in financial institutions specifically. But that research focuses on functional rather than cross-border diversification.<sup>20</sup> Studies that

<sup>18</sup>Numerous studies have focused on cross-border diversification, but instead of linkages to financial stability, they have typically analyzed other issues. For the literature on measuring the extent of cross-border banking, see Manna (2004) and Schoenmaker and van Laecke (2006); for explanations of the factors driving the international banking flows, see Papaioannou (2005); for the impact on profitability, see Claessens, Demirgüç-Kunt, and Huizinga (2001) and Garcia-Herrero and Vázquez (forthcoming); for the impact on efficiency, see Berger and others (2000); and for the impact on financial sector development and access to financial services, see Detragiache, Tresselt, and Gupta (2006).

<sup>19</sup>In particular, Wernerfelt and Montgomery (1988) found that cross-industry diversification has a negative effect on firm value (measured by Tobin's  $q$  or a similar measure), a result that has been confirmed by a number of subsequent studies and has come to be known as the "diversification discount." The common explanation of this finding is that conglomerates suffer from structural and managerial weaknesses, while at the same time their risk-spreading qualities are of little value to investors who can diversify their portfolios.

<sup>20</sup>Also, there is a nontrivial relationship between cross-border banking, competition, and stability. In a broad review of the literature, Claessens (2006) finds much, but not uniform, evidence that cross-border banking increases competition. As regards the relationship between competition and stability, a number of studies suggest a trade-off between the two (e.g., Beck, Demirgüç-Kunt, and Levine, 2006). However, this literature uses country-level concentration ratios that may not capture cross-border competition well. Studies using more direct measures of competition (e.g., Schaeck, Čihák, and Wolfe, 2006) find a positive relationship between foreign bank competition and stability.

employ accounting data or that focus only on diversification in a narrow sense (e.g., within the credit risk category) tend to find diversification benefits for financial institutions.<sup>21</sup> Contrasting with these results, but in line with the literature on conglomerates in general, Laeven and Levine (2005) find that there is a significant diversification discount in share prices of large banks in 43 countries. In other words, the market values of financial conglomerates that engage in multiple activities are lower than if those financial conglomerates were broken up into their component specialist constituents.<sup>22</sup> This underscores the possibility that “agency costs” may rise in such conglomerates and may outweigh the economies of scope and diversification gains.

Nevertheless, there are some reasons to believe that cross-border diversification of financial institutions may be more beneficial than functional diversification.<sup>23</sup> One reason the diversification gains may be larger is the imperfect correlation of economic activity among countries (although economic cycles are becoming more correlated in some regions). A second hint comes from the fact that the general corporate finance literature on cross-border M&A tends to find that multinational corporations are valued at a premium relative to industry-matched benchmarks, rather than the discount applying to functionally diversified corporations.<sup>24</sup>

<sup>21</sup>See Berg-Yuen and Medova (2005); Laderman (2000); and Everts and Liersch (2006).

<sup>22</sup>This does not necessarily mean, however, that conglomerates are more risky than less-diversified institutions. Share prices reflect market views on the benefits to shareholders, rather than benefits to depositors/bondholders or to financial stability more generally.

<sup>23</sup>For instance, Schmid and Walter (2006) find that geographic diversification by U.S. banks leads to a positive (but statistically insignificant) equity premium, whereas activity diversification results in a significant discount in their equity values.

<sup>24</sup>Notably, cross-border acquisitions of targets from different industries are found to result in a significant diversification discount. Significant wealth gains accrue to foreign target shareholders regardless of the type of acquisition (see Dos Santos and others, 2003).

To examine whether markets view cross-border mergers of financial institutions positively, an analysis was undertaken of both accounting and market-based data for a sample of large banks in Asia, Europe, and the United States. The four panels in Figure 3.6 plot data on individual banks’ diversification across countries against various proxies for profitability, soundness, and market valuation.<sup>25</sup> To capture international diversification (on the horizontal axis), a Herfindahl index was calculated for each bank as the sum of the squared shares of its assets or revenues across the countries under consideration: the lower the index, the more cross-border diversified the bank. On the vertical axes, the four panels show a measure of performance (the risk-adjusted return on equity, ROE); an accounting measure of likelihood of default (*z*-score); a stock price-based measure of likelihood of default (distance to default, DD); and a measure of market valuation (Tobin’s *q*).<sup>26</sup>

The analysis indicates that large banks with more internationally diversified revenues and, to a lesser extent, assets, have been characterized by higher average risk-adjusted returns, higher levels of individual soundness, and higher market valuation than other large banks. In addition, some two-thirds of the banks have more diversified operating revenues than assets, and their foreign operations tend to be more profitable than their home country business.

On the level of individual institutions, therefore, cross-border diversification appears to have benefits both in terms of profitability and

<sup>25</sup>This analysis is an extension of Tieman and Čihák (forthcoming), which focuses only on Europe and uses a narrower range of variables.

<sup>26</sup>The *z*-score and the DD are two analogous measures of an individual institution’s soundness: the first is based on accounting data, and the second uses stock price data. Both measures illustrate the probability that the market value of a financial institution’s assets becomes lower than the value of its debt (the higher the indicator, the lower the probability). The DD is a useful proxy for individual bank default risk when bank stocks are traded in liquid markets; the *z*-score provides an alternative measure that does not require such markets. For a more detailed discussion of the pros and cons, and a review of the literature, see Čihák (forthcoming).

market valuation, and in terms of soundness indicators.<sup>27</sup> The relationship between internationalization and individual soundness is far from universal, however. Indeed, as Figure 3.6 shows, there are examples of diversified banks with low z-scores.

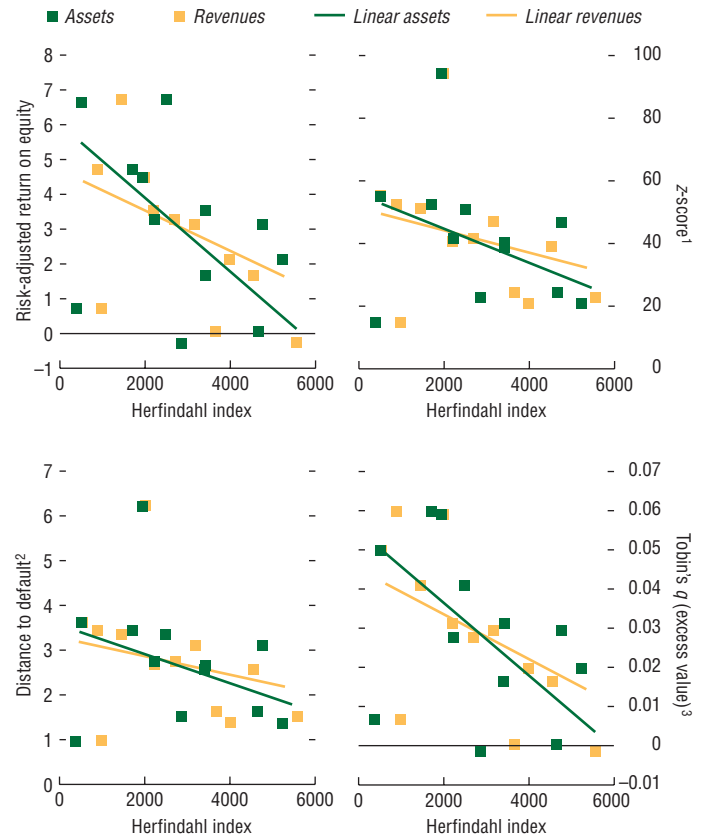
Moreover, Figure 3.6 does not analyze causality: a proper evaluation of the effect of cross-border diversification on bank soundness needs to take into account the bank-specific characteristics that bear both on soundness and on the decision to diversify. A more detailed econometric analysis confirms that even after adjusting for other factors (such as bank size or functional diversification, approximated by the share of noninterest income in total income), there is still a consistently positive (across different specifications) albeit weak link between cross-border diversification and profitability and soundness at the level of individual institutions.<sup>28</sup>

More importantly, despite its generally positive effects on individual institutions, it remains an open question whether greater cross-border diversification among the larger banks over the past decade has led to a decline in the *systemic* risk of these institutions as a group. The calculations presented in Box 3.1, for example, show that systemic risk may not have declined. Unlike the bank-specific findings above, the analysis in Box 3.1 considers the large banks as a group and picks up any correlations between their individual loss experience. The intuition behind this is that when all or most banks diversify internationally,

<sup>27</sup>All the slope coefficients in Figure 3.6 are significant at the 10 percent level. The slope coefficients for risk-adjusted ROE and Tobin's *q* are also significant at the 5 percent level.

<sup>28</sup>More details are provided in Čihák (2007). The part of the findings relating to profitability is consistent with a recent study by García-Herrero and Vázquez (forthcoming), who find (using a slightly different sample and definition of diversification) that greater asset allocation to foreign subsidiaries enhances the risk-adjusted profitability of international banks, even though these gains are somewhat reduced when subsidiaries concentrate in specific geographical regions. The authors argue that international diversification gains in banking are substantial and remain largely unexploited.

**Figure 3.6. Cross-Border Diversification and Individual Bank Soundness, 1994–2004**



Sources: ©2003 Bureau van Dijk Electronic Publishing-Bankscope; Thompson ONE Banker; and IMF staff calculations.

Note: Herfindahl Index calculated as the sum of the squared shares of a bank's assets or revenues across selected countries—the lower the index, the more cross-border diversified the bank.

<sup>1</sup>The z-score is defined as  $z = (k + \mu) / \sigma$ , where *k* is equity capital as percent of assets,  $\mu$  is return as percent on assets, and  $\sigma$  is standard deviation of return on assets as a proxy for return volatility.

<sup>2</sup>The distance to default is defined as the difference between the expected value of the assets at maturity and the default threshold, which is a function of the value of the liabilities.

<sup>3</sup>The "excess value" is defined in line with the "conglomerization discount" literature (e.g., Laeven and Levine, 2005) as a difference between actual Tobin's *q* and a weighted average of estimated Tobin's *q* for the constituent entities.

**Box 3.1. Some Evidence on Systemic Stability Aspects of Bank Globalization**

The calculations in the main text suggest that for individual banks, cross-border diversification is generally associated with higher market valuation and greater robustness as measured by both accounting-based and market-based indicators. However, this result does not translate simply to the systemic level. As banks become more diversified across borders, the risk of joint failures does not decrease, the main reason being the correlation between individual bank loss probabilities.

This point is illustrated in the figure in this box, which compares the expected loss per \$1 of exposure to a portfolio of all large banks and the loss per \$1 of exposure to a portfolio of internationally active large banks (those with 50 or more percent of their business conducted outside their home country). To calculate the expected loss, market data (stock prices) are combined with accounting data in a fashion similar to the distance-to-default (DD) model for individual banks, which approximates probabilities of default in banks. Unlike the DD model, however, the expected loss also takes into account different losses given default estimates for banks in the system (reflecting their different size) and the co-movement of their share prices (to approximate the likelihood of interbank spillovers or common shocks).

The figure indicates that risks among the internationally diversified banks as a group appear to be higher than risks among the entire group of large banks. During a few years in the early 1990s, the opposite was true, as a result of a relatively strong performance (low volatility) of the internationally diversified banks. The expected losses increased sharply toward the

Note: The main author of this box is Martin Čihák.

**Expected Loss on a \$100 Portfolio of Internationally Active Large Banks Minus Expected Loss on a \$100 Portfolio of All Large Banks**  
(In U.S. dollars, monthly averages)



Sources: IMF staff calculations based on data from Bloomberg L.P.; and ©2003 Bureau van Dijk Electronic Publishing-Bankscope.

end of the 1990s and subsequently remained high. A closer analysis reveals that this profile indicates that higher capitalization has been offset by higher exposure to risks among the internationally active banks.

The figure needs to be interpreted with caution, because using market-price data to gauge probabilities of default (and even more so the coincidence of defaults) has obvious limitations, documented in the literature. Nonetheless, it provides an important piece of cautionary evidence that cross-border diversification, despite relatively obvious benefits at the micro level, may have less clear-cut advantages at the macro level.

systems may become more vulnerable to large, common shocks and to spillover effects.<sup>29</sup> For

<sup>29</sup>Moreover, economies themselves are becoming increasingly integrated in some regions, which also tends

example, there appear to be increased trading and other linkages between the large global-

to reduce the stability-enhancing effects of international diversification.

ized institutions, as concentration in major local and international banking markets has increased, with a relatively small number of large international players having a central role in a range of key markets. Such effects raise potential systemic risks in financial systems and internationally.<sup>30</sup>

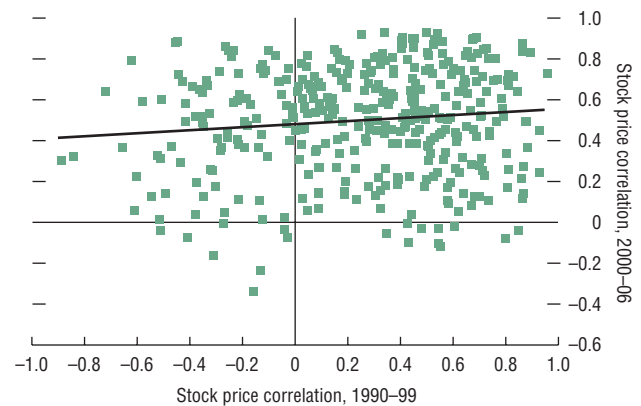
These findings are consistent with the model presented in Wagner (2006) and also with De Nicoló and Tieman (2006), who observe that the integration process in Europe does not have an unambiguously positive effect on financial stability. For a group of large European financial institutions, they find that measures of systemic risk did not decline during the period from 1990–2004 and that bank risk profiles converged, while the sensitivity of bank and insurance systemic risk measures to common real and financial shocks increased in most countries.

Several other indicators also raise the possibility that systemic risks may have increased as banks and other LCFIs have become more globalized. First, Figure 3.7 shows the increasing share price correlations among the major LCFIs. Second, despite widespread diversification, the distribution of exposures may still be quite heavily concentrated: among the major economies, the United Kingdom or the United States account for a substantial share of consolidated cross-border claims of BIS reporting banks (Figure 3.8). Third, there may be increased international spillovers between LCFIs in the face of extreme events, even after controlling for common domestic and global shocks (see Box 3.2).<sup>31</sup>

<sup>30</sup>Gieve (2006a) makes similar points about the relationships between major U.K. banking groups and other global LCFIs.

<sup>31</sup>The analysis in Boxes 3.1 and 3.2, the bottom two panels of Figure 3.6, and Figure 3.7 relies on stock price data. That has both advantages (e.g., it is based on high-frequency data and allows the extraction of market views on soundness) and limitations (e.g., the analysis is only as good as the underlying data—it works reasonably well as long as markets are liquid and operate smoothly) that need to be considered when interpreting the results.

**Figure 3.7. Stock Price Correlation for Major Banks, 1990–2006**



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

Note: Each point corresponds to a pair of major bank stocks in the United States, Europe, and Asia. Points in the upper left corner indicate stocks that turned from negatively correlated in 1990–99 to positively correlated in 2000–06. The position of the regression line above the horizontal axis indicates that overall, the correlation has increased between the two periods. Similar results are obtained from an analysis of cointegration.



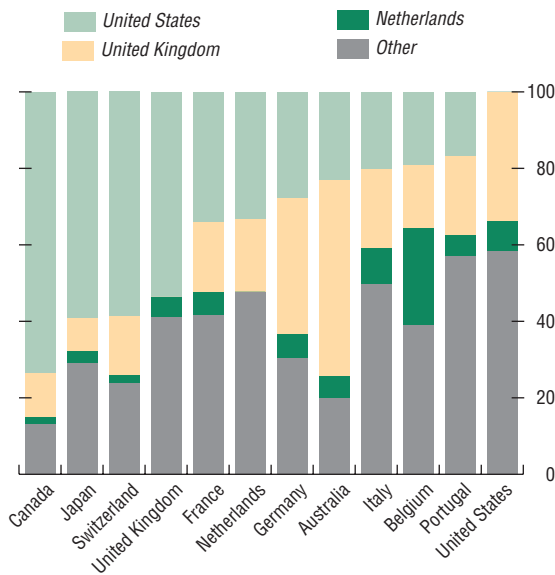
### Host Country Perspectives

A number of additional perspectives are of particular relevance to financial stability in emerging market and other host countries. The presence of strong and vibrant foreign banks in EMs seems to have generally made their banking systems more robust to traditional domestic banking crises.<sup>32</sup> Most of the foreign-owned banks in Central and Eastern European (CEE) countries, for example, are owned by large EU banks with sound capital bases and a substantial presence in the region. There are stronger presumptions of effective monitoring by such parent banks of the operations of their foreign affiliates, and of financial support if needed, which should enhance domestic financial stability, all else being equal. There is also some evidence that EMs in which a larger share of foreign claims is extended through local affiliates of foreign banks, as opposed to cross-border lending, enjoy more stable foreign financing (García-Herrero and Martínez Peria, 2005).<sup>33</sup>

In addition, the local presence of international banks brings many other benefits, including greater efficiency and, at the macroeconomic level, more open access to capital flows. These flows, often provided by the parent banks, have allowed foreign banks to upgrade the quality and range of domestic financial services and banking processes, and have contributed to rapid financial deepening.

But the greater scale and changing character of foreign participation in many host country systems has also altered the nature of financial

**Figure 3.8. Concentration of Cross-Border Risk, end-June 2006**  
(In percent)



Source: IMF staff calculations based on Bank for International Settlements data.  
Note: Share of consolidated cross-border claims of reporting banks (ultimate risk basis).

<sup>32</sup>The discussion here does not distinguish between the form of foreign banks' affiliates (branches or subsidiaries) in host countries. Indeed, the increasing centralization of core business operations at the bank group level makes the corporate structure distinction less relevant operationally, all else being equal, as discussed further in the next section of this chapter. See Dermine (2006) for a review of corporate structure determinants and Cerutti, Dell'Ariccia, and Martínez Peria (2005) for recent trends therein.

<sup>33</sup>Most studies, however, only document differences in the behavior of banks' cross-border and local claims, without discussing possible financial stability implications deriving from these differences. See De Haas and van Lelyveld (2002) for Eastern Europe, and Peek and Rosengren (1997) for Japan and Latin America (2000).

### Box 3.2. Assessing Spillover Risks Among the World's Largest Banking Groups

The scope for cross-border spillovers among large complex financial institutions can be examined using extreme value theory (EVT), which analyzes the co-movements between extreme events (“co-exceedances”), specifically the co-movement of extreme negative (left-tail) realizations of banks’ soundness measures.

The soundness measure chosen in this analysis is the distance to default (DD) (Crosbie and Bohn, 2003). The daily DD for the 24 largest banking groups in continental Europe, Japan, the United Kingdom, and the United States was computed for the period from May 30, 2000, to August 2, 2006 using daily stock price and annual balance sheet data from Bloomberg L.P. A binomial logit model was used to estimate the probability of a bank experiencing a large negative change in its DD in response to large negative shocks to the DDs of other banks.

Note: The main author of this box is Jorge A. Chan-Lau. The box is based on Chan-Lau, Mitra, and Ong (forthcoming), originally prepared for the IMF’s 2006 United Kingdom Article IV consultation. The data set includes the world’s 24 largest exchange-listed banking groups (including investment banking groups) by total assets, as of end-2005.

Large negative shocks were defined as those falling in the 10th percentile of the left tail of the common distribution of the changes in the DD across all banks. Three separate control variables—domestic stock market volatility, changes in the slope of the term structure, and the volatility of the Morgan Stanley Capital International All Country World Index—were also included in the logit model to account for common factors affecting domestic financial markets, the real economy, and global market factors, respectively. The results are summarized in the table below, which shows the number of statistically significant co-exceedances at the 5 percent confidence level.

The results suggest that, although spillovers within domestic banking systems generally remain more likely, the possibility of cross-border spillovers may be rising, at least in some cases. Bearing in mind that this analysis abstracts from cross-border spillovers within continental Europe, the potential for extreme events to spill over from the United Kingdom and the United States to continental Europe appears to have increased by these measures, as has the possibility of spillover from the United States to the United Kingdom.

#### Significant Co-Exceedances

(In percent of total bank transmission channels)

	May 2000–May 2003 Contagion to Banks in:			June 2003–August 2006 Contagion to Banks in:		
	Continental Europe	United Kingdom	United States	Continental Europe	United Kingdom	United States
Initial shock to banks in:						
Continental Europe	14	11	7	17	11	6
United Kingdom	4	17	6	19	17	6
United States	2	0	17	7	6	23

Source: Chan-Lau, Mitra, and Ong (forthcoming).

stability risks and introduced new challenges for domestic authorities.<sup>34</sup> Foreign-owned banks

<sup>34</sup>Domanski (2005) and Moreno and Villar (2005) discuss the changing character of foreign bank involvement in emerging countries.

have become channels through which different types of vulnerabilities could build up. While less vulnerable than otherwise to domestically generated shocks, financial systems with substantial foreign bank presence are of course more vulnerable to foreign shocks that seriously

affect the parent banks (and the more so, the more concentrated is the foreign bank presence). At least where the foreign banks are of high quality, the latter type of event may be considered relatively unlikely. Nevertheless, from the host authorities' point of view, the implications of such foreign shocks may well be serious. The shocks may, in some senses, be larger and certainly more difficult for the local authorities by themselves to deal with, or to even see coming.

It is generally believed that foreign banks provide stability in host country financial crises, exhibiting higher levels of credit growth and lower lending volatility than their domestic counterparts.<sup>35</sup> However, such findings tend to focus on the different reaction of foreign and domestic banks in the face of a domestic shock. In contrast, when different types of shocks are considered (including shocks in the home country or other host countries), the picture becomes more nuanced. For example, in response to the capital losses suffered by Japanese banks following the sharp drop in the Japanese stock market in the early 1990s, Japanese subsidiaries in the United States cut their local lending much more significantly than the parent bank in its home market (Peek and Rosengren, 1997). Other studies found that changes in claims on individual host countries are correlated with changes in claims on other host countries (Martinez Peria, Powell, and Vladkova-Hollar, 2005).

The issues above need to be seen through the prism of rapid credit growth in many EM countries, especially in emerging Europe and Latin America, where foreign banks have frequently become key local credit suppliers (Table 3.2 and Figure 3.2). Chapter II of the September 2006 *Global Financial Stability Report* (IMF, 2006a) examined household credit growth in EMs in some detail. An important aspect is how credit

from foreign banks is funded. Frequently, a substantial proportion of new lending by foreign banks has been foreign-financed rather than funded from domestic deposits—some by borrowing in international markets, some through funding directly from the parent or elsewhere in the international group. Figure 3.9, which shows bank net foreign assets, illustrates the importance of this trend for European EMs as a group, in particular. But the limited data available on the local claims and liabilities of foreign bank affiliates in other EMs suggest it is also relevant elsewhere, that is, for some individual countries, at least, in Latin America. In normal times, such external funding would likely be considered quite stable and indeed as offering flexibility to extend the maturity of funding. By the same token, however, adverse developments in the broader banking group or in international funding markets could have an important spillover effect for the host financial system.

The central issue here is the sheer scale to which foreign bank credit activity has grown in a variety of countries. It raises the prospect that a disruption or a significant slowing of credit supply due to factors specific to foreign banks could have a macro-relevant impact both in terms of overall domestic credit availability and in terms of the capital inflows financing sometimes significant current account deficits. (Figure 3.10 illustrates how the surge in net foreign bank claims in emerging Europe, where many countries operate closely managed or pegged exchange rate regimes, has coincided with rising current account deficits.) Such broader effects could, of course, have further second-round implications for the stability of the host country financial system.

Another aspect, again especially for EMs in Europe, is that much of the strong presence of foreign banks in the region is accounted for by the same relatively small set of foreign bank groups. At end-2005, half of all CEE foreign-owned bank assets were concentrated in eight bank groups (Figure 3.11). Similarly, almost half of foreign bank claims against CEE countries were concentrated in four home countries

<sup>35</sup>See Dages, Goldberg, and Kinney (2000). Similarly, De Haas and van Lelyveld (2000) found that foreign bank claims did not seem to retrench during recent crises in CEE countries.

(Figure 3.12). The significance of these concentrations raises the possibility that an extreme event affecting a foreign bank (let alone more than one) could have potentially wide-ranging spillover effects within the CEE region. These effects would be all the more important if, in the face of a serious negative event, banks did not distinguish adequately between different EM countries, even if they would do so in more normal times.

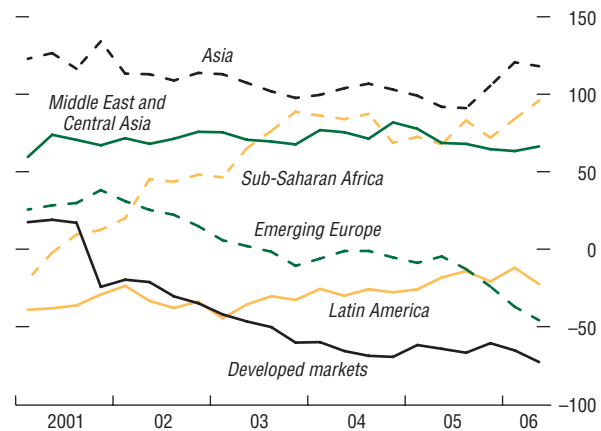
### Insurance Perspectives

Spreading insurance risk internationally has a number of attractions. Principally, when aggregating the amount of capital required for a multi-jurisdictional book of business, the amount necessary to cover the risks can be reduced, thereby increasing the absorption capacity of an insurer for a given level of capital. Such diversification has been calculated to reduce economic capital requirements by 40 to 50 percent relative to the separate capitalization of the same risks (De la Martinière, 2003, p. 88). In addition, to the extent that domestic insurance markets are subject to distinct insurance pricing and regulatory “cycles,” diversification across markets should smooth insurers’ profitability and reduce insolvency risk.

Nevertheless, multi-jurisdictional insurers face a number of challenges in realizing these benefits, including the regulatory, tax, and cultural differences that prevent easy transfer of insurance products between markets; the complexity of managing risks across multiple jurisdictions and business lines; and the need to adapt strategy to local distribution networks.

With respect to reinsurance, there were concerns about the degree of transparency in the global industry.<sup>36</sup> These concerns were prompted by the relative lack of public disclosure by a significant proportion of the industry and the

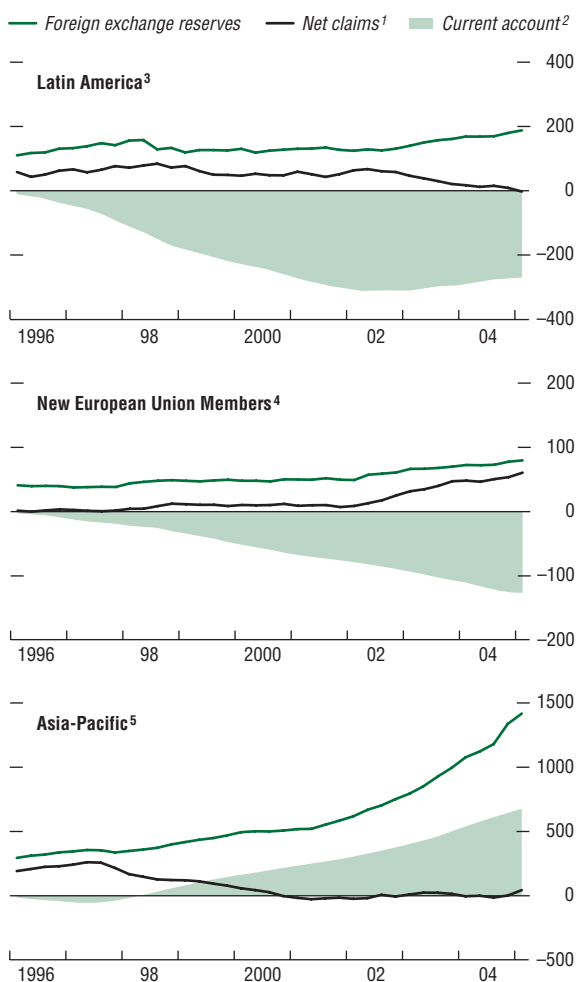
**Figure 3.9. Selected Regions: Net Foreign Assets**  
(In percent of bank capital)



Source: IMF, *International Financial Statistics* database.

<sup>36</sup>A concern voiced, for instance, at the Financial Stability Forum held in Toronto, Canada, on September 2–4, 2002. See [http://www.fsforum.org/press/press\\_releases\\_47.html](http://www.fsforum.org/press/press_releases_47.html).

**Figure 3.10. Net Foreign Bank Claims and External Position vis-à-vis Emerging Markets**  
(In billions of U.S. dollars)



Source: Bank for International Settlements (BIS). Data and analysis originally published in McGuire and Tarashev (2005b). Updated data provided by BIS staff.

<sup>1</sup>Total stock of net claims of BIS reporting banks.

<sup>2</sup>Cumulative current account balance since 1995Q4.

<sup>3</sup>Argentina, Brazil, Colombia, Mexico, and Venezuela.

<sup>4</sup>The Czech Republic, Hungary, and Poland.

<sup>5</sup>China (reports on an annual basis; the conversion to quarterly frequency assumes that flows are evenly distributed throughout each year), India, Indonesia, Korea, Malaysia (from 1997Q1 onward), the Philippines, Taiwan Province of China, and Thailand.

absence of global regulatory standards. However, the Reinsurance Transparency Group of the International Association of Insurance Supervisors has succeeded in closing some of the gaps in information by compiling data on 46 of the major reinsurance groups across seven jurisdictions. This information helped the Group of Thirty to conclude that even the failure of a global reinsurer that accounted for 20 percent of global reinsurance capacity does not appear to have the potential to cause insolvencies for major primary insurers across the sector.<sup>37</sup> The relative ease of entry of additional reinsurance capital, particularly through Bermuda-based special purpose vehicles, currently means that any capacity constraints are short-lived.

However, the regulatory practice in some jurisdictions of requiring reinsurers to ring-fence capital against the specific risks underwritten there increases the cost of reinsurance in those jurisdictions. And it thereby diminishes the benefits that global diversification can bring to the insurance market. The requirement to dedicate capital to support particular geographically sourced risks limits the ability of underwriters to reduce their overall economic capital requirement by holding uncorrelated risks, and raises the cost of insurance worldwide, not just in those jurisdictions.

### Policy Implications

The discussion above highlights the fact that increasing globalization of financial institutions appears to be generally beneficial, and in particular is associated with better profitability and stability of the individual institution. But it may also be the case that financial systems are more prone to transmission across borders, markets, and activities in the event of severe shocks. These effects may reflect exposures to common shocks,<sup>38</sup> or potential spillovers arising

<sup>37</sup>Group of Thirty (2006, pp. 31–39) and Swiss Re (2003).

<sup>38</sup>For example, as business cycles in various regions become more synchronized (IMF, 2007).

from ownership, trading, or other linkages. The evidence on these points, while not conclusive, is certainly suggestive when the different strands are taken together.

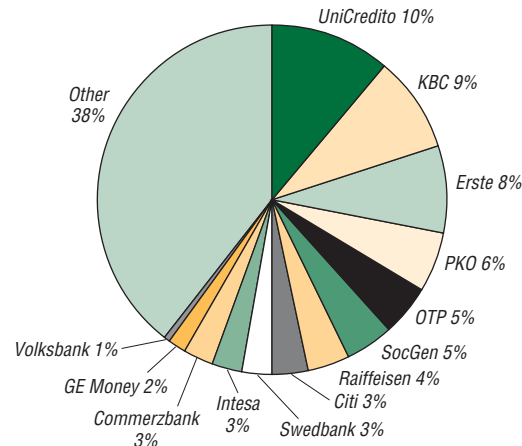
Further, this conclusion is not only an issue at the global level involving major LCFIs. It is also potentially important at the regional or country-specific level, and for smaller banks that operate internationally. In the face of a severe shock, for instance, banking flows to EMs—which in some cases are a significant share of capital inflows more broadly—could be quite sharply curtailed. What can be done to maximize the benefits of institutional globalization while containing the potential risks?

Two key challenges arise for policymakers. The first is to ensure that there is effective ongoing oversight of internationalized financial institutions to help prevent crises arising in the first place. The second is to put in place cross-border crisis management and resolution arrangements that are sufficiently robust to handle a severe shock and minimize spillovers. Both aspects require multinational institutions to be dealt with in a multilateral fashion.<sup>39</sup> The nub of the issue is the mismatch between the scope of institutions' activities on the one hand, and of legal, regulatory, and supervisory jurisdictions on the other.

This mismatch can be particularly problematic when there are significant asymmetries in the interests of home and host authorities, as can be the case in a range of EM and other host countries. In countries with rapid credit growth and substantial foreign bank activity, for example, host authorities may be concerned about possible domestic asset price boom-bust cycles, or about more general demand and external balance pressures, in which macroeconomic policy tools may be seen to be limited. Authorities may be uncertain how well foreign banks are managing related risks in what are often

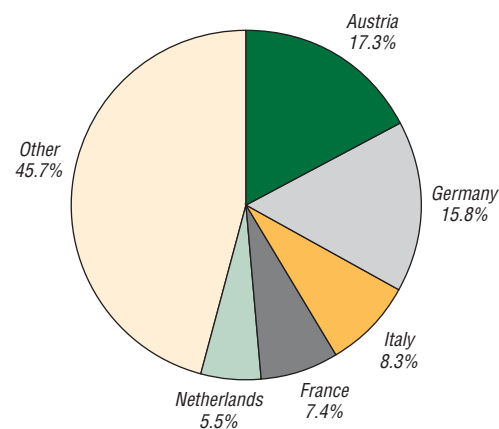
<sup>39</sup>Internationally, securities regulators have established a multilateral memorandum of understanding to guide ongoing cross-border collaboration, and insurance supervisors have announced the intention of doing so.

**Figure 3.11. Central and Eastern European (CEE) Countries' Bank Asset Structure, by Key Bank Groups, end-2005**  
(In percent of total CEE banking sector assets)



Source: RZB Group (2006).  
Note: Markets include Albania, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Kosovo, Latvia, Lithuania, Poland, Romania, Russia, Serbia (data presented are for Serbia and Montenegro), Slovak Republic, Slovenia, and Ukraine.

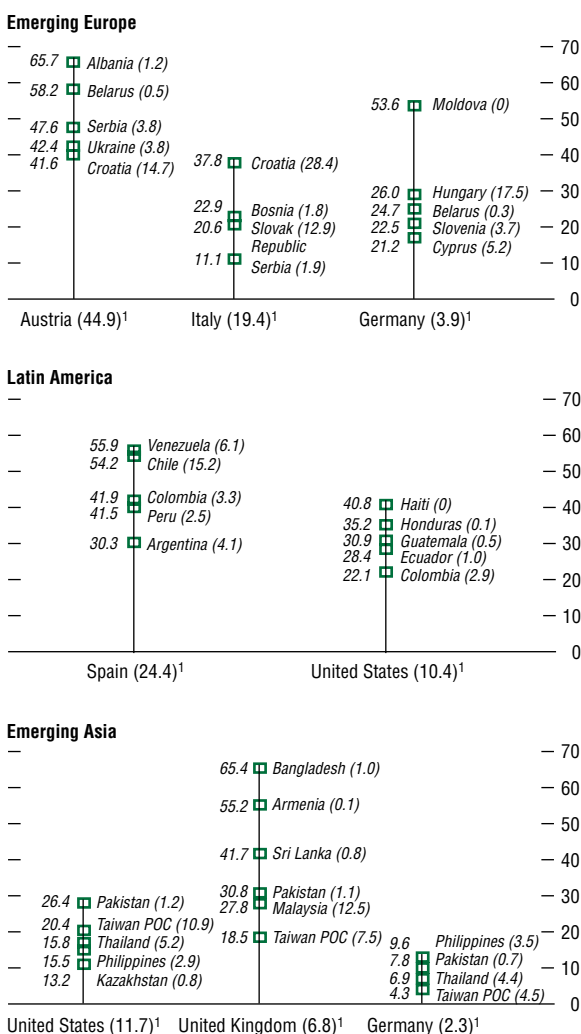
**Figure 3.12. Structure of Foreign Claims to Central and Eastern European (CEE) Countries, by Key Creditor Countries, end-March 2006**  
(In percent of total foreign bank claims to CEE countries)



Source: Bank for International Settlements (BIS).  
Note: Based on consolidated foreign claims of BIS reporting banks.



**Figure 3.13. Home-Host Asymmetry in Foreign Bank Exposure, March 2006**  
(Percent of cross-border claims)



Source: Bank for International Settlements.

Note: Each vertical line represents a particular home country; the exposures of selected host countries to this home country (in percent of total host foreign exposure) are graduated on the left-hand side of the vertical line. The exposure of the home country to the host countries (in percent of total home foreign exposure to region) is given in parentheses.

<sup>1</sup>Foreign bank claims of home country to region (in percent of total home foreign exposure).

very competitive local markets. In such cases, the authorities that bear most of the financial instability risks may not be the ones in the best position to mitigate them.

Figure 3.13 provides a partial illustration of the extent of some of these asymmetries for selected countries, based on BIS flow data for cross-border bank claims.<sup>40</sup> For example, 78 percent of foreign bank claims on Croatia are from two home countries (Austria and Italy), and these represent well over 100 percent of measured private sector credit in Croatia (in part due to the importance of direct cross-border claims). In contrast, Croatia represents a much smaller share of these countries' overall claims on the CEE region (14 percent in the case of Austria and 27 percent in the case of Italy). Similarly, in Latin America, 54 percent of foreign bank claims on Chile (which were themselves equivalent to 72 percent of private sector credit in Chile) originates from Spain, whereas Chile represents only 15 percent of Spain's total claims going to the region (middle panel of Figure 3.13). The asymmetries appear wider still in some other countries.

### Ongoing Cross-Border Supervisory Coordination

At the day-to-day level, host supervisors need to be assured about the ongoing condition, and effective supervision, of a foreign bank affiliate that is systemically important from their local perspective.<sup>41</sup> However, when that foreign affiliate is not of great importance within the overall

<sup>40</sup>Data as shown in Figure 3.2, including direct cross-border claims and the local claims of foreign affiliates. Figure 3.13 concentrates on countries with the largest asymmetries as indicated by the BIS data. There are a few countries—such as Brazil and Mexico—in which foreign bank activity is very important but which are not shown in the figure because the asymmetries in the BIS data are smaller. (For Mexico, in fact, the asymmetry under the definition in the figure is opposite that for other host countries.)

<sup>41</sup>On some issues regarding supervisory coordination and supervisory structures in the euro area context, see Belaisch and others (2001).

bank group, or to its home supervisor, specific actions (or lack thereof) by the parent or home supervisor could have significant effects for the host financial system.

In principle, for foreign banks that are systemically important in a host country, ensuring local incorporation as a subsidiary rather than a branch may help to address these concerns.<sup>42</sup> All else being equal, this gives host authorities greater supervisory control over local operations, including the ring-fencing of assets in the event of a problem either in the affiliate or in the wider banking group, and possibly imposing specific reporting and capital-related prudential requirements.

However, while subsidiaries are still a more common form of entry than branches, the matter is rather more complex in practice.<sup>43</sup> Ultimately, even a subsidiary structure may not guarantee access to relevant information or the ability to respond promptly and effectively in the event of a crisis. But such a structure is also more costly to the parent bank and adds complexity to its capital structure, while not fully preventing it from extracting capital in the event of a loss or change in business strategy.

In particular, there is potential for subsidiaries to become more branch-like in practice as major governance arrangements and key management systems and functions (including risk management) are centralized in various other parts of the group.<sup>44</sup> This could pose further challenges for host supervision, as well as for effective intervention in case of a problem. To different degrees, supervisors have tried to address the challenges that might

arise from such centralization, while remaining aware that overly tight restrictions would negate some of the commercial benefits of globalization.<sup>45</sup>

In any event, whether the foreign bank affiliate is in the form of a branch or a subsidiary, its behavior depends to an important degree on the risk appetite and financial strength of its parent groups, whose leadership and respective home supervisors are located abroad. Accordingly, to the extent feasible, financial surveillance needs to be supplemented by strong supervisory coordination, including at the regional level.<sup>46</sup> Supervisors internationally have indeed been strengthening home-host coordination arrangements, although, not surprisingly, this has gone furthest between the major financial centers and within the EU, as a reflection of the importance of the most globally significant LCFIs.

It is important for this process to continue apace, and also for coordination processes to be stepped up with respect to EM host countries, where progress has been generally slower to date. Specifically, it would be ideal for host supervisors to ensure ongoing cooperation and the exchange of information not only with the home country authorities of systemically important foreign institutions, but also with authorities from other host countries where these foreign groups are active in the region.

However, it also must be recognized that there may be important legal, cost, and other constraints on how far such coordination can realistically go. For example, conflicting confidentiality or freedom of information requirements may limit the sharing of privileged information. In practice, home and host supervisors have a menu of options for various degrees

<sup>42</sup>In New Zealand, for example, where all of the large banks are Australian-owned, the authorities have required that all systemically important banks incorporate locally to strengthen their crisis management capabilities.

<sup>43</sup>In any case, under EU passporting arrangements, a bank licensed anywhere in the EU is able to set up branches in other EU countries without needing further authorization.

<sup>44</sup>Centralization of group functions may also have implications for operational risk management that are of systemic relevance (Box 3.3).

<sup>45</sup>In New Zealand, where foreign banks are large and have extensive outsourcing arrangements for their business functions with their Australian parent banks, the authorities have introduced a policy that aims at ensuring that large banks that outsource their core management systems do not compromise their ability to provide core liquidity and payments services in the event that one of their service providers fails or becomes dysfunctional.

<sup>46</sup>And also including with offshore financial centers.

**Box 3.3. Operational Risk and Business Continuity**

In order to cut costs, globalized large complex financial institutions have increasingly moved toward centralization of operational functions, such as trade settlements or liquidity management, in one financial center. The possibility of a disruption in the functioning of such a centralized operation could have systemic consequences—for example, if the institution is a key member of a major clearing or settlement system—and could also spill over internationally. In general, as the financial services industry becomes more globalized, the possibility increases of operational risks in one region spreading throughout the firm.

Accordingly, global firms are putting increasing emphasis on having well-articulated business continuity plans that span their global network.

Note: The main authors of this box are Charles R. Blitzer and David Hoelscher.

Such plans, which often involve geographically dispersed back-up sites, are often designed at the central headquarters and then adapted for local conditions by regional and local offices. One example is the widespread development in the past 18 months of business continuity plans for the possibility of an influenza pandemic. Global financial firms have prepared to move many of their activities (including back-office functions and some trading) temporarily out of high-risk regions to other locations, while maintaining the ability to respond to their clients' needs. Staffing patterns may be changed and business needs may be met by work-from-home arrangements or by staffing secure sites that are isolated from the pandemic. Many firms are also upgrading their technological capacity and their health infrastructure in light of the dangers of a pandemic. These steps strengthen the ability of the global firm to continue business activities in spite of unexpected disruptions.

of joint work and cooperation that are appropriate in different circumstances. These range from ad hoc discussions on issues of mutual interest, through projects involving joint work, to mutual reliance in the performance of tasks and the delegation of responsibilities. How far supervisors go along this spectrum will depend on their respective legal powers and objectives, relative expertise and resources, preferences with regard to risk, and how systemically important cross-border affiliates are to the host country and to the group's solvency (Wright, 2006).

Surveillance in financial systems with a large foreign-owned component also needs to pay close attention to actual or potential macroeconomic and financial interactions. This should include, among other things, more attention to the funding of credit growth and how this links to macroeconomic developments and risks. Surveillance should also pay greater attention to the various types of potential risk concentrations, as well as to cross-border spillovers and co-movements among institutions. One aspect

of this is the potential for regional spillover risk. The data in Figure 3.13 illustrate that, even though claims on individual host countries may be quite small, claims to all such countries in a region may be substantial.

Finally, in addition to further development of actual cross-border collaboration arrangements, the continuing evolution and application of international supervisory and other standards and good practices—not least those directly related to cross-border supervision—has a key role to play in underpinning effective policy coordination and cooperation. The process facilitates a focus on common principles and objectives across different jurisdictions, including encouraging a risk-based supervisory framework, even if the forms of implementation differ. It can thereby help underpin the mutual confidence-building needed for improving multilateral collaboration. Basel II and the recently revised Basel Core Principles for Effective Bank Supervision are important examples. Another important area of continuing policy attention

is the handling of potential liquidity pressures in LCFIs operating in multiple countries and currencies (Gieve, 2006a). There is a strong emphasis on ensuring prudent liquidity management within the major institutions themselves, including appropriate and active stress testing and contingency planning. Closely related is the emphasis on ensuring effective and flexible central bank facilities and infrastructure that can help avoid system-level liquidity stresses.

Further, because the largest and most central institutions are typically also significantly involved in either securities market activities or insurance business (or both), the process goes beyond the banking area narrowly defined. In the insurance sector, for example, there is still a long way to go to develop a common approach to risk-based solvency standards, especially outside the EU and Solvency II context.<sup>47</sup> Continuing progress toward application of agreed international accounting standards is another case in point.

### Crisis Management and Resolution

Financial systems globally have held up quite well in the face of a range of adverse events in recent years. But thankfully, financial systems and policymakers have not been tested to date by a full-blown crisis involving a significant cross-border LCFI failure, or by simultaneous failures of several internationally active institutions, with potential spillovers to other large institutions and economies more broadly.<sup>48</sup> While such an event may be unlikely, the need for effective coordinated arrangements to deal with it is pressing because, in their absence, the costs may be very large indeed. Furthermore, EM and other host countries may face quite similar issues, even if their concerns do not necessarily relate to the largest LCFIs. There have been several notable cases of bank failures with cross-

border dimensions in the past that have provided useful lessons for policymakers (Box 3.4).

Decisive action in a cross-border context is challenging for a number of reasons, including the difficulties of obtaining a complete picture of the soundness of institutions and markets in crisis from different authorities; the complexity of large firm structures; and the technical difficulties in winding down an entity that is engaged in complex trading strategies across multiple legal jurisdictions. Issues also surround the extent to which liquidity and capital can be moved around a cross-border group. Adding to the difficulties, private sector solutions are less easy to implement in a cross-border setting, in which the sheer number and diversity of counterparties makes it difficult to bring them to a single table, and a “rescue” merger may have to overcome competition law hurdles (e.g., in the EU context). The complexity and size of an LCFI can deter otherwise willing participants in a private rescue operation.

Various country authorities have worked to improve domestic crisis management arrangements and payments systems in recent years, as well as signing international memoranda of understanding (MOU) on the management of financial crises in banks with cross-border establishments. However, even with an MOU, coordination may be difficult where there are substantial differences of views and even conflicts of interest between authorities, as well as technical and broader constraints on cross-border coordination.

At the technical level, differing legal and regulatory structures may prove to be major obstacles in an extreme and fast-moving event. These structures may include legal limits to cooperation and information exchange; relevant MOUs that are unenforceable in practice; complexities that arise in coordinating a clean-up with creditors across different jurisdictions and investor types; the application of very different insolvency regimes, with differences in creditor priorities (even within the EU, for example, some regimes are more pro-creditor and others more pro-debtor) or different approaches to

<sup>47</sup>The 2005 EU reinsurance directive, for example, strengthens home supervision of firms in the EU.

<sup>48</sup>Thus, the discussion of banking crisis management based on past experience (e.g., Hoelscher and Quintyn, 2003) says little about dealing with a potential cross-border crisis.

### Box 3.4. Examples of Bank Failures with Cross-Border Dimensions

**Herstatt Bank.** The bank was closed down by the (West) German authorities in 1974 after they found out that it was insolvent (due mainly to large losses in the foreign exchange market). The action was taken after the European markets had closed for the day, but while New York was still open. The European leg of foreign exchange deals had been settled, but once news of the closure reached New York all trades involving Herstatt were suspended, so that counterparties already debited in Europe did not receive the corresponding dollar amounts due to them in New York. As noted by Latter (1999), this episode prompted central banks to pay much more attention to settlement risk in payments procedures, particularly in cross-border foreign exchange transactions.

**Bank of Credit and Commerce International (BCCI).** The closure of BCCI in 1991 ranks among the biggest single-bank failures. At the time of its collapse, BCCI was operating in more than 70 jurisdictions. It had lost money on lending operations and foreign currency dealings, and failed owing more than \$18 billion to its creditors. BCCI was made up of layers of entities, linked through a complex series of holding companies, affiliates, subsidiaries, and other relationships. The BCCI case highlighted the challenges involved in cross-border failures. For example, the different treatment of set-off led to problems in the BCCI liquidation, in which Luxembourg law differed from that in the United Kingdom, leading to the differential treatment of creditors (Campbell, 2002). However, the contagious impact of BCCI's failure on other banks was limited (Kanas, 2004).

**Barings.** An institution with roots going back 233 years, Barings suffered a \$1.3 billion trading loss in February 1995. The event was precipitated by a Singapore-based trader who eventually pled guilty to two counts of fraud and was sentenced to a six-year jail term. The loss was larger than the bank's entire capital base and

reserves. Barings was forced to declare bankruptcy and was later purchased by the Dutch bank ING for £1, and an agreement to assume the fallen bank's substantial debts. From the viewpoint of this analysis, the important point is that even though Barings was a merchant bank headquartered in London, its problems resulted from overseas operations in Singapore.

**Riječka Banka.** This case illustrates that foreign ownership, while often playing a useful role, is not a panacea when pressures accumulate in a local subsidiary. Riječka Banka was the third largest Croatian bank when it incurred \$97 million in losses on foreign exchange transactions between 1998 and 2002 (nearly three-quarters of the bank's capital). According to the Croatian National Bank, the losses had become so large partly because the bank's majority owner, Bayerische Landesbank of Germany, did not put in place adequate control mechanisms (Croatian National Bank, 2003). In the aftermath of the losses, Bayerische Landesbank did not inject additional capital; instead, it sold its 59 percent share in Riječka Banka back to the Croatian government, for a price of \$1. Riječka Banka was ultimately re-privatized to Erste Bank of Austria.

**Argentine and Uruguay crises.** Several "ordinary" single-country banking crises included cross-border issues to a limited extent. For example, the macroeconomic crisis in Argentina in the early 2000s involved numerous bank failures; however, only one international bank was harmed when its subsidiary failed because of a dispute over the provision of liquidity. In 2002, neighboring Uruguay suffered a severe banking crisis. The withdrawal of nonresident deposits—accounting for more than one-half of total deposits—due to the crisis in Argentina triggered a general run on deposits in Uruguayan banks. The liquidity pressures and a sharp increase in nonperforming loans after a devaluation, combined with corporate governance problems, led the authorities to restructure the banking system, including strengthening liquidity and capital adequacy to improve the system's capacity to withstand shocks (IMF, 2006b).

Note: The main author of this box is Martin Čihák.



“universality” versus “territoriality;”<sup>49</sup> and different treatment of assets and approaches to set-off and netting.

Even if the legal and regulatory differences can be overcome, which is by no means certain, coordination problems between authorities from different countries may arise due to a range of other factors, including the asymmetries in interests noted above; different attitudes toward the principle of state intervention in banking crises, the moral hazard issues involved, and the desirability of early intervention; the inability of some smaller home countries to support a large cross-border entity (the “too big to save” issue); differences in the financing and coverage of deposit protection schemes, as well as in their timing of payout; and differences in approach to the form of rescue or resolution operations. Such differences may also exist between the government, central bank, and banking regulator within a country.

Questions also arise concerning the division of any loss (either potential or actual) that the respective authorities would bear if they were to engage in a preemptive rescue operation to provide liquidity, guarantees, or capital to support or recapitalize a cross-border institution.<sup>50</sup> The likely coordination challenges have led some commentators to advocate a pre-negotiated burden-sharing formula between interested authorities.<sup>51</sup>

<sup>49</sup>Under a universality-based insolvency regime, all assets and liabilities of the failed cross-border institution are transferred to the home country and the institution is resolved under the legal framework of that country. Under a territoriality regime, the institution’s foreign branches and subsidiaries are ring-fenced and resolved jurisdiction by jurisdiction. In the BCCI case, for example, U.S. branches were dealt with under the United States’ territoriality approach, while operations in other host countries were dealt with in Luxembourg under the EU’s universality approach.

<sup>50</sup>This issue has been considered most carefully in the European context due to the increasing foreign ownership of systemically important banks across EU countries, and to the complications arising from the division of responsibilities between the European Central Bank and the national central banks for members of the euro area.

<sup>51</sup>In the EU context, this has prompted two proposals for how the distribution of the costs of such rescue

There are, however, numerous barriers to widespread implementation of such agreements. Most important perhaps is that many countries would be uncomfortable with the moral hazard implications of formalizing such bailout processes. Indeed, leaving such arrangements ambiguous has the advantage that depositors, creditors, and shareholders of cross-border banking groups are unsure of the degree to which a bailout is likely in a crisis, thereby encouraging their monitoring of bank risk-taking.

These challenges, together with the likelihood that a crisis in an LCFI is likely to be fast moving,<sup>52</sup> reinforce the need for authorities to do as much as they practically can to have robust systems and arrangements to prevent such a crisis, or at least manage and minimize the fallout from it. Though still challenging, it is more feasible to have multilateral understanding and agreement on processes than on burden-sharing. Key aspects include ensuring that payment systems are sufficiently robust to withstand a cross-border banking failure, that authorities build trusting relationships (through “colleges,” for example) to facilitate a rapid flow of sensitive information, and that existing crisis management arrangements are clearly defined and well-rehearsed (Gieve, 2006b). Ultimately, countries with systemic cross-border banks need to be prepared for a scenario where the solvency of the entity is in doubt and there is a need to coordinate any possible rescue operation with foreign authorities, given the negative externalities of failure (Freixas, 2003).

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operations could be structured (Goodhart and Schoemaker, 2006). Either the European Central Bank could be responsible for any bailout operation, funded initially from seigniorage, with its capital underwritten by national governments according to their relative population and GDP; or a pre-agreed formula based on a bank’s share of assets held in affected EU countries could be used to allocate the cost of any bailout to home and host country governments.

<sup>52</sup>The increasing dependence of LCFIs on wholesale liquidity, and the marked-to-market nature of their trading positions, mean that a bank’s liquidity and/or solvency could be brought into question within hours.



To that end, a number of national authorities have been undertaking financial crisis simulation exercises, both domestically and (especially in Europe) jointly with other countries' authorities. Such exercises need to be a regular feature of interaction between national authorities, and between countries that cooperate in the supervision of systemic cross-border institutions. Although costly and time-consuming to prepare, such exercises need to be sufficiently large-scale to prepare the authorities and top managers for financial crises that threaten large parts of the financial system, and sufficiently frequent to familiarize each new cohort of managers with their responsibilities and to test their relationships with counterparts at home and abroad.<sup>53</sup>

Lessons from the "war games" in Europe point to the priority areas for further effort. These include, in particular, clarification of legal access to collateral and other assets; further development and testing of domestic crisis management arrangements between supervisors, the central bank, and the finance ministry; and continued cross-border crisis management exercises to further build relationships, contacts, and, more fundamentally, a common understanding of the issues involved, even if there is no specific agreement on how to approach crisis resolution. The need is pressing for this kind of work to continue and to deepen and broaden beyond those countries that have been most active to date in this area. Many countries still need to make significant progress on putting sound domestic arrangements in place.

Greater convergence in and mutual recognition of predefined pre-crisis sanctions and tools

would also help limit the incidence and cost of failure and give some confidence that a home regulator could not forbear to intervene in a failing institution, to the detriment of foreign creditors. Only limited progress has been made internationally in this area to date, and mutual home-host understanding and confidence would be buttressed by a more transparent and rules-based regulatory framework for intervention and crisis prevention, coupled with a more risk-sensitive regulatory and supervisory framework in general. Such an intervention framework would need to define the nature of corrective actions to be taken as well as the timing and triggers for intervention (European Shadow Financial Regulatory Committee, 2006).

In sum, notwithstanding the costs and other constraints related to improving multilateral collaboration and coordination, there is much that supervisors and policymakers can do on a practical level to move the process along in terms of both crisis prevention and management in a world of globalized financial institutions. Policymakers internationally have undertaken a substantial amount of work in recent years to deal with these two challenges, and to make supervisory and regulatory arrangements more transparent across jurisdictions as the basis for better mutual understanding. Such work continues in a range of key areas; indeed, it is critical that it continue and that it be broadened to include additional countries. The work is complex and challenging, but it must continue expeditiously, as institutional globalization continues apace.

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<sup>53</sup>An open issue in this context is inclusion of private sector managers in these exercises. In the "war games" carried out to date, private sector participants have been excluded from exercises concerned with financial crises (although often included in business continuity exercises), mainly to minimize moral hazard concerns. The benefits of involving the private sector may be substantial in simulations of LCFIs operating in many markets, but by the same token, moral hazard concerns would need to be contained through careful construction of the scenario.

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