

## DEVELOPMENT OF CORPORATE BOND MARKETS IN EMERGING MARKET COUNTRIES

The macroeconomic and financial dislocations experienced following the crises in emerging markets (EMs) in the late 1990s have led to increased efforts in these countries to develop local bond markets as an alternative source of debt financing for corporates. A well-functioning bond market can strengthen corporate and bank restructuring and thus accelerate the resolution of a crisis. At the same time, local bond issues facilitate the reduction of currency and maturity mismatches on their balance sheets and thus reduce the vulnerability of the corporate sector. Recent work by the IMF on the use of the balance sheet approach to detect vulnerabilities in EMs has highlighted the importance of corporate sector vulnerabilities and their linkages to other sectors and markets. In this context, the April 2005 *Global Financial Stability Report* (GFSR) demonstrated the importance of having alternative sources of funding for the corporate sector, both to finance growth and to strengthen balance sheets. In this chapter, we continue this line of work and focus on ways to further develop corporate bond markets in EMs.

Well-functioning local corporate bond markets provide institutional investors with an instrument that satisfies their demand for fixed-income assets, especially of long maturities, as well as for yield pickup over government bonds. Thus, corporate bonds also help strengthen balance sheets of pension funds and life insurance companies. In many countries, assets under management of institutional investors have been growing faster than the supply of local instruments in which to invest. In addition to allowing institutional investors to invest internationally, a deep and

liquid corporate bond market may help prevent the development of asset price bubbles and reduce this source of financial instability.

This chapter provides an overview of the factors and reform measures that contribute to and promote effective corporate bond markets. It highlights lessons from the experiences of mature markets (MMs), as well as from a small group of EMs that either have large corporate bond markets or have seen them grow rapidly in recent years.<sup>1</sup> Many EMs have achieved a degree of macroeconomic stability—through fiscal consolidation and enhanced monetary policy credibility—and have made progress in the areas of banking supervision as well as in transparency and corporate governance. Some of these countries have been seeking to develop their corporate bond markets, but so far only the best corporates have been able to access these markets. Moreover, after a period of rapid growth in local corporate bond markets, issuance has slowed in the last two years, raising concerns that the initial growth was a purely cyclical phenomenon. In this chapter, we argue that a further broadening and deepening of these markets requires the removal of constraints mainly on the supply side, as well as improvements in market microstructure. Also, the lessons identified in this chapter could be relevant for other EMs that want to jump-start corporate bond markets.

Domestic corporate bonds may not, however, be a suitable instrument for all enterprises. Collateralized loan financing may be more accessible and appropriate for corporates that lack adequate credit information (IOSCO, 2004). In particular, small and medium-sized enterprises in many EMs are

<sup>1</sup>The chapter also draws some lessons from a few cases where clear constraints have prevented the emergence of corporate bond markets.

not able to access bond markets because of the inflexible structure of bond contracts, the high costs associated with issuance, and the need for large issuance size. At the other extreme, large corporates could find it more efficient to issue bonds in international or regional markets, although this may expose them to currency risks.

Moreover, despite the benefits associated with the provision of an alternative source of funding for corporates and a suitable instrument for local institutional investors, a rapid development of local corporate bond markets could be potentially risky. The development of these markets without minimum institutional support to deal with asymmetric information problems and other capital market imperfections—such as effective bankruptcy laws and transparency—could cause market turmoil and slow the development of such markets over the medium term.

Following a brief description of recent trends in global corporate bond markets, the next section focuses on demand and supply factors behind the development of corporate bond markets, as well as on the role played by financial intermediaries. Aspects of the microstructure of primary and secondary markets are discussed in the following section, after which a concluding section discusses the main challenges for and policy issues related to the development of these markets and their relation to financial stability.

### Recent Trends in Local Corporate Bond Markets

This section looks at trends in corporate bond market development in emerging markets, focusing on some of the largest EMs over

the past 10 years, with the pattern of development in the mature markets as background.<sup>2</sup>

The government and financial institutions remain the main issuers of local currency bonds, but corporate issuers are becoming important. As of end-2004, in mature markets, outstanding securities issued by the government, financial institutions, and corporates accounted for 66, 57, and 16 percent of GDP, respectively. In EMs, these figures were 25, 8, and 5 percent of GDP, respectively (Table 4.1). The existence of a well-developed government bond market has been important in the development of the corporate bond markets,<sup>3</sup> and cross-country analysis suggests that countries with larger outstanding government debt securities tend to have larger corporate bond markets (Figure 4.1).<sup>4</sup> Also, while bank lending remains the main source of corporate finance in most mature and emerging markets (excluding retained earnings), corporate bond financing is increasing in relative terms.<sup>5</sup>

The size of local corporate bond markets, as a percent of GDP, varies widely across countries. Among MMs, the United States has the largest (deepest) corporate bond market accounting for about 22 percent of GDP, followed by Japan at 16 percent of GDP, and the euro area countries at 10 percent of GDP. For most of the emerging markets countries, corporate bond markets remain small. However, the corporate bond markets in Malaysia and Korea are among the largest in the world in terms of GDP: 38 and 21 percent, respectively. Corporate bond markets in Thailand have been growing fast and reached about 12 percent of GDP by end-2004. In Latin America, Chile stands out; the outstanding volume of its corporate bonds amounts to 11 percent of GDP.

<sup>2</sup>In this chapter, local bonds are defined as bonds issued under local law.

<sup>3</sup>For further details, see Mathieson and others (2004); and Eichengreen and Luengnaruemitchai (2004).

<sup>4</sup>Japan's exceptionally high ratio of government bonds to GDP is a result of the strong longer-term financing needs for the past fiscal stimulus policies in the 1990s, when the government sector's balance sheet deteriorated rapidly. In addition to the absolute amount of government bonds, the well-balanced maturity of government bonds outstanding is important for the corporate bond market in terms of forming a stable benchmark of yield curves.

<sup>5</sup>See IMF (2005) for the main trends in corporate finance in emerging markets.

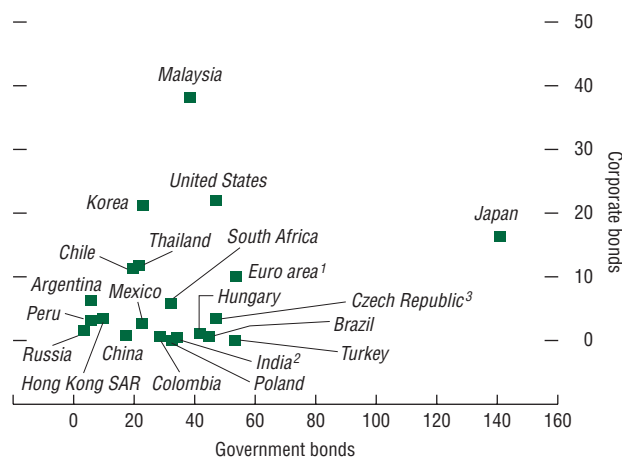
**Table 4.1. Outstanding Domestic Debt Securities, Stock Market Capitalization, and Bank Credit, 2004**

	Total Outstanding	Government Securities	Financial Institutions	Corporate Issuers	Stock Market Capitalization	Bank Credit
<i>(In billions of U.S. dollars)</i>						
<b>Emerging markets</b>	<b>2,668.4</b>	<b>1,772.0</b>	<b>585.5</b>	<b>320.3</b>	<b>4,286.4</b>	<b>4,568.6</b>
<b>Africa</b>	<b>104.6</b>	<b>78.3</b>	<b>12.1</b>	<b>14.2</b>	<b>455.5</b>	<b>177.4</b>
South Africa	104.6	78.3	12.1	14.2	455.5	177.4
<b>Asia</b>	<b>1,508.9</b>	<b>791.2</b>	<b>472.7</b>	<b>244.9</b>	<b>2,622.8</b>	<b>3,668.7</b>
China	483.3	287.4	183.7	12.2	639.8	2,318.0
Hong Kong SAR	46.5	15.8	24.9	5.8	861.5	244.8
India	239.2	235.0	1.4	2.8	387.9	253.4
Korea	568.4	171.6	237.5	159.2	428.6	605.8
Malaysia	106.6	45.2	16.4	45.0	190.0	123.3
Thailand	64.9	36.2	8.8	19.9	115.1	123.3
<b>Europe</b>	<b>403.9</b>	<b>391.2</b>	<b>7.2</b>	<b>14.8</b>	<b>496.9</b>	<b>353.9</b>
Czech Republic	65.6	57.7	3.6	4.3	30.9	34.5
Hungary	52.5	47.7	3.6	1.2	28.7	45.7
Poland	95.9	95.9	—	0.0	71.1	67.1
Russia	20.1	20.1	—	9.3	268.0	143.1
Turkey	169.8	169.8	—	0.0	98.3	63.6
<b>Latin America</b>	<b>651.0</b>	<b>511.3</b>	<b>93.5</b>	<b>46.4</b>	<b>711.1</b>	<b>368.6</b>
Argentina	23.4	8.7	5.2	9.6	46.4	15.7
Brazil	371.6	295.9	71.7	4.0	330.3	166.6
Chile	41.8	20.0	10.4	11.5	117.1	57.9
Colombia	30.2	29.6	—	0.6	25.2	18.7
Mexico	176.9	153.1	5.3	18.5	171.9	97.2
Peru	7.1	4.0	0.9	2.2	20.1	12.5
<b>Mature markets</b>	<b>37,623.5</b>	<b>17,858.1</b>	<b>15,371.0</b>	<b>4,394.1</b>	<b>24,533.2</b>	<b>20,600.4</b>
Euro area <sup>1</sup>	9,570.2	5,495.0	3,051.6	1,023.4	5,595.2	10,652.3
Japan	8,866.7	6,836.7	1,240.6	789.4	3,805.8	4,577.9
United States	19,186.6	5,526.4	11,078.8	2,581.3	15,132.2	5,370.3
<i>(In percent of GDP)</i>						
<b>Emerging markets</b>	<b>38.1</b>	<b>25.3</b>	<b>8.4</b>	<b>4.6</b>	<b>61.2</b>	<b>65.2</b>
<b>Africa</b>	<b>42.8</b>	<b>32.1</b>	<b>5.0</b>	<b>5.8</b>	<b>186.5</b>	<b>72.6</b>
South Africa	42.8	32.1	5.0	5.8	186.5	72.6
<b>Asia</b>	<b>42.6</b>	<b>22.3</b>	<b>13.4</b>	<b>6.9</b>	<b>74.1</b>	<b>103.6</b>
China	29.3	17.4	11.1	0.7	38.8	140.5
Hong Kong SAR	28.2	9.6	15.1	3.5	522.5	148.5
India	34.8	34.2	0.2	0.4	56.4	36.9
Korea	75.5	22.8	31.5	21.1	56.9	80.4
Malaysia	90.5	38.4	13.9	38.2	161.3	104.7
Thailand	38.6	21.5	5.2	11.8	68.4	73.2
<b>Europe</b>	<b>27.7</b>	<b>26.9</b>	<b>0.5</b>	<b>1.0</b>	<b>34.1</b>	<b>24.3</b>
Czech Republic	53.3	46.9	2.9	3.5	25.1	28.1
Hungary	45.9	41.7	3.1	1.0	25.1	39.9
Poland	32.5	32.5	—	0.0	24.1	22.7
Russia	3.3	3.3	—	1.5	44.3	23.7
Turkey	53.3	53.3	—	0.0	30.9	20.0
<b>Latin America</b>	<b>36.8</b>	<b>28.9</b>	<b>5.3</b>	<b>2.6</b>	<b>40.2</b>	<b>20.9</b>
Argentina	15.5	5.8	3.4	6.4	30.7	10.4
Brazil	56.2	44.7	10.8	0.6	50.0	25.2
Chile	41.0	19.6	10.2	11.3	114.8	56.8
Colombia	29.1	28.5	—	0.6	24.3	18.0
Mexico	26.1	22.6	0.8	2.7	25.4	14.3
Peru	10.0	5.6	1.3	3.1	28.3	17.6
<b>Mature markets</b>	<b>140.2</b>	<b>66.5</b>	<b>57.3</b>	<b>16.4</b>	<b>91.4</b>	<b>76.8</b>
Euro area <sup>1</sup>	93.3	53.6	29.8	10.0	54.6	103.9
Japan	182.9	141.0	25.6	16.3	78.5	94.4
United States	163.5	47.1	94.4	22.0	129.0	45.8

Sources: Bank for International Settlements (BIS); Bloomberg; Standard and Poor's; and IMF staff estimates.

<sup>1</sup>Euro area includes Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Portugal, and Spain, excluding Luxembourg.

**Figure 4.1. Size and Composition of Local Bond Markets Outstanding, 2004**  
(In percent of GDP)



Sources: Bank for International Settlements (BIS); and IMF staff estimates.  
<sup>1</sup>Euro area includes Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, and Spain, excluding Luxembourg.  
<sup>2</sup>Indian corporate sector issues only cover commercial paper, as reported by the BIS. Under the more inclusive definition provided by JPMorgan & Chase Co., the outstanding volume of corporate securities would reach 5.4 percent of GDP.  
<sup>3</sup>The outstanding volume of government bonds for the Czech Republic includes issuance by the overall public sector, as reported by the BIS. This contrasts with the narrower definition of general government used to compute public debt under the IMF's *Government Finance Statistics* methodology.

Global bond issuance expanded sharply in the 1990s. During 1999–2003, average annual corporate bond issuance in the United States was about \$900 billion compared with \$280 billion in 1994. In the euro area, it was about \$550 billion, quadruple the 1994 level. (In Japan, it was government debt issuance that almost doubled, from \$250 billion to about \$450 billion.)<sup>6</sup> Several EMs also experienced strong growth in corporate bond issuance since the mid-1990s. Cyclical factors, as well as diversification away from banks and the need for alternative sources of funding to reduce currency and maturity mismatches, have been important drivers of the growth in local corporate bond markets. While in Asia most of the growth took place in domestic bond markets, in Latin America corporates mainly accessed international bond markets until the emerging market crisis of 1998; since then, corporates have increased issuing in domestic bond markets.

Corporate bond markets in most mature markets were almost nonexistent in the early 1980s, except in the United States, where historically the local bond market has been an important source of funding for the corporate sector. The traditional importance of bank lending in financing large and medium-sized corporates in most MMs began to erode in the second half of the 1990s both in the euro area and, to a lesser extent, in Japan. In the United States, the economic boom of the 1990s led to a strong increase in corporate debt issues. Although private sector issues declined in 1999–2000, following the Long-Term Capital Management and Russian debt crises, issuance picked up again after 2000. In Japan, the corporate bond market was heavily regulated until 1985. The relaxation of market eligibility standards, the establishment of rating agencies, and the start of bond futures trading followed by the liberalization of financial transactions (the “Big-Bang” reforms in the

<sup>6</sup>See Pagano and von Thadden (2004).

**Table 4.2. Corporate Issuers: Outstanding Domestic Debt Securities**  
(In percent of GDP)

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Average 1989–94	Average 1995–99	Average 2000–04
<b>Emerging markets</b>	<b>4.2</b>	<b>3.9</b>	<b>4.5</b>	<b>3.9</b>	<b>3.9</b>	<b>4.2</b>	<b>5.1</b>	<b>3.9</b>	<b>2.8</b>	<b>4.6</b>	<b>5.3</b>	<b>4.9</b>	<b>5.3</b>	<b>6.0</b>	<b>5.9</b>	<b>5.2</b>	<b>4.1</b>	<b>4.4</b>	<b>5.5</b>
<b>Africa</b>	<b>12.8</b>	<b>11.5</b>	<b>10.6</b>	<b>9.2</b>	<b>8.7</b>	<b>8.4</b>	<b>7.6</b>	<b>6.5</b>	<b>6.3</b>	<b>6.0</b>	<b>5.6</b>	<b>5.3</b>	<b>4.6</b>	<b>7.0</b>	<b>6.6</b>	<b>6.7</b>	<b>10.2</b>	<b>6.4</b>	<b>6.0</b>
South Africa	12.8	11.5	10.6	9.2	8.7	8.4	7.6	6.5	6.3	6.0	5.6	5.3	4.6	7.0	6.6	6.7	10.2	6.4	6.0
<b>Asia</b>	<b>4.8</b>	<b>5.7</b>	<b>6.6</b>	<b>5.1</b>	<b>5.0</b>	<b>5.9</b>	<b>7.5</b>	<b>6.6</b>	<b>4.3</b>	<b>7.7</b>	<b>8.1</b>	<b>7.8</b>	<b>8.3</b>	<b>8.9</b>	<b>8.4</b>	<b>7.1</b>	<b>5.5</b>	<b>6.8</b>	<b>8.1</b>
China	0.7	1.0	1.5	1.2	0.9	0.7	0.6	0.5	0.7	0.9	0.9	1.0	1.0	1.0	0.9	0.7	1.0	0.7	0.9
Hong Kong SAR	...	0.1	0.8	0.9	0.9	1.4	2.1	1.9	2.1	2.0	3.7	3.6	4.2	4.4	4.1	3.5	0.8	2.3	4.0
India	...	—	0.0	0.1	0.4	0.2	—	0.0	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.4	0.1	0.2	0.4
Korea	12.3	14.5	15.3	15.8	15.7	16.4	16.5	17.4	10.8	31.5	26.1	23.0	26.8	29.9	27.7	23.4	15.0	20.4	26.1
Malaysia	4.5	5.2	6.1	7.9	8.8	15.3	17.6	23.3	20.8	33.8	43.2	45.2	47.7	40.7	43.3	38.2	8.0	27.7	43.0
Thailand	7.2	6.9	6.8	6.6	6.6	7.4	7.7	8.8	6.0	10.4	11.6	11.5	12.9	12.1	13.5	12.2	6.9	8.9	12.4
<b>Europe</b>	<b>0.6</b>	<b>0.3</b>	<b>0.3</b>	<b>0.7</b>	<b>1.1</b>	<b>0.4</b>	<b>0.7</b>	<b>0.4</b>	<b>0.5</b>	<b>1.2</b>	<b>1.6</b>	<b>1.0</b>	<b>1.2</b>	<b>1.5</b>	<b>1.6</b>	<b>1.9</b>	<b>0.6</b>	<b>0.9</b>	<b>1.4</b>
Czech Republic	—	0.0	—	0.0	0.3	0.4	0.7	1.1	1.2	1.3	1.8	3.1	3.1	3.9	3.8	4.0	0.1	1.2	3.6
Hungary	...	...	0.3	0.5	0.3	0.2	0.4	0.4	1.5	1.1	1.3	1.5	1.5	1.4	1.2	1.2	0.3	0.9	1.4
Poland	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Russia	...	...	...	...	...	...	...	...	...	...	...	0.5	0.7	1.0	1.2	1.6	...	...	1.0
Turkey	0.6	0.3	0.3	0.8	1.4	0.4	0.7	0.1	0.1	0.0	0.0	0.0	0.0	...	...	...	0.6	0.2	0.0
<b>Latin America</b>	<b>1.2</b>	<b>1.0</b>	<b>1.2</b>	<b>1.5</b>	<b>1.8</b>	<b>1.3</b>	<b>1.3</b>	<b>0.7</b>	<b>1.0</b>	<b>1.1</b>	<b>1.3</b>	<b>1.4</b>	<b>1.7</b>	<b>2.0</b>	<b>2.4</b>	<b>2.8</b>	<b>1.4</b>	<b>1.1</b>	<b>2.1</b>
Argentina	—	0.1	0.1	0.2	0.8	1.1	1.2	1.3	1.9	2.4	2.6	2.6	2.7	8.6	6.8	6.3	0.4	1.9	5.4
Brazil	...	...	...	...	...	...	...	0.1	0.6	0.3	0.4	0.6	0.6	0.4	0.5	0.7	...	0.4	0.5
Chile	3.0	3.9	4.7	4.3	4.3	4.4	3.3	3.0	2.3	2.9	3.6	4.8	8.9	11.1	13.5	12.3	4.1	3.0	10.1
Colombia	0.4	0.2	0.2	0.3	0.6	0.7	0.9	0.8	0.7	0.6	0.3	0.1	0.2	0.2	0.4	0.6	0.4	0.7	0.3
Mexico	1.2	1.3	1.7	2.1	2.4	1.3	1.0	0.8	1.1	1.3	1.1	1.4	1.6	1.4	2.0	2.7	1.7	1.1	1.8
Peru	...	...	...	...	0.3	0.4	0.6	0.9	1.2	1.6	1.8	2.1	2.2	2.3	3.0	3.2	0.4	1.2	2.6
<b>Mature markets</b>	<b>12.0</b>	<b>11.8</b>	<b>11.8</b>	<b>11.6</b>	<b>12.2</b>	<b>12.0</b>	<b>11.6</b>	<b>12.1</b>	<b>12.5</b>	<b>14.2</b>	<b>14.9</b>	<b>15.3</b>	<b>16.0</b>	<b>16.2</b>	<b>16.2</b>	<b>15.9</b>	<b>11.9</b>	<b>13.0</b>	<b>15.9</b>
Euro area <sup>1</sup>	3.5	3.7	3.6	3.0	3.0	3.0	2.7	2.9	2.8	3.2	4.0	5.5	6.7	8.3	10.0	10.9	3.3	3.1	8.3
Japan	8.0	9.1	9.0	8.9	9.3	10.0	9.4	10.5	10.6	15.4	16.0	13.8	14.7	17.2	17.9	16.9	9.1	12.4	16.1
United Kingdom	3.0	2.8	2.6	2.1	2.6	2.8	2.7	2.8	2.4	2.2	2.1	1.9	2.0	1.7	1.7	1.5	2.6	2.4	1.8
United States	22.2	22.3	22.9	23.4	23.6	22.6	22.9	22.7	22.7	24.0	24.2	24.1	24.1	23.1	22.6	22.0	22.8	23.3	23.2

Sources: BIS; Cbonds; MICEX; and IMF staff estimates.

<sup>1</sup>Euro area includes Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Portugal, and Spain, excluding Luxembourg.

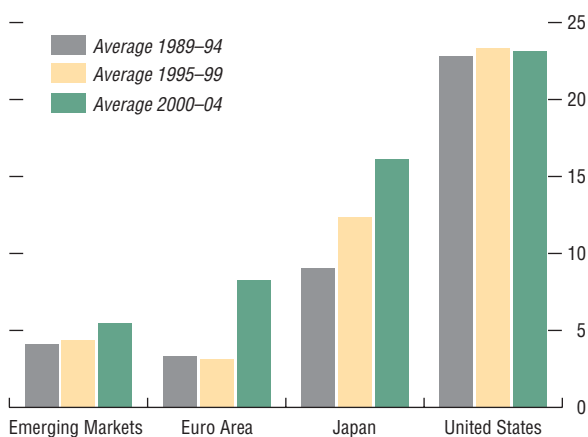
mid-1990s) contributed to the development of securities markets. The relevant measures taken included abolishing the securities transaction tax, deregulating brokerage commission, preparing the legal framework for securitization, allowing banks to issue straight (unsecured) bonds, and introducing a registration system for securities companies. Local corporate bond markets in mature markets grew from about 5 percent of GDP in the early 1980s to an average of 16 percent of GDP during 2000–04. (See Table 4.2 and Figure 4.2 for recent developments.)

Most European corporate bond markets, except for Germany, were relatively small until the introduction of the euro. Pagano and von Thadden (2004) show that it was the corporate sector of the euro area bond market that

grew the most in the wake of European Monetary Union, and transformed the euro into a leading currency of denomination for international bond issues. During 2000–04, euro area corporate bond markets increased from about 4 percent to 10 percent of GDP.

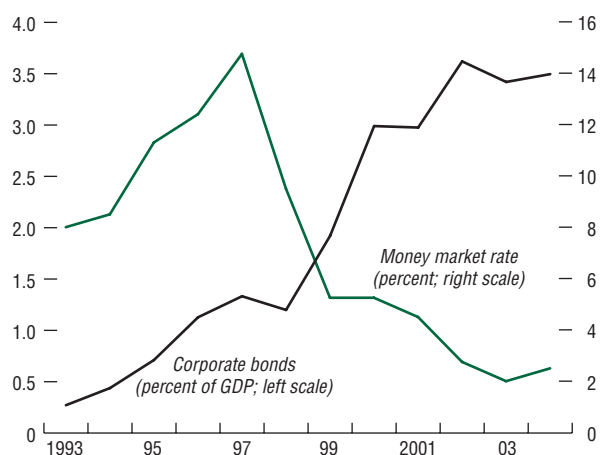
Corporate bond issuance in the major EMs has also grown rapidly since the mid-1990s. In Asia, corporate bond markets increased from 4.3 percent of GDP to 8.4 percent, with large variance across countries. Malaysia and Korea's bond markets reached their largest sizes in 2001 (at 48 percent of GDP) and 2002 (at 30 percent of GDP), respectively. The stock of outstanding corporate bonds also doubled in Thailand, reaching 13.5 percent of GDP in 2003. In Latin America, corporate bond markets also more than doubled in size

**Figure 4.2. Local Corporate Bonds Outstanding**  
(In percent of GDP)



Sources: Bank for International Settlements (BIS); and IMF staff estimates.

**Figure 4.3. Corporate Bond Market and Money Market Interest Rates in the Czech Republic**



Sources: Bank for International Settlements (BIS); and IMF, *International Financial Statistics*.

between 1997 and 2003, with Chile’s bond markets reaching 11 percent of GDP in 2003. The growth of these markets in Central and Eastern Europe has been much less impressive, because of the abundance of bank credit. One exception is the Czech Republic, where the delayed reform of the banking system—which stabilized in 2002 following the completion of privatization and the reduction of impaired assets to below 15 percent of total loans—combined with a sharp fall in local interest rates may have helped spur the growth of the corporate bond market (Figure 4.3).<sup>7</sup> Unlike the pattern observed in the region, increasing bank lending rates in the Czech Republic during 1993–97 may have prompted corporates to look for alternative sources of finance. Likewise, an environment of declining interest rates after 1997 may have skewed investors’ choices toward more sophisticated market-based instruments.

The growth of local corporate bond markets did, however, slow in 2004, as the interest rate cycle began to turn, the financing needs of local firms diminished, and the constraints facing new entrants into the bond market became apparent. Most companies are either cash rich and/or are able to access cheap bank funding, as banks are now pursuing aggressive lending strategies following the postcrisis restructuring. Market participants have noted that, despite important structural progress, the takeoff of several EM corporate bond markets has a strong cyclical component. Whether the previous growth spurt in corporate bond issuance is sustainable is subject to debate.

Both cyclical and structural factors have been important drivers of the rapid develop-

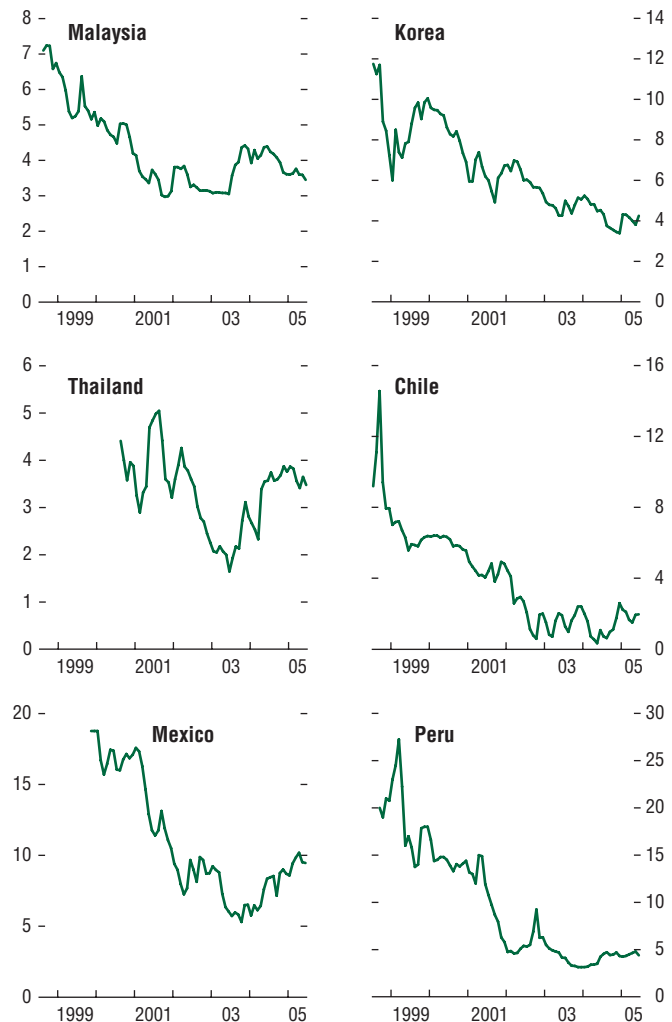
<sup>7</sup>The outstanding volume of domestic government securities at the end of 2004 (53.9 percent of GDP) exceeds the latest figure for public debt (27.9 percent of GDP) because of differences in the scope of government definition. Whereas public debt corresponds to a narrow definition of general government, government securities include issuance by a more inclusive nonfinancial public sector.

ment of the domestic corporate bond markets in several emerging market countries. The financing needs of local corporates in the aftermath of financial crises have been a key cause of the domestic corporate bond market development, especially in Asia and Mexico. The easing of inflationary pressures, increased global liquidity, and the sharp decline in domestic interest rates also contributed to the increased issuance of corporate bonds (Figure 4.4). These trends also coincided with corporates' restructuring in EMs (especially in Asia and Latin America), allowing corporates to refinance expensive external debt with local funding. The shift away from international issuance was also supported by the strong growth in assets under the management of such local institutional investors as pension funds, insurance companies, and asset management companies.<sup>8</sup>

The authorities also implemented significant and targeted reforms to facilitate the development of the corporate bond markets. These included establishing rating agencies and benchmark yield curves, permitting issuance of unsecured bonds, and liberalizing market eligibility standards. Reforms and policy initiatives to improve bond market infrastructure have strengthened trading platforms, clearing and settlement systems, and the regulatory environment. In many countries, benchmark yield curves were established through the issuance of government bonds both to fund financial restructuring and infrastructure projects as well as to absorb excess liquidity attributable to the buildup of foreign reserves. However, as discussed later, gaps remain regarding the development of hedging products and derivatives markets, and strengthening the disclosure standards and the framework for creditor rights and investor protection.

<sup>8</sup>See De la Torre and Schmukler (2004) for a discussion on currency denomination of bonds and the link between issuance in domestic and international markets.

**Figure 4.4. Domestic Government Bond and Money Market Rates<sup>1</sup>**  
(In percent)



Source: Bloomberg L.P.  
<sup>1</sup>For Asia, the rates were for a five-year government bond. For Latin America, one-year money market rates were used.

**Table 4.3. Securitization: Selected Emerging Markets**  
(In millions of U.S. dollars)

	2000	2001	2002	2003	2004
<i>Domestic Issuance</i>					
<b>Emerging markets</b>	<b>32,078</b>	<b>29,829</b>	<b>25,035</b>	<b>28,083</b>	<b>25,632</b>
<b>Africa</b>	<b>0</b>	<b>0</b>	<b>108</b>	<b>0</b>	<b>0</b>
South Africa	0	0	108	0	0
<b>Asia</b>	<b>32,078</b>	<b>29,829</b>	<b>24,927</b>	<b>26,449</b>	<b>18,418</b>
China	0	0	1,087	0	0
Hong Kong SAR	0	0	256	387	432
Korea	31,078	28,417	23,291	25,776	17,598
Malaysia	969	1,412	151	266	350
Thailand	31	0	141	20	38
<b>Latin America</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,635</b>	<b>7,214</b>
Argentina	0	0	0	2	161
Brazil	0	0	0	0	0
Chile	0	0	0	343	775
Mexico	0	0	0	1,290	6,279
<i>International Issuance</i>					
<b>Emerging markets</b>	<b>2,827</b>	<b>3,668</b>	<b>5,344</b>	<b>2,935</b>	<b>5,113</b>
<b>Africa</b>	<b>250</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
South Africa	250	0	0	0	0
<b>Asia</b>	<b>855</b>	<b>1,813</b>	<b>4,092</b>	<b>623</b>	<b>2,243</b>
China	0	0	0	0	0
Hong Kong SAR	142	0	0	43	594
Korea	713	1,813	3,492	580	1,649
Malaysia	0	0	600	0	0
Thailand	0	0	0	0	0
<b>Europe</b>	<b>222</b>	<b>0</b>	<b>0</b>	<b>287</b>	<b>1,800</b>
Poland	0	0	0	87	0
Russia	0	0	0	0	1,475
Turkey	222	0	0	200	325
<b>Latin America</b>	<b>1,500</b>	<b>1,855</b>	<b>1,252</b>	<b>2,025</b>	<b>1,070</b>
Argentina	0	234	0	0	0
Brazil	300	1,050	1,150	2,025	1,070
Chile	0	421	40	0	0
Mexico	1,200	150	62	0	0

Sources: Dealogic; and IMF staff estimates.

Since the binding constraint often appears to be on the availability of sound credits, some issuers and arrangers have resorted to credit enhancements and structured products to enhance credit quality and appeal to a wider investor base (Table 4.3). In Latin America, structured finance transactions in local markets have continued to grow steadily; in 2004, they surpassed for the first time the volume of cross-border structured finance issuance. In Korea, the asset-backed securities market—which spurred the development of the corporate bond market following the Asian crisis—declined following the problems with

credit card companies in 2003. Meanwhile, after a decline in 2002–03, the structured finance market in Malaysia continued to develop in 2004. That said, conditions have proved challenging for the securitization market. Banks have little incentive to securitize their assets, given the abundance of liquidity in the banking system and strong capital adequacy ratios within the industry.

To analyze the main drivers of these recent trends, and the obstacles to further development of the corporate bond markets, the remainder of this chapter focuses on two groups of issues:

- the main causes of the growth of the demand for and supply of corporate bonds, as well as the role played by intermediaries; and
- aspects of the microstructure of the primary and secondary markets, as well as regulatory issues that help promote the growth of corporate bond markets.

### Demand and Supply Factors Driving Corporate Bond Markets

The engines of growth of corporate bond markets have varied across countries. The growth of institutional investors' assets under management has been a major reason for the growth of some corporate bond markets, while the collapse of other sources of funding has been the main cause of the growth in the supply of corporate bonds in other markets. To identify the main obstacles to a deeper and broader market, we need to focus on whether the main driving force of growth has been on the demand or supply side of the market.

The exponential growth of corporate bond markets in the euro area over the last decade illustrates the forces underlying the growth of these markets. Monetary unification, globalization, and efforts to develop government bond markets gave the initial push to bond markets in the euro area that resulted in a sharp increase in corporate bond issuance (Pagano and von Thadden, 2004). These ini-



tial triggers operated through changes in the behavior of investors and issuers alike, as well as through ongoing changes in the banking industry. On the demand side, duration and diversification needs of institutional investors were a major force behind the growth in the market, supported by the elimination of currency risks. Asset managers in the euro area countries moved rapidly to reap the diversification gains of cross-border investing, and pension funds' and insurance companies' moves toward diversification were also aided by the relaxation of a number of regulatory restrictions on the matching of their assets and liabilities. The changes in the investment strategies of institutional investors resulted in a net increase in the demand for corporate bonds in (previously) local markets.<sup>9</sup> Issuers that saw this large pool of investors increased their issuance and took advantage of the opportunity to diversify their sources of funding away from local banks. At the same time, banks faced with increasing disintermediation and the need to strengthen balance sheets and business lines supported the process by competing in the primary market and lowering underwriting costs, and by providing increasingly homogeneous secondary market trading facilities. These forces have also been at play in some emerging market countries.

### Demand Factors

The rapid growth of assets under the management of local institutional investors has been one of the key factors behind the rapid development of domestic corporate bond markets in Latin America and, to a lesser extent, in emerging Asia. Institutional investors' assets under management are growing rapidly in EMs as a result of pension reforms, the low levels of insurance penetration, and the growing popularity of mutual funds. Although these factors have largely

**Table 4.4. Local Institutional Investor Base for Corporate Bonds**

(In billions of U.S. dollars, unless indicated otherwise)

	Chile	Mexico	Peru	Thailand
AUM of institutional investors (end-2004) <sup>1</sup>				
Pension funds	61	42	8	14
Mutual funds	13	35	2	13
Insurance companies	20	20	2	12
Total AUM of institutional investors (in percent of GDP)	91	16	18	23
Corporate bonds market <sup>2</sup>				
Shares held by:				
Pension funds (in percent)	32	34	36	12
Mutual funds (in percent)	10	30	21	8
Insurance companies (in percent)	50	28	15	7
Other investors (in percent) <sup>3</sup>	8	8	28	73

Sources: Thai Bond Dealing Center; and IMF staff estimates.

Note: AUM = assets under management.

<sup>1</sup>Not including the banking sector.

<sup>2</sup>Includes securitizations.

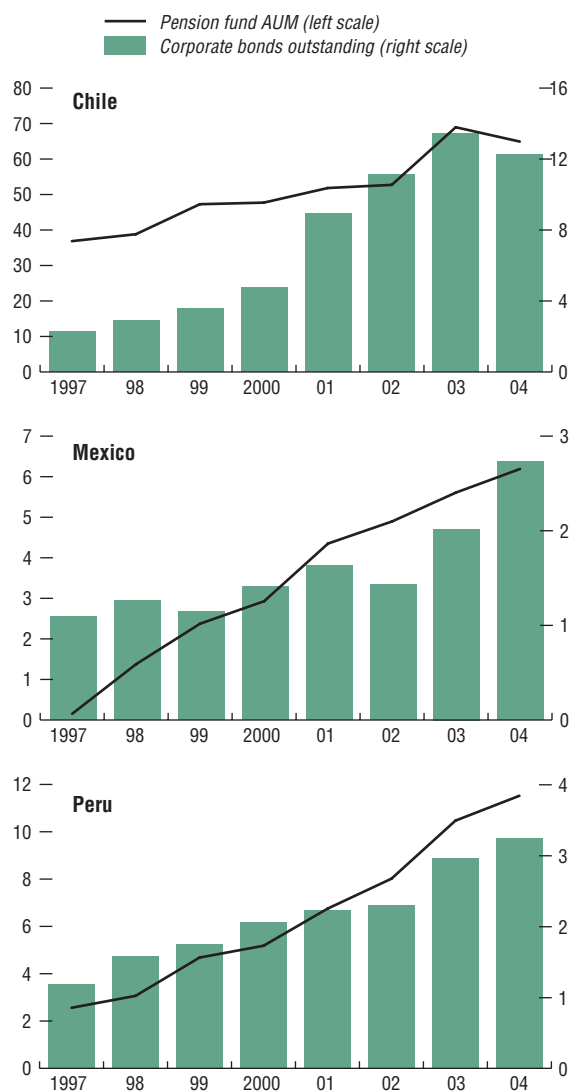
<sup>3</sup>Includes banks and retail investors.

benefited government bond markets, in some countries they have also boosted corporate bond markets. Corporate bonds constitute an attractive instrument for institutional investors that need to match assets and liabilities; these investors are also attracted by the pickup in yield provided by some exposure to credit risk. In some Asian EMs, state-run pension funds are increasingly farming out the management of assets to private managers: analysts note that an increasingly commercial orientation may lead to further demand for corporate bonds.

Local institutional investors in Chile, Mexico, and Peru, for instance, hold around 70–90 percent of outstanding corporate bonds, while banks and retail investors hold the largest share in Thailand (Table 4.4). The growth in corporate bonds outstanding in the Latin American countries was associated with the growth of pension fund assets under management (Figure 4.5). In Asia, the growth of insurance companies has been an important source of demand for corporate bonds.

<sup>9</sup>The increased demand did not extend to bonds issued outside the euro area itself, mainly because of currency risk considerations, as investors replaced home bias with “euro area home bias” (Baele and others, 2004).

**Figure 4.5. Pension Fund Assets Under Management and Corporate Bonds Outstanding**  
(In percent of GDP)



Sources: IMF staff estimates based on FIAP; BIS; and IMF, *International Financial Statistics*.

**Table 4.5. Assets Under Management by Insurance Companies**  
(In percent of GDP)

	1998	1999	2000	2001	2002	2003	2004
<b>Africa</b>							
South Africa	...	...	...	71.7	57.4	57.7	...
<b>Asia</b>							
Korea	14.3	13.6	20.0	19.5	21.0	24.5	...
Malaysia	13.6	15.1	14.9	20.5	20.9	19.3	18.7
Philippines	3.5	3.7	3.8	3.7	4.0	...	...
Singapore	18.5	20.9	21.9	28.9	31.8	36.2	...
Thailand	4.6	5.3	5.5	6.2	7.2	8.3	8.6
<b>Europe</b>							
Hungary	3.3	3.9	4.2	4.5	4.6	5.1	5.7
Poland	3.0	3.6	4.3	5.0	5.9	6.5	5.6
Turkey	1.1	1.6	1.5	1.5	2.1	2.3	...
<b>Latin America</b>							
Argentina	1.8	2.3	2.7	3.2	4.6	4.2	...
Brazil	n.a.	3.7	2.6	2.6	2.8	5.0	...
Chile	13.6	15.8	17.3	18.7	19.7	17.2	18.0
Colombia	0.8	0.8	0.8	0.9	1.0	0.8	0.8
Mexico	1.4	1.4	1.3	1.5	1.6	1.8	1.9
Peru	...	...	...	2.0	2.2	2.7	2.8

Sources: National regulators; and IMF staff estimates.

From a similar level of 14 percent of GDP in 1998, insurance companies' assets under management at end-2003 had grown to 25 percent of GDP in Korea and to 19 percent in Malaysia (Table 4.5). Insurance penetration in Latin America is much lower, with assets under management exceeding 10 percent of GDP only in Chile. In most cases, however, the aggregate exposures of institutional investors to corporate debt are relatively low (see Table 4.6 for a sample of EMs pension funds) and below regulatory limits. This suggests that the potential demand for private debt instruments is significant.

However, the rapid growth in mutual fund assets under management did not have an important impact on corporate bond markets, as these vehicles focus mostly on such liquid assets as money market instruments, government bills and bonds, and equities. Brazil and South Africa have seen mutual fund assets under management (as a percent of GDP) almost triple since 1997 (Table 4.7), while the ratio of corporate bonds outstanding relative to GDP has been stable—albeit at a higher

**Table 4.6. Pension Fund Investment in Corporate Fixed-Income Instruments***(In percent of total investment)*

	1998	1999	2000	2001	2002	2003	2004
<b>Latin and Central America</b>							
<b>Argentina</b>							
<b>Corporate sector fixed income</b>	<b>2.50</b>	<b>2.13</b>	<b>2.80</b>	<b>1.69</b>	<b>1.06</b>	<b>1.54</b>	<b>1.97</b>
Long-term negotiable debt	1.68	1.42	2.50	1.35	0.30	0.90	1.62
Short-term negotiable debt	0.72	0.63	0.31	0.34	0.76	0.64	0.34
Convertible negotiable debt	0.10	0.08	...	...	...	...	...
<b>Chile</b>							
<b>Corporate sector fixed income</b>	<b>3.77</b>	<b>3.79</b>	<b>4.04</b>	<b>6.16</b>	<b>7.16</b>	<b>7.73</b>	<b>7.05</b>
Bonds	3.77	3.79	4.04	6.16	7.16	7.73	7.05
<b>Colombia</b>							
<b>Corporate sector fixed income</b>	<b>9.16</b>	<b>14.78</b>	<b>14.51</b>	<b>14.89</b>	<b>16.60</b>	<b>15.42</b>	<b>14.80</b>
Real sector bonds	9.16	14.78	14.51	14.89	16.60	13.80	13.09
Securitization	...	...	...	...	...	1.62	1.72
<b>Mexico</b>							
<b>Corporate sector fixed income</b>	<b>3.00</b>	<b>2.47</b>	<b>5.55</b>	<b>8.59</b>	<b>15.27</b>	<b>15.43</b>	<b>14.38</b>
Private notes	3.00	2.47	5.55	8.59	15.25	15.43	14.38
Indexed term promissory notes	0.13	1.02	3.56	3.24	3.53	5.91	...
Nominal term promissory notes	2.87	1.46	1.99	5.35	11.72	9.53	...
<b>Peru</b>							
<b>Corporate sector fixed income</b>	<b>19.21</b>	<b>15.50</b>	<b>18.68</b>	<b>16.36</b>	<b>13.12</b>	<b>13.31</b>	<b>11.64</b>
Promissory and commercial notes	0.45	0.28	1.08	2.01	1.64	1.12	0.28
Company bonds	18.76	15.21	17.61	14.36	10.86	11.68	9.09
Investment fund bonds	...	...	...	...	0.04	...	...
Bonds for new projects	...	...	...	...	0.57	0.50	2.26

Source: International Federation of Pension Funds Administrators (FIAP).

level in South Africa.<sup>10</sup> Similarly, the rapid growth of mutual funds in Poland, Turkey, and Thailand has been associated with the growth of government rather than corporate bond markets.

Participation by foreign investors in local corporate bond markets remains very low relative to participation in equity and government bond markets. For instance, foreign investors hold a large share of long duration government bonds in Malaysia, Mexico, and South Africa, but they rarely invest in local corporate bonds.<sup>11</sup> In Korea, the share of foreign investors in equity markets is about 40 percent, but foreign participation in both corpo-

rate and government bond market is very small, as foreign investors see much more upside in equity markets. The general lack of interest from foreign investors in the EM local corporate bond markets has also been attributed to the tightness of spreads, general unfamiliarity with these markets, and the lack of hedging instruments.

### Supply Factors

Corporates consider several factors in deciding whether to use bank funding or bond funding. These include cost considerations, access to long-term funding, disclosure

<sup>10</sup>The relatively higher level of corporate bonds in South Africa is because of bond issuance by parastatal enterprises. However, market participants estimate that the corporate bond market is likely to grow steadily in the near term, as South African corporates have growth opportunities and are relatively underleveraged.

<sup>11</sup>Market participants reported that more than 50 percent of Mexico's 10-year local bonds and more than 80 percent of the 20-year local bonds are held by foreign investors.

**Table 4.7. Emerging Market Mutual Funds: Total Net Assets<sup>1</sup>**

	1997	1998	1999	2000	2001	2002	2003	2004
	<i>(In billions of U. S. dollars)</i>							
<b>Emerging markets</b>	<b>207.11</b>	<b>329.94</b>	<b>376.75</b>	<b>352.62</b>	<b>374.20</b>	<b>380.04</b>	<b>477.87</b>	<b>611.90</b>
<b>Africa</b>	<b>12.69</b>	<b>12.16</b>	<b>18.24</b>	<b>16.92</b>	<b>14.56</b>	<b>20.98</b>	<b>34.46</b>	<b>54.01</b>
South Africa	12.69	12.16	18.24	16.92	14.56	20.98	34.46	54.01
<b>Asia</b>	<b>74.36</b>	<b>186.69</b>	<b>195.21</b>	<b>139.01</b>	<b>150.66</b>	<b>189.08</b>	<b>180.90</b>	<b>245.91</b>
India	9.35	8.69	13.07	13.51	15.28	20.36	29.80	32.85
Korea	53.11	165.03	167.18	110.61	119.44	149.54	121.28	177.42
Malaysia	8.66	10.19	11.39	11.39	12.46	14.13	18.44	22.99
Thailand	3.24	2.78	3.58	3.50	3.47	5.04	11.38	12.66
<b>Europe</b>	<b>1.66</b>	<b>2.57</b>	<b>4.14</b>	<b>5.67</b>	<b>7.31</b>	<b>19.13</b>	<b>31.60</b>	<b>41.30</b>
Czech Republic	0.36	0.56	1.47	1.99	1.78	3.30	4.08	4.86
Hungary	0.71	1.48	1.73	1.95	2.26	3.99	3.94	4.97
Poland	0.54	0.51	0.76	1.55	2.97	5.47	8.58	12.01
Russia	0.04	0.03	0.18	0.18	0.30	0.37	0.85	1.35
Turkey	n.a.	n.a.	n.a.	n.a.	n.a.	6.00	14.16	18.11
<b>Latin America</b>	<b>118.40</b>	<b>128.53</b>	<b>159.17</b>	<b>191.02</b>	<b>201.68</b>	<b>150.84</b>	<b>230.91</b>	<b>270.69</b>
Argentina	5.25	6.93	6.99	7.43	3.75	1.02	1.92	2.36
Brazil	108.61	118.69	117.76	148.54	148.19	96.73	171.60	220.59
Chile	4.55	2.91	4.09	4.60	5.09	6.71	8.55	12.59
Colombia	n.a.	n.a.	10.87	11.97	12.92	15.63	16.89	...
Mexico	n.a.	n.a.	19.47	18.49	31.72	30.76	31.95	35.16
	<i>(In percent of GDP)</i>							
<b>Emerging markets</b>	<b>5.34</b>	<b>9.39</b>	<b>11.31</b>	<b>9.60</b>	<b>10.44</b>	<b>10.57</b>	<b>11.74</b>	<b>12.79</b>
<b>Africa</b>	<b>8.52</b>	<b>9.06</b>	<b>13.70</b>	<b>12.73</b>	<b>12.28</b>	<b>18.94</b>	<b>20.83</b>	<b>25.37</b>
South Africa	8.52	9.06	13.70	12.73	12.28	18.94	20.83	25.37
<b>Asia</b>	<b>6.27</b>	<b>19.82</b>	<b>18.01</b>	<b>11.75</b>	<b>13.02</b>	<b>14.95</b>	<b>12.66</b>	<b>15.14</b>
India	2.30	2.12	2.99	2.95	3.24	4.11	5.17	4.97
Korea	10.07	47.36	37.52	21.61	24.78	27.30	20.03	26.03
Malaysia	8.65	14.12	14.39	12.62	14.16	14.85	17.78	19.52
Thailand	2.15	2.49	2.92	2.85	3.01	3.97	7.96	7.74
<b>Europe</b>	<b>0.19</b>	<b>0.34</b>	<b>0.62</b>	<b>0.77</b>	<b>0.96</b>	<b>2.22</b>	<b>3.00</b>	<b>3.10</b>
Czech Republic	0.63	0.90	2.47	3.57	2.92	4.47	4.52	4.54
Hungary	1.54	3.11	3.60	4.21	4.36	6.15	4.75	5.00
Poland	0.35	0.30	0.46	0.93	1.60	2.86	4.09	4.97
Russia	0.01	0.01	0.09	0.07	0.10	0.11	0.20	0.23
Turkey	n.a.	n.a.	n.a.	n.a.	n.a.	3.25	5.90	6.04
<b>Latin America</b>	<b>7.00</b>	<b>7.64</b>	<b>11.00</b>	<b>11.76</b>	<b>13.00</b>	<b>11.10</b>	<b>16.22</b>	<b>17.08</b>
Argentina	1.79	2.32	2.47	2.61	1.40	1.01	1.51	1.55
Brazil	13.44	15.11	22.47	24.76	29.12	21.00	33.95	36.78
Chile	5.49	3.67	5.60	6.11	7.44	9.95	11.87	13.44
Colombia	n.a.	n.a.	12.61	14.28	15.76	19.17	21.30	...
Mexico	n.a.	n.a.	4.05	3.18	5.08	4.74	5.00	5.20

Sources: Bloomberg; Federation of Malaysian Unit Trust Managers; Investment Company Institute; Monetary Authority of Singapore; Security and Exchange Commission of Thailand; Superintendencia de Bancaria and Superintendencia de Valores, Colombia.

<sup>1</sup>Funds of funds are not included; home-domiciled funds except for Hong Kong, Korea, New Zealand, and Singapore, which include home- and foreign-domiciled funds.

requirements, and the desire to diversify funding sources. In some EMs, corporates have found strong incentives to issue bonds when faced with increasing costs of bank lending or when they were rationed out of the loan market—as a result of banking distress. However, even when bond issuance was

advantageous—including in terms of maturities and covenants—some corporates were reluctant to issue bonds to avoid the disclosure implicit in securing market funding.

The growth in Asian corporate bond markets has been driven mainly by corporates' need for alternative sources of funding in the

face of a collapse in bank lending.<sup>12</sup> Korea and Malaysia had already developed corporate bond markets in the mid-1990s, but both markets more than doubled, relative to GDP, between 1997 and 1999. In Korea, the issuance of nonguaranteed corporate bonds increased sharply after the financial crisis of 1997, aided by the fact that conglomerates owned the investment trust companies (ITCs) that bought the new bonds. However, the mid-1999 collapse of Daewoo Group, the third largest conglomerate, triggered a sharp withdrawal of funds and liquidity problems in the ITCs, which were the main holders of the bonds issued by the group. The Korean experience also demonstrates the potential problems associated with increased issuance of corporate bonds during a period of intensive corporate restructuring, as well as how poor credit risk management by investment trust companies contributed to and further magnified the turmoil in the corporate bond market.<sup>13</sup>

Another clear example of supply-driven growth in corporate bonds is the Russian experience. Ruble-denominated corporate bonds grew from less than 1 percent of GDP in the year 2000 to 2.8 percent in 2004, as a result of the large financing needs of the corporate sector and the inability of the banking system to recover from the crisis of 1998–99. Interestingly, the local corporate bond market in Russia took off despite the absence of a well-developed benchmark yield curve, a strong institutional investor base, or a “credit culture” (Box 4.1). Also, it is one of the few EMs where foreign investors partici-

pate on a meaningful scale in the local corporate bond market.

### Imbalances Between Demand and Supply of Corporate Bonds

As noted in the April 2004 GFSR, the inability of the local supply of securities to respond to the rapid growth of the demand (derived from the growth in assets under management) may lead to mispricing and eventually to asset price bubbles. This has become an issue in some EMs, both in the sovereign and corporate bond markets, as well as in some equity markets. For instance, in Peru, local corporates have been able to issue local bonds denominated in U.S. dollars at lower costs than the sovereign or similarly rated companies that borrow in international markets. Similarly, some analysts believe that the strong run-up in the Santiago stock exchange is due in part to the shift of pension fund investors toward more aggressive funds that are allowed larger allocations to equities.<sup>14</sup> Also, in Malaysia and Thailand, five-year domestic government bonds were trading at sub-Libor levels in April 2005, compared with Libor plus 20–30 basis points for the five-year offshore bonds.<sup>15</sup>

Moreover, herding behavior and excessive concentration in a few market participants could magnify the asset price effects of portfolio relocations, especially in smaller markets. The experience of several Latin American countries’ pension fund industries demonstrates that concentration of demand in a few

<sup>12</sup>Davis and Stone (2004) provide evidence that bond issuance reduces corporate sector vulnerabilities by offsetting bank credit crunches.

<sup>13</sup>The Korean authorities implemented various measures to address these problems. These included the establishment of a bond stabilization fund, the introduction of new instruments to attract redeemed funds back into ITCs and of a scheme to provide funding to allow the rollover of maturing bonds issued by larger firms with temporary liquidity problems, and the implementation of structural reforms to restructure and recapitalize the ailing ITCs. These measures helped improve market sentiment and, together with the sharp decline of interest rates, led to another mild boom in the corporate bond market during March 2002–February 2003.

<sup>14</sup>In 2002, Chilean pension funds were permitted to offer five different funds, from the most conservative to the most aggressive, with increasing allocations to equities. Mexico also allowed a second, more aggressive fund to be introduced early this year, and 90 percent of investors shifted to the new funds—seeking more exposure to equities.

<sup>15</sup>Griffiths (2005).

### Box 4.1. Corporate Bond Market in Russia

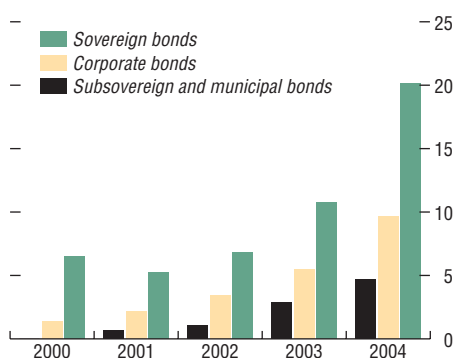
The corporate bond market in Russia, which came into existence in 1999, experienced rapid growth in the past five years. The total value of all outstanding corporate bonds rose from 39 billion rubles (\$1.4 billion) at end-2000 to 267 billion rubles (\$9.6 billion) at end-2004 (see first figure below). During 1999–2004, Russia experienced a positive term-of-trade shock (rising oil prices), which resulted in strong capital inflows and higher liquidity in the domestic financial system. The concurrent expansion of the aggregate demand led to an increase in the financing needs of local firms. However, given a slow recovery of Russian banks from the 1998 crisis, the bank lending channel could not serve as an efficient mechanism for reallocating financial resources to meet the funding needs of firms outside the energy sector. At the same time, the “veksel” market (an “informal” commercial paper market) was available only to the largest corporates and banks. Against this background, the corporate bond market emerged as a natural alternative mechanism to channel excess liquidity into the broader nonfinancial sector.

Compared to collateralized domestic bank loans, corporate bonds offered several advan-

tages: a possibility of noncollateralized borrowing, larger size (because of the larger number of creditors), longer tenors (achieved, at least initially, through embedding put options into the longer-term corporate bonds), and often lower borrowing costs. For medium-sized firms, ruble bonds represented an opportunity to build public credit history and to diversify funding sources away from bank loans. For private domestic banks, many of which had access only to short-term funding and had been investing primarily in government bonds before the 1998 crisis, corporate bonds represented an opportunity to have an exposure to credit risk through traded instruments rather than through non-traded loans. Thus, banks were initially the main investors in ruble corporate bonds.

What makes the Russian case interesting is that the local corporate bond market took off despite the absence of certain institutional features that are generally seen as “preconditions” for the existence of a well-functioning corporate bond market. Although there is no general agreement on which conditions are “necessary,” multiple studies document that a country with a well-functioning corporate bond market typically has (1) a reliable regulatory framework; (2) a developed market infrastructure; (3) adequate corporate governance and reporting standards; (4) a well-functioning government bond market that provides corporate issuers with a stable and liquid benchmark curve in local currency; (5) a developed “credit culture;” (6) a sound and well-regulated banking system; (7) a broad investor base; and (8) a well-functioning market for derivative instruments for hedging interest rate and credit risks. Many examples, however, show that a subset of these conditions (arguably (1)–(5)) may be sufficient for the *emergence* of the corporate bond market. However, in the case of Russia, despite significant progress in the development of a legal framework for and infrastructure of the securities markets, some key elements of an institutional framework, such as a risk-free benchmark, a broad investor base, and a developed credit culture, are still missing.

#### Domestic Bond Markets in Russia: Amounts Outstanding (In billions of dollars)



Sources: Ministry of Finance; MICEX; and Cbonds.

### *Benchmark Yield Curve*

The collapse of the government bond market following the 1998 sovereign default left local corporates without a risk-free local currency benchmark. Despite the recent increase in the sovereign ruble bond issuance, secondary market liquidity remains low, in part due to the dominant position of the state-owned Sberbank. Because of low liquidity and pricing inefficiencies, local borrowers prefer not to use the sovereign curve as a benchmark. Instead, they use the synthetic zero-coupon yield curve derived from the yields on bonds issued by the City of Moscow. The latter is viewed as a natural substitute benchmark provider because of its quasi-sovereign status and its well-developed yield curve (10 issues ranging from 6 months to 6 years). However, yields on the Moscow bonds do contain a quasi-sovereign risk premium and, therefore, are not the ideal risk-free local currency benchmark.

In addition, given that the average size of the City of Moscow bonds is comparable to the average size of bonds issued by the “blue chip” corporates, the Moscow benchmark bonds may not be liquid enough to absorb large negative shocks without transmitting volatility to the rest of the ruble bond market. One example of such a negative shock is a potential unexpected change in the foreign investors’ appetite for ruble bonds. Indeed, foreign purchases of ruble bonds rose substantially in recent years and were largely driven by the continued nominal appreciation of the ruble, with foreigners focusing mainly on the City of Moscow bonds. According to market sources, foreign investors currently dominate the short segment of the City of Moscow curve and own a significant amount of paper in the long segment.<sup>1</sup>

<sup>1</sup>The unremunerated reserve requirement on foreign purchases of subsovereign bonds is 2 percent, compared with 15 percent for the sovereign bonds, which makes the subsovereign and municipal bonds, for example, the City of Moscow bonds, more attractive for foreigners than the sovereign bonds.

Thus, turnaround of the ruble-dollar rate could trigger capital outflows, which would affect the Moscow benchmark bonds and the rest of the ruble corporate bond market. In contrast, with a deeper and more liquid government bond market, the impact of such shocks on broader markets is likely to be less severe.

### *Credit Culture*

In contrast with many other countries, credit rating agencies do not play a major role in the Russian corporate bond market. Although all three major international credit rating agencies are present in Russia, public credit ratings were so far awarded to about 40 nonfinancial firms out of 200 local bond issuers. Most Russian companies do not have incentives to seek credit ratings, because the regulatory investment restrictions for local institutional investors are not linked to credit ratings. Instead, investment restrictions typically refer to the “quotation lists” of the Moscow stock exchange (MICEX).<sup>2</sup> The majority of rated firms are active participants in the international capital markets, where spreads are closely related to credit quality (as reflected in credit ratings) and maturity of bonds. In contrast, in the ruble bond market, there is no clear relationship between credit ratings and bond prices, although the second figure seems to suggest that higher-rated firms are able to borrow in longer tenors.

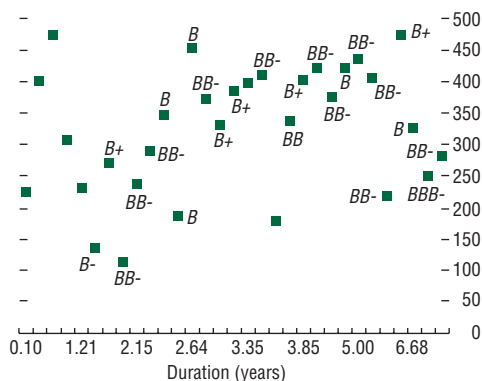
Because the pricing is not always aligned with credit fundamentals, and current yields are at historic lows, analysts believe that any major (not necessarily systemically important) credit event can trigger a “re-pricing” of risks across the entire credit spectrum. The reduction in corporate bond yields during 2003–05 was

<sup>2</sup>The inclusion in the “quotation lists” is based on the fulfillment of certain formal requirements (with regard to the firm’s financial performance, quality of information disclosure, total amount of issue, and market liquidity), rather than on the analysis of credit risk.

**Box 4.1 (concluded)**

**Russian Corporate Eurobond and Credit-Linked Note Spreads**

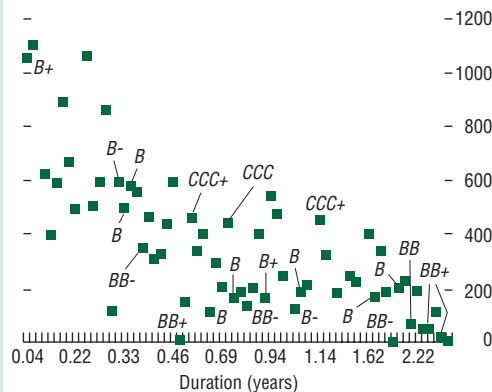
(In basis points over the relevant benchmark, June 2005)



Source: TRUST Investment Bank.

**Corporate Ruble Bond Spreads**

(In basis points over the relevant benchmark)



Source: TRUST Investment Bank.

indeed dramatic, with the average yield on the top-tier corporate bonds falling from 14 percent in January 2003 to around 7 percent in April 2005. This decline was mainly driven by high liquidity in the banking sector and by the continued nominal appreciation of the ruble. Also, during 2003–04, many medium-sized and smaller firms (mostly unrated and often not very transparent) entered the bond market, creating the “junk” bond segment at the short-end (see third figure).

**Investor Base**

While the investor base for Russian corporate bonds is gradually becoming more diverse, local demand is still mainly driven by banks and remains very sensitive to changes in commodity prices. Local banks and brokerage houses currently account for around 50–60 percent of the market (compared with 70–80 percent in 2003); local institutional investors, 20–30 percent; and foreign investors, 10–25 percent. The majority of private banks in Russia have to rely primarily on short-term corporate deposits, rather than on longer-term retail funds. Thus, their liquidity is heavily dependent on corporate flows and, as a

result, is highly sensitive to changes in commodity prices. In addition, a large part of funds managed by asset management companies comes from wealthy individuals, who often tend to have a short-term opportunistic approach toward investing in local markets. At the same time, the asset base of the traditional long-term investors, such as pension funds and insurance companies, remains fairly narrow. Lack of long-term money in the corporate bond market implies higher volatility and lower pricing efficiency.

Thus, it can be argued that, in the case of Russia, it was the funding needs of local firms rather than the demand of domestic institutional investors (as was the case in Latin America) that provided a strong impetus for the development of the domestic corporate bond market. Although the corporate bond market in Russia experienced rapid growth in the absence of a well-developed government bond market, a long-term institutional investor base, or a developed credit culture, these elements are needed to ensure its stability and efficiency going forward, and will have to be gradually established as the market continues to mature.

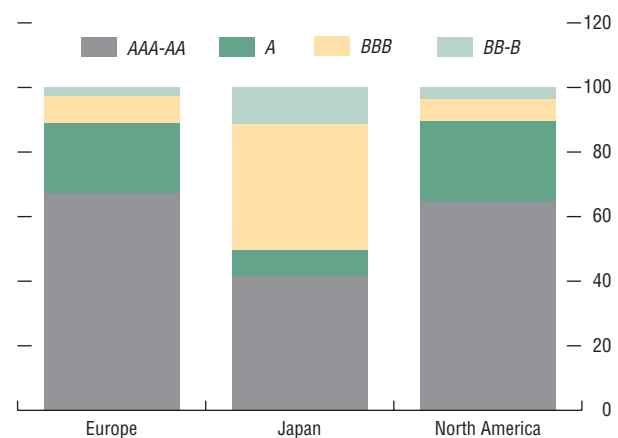


players can lead to pricing distortions at issuance and limited trading in secondary markets. Regulatory limits on exposures to an individual issuer may become binding when a large pension fund faces the option to invest in a bond issued by a relatively small company.

Thus, while the growth in institutional investors' assets under management is contributing to the deepening of the corporate bond markets, the lack of reasonable credits to invest in may lead to distortions and potential financial instability. The preference of institutional investors in these markets to hold high-grade paper has limited the investible universe of corporates to large firms with strong credit fundamentals. Even in countries where institutional investors are not tightly regulated, self-imposed credit-based restrictions by individual companies constrain holdings of subinvestment-grade debt. However, this is not an EM-specific issue (Figure 4.6): in the Group of Seven (G-7) countries, more than 90 percent of corporate bond issuance is in investment-grade categories (Box 4.2).<sup>16</sup>

Given these constraints, pension funds and insurance regulators in some countries are studying how to change the regulatory regimes to allow more freedom to invest, including in corporate bonds. There is a general trend to try to move toward a risk-based rather than an investment-limit-by-instrument regulatory regime. However, regulators are finding it difficult to define a regime that incorporates the many risks—market, credit, operational, and longevity—involved in pension fund management. In the meantime, and recognizing the limitations of the local markets, both the Chilean and Mexican authorities have increased the limits to investments in foreign assets to 30 and 20 percent, respectively, while

**Figure 4.6. G-7 Corporate Bond Issuance by S&P Rating**  
(In percent of total bond issuance per region, 1997–2004)



Sources: Dealogic; and IMF staff estimates.

<sup>16</sup>A higher percentage of Japanese corporations with lower credit ratings were able to issue bonds, compared with other G-7 counterparts, largely because of strong demand for assets with higher fixed returns from institutional investors in the very low domestic interest rate environment.

### Box 4.2. High-Yield Bonds

A number of theoretical and empirical studies have established the existence of a causal link between financial development and economic growth.<sup>1</sup> Corporate bonds are particularly important in this regard, as borrowing proceeds generally flow directly into investment in the real economy. High-yield bonds potentially have an important role to play as a subset of the corporate bond market, as they can be a vehicle for financing new, or small, enterprises or funding the expansion of weak credits that might otherwise lack a substitute source of funds. In this way, the high-yield market may promote incremental economic growth by providing financing that might not otherwise be available from alternate sources.<sup>2</sup>

The potential contribution of the high-yield market is not inconsequential. In the United States, high-yield bonds peaked as a percentage of the market in the 1980s, before dropping back to sustainable levels of around 6 percent of the market. In Europe, including the United Kingdom, high-yield issuance has been growing rapidly, particularly after the EMU, helped in part by the transfer of knowledge of U.S. investment banks, and investment banks' ability to replicate concepts pioneered in the development of the U.S. high-yield market. However, the high-yield debt market share still remains below that in the United States. In Japan, the abolition of issue standards in 1996 made possible the issuance of high-yield debt. However, relatively few corporations have taken advantage of this type of financing.

High-yield bonds have specific characteristics that differentiate them from other sources of finance. First, high-yield bonds generally have more liberal financial covenants and a wider range of investment conditions than are available in bank loans, and thus provide issuers with a greater degree of financial and operational flexibility. Second, high-yield bonds funnel

investment funds into high-growth companies that have outperformed the average for companies in industrial countries in terms of employment growth, productivity, and capital investment.<sup>3</sup>

The question of why high-yield bond markets have failed to develop in emerging markets is puzzling when two of the necessary conditions for their existence—fast-growing corporations and companies with weak credit quality—are present. Information relevant to resolving this apparent contradiction is contained in a recent paper that identifies five macroeconomic variables that determine the structure of the high-yield bond market.<sup>4</sup> These include the following:

- A positive correlation between leveraged buy-outs and high-yield bond issuance.
- A negative correlation between mergers and acquisitions (M&A) activity and high-yield bond issuance.
- Industrial production has opposing effects on the financing activities of high-yield borrowers, depending on their type. With many growing faster than the rest of the economy, high-yield borrowers have increased funding needs to finance working capital and investment.<sup>5</sup> Alternatively, declining industrial production is conducive to credit rating downgrades and expansion of the “Fallen Angels,” or companies that were formerly investment grade and have been downgraded to high-yield status.
- Equity price movements are positively correlated with the high-yield bond market. Higher stock prices imply increasing corporate values (enhancing bond collateral), plus increasing investor confidence in the path of the economy, both of which encourage a movement of funds into higher-risk investments.
- The high-yield bond market expansion is correlated with the spread between yields on

<sup>1</sup>Herring and Chatusripitak (2001).

<sup>2</sup>High-yield bonds can play this role, particularly when the banking sector is reluctant to increase its risk assets (e.g., the late 1990s in Japan).

<sup>3</sup>Rajan and Zingales (1998).

<sup>4</sup>De Bondt and Marqués-Ibáñez (2004).

<sup>5</sup>Yago and Trimbath (2003).

speculative grade paper and debt issued by investment-grade-rated corporates (or the risk-free rate on government securities).

Viewed through this perspective, analysis of the high-yield corporate bond market in the United States and EU provides valuable input that helps explain the arrested development of high-yield bond markets in emerging market countries. For example, it is relevant that the origins of the high-yield corporate bond market can be traced to the “Fallen Angel” phenomena, and not new issues sold to raise cash.<sup>6</sup> The high-yield market only emerged as a source of finance in the 1980s when it was transformed into a source of finance for highly leveraged (or start-up) companies that were unable to raise funds from banks or raise bank funding on a basis that allowed them sufficient operational flexibility.

A contributing factor in the failure of high-yield bond markets to take hold in emerging markets may relate to patterns of corporate development in these countries. In the United States, growth of the high-yield market was fostered by corporate restructurings, particularly leveraged buyouts. In most of the emerging market economies, there has been little in the way of leveraged buyouts, large-scale acquisitions, and other types of corporate reorganizations potentially requiring large amounts of debt financing—except following large-scale, systemic financial crises. The contrast is important, in that much of high-yield financing completed in the United States has been done in connection with business combinations involving large, low-rated corporations.

Industrial production, economic growth, and financing cost variables (e.g., stock market returns and the spread between the yield on speculative-grade bonds and the risk-free rate) also have an important impact on high-yield bond markets with implications for the development of high-yield financing activity,<sup>7</sup> par-

ticularly in the emerging markets. For example, many of the large companies in emerging market countries are solidly profitable, possessing strong balance sheets and open to a wide range of financing alternatives. As a result, there are relatively few “Fallen Angels” with the need to execute high-yield financing transactions.<sup>8</sup> Moreover, as local bond rating scales are adjusted for the credit rating of the sovereign, companies that would not qualify for investment-grade credit ratings in developed economies do qualify as investment grade in emerging market economies. Meanwhile, many companies that would be rated at subinvestment-grade levels according to local scales are privately held or insufficiently large to qualify for public debt financing or to have sufficient needs to justify the expense of a public offering. Given the substantial presence of family-run companies (especially in Latin America) and other factors limiting reorganizations and changes in corporate control, the number of leveraged buyouts and other transactions that could potentially give rise to substantial transactions involving a preponderance of debt securities is very limited.

Finally, given strong returns in the emerging equity markets over the last few years, there has been little incentive for institutional investors to “reach” for the additional return offered through high-yield bond holdings while assuming the accompanying risk. Equity market returns (in excess of the risk-free rate) have been sufficient so that investors have not seen the need to diversify into high-yield credits.<sup>9</sup>

<sup>8</sup>Recent downgrades of Ford Motor Company and General Motors to junk status according to international credit rating scales may alter this situation, as both have local subsidiaries that are large-scale issuers in the Mexican corporate bond market. However, to date, local ratings for their subsidiaries have remained at investment-grade levels.

<sup>9</sup>In Korea, there are a lot of investors, including overseas investors, participating in equity markets, while far fewer invest in high-yield corporate bonds.

<sup>6</sup>Taggart (1988).

<sup>7</sup>De Bondt and Marqués-Ibáñez (2004).

Peru's limit remains at 10.5 percent. Similarly, the Korean authorities have increased the investment limit of insurance companies in foreign assets from 20 to 30 percent, to circumvent the shortage of appropriate instruments in local markets. In Malaysia, there is a 5 percent limit on foreign investment by life insurance companies, while investment-linked funds are subject to a 30 percent limit. Where limits on foreign investment are binding, as in Peru, market participants have developed new domestic instruments to provide foreign exposure to circumvent them.

### Role of Financial Intermediaries

Banks and other financial intermediaries in general have played an important role in the development of corporate bond markets, but they have at times been reluctant to support the emergence or growth of corporate bond markets. In several countries, banks and other intermediaries have been important bond issuers—mainly of subordinated debt—as well as buyers of bonds (especially in Russia and some Asian countries). However, their main role is to provide underwriting capabilities to corporates and making secondary markets work adequately (Hawkins, 2002). In some cases, banks have preferred to keep their lending relationships with corporates, rather than provide corporates with alternative instruments such as corporate bonds—especially when bank lending spreads are high. Increasing competition is likely to force banks to change this behavior.

Some analysts have suggested that, in several European countries and in Japan, the market power of banks actually impeded the development of securities markets until the late 1980s. Banks can do this by controlling access to the payment system or distribution networks, or by encouraging regulations that

increase the cost of issuance and underwriting of securities.<sup>17</sup>

The last two decades, however, have witnessed an expansion of securities markets everywhere (Rajan and Zingales, 2003). Moreover, the recent growth of corporate bond markets in the European Union and Canada demonstrate that banks and markets can grow in tandem and actually support and complement each other, in particular through investment banking activities. The growth in the EU was aided by the introduction of the euro and a substantial decrease in underwriting fees. In Canada, corporations became increasingly dependent on market-based financing during the 1980s and 1990s as banking legislation changes allowed banks to become more involved in such financial market activities as underwriting and brokerage services.<sup>18</sup>

Reflecting in part some of the obstacles behind the demand and supply of corporate bonds, the level of investment banking activity in many emerging markets is seen as one constraint on local firms' financing via capital markets. Issuing corporate securities typically involves the services of an investment bank (rather than a commercial bank or a securities broker). These services usually include advising the issuers on the terms and timing of the offer and on terms of underwriting the issue (see next section). Investment banking expertise is difficult and slow to develop within a country on its own and is typically costly to purchase from abroad. This may be changing, however, given the increasing role of foreign banks in EMs, together with the increasing move toward universal banking.<sup>19</sup>

In sum, the growth of corporate bond markets has been supported by both demand and supply factors. Further expansion of the local corporate bond markets, however, depends critically on access of new, medium-sized com-

<sup>17</sup>Schinasi and Smith (1998); and Rajan and Zingales (2003).

<sup>18</sup>Calmès (2004).

<sup>19</sup>See IMF (2000 and 2001) and BIS (2004) on recent trends in banking in EMs.

panies to the market. As discussed earlier, although institutional investors' assets under management are growing rapidly, these investors generally invest in investment-grade bonds, which in most EMs limits the universe of corporate names that can issue bonds to about 20–30 large firms with strong credit fundamentals. Similarly, foreign investors would have to move further down the credit spectrum to obtain sufficiently attractive yields commensurate with the risk exposure. They are not prepared to do so, however, because of the nonexistence or illiquidity of suitable corporates in these countries. Thus, to satisfy institutional investors' demand, potential issuers will have to improve their credit fundamentals. This, in turn, requires an improvement in the legal and regulatory framework for these markets and their participants, and it involves, among other things, improvements in corporate governance and transparency (IMF, 2005).

As discussed in earlier issues of the GFSR, the existence of a regulatory framework that ensures investor protection, market integrity, and contains systemic risks is essential for the development of securities markets in general and the corporate bond market in particular.<sup>20</sup> Unlike banks, individual bondholders typically have much smaller stakes in private firms and less bargaining power in the event of default or debt restructuring. Therefore, bankruptcy laws—which clearly define creditors' rights and borrowers' responsibilities, as well as the required enforcement mechanisms—are essential for establishing the legitimacy and credibility of corporate bond instruments. Adequate corporate governance practices and a timely and accurate public disclosure of financial information are important

for maintaining credibility and stability of the corporate bond market.

Both market participants and the authorities in EMs with relatively large corporate bond markets are aware of the constraints to further development of the markets and are working to overcome the main obstacles. The Mexican Congress is about to finalize approval of a new capital markets law that aims to change corporate structures and governance to make them more investor friendly, and the pension fund regulatory agency is studying ways to make fund managers less risk averse. In Chile, a new law that creates a modern framework for the development of a venture capital industry is about to be approved. In Peru, pension fund regulators and the securities commission are trying to remove constraints to the emergence of new instruments, allowing pension funds to invest, among others, in private equity and bonds. In Brazil, a new bankruptcy regime that was approved in December 2004 is expected to speed up restructurings, improve investor's collection rights, and boost corporate bond markets. In Korea, in an effort to strengthen corporate governance, the Bankruptcy Law has been strengthened by the integration of all existing "sporadic" laws, with the aim of removing confusion and promoting greater consistency in implementation. The new law is also expected to revitalize the repo market. In Malaysia, several developmental initiatives and reforms, including recommendations from the National Bond Market Committee, Capital Market Masterplan, Finance Committee Report on Corporate Governance, and Corporate Law Reform Committee, have been implemented to improve various aspects of the legal, regulatory, and institutional frame-

<sup>20</sup>Issues related to the architecture of the regulation of corporate bond markets—such as whether regulation is fragmented or centralized (with a single entity responsible for the supervision of the entire financial sector, including the capital market), whether there is a dedicated regulator for the capital market, and whether it also oversees the clearing, settlement, and custody of the bond market—are likely to affect the cost-effectiveness of regulations. Most countries with relatively deeper corporate bond markets have adopted regulation of the corporate bond market concentrated in a single agency and have centralized the regulatory authority over both the primary and secondary markets in a single regulatory body.

works for the development of the corporate bond market.

### Market Structure and Obstacles to Growth of Corporate Bond Markets

We now turn to those elements of microstructure that are critical for broadening and deepening corporate bond markets. In addition to demand and supply constraints, and the legal and regulatory framework, elements of the microstructure of primary and secondary markets—such as auctions, trading mechanisms, dissemination of transaction information, and the role of intermediaries—are important for market development. This section focuses on the main determinants of the cost of bond issuance and secondary market liquidity by examining the experiences of the EMs with large corporate bond markets and relevant mature markets.

#### Primary Markets and Issuance Costs

Key features of the corporate bond issuance process are the structuring, pricing, and distribution of bond issues to end-investors. The cost of issuance also depends on the type of instruments and the nature of bond contracts used in different jurisdictions. Furthermore, these market factors interact with credit ratings, registration, and other regulatory requirements to determine the all-in cost of financing.

#### *Types of Instruments and Bond Contracts*

The types of instruments issued by EM corporates vary, reflecting regional trends, and inflation and devaluation experiences. Most corporate debt securities in the largest Asian EMs are plain vanilla fixed coupon bonds. Maturities range from short-term (less than one year) commercial paper sold on a discount basis to 3–10 year corporate bonds, with the majority under five years. Convertible bonds were popular before the bursting of the

technology bubble. In contrast, several different structures are used in Latin America, including floating rate notes (paying interest at a spread over the applicable government instrument), bonds with interest and principal indexed to U.S. dollars, and inflation-indexed bonds with adjustable coupons and principal payments. Latin American corporates issue coupon bonds for maturities extending to 30 years, which, in some cases, is longer than the maximum tenor of local government securities. Latin America's comparative success in selling long-term corporate bonds is a result of the widespread use of indexation or capital preservation mechanisms, a consequence in part of a history of high inflation and repeated currency devaluations.

Bond contracts show substantial homogeneity across the major EMs. While no overriding body of law, or regulations, force standardization of bond contracts, this may be the result of concentration in the securities industries similar to the standardization in the unregulated Eurobond market. However, in contrast with the generalized trend toward structuring bonds as “promissory notes” (i.e., in essence “promises to pay” with a minimum of covenants), EM corporate bonds feature terms and conditions that include covenants on leverage, interest coverage, liquidity, negative pledge, cross default, and minimum levels of shareholders' equity.

Mexico's experience clearly illustrates the importance of a standard and flexible instrument that accommodates issuers and investors' needs. The corporate bond market in Mexico was marginal until the introduction of a new instrument—Certificados Bursátiles (CBs)—in the 2001 securities law. The CBs contributed to the takeoff of the market for corporate bonds and has become the dominant debt instrument for corporates—accounting for about 99 percent of 2004 issuance. The CBs combined the attractive features of earlier debt instruments (medium-term notes (MTNs) and deben-

tures).<sup>21</sup> They offer the speed and ease of issuance characteristic of MTNs and the flexible amortization schedules and covenants of debentures.

In some countries, credit enhancements and securitization have broadened investor appeal. Credit guarantees have enabled low-credit-quality borrowers to issue corporate bonds, especially in some Asian EMs.<sup>22</sup> Several EM local markets have increased issuance of securitized and/or structured products, such as asset-backed securities (ABS) and collateralized bond obligations.<sup>23</sup> Owing to the credit enhancements, these instruments normally receive better credit ratings than nonstructured transactions (usually by one or two notches), allowing regulated pension funds to invest in bonds from weaker credits. Structured transactions are also used to circumvent investment limits.<sup>24</sup> However, investors in EMs are not always familiar with the risks associated with these products. In Chile, for instance, the rapid decline in local interest rates during 2004 led to a sharp increase in mortgage prepayments, and several mortgage-backed securities (MBS) were downgraded and some of them defaulted on their obligations. In Korea, investment trust companies suffered losses after March 2003 as the liquidity problems of the credit card companies and the SK Corporation accounting scandal triggered large withdrawals.

In other markets, new instruments are used to attract new investors and broaden the investor base. The recent growth of Islamic bonds in Malaysia has been spurred by the successful establishment of a government

yield curve and their popularity among issuers who want to tap a wider investor base in local and regional markets. The issuance of Islamic bonds outstripped that of conventional bonds in Malaysia in 2002, and currently the outstanding stock of Islamic bonds amounts to almost 30 percent of GDP (Box 4.3).

### *Issuance Process and Costs*

The issuance process and associated costs constitute an important determinant of the decision of a corporate to access the local corporate bond market. Low issuance costs are likely to facilitate the development of local corporate bond markets, with positive implications for small enterprise creation (indirectly), large corporation development, and overall economic growth.<sup>25</sup> A reduction in these costs could contribute to increased access for lower-tier credits and further deepen and broaden the corporate bond market.

Issuance costs can be classified into five main categories. Some of these costs are directly linked to issuance methods and other institutional arrangements.

### *Management Fees*

Management fees are paid for advice in structuring the transaction, preparing disclosure documentation for credit rating agencies, issuing registration and other offering documents, as well as in underwriting costs. Such fees are typically the largest single cost of a corporate bond issue; however, highly competitive underwriting business environments in both Asia and Latin America, combined with the structural undersupply of corporate bonds,

<sup>21</sup>Medium-term notes are a schedule of notes, with maturities usually ranging from 1 to 10 years, that are offered either continuously or intermittently over time. Debentures are debt securities that are not secured by a specific pledge of property, but instead represent a general claim on all assets of the firm.

<sup>22</sup>Providers of credit guarantees have been private (monoline) companies, government agencies, or international financial institutions. See Tran and Roldos (2004) for further issues on Asian bond market securitization and guarantees.

<sup>23</sup>The main transactions include mortgage-backed securities, credit cards, construction bridge loans, bonds with partial guarantees, and future flow receivables (including trade receivables, and toll road and tax revenues).

<sup>24</sup>In Peru, for example, structured products backed by local bonds but whose returns are linked to foreign market indices are being sold to pension funds to circumvent the limit on foreign investments.

<sup>25</sup>Levine and Zervos (1998); Beck and Levine (2003).

### Box 4.3. Islamic Bonds in Malaysia

Islamic bonds have played an increasingly important role in Malaysia's financial market. Over the past 10 years, the issuance of Islamic bonds in Malaysia has been growing at a compounded rate of 31 percent, outgrowing the issuance of bonds in total, which were growing at the rate of 13 percent over the same period. Islamic bonds issued in 2004 amounted to 9.1 billion Malaysian ringgit (\$2.4 billion), accounting for 32 percent of the total bonds issued (see first figure below). The total Islamic bonds outstanding is approximately 107 billion Malaysian ringgit (\$28 billion) or about one quarter of the size of the total bond market in Malaysia. It is estimated that about 85 percent of Islamic bonds issued were issued by Malaysia, making Malaysia one of the world's largest Islamic bond markets.<sup>1</sup>

The issuers of Islamic bonds in Malaysia range from the government, government agencies, and private corporation to international development organizations. The government has played an important role in the development of the Islamic bond market by issuing Islamic bonds to use as a benchmark. Currently, Islamic private debt securities are the largest segment of the Malaysian Islamic bond market, accounting for about 70 percent of the market. Recently, Malaysia has allowed multilateral development banks and multinational corporations to issue ringgit denominated bonds in Malaysia. Since then, the International Bank for Reconstruction and Development (IBRD) and the International Finance Corporation (IFC) have issued Islamic bonds in Malaysia.

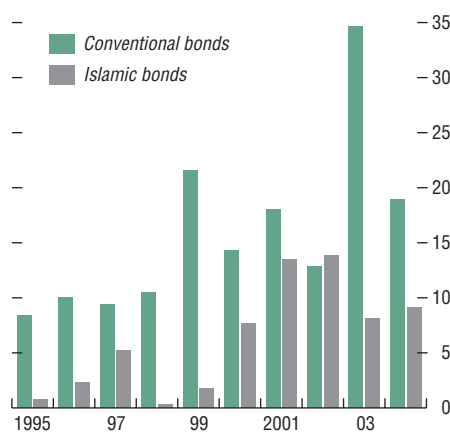
Despite the impressive growth of new Islamic bond issuance in Malaysia, there is still a large demand for Islamic instruments. It is estimated that \$39 billion worth of assets of Malaysian Muslims are not invested in the Islamic financial system.<sup>2</sup> Together with the much larger amount

of Muslim funds from overseas, the largely untapped demand for Islamic financial products presents potential opportunities for Malaysia to develop itself as a center for an Islamic bond market.

Islamic bonds (*Sukuk*) must comply to the *Shariah* principles. The *Shariah* principles are Islamic laws and rules that govern religious, cultural, social, political, and economic aspects of Islamic societies. An important financial aspect of *Shariah* principles is the prohibition of interest (*riba*) on borrowing. Therefore, a fixed or predetermined rate of return is prohibited, whereas the earning of profits or returns from underlying assets is encouraged. Moreover, exchanging money for debt is also prohibited under Islamic finance. To issue an Islamic bond, there must be underlying transactions backed by existing or future assets. In addition, the proceedings from Islamic bonds can only be invested in activities not prohibited by *Shariah*.

Common types of *Shariah* principles used in Islamic bonds in Malaysia can be classified into debt-based, asset-based, and equity-based instru-

**Malaysia: Total Bond Issuance**  
(In billions of Malaysian ringgit)



Source: Bank Negara Malaysia.  
Note: Excluding Cagamas bonds.

<sup>1</sup>Other countries that have been issuing Islamic bonds include Saudi Arabia, United Arab Emirates, Bahrain, and Indonesia. Recently, Pakistan was successful in issuing its first sovereign Islamic bond of \$600 in January 2005.

<sup>2</sup>Nik Jaafar (2005).



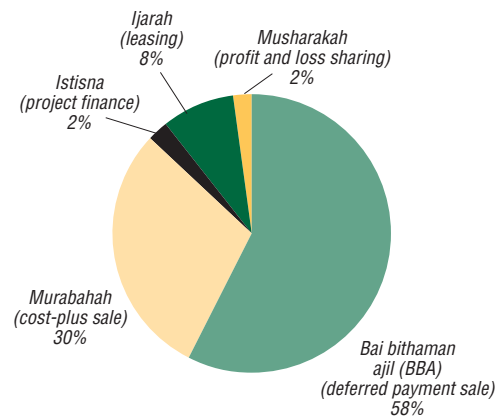
ments. *Murabahah* (cost-plus sale), *bai bithaman ajil* (BBA; deferred payment sale), and *istisna* (project finance) bonds can be considered as debt-based bonds because they are issued in exchange for debt created by the repurchase of an underlying asset. These principles effectively limit debt creation to the issuer's (current or future) assets. *Ijarah* (leasing) bonds are backed by an asset under a leasing contract. *Mudharabah* and *musharakah* are profit-sharing contracts between the issuer and investors.

The majority of Islamic bonds in Malaysia are debt-based instruments. As shown in the second figure, about 90 percent of Islamic bonds issued in 2004 were based on *murabahah*, BBA, and *istisna* principles. These debt-based bonds involve the purchase of an asset by investors (lenders) and the simultaneous sale of the asset back to the issuer with a markup (i.e., a profit margin) agreed upon by both parties. The title to the asset is transferred back to the issuer who, as a result of the transactions, is indebted to the investors. The issuer's obligation is securitized via the issuance of debt certificates, which can be traded in the secondary market.<sup>3</sup> *Murabahah* and BBA are similar except that BBA bonds are used for longer-term financing and the seller is not required to disclose the profit margin in the selling price.<sup>4</sup> Similarly, an issuer can also use a working project as an asset to issue Islamic bonds if the project is undertaken with the

<sup>3</sup>While *Shariah* scholars and the Securities Commission in Malaysia have approved the trading of these debt-based bonds in the secondary market, these bonds are not traded in the secondary market in many other countries. Because it is not permissible to sell a deferred debt at the price below its par value as it would result in *riba* (interest), some Islamic jurists prohibit the trading of *murabahah* and similar credit transactions in the secondary market. In Malaysia, Islamic bonds are commonly traded in the secondary market. The annual trading volume of Islamic debt securities (government and PDS) exceeds 126 billion Malaysian ringgit in 2004.

<sup>4</sup>The government of Malaysia has issued Islamic bonds based on these principles. These bonds are considered benchmarks for Islamic bonds.

### Malaysia: Issuance of Islamic Bonds in 2004, by *Shariah* Principle



Source: Islamic Finance Information Services.

*istisna* principle.<sup>5</sup> Once the issuer enters into the *istisna* contract with a contractor to undertake the project, the issuer can use the project as an asset in the sell-and-buyback transactions (similar to what is described above) to issue *istisna* bonds even though the project has not yet been completed.

Islamic bonds can also be backed by an asset. Under the *ijarah* principle, an issuer sells an asset (e.g., plants, equipments, machines, and vehicles) to investors. The investors will then lease them back to the issuer via the *ijarah* contract. The title of the asset will remain with the investors throughout the tenure of the contract. Upon the completion of the contract, the title will be returned to the issuer, unless it is agreed otherwise. *Ijarah* bonds are in effect bonds backed by the receipts from the leasing contract.

<sup>5</sup>*Istisna* is a purchase contract of an asset to be constructed in the future. The buyer requires a seller or contractor to construct the asset that will be complete in the future according to the specifications given in the contract.

**Box 4.3 (concluded)**

Some Islamic bonds are based on profit sharing schemes. *Mudharabah* is an agreement between an investor who provides 100 percent of the capital required to complete a project and an entrepreneur who solely manages the project. Profits from the project will be distributed according to a predetermined ratio between the capital provider and the entrepreneur. Any loss will be borne solely by the investor, unless the loss is due to negligence of the entrepreneur. Under *musharakah*, both the entrepreneur and the investors contribute resources to the project, either in the form of capital or in kind. Any profits will be shared at an agreed-upon ratio, but a loss will be shared on the basis of equity participation.

Many market participants in Malaysia perceive Islamic bonds as being similar to conventional

bonds in terms of underlying risks. Islamic bonds are widely traded by Islamic investors and are viewed as a perfect substitute for conventional bonds by non-Islamic investors. Because of the relatively small supply of Islamic bonds relative to the larger investor base, Islamic bonds are often traded at higher prices compared with conventional bonds.

However, investor protection mechanisms of Islamic bonds have not yet been tested. In principle, Islamic bonds share the same criteria as (unsecured) conventional bonds in the matter of late payments or default proceedings. However, because there have not been many default cases for Islamic debt securities in Malaysia, the bankruptcy process and dispute resolution mechanism for Islamic securities are largely untested. Its functionality remains to be seen.

have resulted in a dramatic compression in the fees that lead managers charge issuers.

The use of underwriting and auctions for corporate bond issues differ by region. Bond issues in Asia are underwritten and distributed by an investment bank or a syndicate of brokerage houses, similar to the traditional process used in the U.S. domestic and Euro-bond markets.<sup>26</sup> Historically, the issuance process was similar in Latin America, but has now migrated to an auction-based system, patterned after government bond auctions. Under this procedure, corporations choose a lead manager (placement agent) for the offering, and institutional investors make direct bids for specific amounts of bonds at various prices. Under a “Dutch auction” mechanism, all bonds are awarded to bidders at a single cut-off price that gives the borrower its desired volume of issuance. Under these auction-based systems, there is no need to form syndicates to

spread underwriting risk or to assist the lead manager in the selling effort. Lead managers have been forced to accept this issuance methodology by a concentrated, powerful group of institutional investors who want to ensure that corporate bond offerings are executed in a fair, open, and transparent manner.

**Registration, Listing, and Legal Fees**

Registration, listing, and other legal mechanisms provide issuers and investors common standards (e.g., business description, financial statements, terms and conditions, public disclosure) both to assess the investment merits of bonds and to provide market and legal safeguards.

In most EMs, shelf registration can be used to increase issuer flexibility, reduce issuance cost, and improve market timing. Corporate bonds can be registered either as a single issue or under a program umbrella, structured

<sup>26</sup>Although the period to complete a bond issue varies across the three regions, the issuance process is similar: companies first offer the indicative spread and terms and conditions to underwriters, and then choose the offer from underwriters that best meet current investors' needs.

along the lines of shelf registration rules in the United States. Shelf registration allows corporations to prepare their bond offering documentation on a regular basis, reducing the workload surrounding preparation of an issue for market, and allowing the spreading of fixed issuance costs over a larger number of instruments.

Most corporate debt issues are either registered with the local securities and exchange commission (SEC) or a similar body (based on the U.S. model), or may also be listed on a stock exchange (as is customary in the Eurobond market).<sup>27</sup> The practice in Latin America is for both SEC-style registration *and* stock exchange listing; however, regulators and stock exchanges have largely come to “gentlemen’s agreements” on a division of oversight duties to avoid duplication of effort. There are, however, subtle differences in how the registration process works in practice across countries that affect the cost of issuance.<sup>28</sup>

A corporate bond offering will also entail other fees, including those of trustees or fiscal agents. Typically a trustee or fiscal agent is needed to make interest and principal payments and is compensated through a flat “up-front” fee and additional charges for each payment made on behalf of the issuer. The fiscal agency structure is common in U.S. domestic and Eurobond markets because of its low cost and the fiscal agents’ subordinate role (where a fiscal agent acts as the agent of the issuer). Bonds issued under trust deeds

are common in most EMs. Because of the trustee’s authority to initiate legal proceedings on behalf of bondholders, the trustee can help resolve disputes between issuers and bondholders.<sup>29</sup>

Legal fees are not typically calculated according to the value of the note. Instead, they tend to be calculated on the basis of time-based professional costs, and they tend to be higher for an initial issue and lower thereafter. These costs are relatively low in most EMs. Legal costs connected with an initial corporate debt offering are substantially higher (as much as five times greater) than an update of existing documents for corporates that are frequent issuers. The initial high legal costs can act as a powerful disincentive for potential new corporate debt issuers.

### *Credit Ratings*

Obtaining a credit rating can be an additional expense of a corporate bond transaction. The cost of a credit rating is based on several factors; the most relevant is the issue amount. However, a credit rating is valuable to an issuer and a high credit rating can lower the interest costs on its corporate bond. Ratings, like legal fees, are an area in which frequent issuers have cost advantages. For example, most rating agencies charge an “up-front” fee to recover the incremental costs of preparing the initial credit ratings for a corporation about to issue its first public bond. While the authorities in some jurisdictions do

<sup>27</sup>Registration is the system for complying with laws for offering and selling securities to the public within a jurisdiction (subject to certain exceptions). It is mandatory in some jurisdictions, whereas listing is typically voluntary for the issuer, and is undertaken to facilitate secondary transactions in a security on an exchange (as opposed to over the counter), and is commonly self-regulated (i.e., by the exchange).

<sup>28</sup>In Chile, before corporate bonds can be sold to the pension funds, they must be reviewed by the securities commission and accepted for listing on the stock exchange. In addition to these requirements, corporate bond offerings must be approved by the Risk Classification Commission (CCR), which is composed of representatives from government regulatory agencies and independent experts. The CCR reviews the investment merits of the relevant security to determine its appropriateness for pension fund portfolios, and may require a third credit rating opinion.

<sup>29</sup>Bonds issued under trust deeds typically provide a mechanism for qualified majority bondholders to agree to modify the terms of the bonds. Under local laws, most trustees can call bondholder meetings relatively easily to vote on modifications or changes in the bond indenture. This mechanism functions in much the same way as “collective action” clauses, that is, it eliminates the need for unanimous approval for changes to the bond agreement.

**Table 4.8. Cost of Domestic and International Bond Issues**

	Face Value ( <i>in U.S. dollars</i> )					
	Brazil		Chile		Mexico	
	17 million	100 million	15 million	100 million	18 million	91 million
<b>Local bonds total cost (in percent of face value)</b>	<b>4.6</b>	<b>2.4</b>	<b>4.6<sup>1</sup></b>	<b>2.7</b>	<b>2.0</b>	<b>1.2</b>
Composition of total cost (in percent of total cost)						
Management fees	65.0	86.6	45.6	36.6	50.3	67.7
Registration listing and legal fees	8.8	3.9	10.8	2.7	33.2	23.6
Credit ratings	14.3	5.8	4.3	1.3	12.7	7.4
Marketing costs	11.8	3.7	2.6	0.6	3.8	1.3
Taxes	—	—	36.7	58.8	—	—
<b>International bonds total cost (in percent of face value)</b>	<b>...</b>	<b>2.2</b>	<b>...</b>	<b>2.2</b>	<b>...</b>	<b>2.2</b>

Source: Zervos (2004).

<sup>1</sup>Average of \$10 and \$20 million bonds.

not require any ratings for public bond issues (or alternatively, require only one), market practice is to have two ratings (three is becoming more common).<sup>30</sup>

### Marketing Costs

Marketing costs depend on the location of the investor base, regulatory requirements, investors' needs, and frequency of issuance. Issue documentation, particularly the prospectus/offering circular, must be distributed to all bond purchasers. Unless the borrower is well known or has recently issued, there may also be the need for investor presentations in key financial cities, including group presentations and individual meetings with significant institutional investors. These costs are far less for domestic transactions.

### Taxes

Taxes are also a major cost of issuance and influence the structure of corporate bond

markets in many ways. A certain minimum level of taxation is acceptable to all parties in corporate debt transactions. However, large-scale levies against corporate borrowers do much to discourage borrowing or move it to tax-free jurisdictions such as the Euromarkets. A powerful example is Chile's stamp tax, which is levied on all loans and debt instruments.<sup>31</sup> A change in the Chilean regulations in 2002, which spread the cost of the tax through several issues, led to a recovery of the commercial paper market in Chile.

In sum, issuance processes and costs vary significantly across countries, and high costs have been one of the obstacles that reduced issuance by corporates (Box 4.4), in particular by smaller and lower-rated companies. Zervos (2004) shows that for a standard size (\$100 million) bond, issuance costs in Mexico are roughly half of those in Brazil and Chile (Table 4.8). The higher costs are related to higher disclosure costs in Brazil and the

<sup>30</sup>In Malaysia, companies must obtain credit ratings from at least one agency, while ratings from at least two agencies are required in Korea—as well as in most countries in Latin America. Ratings are not required in Russia.

<sup>31</sup>This tax is charged at a rate of 0.134 percent a month of borrowing, with a maximum rate of 1.608 percent. For many years this tax put corporate bond issuance at a disadvantage to domestic bank loans, for while both type of transactions required payment of the stamp tax, extensions or renegotiations of bank loans were not subject to this tax while bond refinancings were. However, in recognition of the anticompetitive nature of this tax, in 2002, the Chilean authorities changed the regulations to allow corporations to file shelf-style registration statements. Extending for up to 10 years, these registration statements allowed corporations to pay the stamp tax once for a set amount of debt securities; subsequent refinancing issues done under this statement would not be subject to the tax. While shelf-style registration does much to ameliorate the effect of the stamp tax on frequent issuers in Chile, the tax remains onerous for corporations doing debut offerings or small-sized issues. It thus discourages issuance by new borrowers needed to expand the base of the domestic corporate bond market.

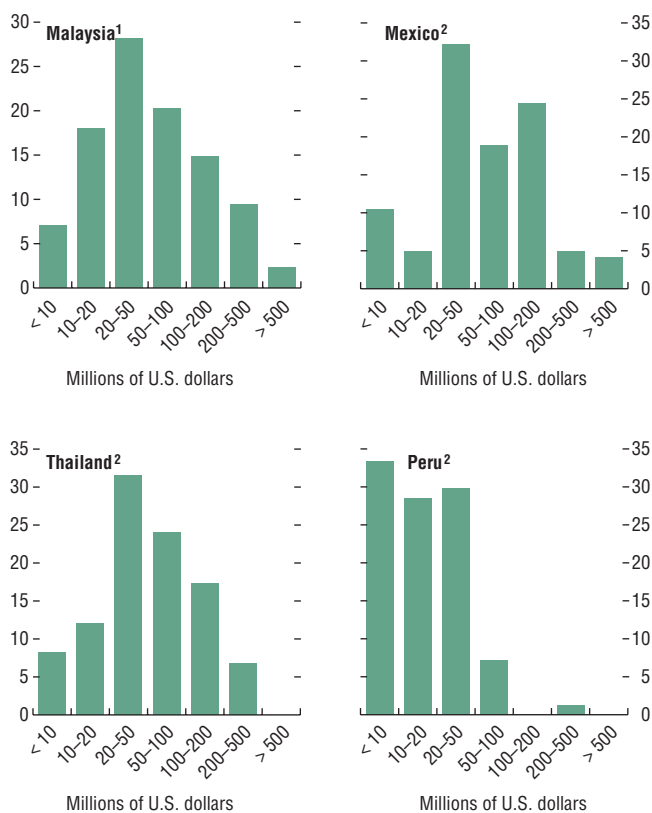
stamp tax in Chile, which makes issuance in local markets costlier than issuance in international markets. The study also shows the importance of issue size: the costs of issuing a \$10–\$20 million bond is double the cost of issuing a \$100 million bond—reaching, in the cases of Brazil and Chile, a 4.6 percent level. Although some countries have seen issuance sizes under \$10 million (e.g., Peru where about one-third of corporate bonds are under \$10 million), it is unclear whether these smaller sizes would be reasonable for issuers and investors alike. Indeed, the fraction of issues under \$10 million is much lower in Malaysia, Mexico, and Thailand (Figure 4.7). High issuance costs may explain the reluctance of smaller companies to issue bonds in some local markets.

### Secondary Market and Pricing Issues

Secondary markets provide liquidity and facilitate price discovery as well as asset reallocation. These functions are important for the operation of the corporate bond market. This section discusses the importance of well-functioning secondary corporate bond markets as well as some market microstructure issues related to the liquidity of the secondary market.

Market liquidity is an elusive concept and difficult to measure, and many different measures are possible.<sup>32</sup> Generally speaking, liquidity is a measure of how easy it is to trade securities.<sup>33</sup> Liquidity is important for the efficient functioning of securities markets because it ensures that investors can trade securities whenever they wish, making them more willing to invest in the securities in the first place. Important dimensions of market

**Figure 4.7. Distribution by Size of the Corporate Bond Issues**  
(In percent of total)



Sources: Bloomberg L.P.; and Malaysia's Securities Commission.  
<sup>1</sup>New issuance in 2004.  
<sup>2</sup>Outstanding bonds in June 2005.

<sup>32</sup>See, for example, Houweling, Mentink, and Vorst (2005).

<sup>33</sup>Market liquidity is defined in various ways. For example, a market is considered to be liquid when bid-ask prices are regularly quoted, the spreads are small enough, and small trades can be immediately executed with minimal effect on prices.

**Box 4.4. Demand and Supply Factors Driving Corporate Bond Markets in China and India**

The financial systems of China and India rely heavily on the banking sector for corporate financing, while debt markets have historically been dominated by the government sector—including public banks. The steady increase of sovereign borrowing has outpaced GDP growth over the last 15 years, and, even though financial reforms have removed some regulatory impediments to efficient financial sector development, both countries still show a lack of deep and liquid corporate bond markets.

While the government bond markets in China and India are fairly well developed, the corporate bond markets remain relatively underdeveloped. The size of the total bond market in China was 42 percent of GDP at the end of 2004, whereas the size of the corporate bond markets only amounted to 0.75 percent of GDP (or 3.5 percent of total debt markets; see first figure). Chinese banks increased corporate lending to the private sector from 86.6 percent of GDP in 1990 to 149 percent of GDP in 2004. In India, the credit cycle has been less expansive than in China, with credit to the private sector reaching 37 percent of GDP. The total outstanding volume of corporate bonds amounted to only 1.4 percent of GDP while the total debt market reached 38 percent of GDP: \$257 billion (see second figure).

The relatively underdeveloped local institutional investors, as well as the centralized government supervision over capital markets, are the major factors contributing to the underdevelopment of corporate bond markets in China. Because of the troubled history of sizable corporate bond defaults in the 1990s, the government has adopted a merit-based selection system for issuing corporate bonds,<sup>1</sup> ceilings on corporate bond interest rates, and mandatory credit guarantees (by state banks) to protect investors from possible bond defaults. These systems have created a highly segmented, over-regulated issuance process that restricts corporate access to capital markets and permits only the best

<sup>1</sup>It can take 12–15 months or longer to get an approval to issue corporate bonds.

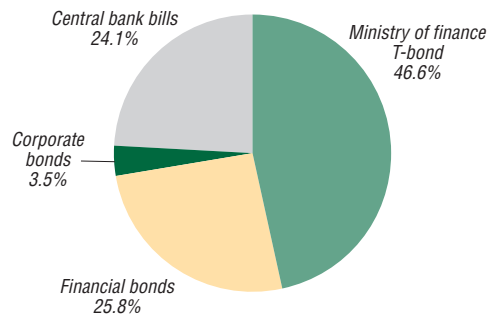
companies and infrastructure projects to issue bonds. They also limit incentives to develop corporate governance, disclosure, and transparency standards for bond issuance. Moreover, the absence of a comprehensive trading platform and a sound operational infrastructure inhibits efficient information dissemination and price discovery across capital market segments.<sup>2</sup>

In India, high issuance costs, the lack of transparency of the bond issuance process, and the barriers to domestic and foreign institutional investment are the main obstacles to the development of corporate bond markets. The procedures for corporate bond registration and approval are time-consuming and involve several agencies, making issuance costs so high that companies resort to private placements, which are not subject to the strict regulatory provisions and disclosure requirements of public issues. As a result, the proportion of total bond issuance done through private placements has grown from 29.8 percent in 1990 to more than 85 percent in 2004. The heterogeneous tax treatments across different debt securities (issued by the same corporate) create financial distortions and make it difficult for investors to price different instruments. Moreover, the current barriers to institutional investors (e.g., the corporate bond ceiling for foreign institutional investors and the investment restrictions for mutual funds) pose further constraints for the growth of the corporate bond market.

National governments in both countries have taken an active role to encourage the further development of the debt markets over the recent past. In China, a special working group was created by the government in February 2004

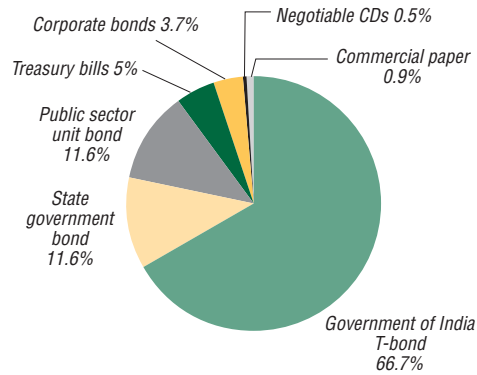
<sup>2</sup>There are three markets for bond trading: the interbank, the exchange, and the over-the-counter (OTC) markets. While all types of financial institutions are allowed to participate directly in the interbank market, commercial banks and credit unions are excluded from trading in the exchange, creating market segmentation, and restricting some trade flows. Moreover, there are no regulations and reporting requirements governing the OTC market, making it difficult to trade across the markets.

**Bond Market in China**  
(In percent of total)



Sources: China Bond Investment Co., Ltd.; Deutsche Bank Research; National Debt Association of China; and IMF staff estimates.  
Note: Total outstanding volume (April 2005): 5.8 trillion yuan (\$700 billion).

**Bond Market in India**  
(In percent of total)



Sources: Deutsche Bank Research; National Stock Exchange of India; Reserve Bank of India; and IMF staff estimates.  
Note: Total outstanding volume (March 2005): 13.3 trillion rupees (\$257 billion).

to improve regulation in areas of granting non-government enterprises access to the corporate bond market, relaxing approval limits on corporate bond issues, and easing interest rate controls. In India, several policy measures, such as the removal of technical impediments to competitive pricing of government securities, the promotion of central bank open market operations via the repo market, and the extension of a liquid zero-bond yield curve up to 30 years are likely to help the corporate bond market.

A number of reforms could further the development of the corporate bond markets in both countries. In China, authorities could further promote fair market competition for funds among government and nongovernment issuers. The reforms ought to seek a sequenced and time-bound transition from the “merit review system” to a system of full disclosures and unified regula-

tory supervision. Investor protection in bond markets can be promoted through disclosure, legal enforceability, and assessments by independent rating institutions. Moreover, enhancing the development of domestic and foreign institutional investors, and removing barriers to trading between different markets, would improve liquidity in the corporate bond market. In India, the authorities could consider measures to improve regulatory practices by (1) ensuring homogeneity across different debt securities; (2) putting regulation of the corporate debt market under a single regulator, and streamlining disclosure and issuance practices for public debt issues in order to reduce transaction costs, time lags, and uncertainty; and (3) liberalizing restrictions on investments by institutional investors and gradually lifting the existing foreign investment ceiling on corporate bonds.

liquidity include *tightness* and *depth*.<sup>34</sup> *Tightness* provides information about general costs

<sup>34</sup>See Mohanty (2002) and BIS (1999) for extended discussions on market liquidity.

incurred by market participants in executing transactions; it is often measured by the bid-ask spread, the number of bids-offers, or the number of missing bids or offers. *Depth* refers to the ability to execute transactions without

**Table 4.9. Annual Turnover Ratios of Listed Bonds and Equities on Exchanges, 2004**  
(In percent)

Exchanges	Turnover Ratio				
	Listed bonds			Equities	
	Total <sup>1</sup>	Private sector	Public sector		
<b>Mature markets</b>					
United States	NYSE <sup>2</sup>	0.2	...	...	91.4
Canada	TSX Group	42.3	—	42.3	55.3
United Kingdom	London SE	110.3	2.3	446.4	180.4
Australia	Australian SE	2.2	...	...	67.4
Japan	Tokyo SE	0.1	19.9	—	90.5
	Osaka SE	—	6.0	—	5.9
Hong Kong SAR	Hong Kong Exchanges	—	0.0	—	51.0
<b>Latin America</b>					
Argentina	Buenos Aires SE	28.1	7.5	30.9	11.9
Colombia	Colombia SE	541.9	157.4	726.7	8.2
Peru	Lima SE	16.5	15.9	18.6	8.7
Mexico	Mexican Exchange	0.6	...	...	26.4
Chile	Santiago SE	...	...	...	10.4
Brazil	Sao Paulo SE	6.8	6.8	—	31.5
<b>Europe</b>					
Hungary	Budapest SE	3.6	12.1	2.5	46.7
Turkey	Istanbul SE	310.2	—	310.2	149.1
Poland	Warsaw SE	1.5	44.1	1.4	22.7
<b>Asia</b>					
China	Shanghai SE	36.5	17.8	37.8	102.7
	Shenzhen SE	12.7	—	12.7	145.8
India	BSE, the SE Mumbai National Stock Exchange of India	5.9	—	8.2	30.6
	Exchange of India	63.3	42.1	63.9	71.7
Malaysia	Bursa Malaysia	21.7	21.7	—	33.9
Korea	Korea Exchange	52.8	0.8	63.8	125.4
Thailand	Thailand SE	0.3	0.3	—	100.9

Source: World Federation of Exchanges.

<sup>1</sup>Total includes domestic and foreign listed bonds.

<sup>2</sup>2003 data for bond turnover.

causing sharp changes in prevailing market prices and is usually measured by quote sizes, volatility, trading volumes, and turnover ratio.

Although these are imperfect measures for tightness and depth, they provide quantitative benchmarks of market liquidity.

Although market liquidity is hard to measure, the liquidity of corporate bonds in both mature and emerging markets is relatively low. In many countries the majority of bonds are traded on over-the-counter (OTC) markets<sup>35</sup> and the trading data are often unavailable,<sup>36</sup> which makes it difficult to compare the liquidity of secondary bond markets across countries. Chakravarty and Sarkar (1999) compare the liquidity between corporate and government bonds in the United States and find that the average bid-ask spread for corporate bonds between 1995 and 1997 was 21 cents per \$100, compared with 11 cents in the government bond market. They also find that the spreads for AA-rated bonds are lower than noninvestment-grade corporate bonds. Hattori, Koyama, and Yonetani (2001) find that the turnover ratio of the Japanese corporate bond market was about one-fifth of that in the United States. Table 4.9 shows the turnover ratio<sup>37</sup> of listed bonds as well as equities traded on the exchange markets in a sample of both mature and emerging markets.<sup>38</sup> In most countries, corporate bond markets are relatively less liquid compared with equities and public bonds markets. Moreover, liquidity is usually centered on a few quality issues and easily “dries up” as market conditions change. However, in some countries such as Peru and Colombia, where equity market are less active, corporate bond markets are

<sup>35</sup>Over-the-counter (OTC) market refers to a decentralized market where securities are typically traded over the telephone, facsimile, or electronic platform, as opposed to an exchange, which is an organized market and may be either floor-based or electronic. Organized markets usually have more disclosure requirements.

<sup>36</sup>Exceptions include the United States where trading data of all OTC transactions are collected and disseminated through National Association of Securities Dealers’s (NASD’s) centralized reporting system known as TRACE (Transaction Reporting and Compliance Engine). The information is available to the public on the Bond Market Association’s website: <http://www.investinginbonds.com>.

<sup>37</sup>Turnover ratio may be defined in different ways. Here, we define turnover ratio as the ratio between annual trading volume and amount outstanding.

<sup>38</sup>This table should be interpreted with caution because the proportion of bonds listed and traded on the exchanges may differ across the countries. For example, most corporate bonds in the United Kingdom and Japan were listed but rarely traded on the exchanges, whereas only a small fraction of corporate bonds in Thailand and Malaysia were listed. In Peru, most corporate bonds are reportedly listed and traded on the exchange.



relatively more liquid. (See Table 4.10 for Asian country experiences.)

Investors require additional returns to hold securities that are illiquid, to compensate for the risks of not being able to get out of the position when needed or of incurring a large cost to do so. This additional return is known as the *liquidity premium* and is an important component of corporate bond spreads.<sup>39</sup> Spreads on corporate bonds are often found to be wider than justified by historical default losses, most likely reflecting liquidity risks and tax effects.<sup>40</sup> Using corporate bond data for the U.S. market, Longstaff, Mithal, and Neis (2004) find that the default component accounts for most corporate spreads across all credit ratings and the nondefault component of a spread is strongly related to such measures of illiquidity as the size of bid-ask spreads and the principal amount outstanding.

Many factors contribute to the increasing pervasiveness of the illiquidity of secondary markets in EMs.

- Corporate bond markets in many EMs are dominated by large buy-and-hold pension funds and insurance companies. Combined with the underdevelopment of other institutional investors, their buy-and-hold behavior undermines the active trading of corporate bonds. This problem is worsened by the imbalance between the growth of assets under management and the availability of securities.
- Investors in corporate bonds are often concentrated and sometimes behave similarly. Their “herding” behavior tends to make markets one sided and to limit active trading.
- The small issue size of corporate bonds contributes to illiquidity. The size of corporate bond issues in EMs are generally small

**Table 4.10. Annual Bond Turnover, 2004**  
(In billions of U.S. dollars)

	Government Bonds		Corporate Bonds	
	Trading volume	Turnover ratio (in percent)	Trading volume	Turnover ratio (in percent)
China	568.4	224.0	1.42	1.4
Hong Kong SAR	541.0	3471.6	...	...
Indonesia	28.7	65.0	0.88	15.1
Japan	28,554.5	537.9	1,086.01	88.7
Korea	860.6	331.9	345.39	100.8
Malaysia	84.3	182.3	38.07	77.7
Singapore	126.0	314.9	...	...
Thailand	68.4	202.9	5.47	27.7

Source: Asianbondonline.

relative to government bonds and other securities. Moreover, because of their heterogeneous nature (coupon and maturity), bonds issued by the same issuer may not be substitutable.

- The lack of hedging instruments also contributes to the low liquidity of corporate bond markets in many emerging markets. Investing in corporate bonds exposes investors to market, credit, and liquidity risks. Repo and derivative markets that allow investors to hedge such risks and broker dealers to manage their inventory more effectively are underdeveloped in many EMs. Without hedging instruments, some investors are unwilling to buy corporate bonds, exacerbating the lack of liquidity. Moreover, it is uncommon to short sell corporate bonds in some of these countries either because of regulation or because of investors’ unwillingness to lend the securities for short selling.<sup>41</sup>

In addition, corporate bond market microstructure plays an important role in determining market liquidity. The market microstructure includes trade execution systems, trading venues, trading commissions,

<sup>39</sup>Corporate bond spreads are defined as the difference between the yields on a corporate bond issue and the yields on a relevant (sovereign) benchmark issue.

<sup>40</sup>See, for instance, Elton and others (2001); and Krainer (2004).

<sup>41</sup>Some institutional investors do not want to lend their securities because they are afraid that by lending their securities to be shorted, their net asset value would be adversely affected.

disclosure of contracted price and volume information, and market regulations. Robust and efficient trading, as well as proper data dissemination systems, promote market integrity and improve the liquidity and efficiency of the price discovery process.<sup>42</sup> In most EMs, information about transactions on the exchange are well disseminated.

Transparency requirements for listed bonds traded on the OTC market differ across countries. With some exceptions, information is made publicly available with delays ranging from minutes to a day.<sup>43</sup>

A number of countries are trying to encourage more exchange-based trading of bonds through tax incentives. As exchange trading is seen as more transparent, more effective, and allowing a wider range of investors better access to the market, some countries encourage investors to trade bonds on the exchange to promote competition in the secondary market. For example, in Peru, the government encourages trading on the exchange by exempting interest income tax for fixed-income securities traded there.<sup>44</sup> In some countries, institutional investors (e.g., private pension funds) are restricted to trading securities only on the exchange because of the better transparency.

The existence of a large number of illiquid corporate bonds poses a challenge to institutional investors that are required to mark-to-market their portfolios. Some securities are not traded for extended periods of time. In Mexico and Korea, the systems of “price vendors” are established. Institutional investors “purchase” the price quotes from these price vendors who provide price quotes for all securities using their pricing methodologies.<sup>45</sup> In Chile and Peru, the pension fund regulators produce

their own “price vectors” for the valuation of portfolios, and there are increasing pressures to have a standardized methodology that can also be applied to mutual funds. In other countries, institutional investors use either prices supplied by their regulators, self-regulatory organizations (Thailand), or average quotes from securities companies (Malaysia).

In sum, more liquid markets would certainly help support the broadening and deepening of corporate bond markets by conveying more pricing information and facilitating trades.

## Challenges and Policy Issues

This chapter has analyzed some of the recent experiences of corporate bond market development in selected emerging markets. Building up the institutions needed to deepen and broaden these markets poses a number of challenges and policy issues. We discuss these challenges and policy issues next, drawing a distinction between issues related to the development of the markets and those related to financial stability.

## Market Development Issues

Although there is no general agreement on which conditions are “necessary” for corporate bond market development, and there is certainly no “one-size-fits-all” recipe, this chapter as well as other studies on the issue have documented a number of institutional features of a well-functioning corporate bond market. Macroeconomic stability is often mentioned as a precondition for the development of local securities markets, and this is no less relevant for corporate bond markets. Indeed,

<sup>42</sup>See Madhavan (2000) for a review of theoretical and empirical literature on market microstructure.

<sup>43</sup>Information is provided to regulators in the case of Malaysia; to the stock exchange and subsidiaries in the case of Mexico; and to self-regulatory organizations in the cases of Korea (KSDA), Thailand (Thai BDC), Japan (JSDA), and the United States (NASD). See IOSCO (2002 and 2004).

<sup>44</sup>Some transactions, however, are reportedly matched on the OTC market and cleared on the exchange only for tax purposes.

<sup>45</sup>For Information on pricing services in mature markets, see the Bond Market Association (2005).

the achievement of macroeconomic stability by a number of EMs suggests that the time is right to press ahead with other measures that contribute to the development of corporate bond markets. In particular, substantial fiscal consolidation has reduced the crowding-out effect of government issues in local bond markets, despite their useful presence in providing a pricing benchmark. Also, the enhanced credibility of inflation-targeting regimes has contributed to low domestic yields and the attractiveness of local corporate bonds.<sup>46</sup> Among the measures aimed at further developing the local corporate bond market, the more substantive ones would ensure sustainable growth of the demand and supply for bond issues—and market intermediaries—while others would strengthen the microstructure of these markets.

#### *Demand Factors*

Emerging markets need to develop a relatively large and diversified institutional investor base, including pension funds, insurance companies, and mutual funds. Although the institutionalization of savings has been a trend in the mature markets for decades, and it is already taking hold in the major emerging markets, authorities in EMs have to ensure that conditions to facilitate the growth of these investors, such as by protecting investors without unduly restricting the growth of alternative saving instruments, are in place. They also must ensure that the regulations needed to preserve the soundness of these intermediaries, such as those that prevent excessive credit concentrations, do not hinder the growth of the corporate bond market.

#### *Supply Factors*

A growing and diverse set of issuers with both the size and credit quality necessary to appeal to institutional investors is necessary for the sustained growth of the corporate bond

market. Medium-sized and small corporates should adopt high standards of transparency and corporate governance to facilitate market access. Credit enhancements and structured products could also help lower rated corporates to access, or reaccess, bond markets.

#### *Role of Intermediaries*

Competitive pressures are likely to force banks and other financial intermediaries to develop diverse instruments to address the needs of investors and issuers. Increased emphasis on better risk management and the adoption of the new Basel accord over the medium term are likely to cause EM banks to economize their capital by providing instruments other than extending and warehousing loans. Measures that facilitate banks' move to the investment banking and brokerage business are likely to both help improve banks' profitability and contribute to the development of securities markets, in particular, corporate bond markets.

#### *Legal and Regulatory Issues*

For the effective functioning of securities markets, the authorities must adopt a regulatory framework that ensures investor protection and market integrity, and contains systemic risks. Key elements of the required legal framework include the adoption and enforcement of bankruptcy laws that clearly define creditors' rights and borrowers' responsibilities, the promotion of adequate corporate governance practices, and a timely and accurate public disclosure of financial information. The authorities should also aim to remove legal and other impediments to securitization and the inclusion of credit enhancements.

#### *Improvements in the Microstructure of Primary and Secondary Markets*

Financial intermediaries need to be careful in tailoring bond contracts. For example, con-

<sup>46</sup>Disintermediation of the banking system may, however, change the monetary transmission mechanism and reduce the effectiveness of monetary policy.

tracts that benefit the issuer but do not allow for covenants that protect investors may hinder market growth. However, contracts that cater to a specific investor base, as in the case of Islamic bonds, can certainly satisfy a niche demand and provide a boost to the markets.

Measures to reduce issuance costs have proven to be rather effective in promoting the corporate bond market, but some EMs could make further progress in this area. Shelf registration and other measures that reduce the approval time and cost of issuance are unquestionably useful. Similarly, the removal of discriminatory taxation that benefits other securities should be avoided. Rating requirements do add to the cost of issuance but they are necessary for adequate pricing and development of a credit culture. Further reductions in issuance costs could allow reductions in the minimum issuance size and improve access for medium-sized and small enterprises.

A well-developed secondary market certainly helps the development of the primary market, by improving price discovery and liquidity. However, only a few countries have achieved this goal. Measures that require or induce trading to be channeled through the stock (or other) exchanges do increase transparency, but they may remove incentives for market makers to support trading activities—especially during periods of excessive volatility, which are so frequent in emerging markets.

Ancillary markets, such as liquid government bond and derivative markets, are not necessary for the development of corporate bond markets, but they are important supports. The development of an adequate mechanism for pricing credit risk generally requires the existence of a well-developed local currency benchmark yield curve, as well as a credible and transparent mechanism for credit risk assessments. The government is often a

natural provider of benchmark interest rates, because of high liquidity, relatively low default risk, and a wide range of maturities of local-currency-denominated sovereign bonds, relative to nonsovereign issues. Similarly, a well-developed market for derivative instruments for hedging interest rate and credit risk exposures is often needed to improve the secondary market liquidity of corporate bond markets. Banks and/or dealers may have limited incentives to “make markets” in corporate bonds if they are unable to hedge the associated risk exposures. Also, the existence of a liquid repo market in government bonds could allow market participants to take on credit risk, without taking on the interest rate risk as well.

#### *Sequencing and Local Versus Regional Markets*

Experience to date suggests that there is no uniform formula for the development of a corporate bond market or for the sequencing of the above-mentioned reforms. For instance, although developing the commercial paper market could pave the way for the longer-term corporate bond market, the Chilean experience—where the stamp tax delayed the development of the former without impeding the growth of the latter—provides a clear counter example.

Regional cooperation may help promote the development of bond markets for the countries that lack the minimum efficient scale needed for a deep and liquid bond market. Recently, a number of cooperative efforts to foster the development of the regional and local financial markets have been adopted in Asia and Europe. These regional cooperative efforts range from the financial market integration under European Monetary Union to the Asian Bond Market Initiatives by ASEAN+3,<sup>47</sup> and Asian Bond Funds (ABF) by

<sup>47</sup>ASEAN+3 includes the members of ASEAN (Brunei Darussalam, Cambodia, Indonesia, Lao P.D.R., Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam) as well as China, Japan, and Korea. Under the Asian Bond Market Initiatives, six working groups have been set up to address a broad range of issues related to local bond market development.

EMEAP.<sup>48</sup> The immediate goals of these regional initiatives are to address impediments in local currency bond markets, which should contribute to the broadening and deepening of the bond markets in the region over time. Because segmentation along national boundaries is perhaps one of the major obstacles to deep and liquid bond markets, these regional cooperative efforts are, to different degrees, expected to overcome the impediments to the development of more integrated bond markets in the region—which may include legal and regulatory constraints, different currency denomination, and capital controls on cross-border investments.<sup>49</sup> However, market participants acknowledge that practical obstacles would most likely make this a long-term option, most easily accomplished in the context of monetary unions or other regional economic integration initiatives (with the agenda going beyond the creation of corporate bond markets).

### Financial Stability Issues

Finally, two main issues of financial stability are associated with the development of corporate bond markets. The first, of a macroeconomic nature, is the role of these markets as an alternative funding source for corporates, which could act as a buffer in the face of sudden interruptions in bank credit or international capital flows. The main policy issues associated with the development of these markets have been discussed in previous issues of the GFSR (see also Mathieson and others, 2004). In particular, the importance of corporate sector vulnerabilities associated with balance sheet mismatches calls for a greater

diversity of funding sources for corporates, including bonds of different maturities and currency denominations.

The second issue is linked to corporate bond market imbalances, the potential instability of the corporate bond market per se, and potential spillovers to other financial markets and/or the banking system. Market imbalances could arise as a result of the rapid growth in either the demand or the supply of bonds. Although the growth of institutional investors is a positive factor in corporate bond market development, rapid growth in assets under management—relative to the supply of instruments available for investment—combined with excessive concentration in a few market participants that are likely to exhibit herding behavior could fuel asset price bubbles and cause financial market instability. These considerations reinforce the importance of measures to avoid such imbalances, in particular the ones described above for the development of corporate bond markets. Also, regulatory limits on exposures to an individual issuer may become binding when a large pension fund seeks to invest in a bond issued by a relatively small company. Thus, measures to prevent excessive concentration among institutional investors should be considered together with prudential limits on individual exposures. Finally, better risk management practices in the asset management industry could contain the potential instabilities associated with these types of imbalances.

There are few examples of imbalances associated with the rapid growth of the supply of corporate bonds in EMs, but Korea's bond market crisis of 1998 highlights the risks of hastily expanding a market that lacks some of

<sup>48</sup>The Executives' Meeting of East Asia-Pacific Central Banks (EMEAP) is a cooperative organization of central banks and monetary authorities in the East Asia and Pacific region. It includes the central banks of 11 economies: Australia, China, Hong Kong SAR, Indonesia, Japan, Korea, Malaysia, New Zealand, the Philippines, Singapore, and Thailand. The ABFs, which involve the actual creation of bond funds, have been set up to jump-start the development of regional bond markets.

<sup>49</sup>The ABF2 initiative has already led to some improvements in market infrastructure and the regulatory environment, and to some discussions among different countries about coordinating tax and regulatory reforms (see the EMEAP press statement issued on May 12, 2005).

the requisite institutional features. In particular, years of operation under credit guarantees have prevented the development of a “credit culture” and solid institutions to sustain the growth of such a market under the stress conditions created by the bankruptcy of large players. Also, instability in the corporate bond market may also complicate monetary policy implementation if central banks intervene in bond markets in an effort to stabilize bond yields and avoid rollover pressures. This brings into question the balance between the goals of maintaining price stability versus financial stability. A balanced development of the required institutions, intermediaries, and market microstructure described above would go a long way toward reducing these risks.

## References

- Baele, Lieven, Annalisa Ferrando, Peter Hördahl, Elizaveta Krylova, and Cyril Monnet, 2004, “Measuring Financial Integration in the Euro Area,” European Central Bank, *Occasional Paper No. 14* (Frankfurt: European Central Bank).
- Bank for International Settlements (BIS), 1999, “Market Liquidity: Research Findings and Selected Policy Implications,” Report of a Study Group Established by the Committee on the Global Financial System (CGFS) of the Central Banks of the Group of Ten Countries, CGFS Publications No. 11 (Basel, Switzerland: BIS, May).
- , 2004, “Foreign Direct Investment in the Financial Sector of Emerging Market Economies,” Report of a Working Group Established by the Committee on the Global Financial System (CGFS) of the Central Banks of the Group of Ten Countries, CGFS Publications No. 22 (Basel, Switzerland: BIS, March).
- Beck, Thorsten, and Ross Levine, 2003, “Legal Institutions and Financial Development,” NBER Working Paper No. 10126 (Cambridge, Massachusetts: National Bureau of Economic Research).
- Bond Market Association, 2005, “European Bond Pricing Sources and Services: Implications for Price Transparency in the European Bond Market” (European Primary Dealers Association, April). Available via the Internet: [http://www.bondmarkets.com/assets/files/PriceTransparencyStudy\\_april05.pdf](http://www.bondmarkets.com/assets/files/PriceTransparencyStudy_april05.pdf).
- Calmès, Christian, 2004, “Regulatory Changes and Financial Structure: The Case of Canada,” Working Paper No. 2004–26 (Ottawa: Bank of Canada).
- Chakravarty, Sugato, and Asani Sarkar, 2003, “Trading Costs in Three U.S. Bond Markets,” *Journal of Fixed Income*, Vol. 13, pp. 39–48.
- Davis, E. Philip, and Mark R. Stone, 2004, “Corporate Financial Structure and Financial Stability,” *Journal of Financial Stability*, Vol. 1, No. 1, pp. 65–91.
- De Bondt, Gabe, and David Marqués-Ibáñez, 2004, “The High-Yield Segment of the Corporate Bond Market: A Diffusion Modelling Approach for the United States, the United Kingdom, and the Euro Area,” Working Paper No. 313 (Frankfurt: European Central Bank, February).
- De la Torre, Augusto, and Sergio Schmukler, 2004, “Coping with Risks Through Mismatches: Domestic and International Financial Contracts for Emerging Economies,” *International Finance*, Vol. 7 (December), pp. 349–90.
- Eichengreen, Barry J., and Pipat Luengnaruemitchai, 2004, “Why Doesn’t Asia Have Bigger Bond Markets?” NBER Working Paper No. 10576 (Cambridge, Massachusetts: National Bureau of Economic Research).
- Elton, Edwin J., Martin J. Gruber, Deepak Agrawal, and Christopher Mann, 2001, “Explaining the Rate Spread on Corporate Bonds,” *The Journal of Finance*, Vol. 56, No. 1, pp. 247–77.
- EMEAP, 2005, “The Asian Bond Fund 2 Has Moved into Implementation Phase,” Executives’ Meeting of East Asia Pacific Central Banks Press Statement (May12). Available via the Internet: <http://www.emeap.org/press/12may05.htm>.
- Griffiths, James, 2005, “Another US\$40bn Plus Year,” *Debt Capital Markets*, Thomson International Financing Review, Special Report (April 23), pp. 16–17.
- Hattori, Masazumi, Koji Koyama, and Tatsuya Yonetani, 2001, “Analysis of Credit Spread in Japan’s Corporate Bond Market,” in *The Changing Shape of Fixed Income Markets: A Collection of Studies by Central Bank Economists*, BIS Papers No. 5 (Basel, Switzerland: Bank for International Settlements, October).

- Hawkins, John, 2002, "Bond Markets and Banks in Emerging Economies," in *The Development of Bond Markets in Emerging Economies*, BIS Papers No. 11 (Basel, Switzerland: Bank for International Settlements, June).
- Herring, Richard J., and Nathporn Chatusripitak, 2001, "The Case of the Missing Market: The Bond Market and Why It Matters for Financial Development," Center for Financial Institution Working Paper No. 01–08 (Philadelphia: University of Pennsylvania, Wharton School).
- Houweling, Patrick, Albert Mentink, and Ton Vorst, 2005, "Comparing Possible Proxies of Corporate Bond Liquidity," *Journal of Banking & Finance*, Vol. 29, No. 6, pp. 1331–58.
- International Monetary Fund, 2000, *International Capital Markets: Developments, Prospects, and Key Policy Issues*, World Economic and Financial Surveys (Washington, September).
- , 2001, *International Capital Markets: Developments, Prospects, and Key Policy Issues*, World Economic and Financial Surveys (Washington, August).
- , 2004, *Global Financial Stability Report*, World Economic and Financial Surveys (Washington, April).
- , 2005, *Global Financial Stability Report*, World Economic and Financial Surveys (Washington, April).
- IOSCO, 2002, "The Development of Corporate Bond Markets in Emerging Market Countries," Report of the Technical Committee of the International Organization of Securities Commissions (Madrid, Spain: IOSCO, May).
- , 2004, "Transparency of Corporate Bond Markets," Report of the Technical Committee of the International Organization of Securities Commissions (Madrid, Spain: IOSCO, May).
- Krainer, John, 2004, "What Determines the Credit Spread?" *FRBSF Economic Letter No. 2004–36* (San Francisco: Federal Reserve Bank of San Francisco, December).
- Levine, Ross, and Sara Zervos, 1998, "Stock Markets, Banks, and Economic Growth," *American Economic Review*, Vol. 88, No. 3, pp. 537–58.
- Longstaff, Francis, Sanjay Mithal, and Eric Neis, 2004, "Corporate Yield Spreads: Default Risk or Liquidity? New Evidence from the Credit-Default Swap Market," NBER Working Paper No. 10418 (Cambridge, Massachusetts: National Bureau of Economic Research).
- Madhavan, Ananth, 2000, "Market Microstructure: A Survey," *Journal of Financial Markets*, Vol. 3, No. 3, pp. 205–58.
- Mathieson, Donald J., Jorge E. Roldos, Ramana Ramaswamy, and Anna Ilyina, 2004, *Emerging Local Securities and Derivatives Markets: Recent Development and Policy Issues*, World Economic and Financial Surveys (Washington: International Monetary Fund).
- Mohanty, M.S., 2002, "Improving Liquidity in Government Bond Markets: What Can Be Done?" in *The Development of Bond Markets in Emerging Economies*, BIS Papers No. 11 (Basel, Switzerland: Bank for International Settlements, June).
- Nik Jaafar, Nik Ruslin, 2005, "Development and Regulation of Islamic Funds," presentation at the World Islamic Funds Conference, Kingdom of Bahrain, May.
- Pagano, Marco, and Ernst-Ludwig von Thadden, 2004, "The European Bond Markets Under EMU," *Oxford Review of Economic Policy*, Vol. 20, No. 4, pp. 531–54.
- Rajan, Raghuram G., and Luigi Zingales, 1998, "Financial Dependence and Growth," *American Economic Review*, Vol. 88, No. 3, pp. 559–86.
- , 2003, "Banks and Markets: The Changing Character of European Finance," NBER Working Paper No. 9595 (Cambridge, Massachusetts: National Bureau of Economic Research).
- Schinasi, Garry, and Todd Smith, 1998, "Fixed-Income Markets in the United States, Europe, and Japan: Some Lessons for Emerging Markets," IMF Working Paper No. 98/173 (Washington: International Monetary Fund).
- Taggart, Robert A. Jr., 1988, "The Growth of the 'Junk' Bond Market and Its Role in Financing Takeovers," in *Mergers and Acquisitions*, ed. by A.J. Auerbach, NBER Research Project Report Series (Chicago: University of Chicago Press), pp. 5–24.
- Tran, Hung Q., and Jorge Roldos, 2004, "The Role of Securitization and Credit Guarantees," in *Developing Asian Bond Markets*, ed. by Takatoshi Ito and Yung Chul Park (Australia: Asia Pacific Press), pp. 129–44.
- Yago, Glenn, and Susanne Trimbath, 2003, *Beyond Junk Bonds: Expanding High Yield Markets* (New York: Oxford University Press).
- Zervos, Sara, 2004, "The Transaction Costs of Primary Market Issuance: The Case of Brazil, Chile, and Mexico," Working Paper No. 3424 (Washington: World Bank).