

Latin America's local currency bond markets: an overview¹

Serge Jeanneau² and Camilo E Tovar³

1. Introduction

Domestic bond markets have remained underdeveloped for much of Latin America's modern history owing to a number of policy and structural impediments. The resulting structure of domestic government and private sector debt, which was heavily biased towards short-term and/or dollar-indexed liabilities, contributed to a worsening of the financial crises in the region during the 1990s and early 2000s.

In recent years, however, domestic bond markets have constituted a growing source of financing for Latin American economies and of portfolio allocation for global investors (Figure 1). This has called into question the view that countries in the region cannot borrow in local currency at longer maturities, sometimes referred to as the "original sin" hypothesis.⁴ The expansion of these markets has reflected a conscious effort by the authorities of most countries to reduce their vulnerability to adverse external shocks. In this context, a key objective has been the strengthening of demand conditions for domestic debt. This has been accomplished inter alia through a transition to more stable macroeconomic policies; a move to privately funded and managed pension systems; and the removal of restrictions on foreign investment. Policy initiatives have also been taken on the supply side, including a gradual shift of government liabilities to the domestic market, a move to greater predictability and transparency in debt issuance and attempts to create liquid benchmark securities. Such initiatives have been supported by a particularly favourable external environment, including high commodity prices and their beneficial effects on internal and external accounts, together with a search for yield on the part of international investors. Notwithstanding the progress made so far, major challenges remain in improving market access to the private sector.

Drawing mainly on national sources, this paper documents the achievements made so far in developing domestic bond markets in the seven largest countries of the region. It is organised as follows. Section 2 discusses the value of more developed bond markets for financial stability. Section 3 provides a brief overview of the factors underlying the historical underdevelopment of bond markets in the region, summarises the main features of such markets and, finally, discusses some of the elements supporting their recent expansion.

¹ The views expressed are those of the authors and do not necessarily reflect those of the BIS. We thank Philip Turner and Michela Scatigna for their comments, Rodrigo Mora for research assistance and Alejandra Gonzalez for editorial support.

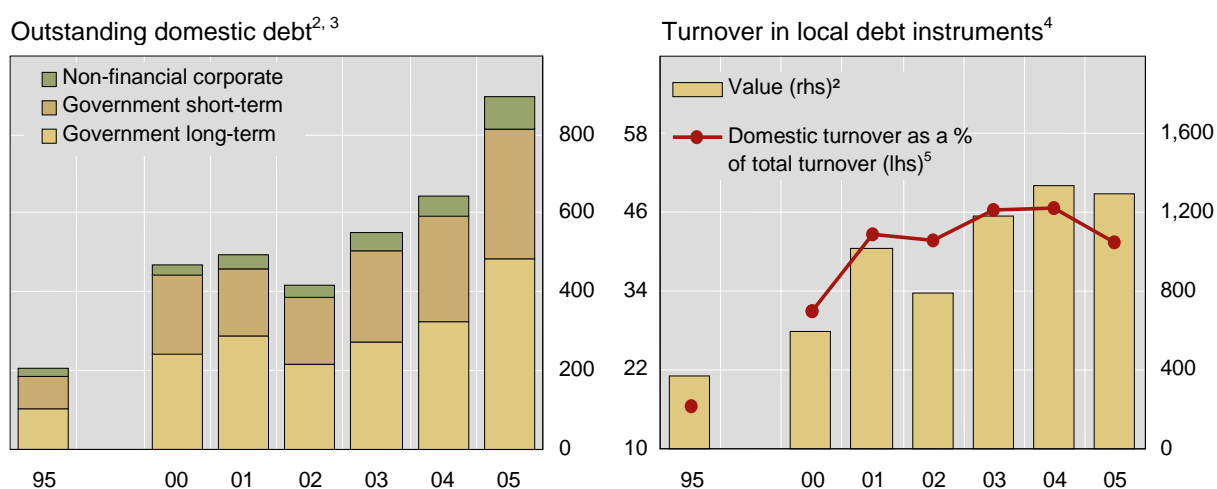
² Bank for International Settlements; serge.jeanneau@bis.org.

³ Bank for International Settlements; camilo.tovar@bis.org.

⁴ The different sides of the "original sin" debate are set out in Eichengreen and Hausmann (2005) and Appendix B of Goldstein and Turner (2004).

Figure 1

Domestic debt in Latin America¹



¹ Argentina, Brazil, Chile, Colombia, Mexico, Peru and Venezuela. ² In billions of US dollars. ³ End of period. ⁴ Annual total. ⁵ Domestic and international transactions.

Sources: EMTA; national authorities.

2. The value of domestic bond markets

The main benefit of the development of domestic bond markets is that they make financial markets more complete and efficient, which allows agents in the economy to better diversify their risks, thereby helping to make domestic financial markets more stable.

Bond markets are central to the development of an efficient financial system as they lead to the generation of market interest rates that reflect the opportunity cost of funds at a wide range of maturities. In economies lacking well developed debt markets, interest rates may not be competitively determined and thus may not reflect the true cost of funds. The availability of a wide range of financial assets also enables savers and investors to tailor their financial decisions to their preferences and requirements, which is essential for an efficient functioning of the intermediation process. The broadening of financial channels can also provide better opportunities for portfolio diversification, which should have a positive impact on saving and investment.

The development of bond markets is also a means of creating a better diversified and more robust financial system by broadening the availability of financial structures. One consequence of the limited availability of financial assets is that it can lead to the taking of potentially risky financial exposures. For instance, if firms or households are unable to finance the acquisition of long-term assets with long-term debt, then their decisions may be biased against long-term investment. If borrowers finance long-term investments with short-term debt, they become exposed to significant mismatches between their assets and their liabilities. Alternatively, if firms attempt to compensate for the lack of a domestic bond market by borrowing on the international market, they may expose themselves to excessive foreign exchange risk. While it is neither possible nor desirable to entirely eliminate maturity and currency mismatches in a financial system, the development of a more complete array of financial assets should help economic agents in selecting the financial structures that are most appropriate to their circumstances and thus reduce any unwanted mismatches.

The development of domestic debt markets should also help in reducing the concentration of intermediation in the banking system.⁵ The damage caused by banking crises in the 1990s has generally been much higher in countries where corporate credit risk was concentrated in the commercial banking system. The existence of an active bond market would give corporations an alternative means of financing in the event that banks could not do so, thus reducing the potentially adverse effect on the economy of a bank-induced credit crunch (often referred to in the literature as the “spare tire” hypothesis). Also, the availability of non-bank intermediation may increase competition and contribute to a reduction in intermediation margins.

In addition, the development of liquid underlying asset markets is a key prerequisite for the creation of liquid risk transfer instruments, such as derivative contracts. Derivatives allow risks to be transferred across the financial system to the entities best placed to bear and manage them, which in principle should help strengthen the financial system. The availability of liquid hedging instruments should also facilitate the role that banks play in the maturity transformation process, with a corresponding increase in the availability of funds at various maturities. The need for such instruments is now all the greater as financial and capital account liberalisation leads to greater interest and exchange rate volatility.

Fostering debt markets may also help the operation of monetary policy. As highlighted by Turner (2002), a well functioning money market is essential for the smooth transmission of monetary policy, particularly since central banks increasingly rely on indirect instruments of control. Furthermore, prices in the long-term bond market give valuable information about expectations of likely macroeconomic developments and about market reactions to monetary policy moves.

Finally, local currency bond markets allow for a non-inflationary funding of fiscal deficits (Turner (2002) and WB (2001)).

3. Bond markets in Latin America

In assessing the development of bond markets in Latin America and the implications that this has for financial stability, it is necessary to take into account, first, the reasons for the historical underdevelopment of those markets and, second, the factors that have led to their recent expansion. In what follows, a brief overview of these elements is provided.⁶

3.1 Historical underdevelopment of domestic bond markets

Domestic bond markets have remained underdeveloped for much of Latin America’s modern history. This phenomenon has been related to a number of policy and structural impediments.

First, a poor record of macroeconomic management, as reflected in high fiscal deficits and inflation, has deterred governments or other borrowers from introducing standard long-term debt securities in the domestic market.⁷ Entrenched inflationary expectations have meant

⁵ For an overview of banking systems in Latin America see BIS (2007).

⁶ See IDB (2006) for a review of the history of debt in Latin America.

⁷ A study by Burger and Warnock (2003) has shown that high and variable inflation rates are a significant impediment to the development of domestic bond markets in emerging economies. See Borensztein et al (2006b) for a recent econometric analysis aimed at identifying factors associated with the underdevelopment of Latin America’s bond markets. According to this study, a limited number of observable policy variables and country characteristics explain 70% of the bond market capitalisation difference between Latin America and the industrial countries. Policy variables such as macroeconomic stability (measured by the volatility of the exchange rate), openness, investor protection and the cost of enforcing a contract can explain a quarter of the difference in bond market capitalisation between these regions. However, they fail to find a significant

that lenders were willing to lend in domestic currency only at very short maturities or with returns indexed to inflation, short-term interest rates or foreign currencies.

Second, the absence of a broad and diversified investor base has hindered the development of deep bond markets. Until the late 1990s, institutional investment played a limited role in most emerging market countries outside of Chile, as illustrated by the much smaller stock of assets managed by institutional investors than in the industrial world (as a share of GDP).⁸ Even where institutional investment was sufficiently developed, restrictions on asset holdings, particularly on lower-rated or private sector securities, have narrowed investment opportunities.

Third, primary markets have been hindered by inefficiencies that increased the implicit cost of local issuance, such as lengthy registration procedures and uncompetitive underwriting arrangements. These inefficiencies occurred despite evidence for some countries that the direct cost of local issuance is lower than that of international issuance (Mathieson et al (2004)). Primary market issuance has also been hampered by the existence of capital controls or other regulations that have effectively closed local markets to foreign investors.

Fourth, various policies or regulatory restrictions have impeded the development of liquidity in secondary markets.⁹ Some monetary policy operating procedures have created excessive volatility in money markets, which has exacerbated liquidity risks for traders. Restrictions, including interest rate controls and investment regulations, have inhibited active trading. Transaction and withholding taxes have also been an impediment to trading. Moreover, market liquidity has been constrained by the lack of a proper infrastructure for trading in government bonds, including a system of primary dealers obligated to provide two-way quotes and the availability of repurchase agreements and interest rate derivatives.

Lastly, many countries have lacked an adequate infrastructure for the development of private sector debt securities. Constraining factors have included the lack of long-term government benchmarks used in the pricing of corporate liabilities, insufficient protection of property rights, lax accounting standards and poor corporate governance. In addition, the limited penetration of credit rating agencies has constrained the analysis of corporate credit risk.

3.2 Main features of bond markets in Latin America¹⁰

The issuance of domestic securities has expanded rapidly in Latin America over the past decade (see Figure 1).¹¹ The amount of such securities issued by central governments and non-financial corporate entities from the seven largest countries in the region rose by 337% between the end of 1995 and the end of 2005, to \$895 billion, equivalent to about 40% of those countries' combined GDP. By comparison, the total stock of securities issued by such borrowers in international debt markets expanded by 65% over the same period, to

economic relationship for policy variables such as the exchange rate regime, presence or lack of capital controls, the level of public debt, bank concentration or banking spreads.

⁸ In Chile, assets held by pension funds rose gradually from the early 1970s to reach about 70% of GDP in 2004. However, similar holdings in other countries are much lower, ranging from 6% of GDP in Mexico to 14% of GDP in Argentina (Crabbe (2005)).

⁹ Mohanty (2002) provides a comprehensive overview.

¹⁰ This section relies on Jeanneau and Tovar (2006). An overview of bond markets in other regions is available in Turner (2006), Borensztein et al (2006a) and Jiang and McCauley (2004).

¹¹ Fully consistent cross-country data sets covering Latin American domestic debt markets were not available when this paper was drafted. Therefore, we assembled comparable data for the central government and non-financial corporate sectors of Argentina, Brazil, Chile, Colombia, Mexico, Peru and Venezuela. Domestic issuance comprises the securities issued on local markets in local or foreign currency. Issuance by financial entities was excluded from the analysis owing to the limited coverage of available data.

\$264 billion. As a result of this growth, local fixed income markets have become the dominant source of funding for the public and private sectors (see Mathieson et al (2004)).

The current configuration of domestic debt markets in Latin America is characterised by six main features.

First, domestic debt markets vary widely in size (see Table 1). Brazil has by far the largest, with an outstanding stock of securities of \$583 billion at the end of 2005 (equivalent to 74% of its GDP). Mexico's is the second largest in absolute terms, with \$159 billion in outstanding securities, but it is substantially smaller than Brazil's in terms of GDP (21%). The debt markets of other countries are much smaller in absolute terms, although some of those markets are reasonably large relative to GDP.

Table 1
Size of local fixed income markets in Latin America, 2005

	Stock of fixed income securities		Of which:		
			Government short-term	Government long-term	Non-financial corporate long-term
	USD billions	% of GDP	USD billions	USD billions	USD billions
Argentina	59.7	33	5.1	43.8	10.8
Brazil	583.4	74	226.7	318.2	38.5
Chile	39.8	35	9.2	17.3	13.3
Colombia	38.7	32	0.9	33.2	4.6
Mexico	158.5	21	52.0	89.1	17.4
Peru	7.9	10	1.4	4.3	2.2
Venezuela	7.2	5	3.4	3.7	0.1
Total	895.2	41	298.7	509.6	86.9
<i>Memo:</i>					
<i>United States</i>	<i>9,043.5</i>	<i>72</i>	<i>1,474.5</i>	<i>4,873.3</i>	<i>2,695.7</i>

Note: Securities issued by financial institutions are not included in non-financial corporate fixed income securities.

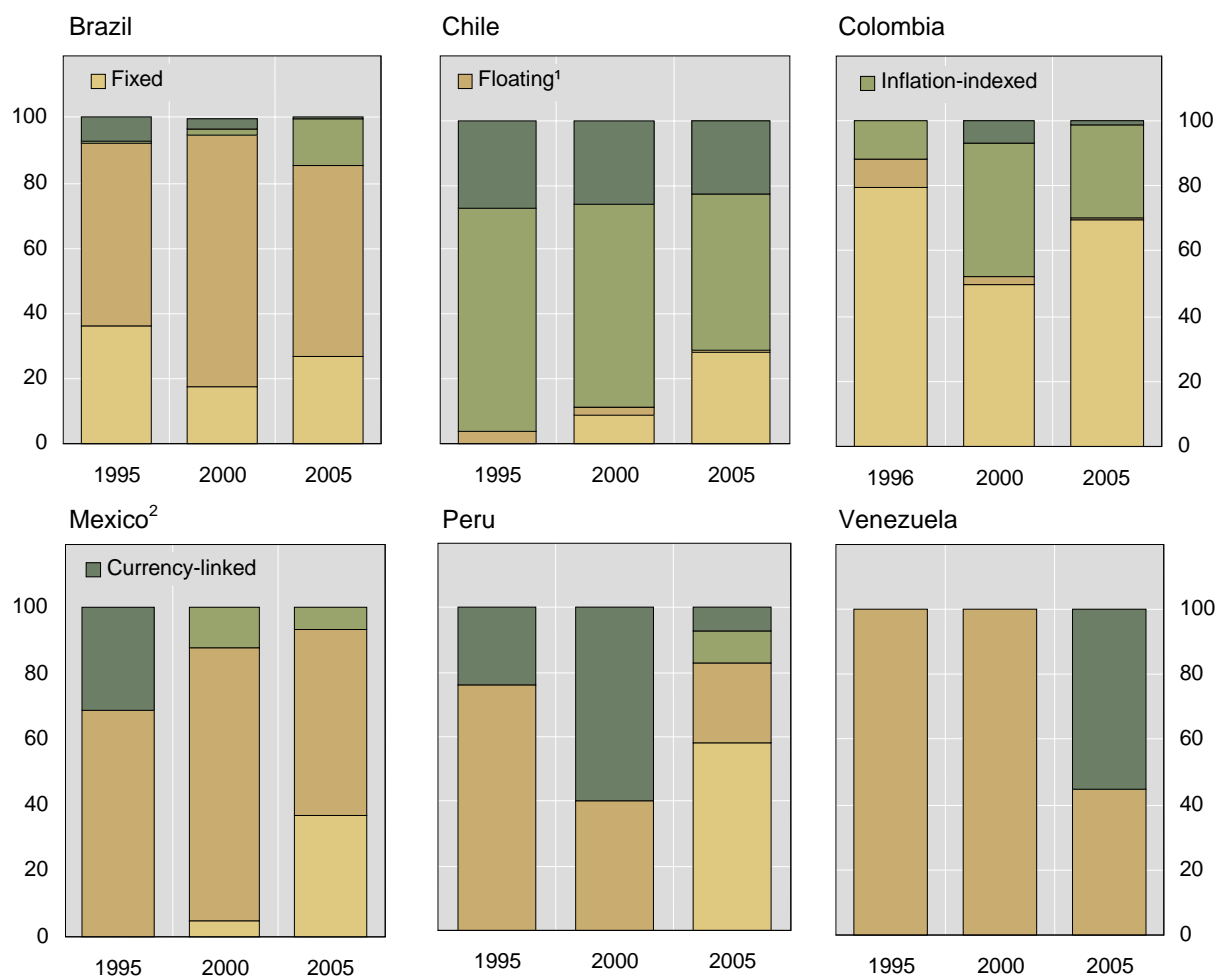
Sources: Fedesarrollo; national authorities; BIS.

Second, public sector issuers dominate domestic securities markets (see Figure 1). The central governments of the seven largest countries had issued marketable liabilities amounting to \$808 billion at the end of 2005. By comparison, corporate bond markets are much less developed. Although corporate markets may reach up to 40–50% of the respective government bond markets in some countries (eg Chile and Peru), they only total \$87 billion in the region as a whole. Moreover, even in countries where corporate markets are more developed, activity is restricted to top-tier companies. There has nevertheless been some progress in developing non-government bond markets, as illustrated by the expansion of securitisation in the region (see Box 1).

Third, short-term, floating rate and inflation-indexed securities continue to account for a large share of the outstanding stock of domestic government securities. However, there has been a significant change in the composition of government debt. As Figure 2 shows, currency-linked debt has been phased out in a number of countries, including Brazil and Mexico, as part of debt management programmes aimed at reducing vulnerabilities to external shocks.

The main exceptions to this trend are Argentina and Venezuela.¹² In addition, the relative share of fixed rate debt has increased in most countries. Progress has been particularly notable in Mexico, where the share of fixed rate securities amounted to about 40% at the end of 2005, versus less than 5% in 2000. Brazil has also made significant advances, with fixed rate bonds now accounting for close to 30% of marketable liabilities versus 15% in 2000.

Figure 2
Composition of central government debt in Latin America
 In per cent



¹ The floating rate grouping includes instruments with mixed characteristics. ² Brems and Cetes are included as floating rate instruments.

Source: National data.

Fourth, there has been a gradual extension of the maturity structure of government debt in local currency. This has been achieved in part through a shift from short-term to fixed rate bonds and through a lengthening of the maturity of fixed rate bonds.¹³ The progress made by

¹² In Argentina, which Figure 2 does not show, foreign currency denominated debt has been used to regain market access since the country's 2001 default.

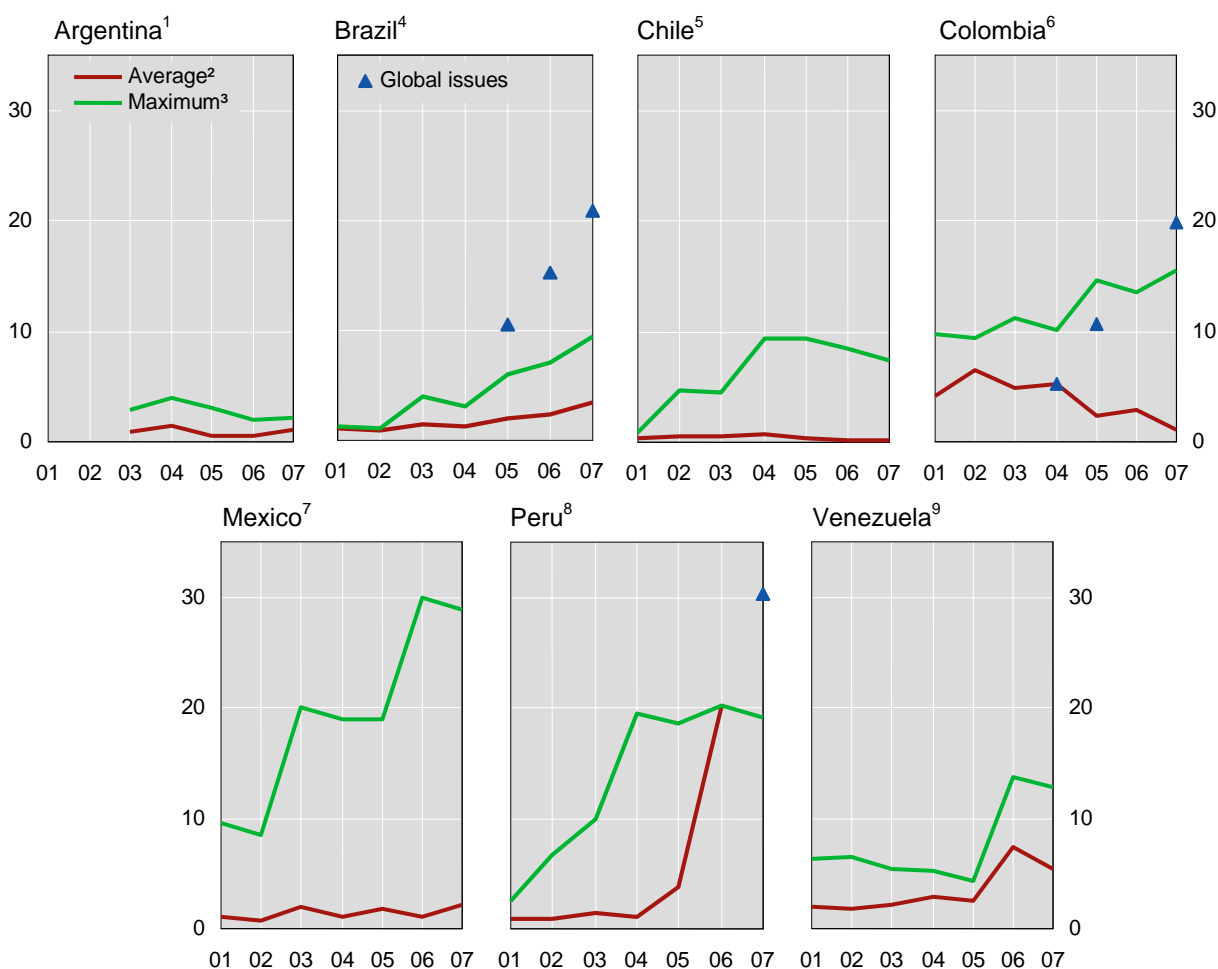
¹³ A lengthening of the maturity of the part of debt that is indexed to short-term rates or inflation has also played a role in some countries.

governments in lengthening the maturity of their fixed rate debt in local currency is illustrated in Figure 3, which shows that most countries have been able to increase the maximum maturity of such debt. Since 2006 Mexico and Peru have been able to issue 30-year bonds, a significant development in the latter case given the country's high degree of dollarisation. Brazil has made important advances in recent years, as reflected by its 20-year global bond issues. Colombia, where it was common to issue 10-year debt, now issues at 15 and 20 years. Chile has issued securities out to 10 years as part of a process of reducing the degree of indexation of its government debt market. Longer-term issuance has also developed in Venezuela, owing in part to excess domestic liquidity resulting from capital controls. The wider availability of longer-dated bonds is beginning to provide a useful representation of the term structure of interest rates. Figure 4 plots available short- and long-term interest rates for countries in the region.

Figure 3

Maturities of domestic fixed rate local currency government bonds

In years



¹ Treasury bills, Lebac and Nobac; excluding the treasury bill issued on 14 February 2002. ² Weighted average of new issues; weighted by the amounts issued (excluding global issues). ³ Remaining time to expiration at the end of the year (for 2007, 4 August 2007) of the issue with the longest outstanding maturity (excluding global issues); only bonds issued in 2001 or later. ⁴ LTN, NTN-F and global issues. ⁵ Central bank issues. ⁶ TES and global issues; only national government issues are included. ⁷ Cetes and government bonds. ⁸ Certificates of deposit, treasury bills and government bonds; excluding government bonds issued on 13 October 2004 and 31 January 2005. ⁹ Treasury bills and government bonds.

Sources: Bloomberg; national data.

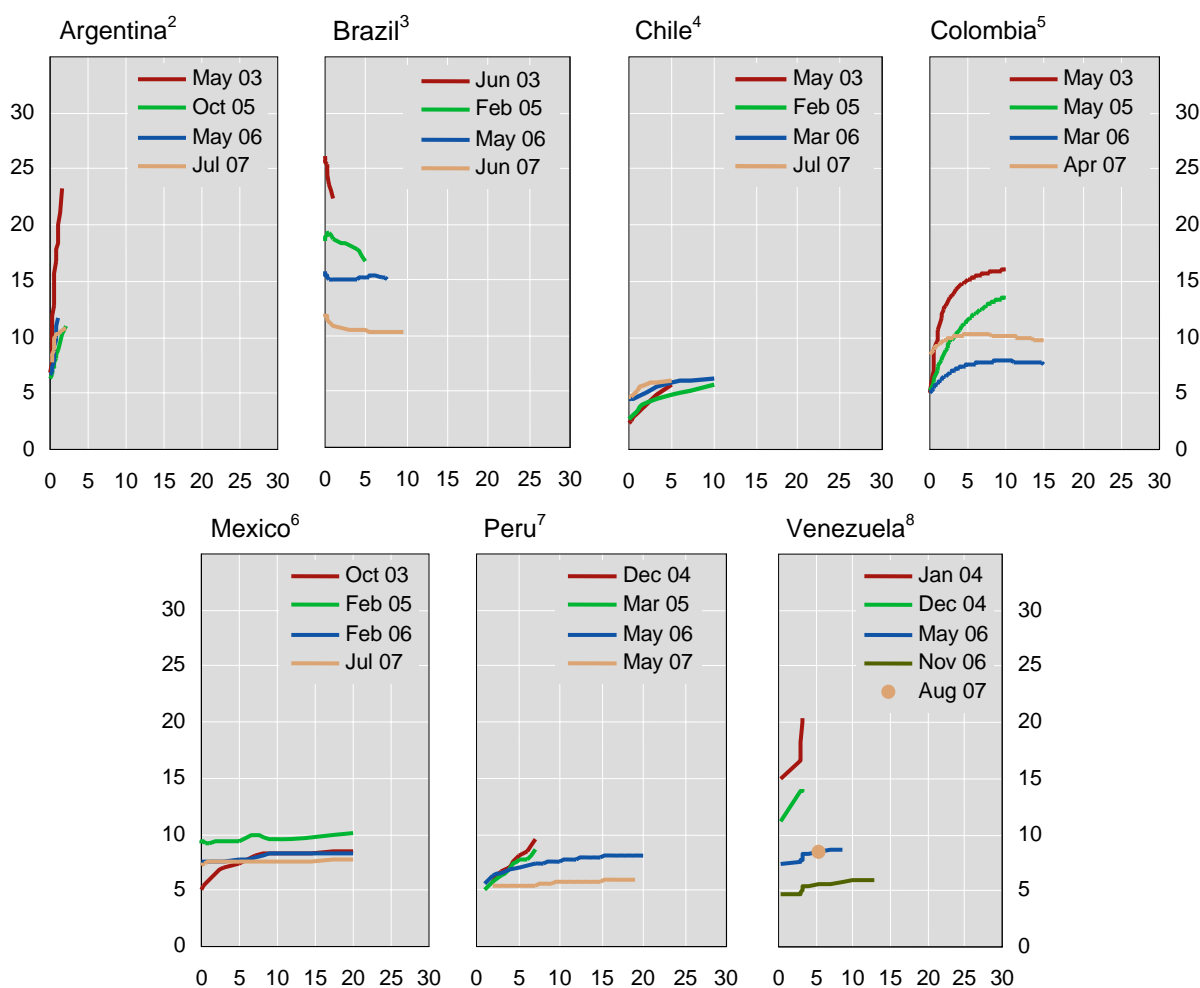
Notwithstanding this progress in the region, the amount of fixed rate securities issued at longer tenors remains in most cases limited, as reflected in the relative stability of the weighted average maturity of new issues (see Figure 3). The average maturity of new central government debt in the two largest markets, Brazil and Mexico, stood at 56 months and 31 months, respectively, at the end of 2006.

Fifth, secondary market trading in domestic bonds, a common measure of liquidity, has expanded in recent years (Figure 1, right-hand panel), but it remains low relative to mature markets (see Table 2). According to the Emerging Markets Trading Association (EMTA), yearly trading by its member banks in the domestic instruments of the region's seven largest countries amounted to \$1.3 trillion in 2005, or 1.6 times the outstanding stock of government securities. This is a lower volume of activity than in the more mature markets. Although the data are not entirely comparable, trading in US Treasury securities amounted to about \$139 trillion in the same year, or 22 times the relevant stock of securities. Within Latin America, moreover, there is considerable variation in secondary market activity. While annual turnover in Mexican securities is five times the outstanding stock, that in Peruvian and Venezuelan securities is less than the outstanding stock.

Figure 4

Yield curves of domestic fixed rate local currency government bonds¹

In per cent



¹ Remaining maturities in years. ² Lebac. ³ Swap rates; long-term; government bonds (NTN-F). ⁴ Central bank issues. ⁵ Zero coupon yield curve. ⁶ Cetes and government bonds. ⁷ Government bonds, secondary market. ⁸ Government bonds (Vebonos and TIF), last auction in the month.

Source: National data.

Table 2

**Indicators of secondary market liquidity
in local government securities markets in 2005**

	Annual turnover		Bid-ask spread	Average size of transaction related to bid-ask spread
	Billions of US dollars	Percentage of outstanding securities		
Argentina	91.5	187	10–50 bp on fixed rate and inflation-indexed bonds	USD 1m
Brazil	433.0	79	5 bp on fixed rate bonds	BRL 10–50m
Chile	26.0	98	5 bp on fixed rate bonds	CLP 100m
			5–10 bp on inflation-indexed bonds	UF 100,000
Colombia	45.0	132	3–5 bp on fixed rate bonds	COP 2bn
Mexico	696.7	494	3–5 bp on fixed rate bonds	MXN 50–100m
			5–15 bp on inflation-indexed bonds	MXN 5–10m
Peru	2.6	46	10–20 bp on fixed rate bonds	USD 1m
Venezuela	2.8	39	50–100 bp on floating rate bonds	VEB 2.4bn
Total	1,297.6	160
<i>Memo:</i>				
<i>United States</i>	<i>138,756.0</i>	<i>2,186</i>	<i>0.8–1.6 bp on fixed rate bonds</i>	<i>USD 25m</i>

Note: Annual turnover data for Latin American countries correspond to secondary market transactions reported by major dealers and money management firms to the Emerging Markets Trading Association (EMTA). Annual turnover for the United States is based on daily inter-dealer transactions in US Treasury securities as reported in the Statistical Supplement to the Federal Reserve Bulletin.

Sources: Sack and Elsasser (2004); Federal Reserve Board; IMF; Citigroup; EMTA; JPMorgan Chase; BIS.

Market liquidity has other important dimensions, such as the tightness of the market, ie the efficiency with which market participants can trade.¹⁴ As shown in Table 2, local markets for fixed rate government securities do not appear to be very tight relative to the US market. Indeed, bid-ask spreads, which provide an idea of the costs incurred by market participants in executing transactions, are significantly higher in Latin America than in the United States.¹⁵

¹⁴ Resilience, ie the market's ability to absorb a shock, is equally important. However, it is difficult to assess it without longer time series. See CGFS (2007).

¹⁵ As a reference, bid-ask spreads in government bond markets in Asia range from 1 to 2 basis points in India, Korea and Singapore, and to 7 basis points in Indonesia. See Jiang and McCauley (2004).

Box 1

Securitisation in Latin America

Securitisation is a recent but rapidly expanding phenomenon in Latin America.¹ Several forces have created opportunities for the expansion of structured finance, including the existence of pressures to improve banks' return on assets, the introduction of better adapted legal frameworks and bankruptcy procedures, a resumption of demand for residential housing and commercial office space and institutional investors' need for higher-quality assets.

The exact amount of structured transactions is not easy to calculate owing to the lack of standardised definitions and centralised reporting. The major international rating agencies are the main source of data on this market segment. According to Moody's, domestic securitised issuance in Latin America has exceeded cross-border business since 2003. Domestic and cross-border transactions in the region amounted to \$13.6 billion and \$1.7 billion, respectively, in 2006. Brazil, Mexico and Argentina accounted for 40%, 32% and 18% of the total volume of domestic business. Mortgage-backed securities (MBSs), auto loans, consumer loans and credit-linked notes represented 21%, 16%, 14% and 13% of domestic activity, respectively.

Issuance of domestic asset-backed securities in Latin America

In millions of US dollars

	2000	2001	2002	2003	2004	2005	2006
Argentina	1,590	701	130	226	525	1,790	2,550
Brazil	184	88	106	1,031	1,652	3,911	5,542
Chile	173	220	430	380	293	873	325
Colombia	55	63	597	510	799	323	674
Mexico	65	427	414	604	5,444	4,846	4,430
Peru	37	94	7	60	163	295	71
Total	2,104	1,593	1,684	2,811	8,876	12,038	13,592

Source: Moody's.

Brazil's domestic market for securitised assets only took off in 2003 but is currently the most active in Latin America. Issuance reached \$5.5 billion in 2006, compared with \$1 billion in 2003. The development of this market was initially hampered by the high cost of establishing special purpose vehicles as well as investors' initial indifference to such securities given the ready availability of high-quality government paper. However, in recent years investment vehicles known as Fundos de Investimentos em Direitos Creditórios have become increasingly popular. Such funds provide companies with an alternative to traditional bank credit by enabling them to securitise their receivables.

The Mexican domestic market for securitised assets only emerged in 2000. Currently, it is the second most active in the region. Issuance in Mexico amounted to \$4.4 billion in 2006. Much of the activity in recent years has been due to very large transactions backed by loans held by the Instituto para la Protección al Ahorro Bancario (IPAB), the agency set up in 1999 to manage the debt resulting from the rescue of the banking sector.² So far, aside from the deals enacted by IPAB, most transactions launched in the Mexican market have securitised bridge loans for construction and residential mortgages. In fact, MBSs represent 38% of the total volume issued. This activity in the MBS market is associated with the activity by Sociedad Hipotecaria Federal (SHF), a state-owned development bank that began its operations in late 2001. SHF has worked to develop a cohesive market for MBSs. As such, it has encouraged issuers to introduce bonds with

¹ See Tovar and Scatigna (2007) for a more detailed discussion.

² Transactions launched by IPAB amounted to \$4.1 billion in 2004 and \$2.8 billion in 2005. In 2006 IPAB did not introduce any issues.

Box 1 (cont)

Securitisation in Latin America

homogeneous characteristics and has played an active role as intermediary and liquidity provider in the nascent secondary market for MBSs.

Argentina's market for securitised assets largely dried up in 2001 and 2002 but began to recover in 2003. Indeed, the Argentine market's expansion has been noteworthy in 2005 and 2006, with issuance jumping to \$2.5 billion from \$130 million in 2002.

Again, there are major differences within the region. While in Colombia and Mexico bid-ask spreads are narrow, they remain quite wide in Argentina, Peru and Venezuela.

Finally, there are currently no actively traded derivative contracts on government bond benchmarks in the region, but trading in short-term interest rate or swap contracts is developing rapidly in the major countries. In Brazil, position-taking in fixed income markets is conducted largely through overnight futures and swaps rather than cash market assets.¹⁶ This accounts for the sharp expansion in exchange-traded turnover observed in recent years, with activity reaching \$8.8 trillion in 2006 against \$2.6 trillion in 2000.¹⁷

In Mexico, where exchange-traded activity on fixed income assets does not extend beyond interbank rates, business amounted to \$1 trillion in 2005 relative to almost nothing in 2000. However, over-the-counter (OTC) currency forwards and swaps are reported to be increasingly popular in that country. Such instruments are helping foreign investors and issuers hedge their currency and interest rate exposures to local currency bonds, thus facilitating their entry into the market for such securities.¹⁸

3.3 Factors driving the recent expansion of domestic bond markets

The desirability of local currency debt as an asset class has been enhanced by a number of factors, including the improvement in policies and performance in the region as well as the global process of portfolio diversification.¹⁹

3.3.1 Endogenous factors: changes in government policies

The structure of domestic government and private sector liabilities contributed to a worsening of the crises experienced by countries in the region during the 1990s and 2000s. During those episodes, the withdrawal of foreign investment created severe downward pressures on the currencies of many countries, forcing the authorities to raise policy rates sharply. Given the short maturity of government and private sector debt, borrowing costs rose significantly. This worsened fiscal positions and corporate balance sheets. Countries that had relied heavily on foreign currency-related debt were also hit hard. The drop in the value of

¹⁶ See Amante et al (2007) for a discussion of the role of derivatives in the Brazilian market.

¹⁷ By comparison, turnover on US exchanges reached about \$750 trillion in 2005.

¹⁸ Local currency debt markets have stimulated derivatives markets in Mexico. Taking advantage of the demand for highly rated peso paper, foreign financial institutions have issued a number of international peso-denominated bonds. Since such issuers tend to swap the proceeds of their issues into other currencies, they have provided a natural counterpart to foreign investors wishing to hedge peso paper. The Mexican peso is now one of the few emerging market currencies in which there is active OTC derivatives trading (BIS (2005)).

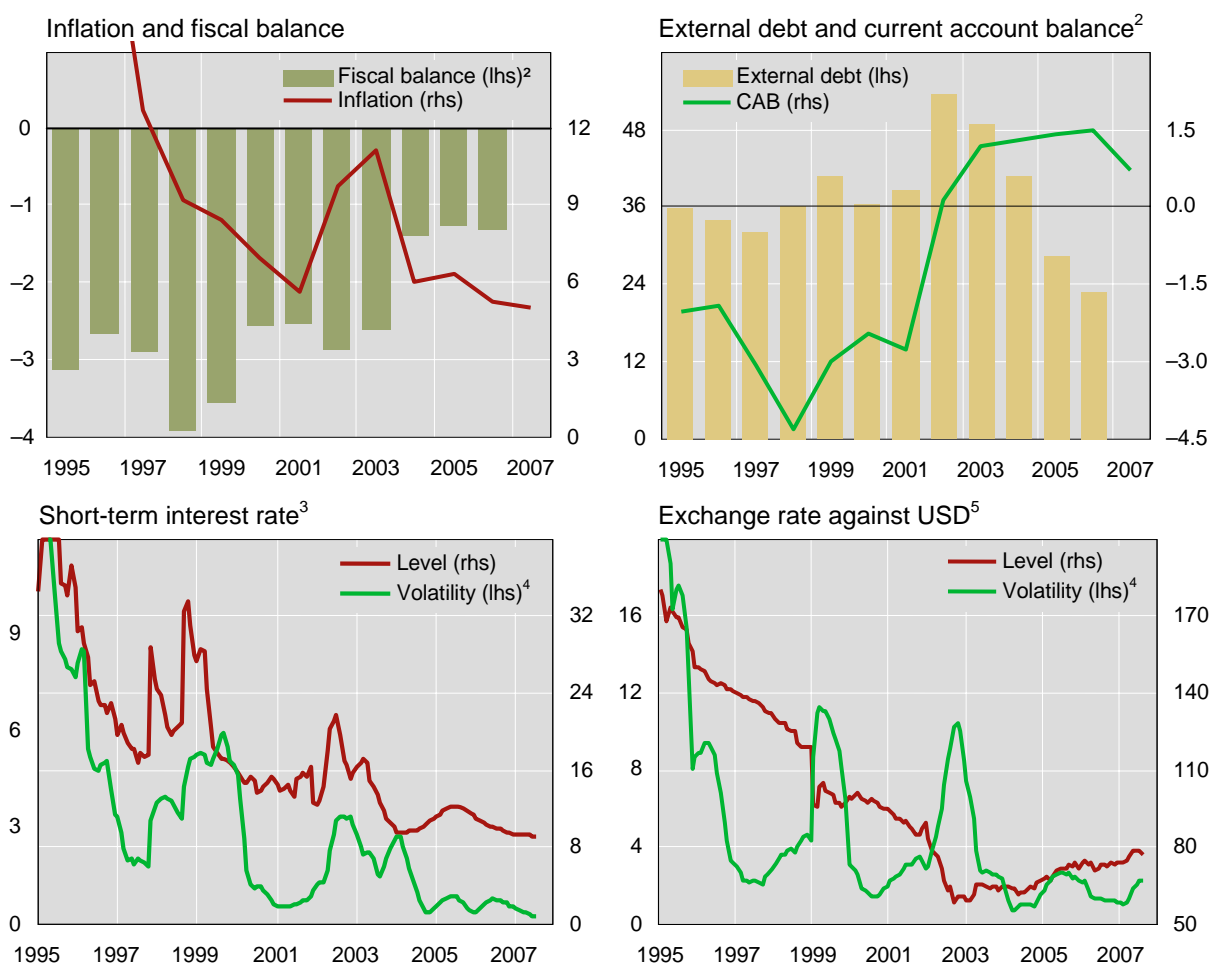
¹⁹ See Borensztein et al (2006b) for an econometric analysis aimed at identifying factors associated with the underdevelopment of Latin America's bond markets. Also see discussion in footnote 7.

exchange rates resulted in an explosive growth in the local currency value of government and corporate liabilities. Hence, developing viable local bond markets to secure a more stable source of local currency funding became an important objective of government policies.

An important element in strengthening the demand for domestic debt has been the pursuit of stabilising macroeconomic policies. New monetary policy frameworks, often based on inflation-targeting regimes, have led to a sustained reduction in inflation (Figure 5). At the same time, governments have been broadly successful in bringing fiscal deficits under control. The consolidation of fiscal accounts and the reduction in inflation have contributed to lowering the volatility of domestic short-term interest rates.

Figure 5

Economic indicators for Latin America¹



¹ Weighted average of Argentina, Brazil, Chile, Colombia, Mexico, Peru and Venezuela based on 2000 GDP and PPP exchange rates. ² As a percentage of GDP. ³ Three-month; in per cent. ⁴ Twelve-month rolling standard deviation. ⁵ 1995–2003 = 100; an increase indicates an appreciation.

Sources: IMF; Economic Commission for Latin America and the Caribbean; JP Morgan; Latin Focus; national data.

Partly as a result of this better environment, domestic interest rates are increasingly determined by local economic developments rather than by external factors. In fact, in recent periods in some countries, such as Brazil and Mexico, the local yield curve has often “decoupled” from the US yield curve.

Box 2

Global government bonds in local currency: an overview¹

Several Latin American countries, both at the government and corporate levels, have issued global bonds denominated in local currency during the last few years (see Box Table 1).² This box provides an overview of such issues and discusses the benefits and the risks that they may entail.

In November 2004, the Colombian government issued COP 954.2 billion (\$375 million) worth of global bonds denominated in domestic currency. These bonds were issued under very favourable conditions for the borrower, as reflected in a coupon of 11.75% and a maturity of over five years. The demand for these bonds was strong, reaching \$1.1 billion. US investors reportedly purchased 65% of the bonds, Europeans 30% and Latin Americans 5%. The success of the issue was further reflected by its reopening for COP 293.7 billion (\$125 million) in January 2005. Both tranches of the bonds were issued at lower cost than in the domestic market. In February 2005, a new issue was made with very similar conditions but with a longer maturity (10.7 years). The cost of external financing in this case was also more favourable than that of domestic financing. A new issue was again made in 2007.

In September 2005, Brazil issued BRL 3.4 billion (\$1.5 billion) of global bonds with a maturity of over 10 years and a 12.5% coupon. The Brazilian global issue was oversubscribed several times and the distribution was truly international, being purchased by investors from Europe and the United States. The issue contributed to extend the maturity of the yield curve for real-denominated fixed rate government debt, which was then limited to seven years in the domestic market. In May 2007, Brazil issued 20-year real-denominated global bonds, securing the lowest-ever yield for real denominated debt securities (thanks in part to an upgrade by Fitch Ratings).

More recently, Peru issued a 30-year global bond in local currency denominated in soles at a low cost, thus allowing the country to extend its yield curve in local currency.

The Brazilian, Colombian and Peruvian issues share some important features. First, the securities have long maturities. Second, the bonds are not indexed to inflation but offer a fixed interest rate, transferring both inflation and exchange rate risk from the government to investors. At the same time, with interest and principal settled in US dollars, the securities free investors from any risks associated with exchange controls.

In Brazil and Colombia, institutional factors have been restricting the entry of foreign investors into domestic markets (eg registration requirements and withholding taxes or capital controls).³ In many cases, global bonds have allowed foreigners to short-circuit impediments to foreign purchases in local markets. The global bonds considered here all fall under the jurisdiction and laws of the state of New York, which makes them more attractive for international investors relative to domestic bonds in the event of default.

In the case of Colombia, global bonds may have an important side benefit in terms of financial stability. The financial system has a heavy exposure to domestic government debt (TES), a counterpart to the reduced foreign exchange exposure of the public sector.⁴ This situation makes the system highly vulnerable given that any adverse shocks resulting from currency devaluations

¹ See Tovar (2005) for a more detailed analysis.

² Global bonds are debt securities issued simultaneously in the international and domestic markets, in a variety of currencies, and settled through various worldwide clearing systems.

³ In Brazil, investment can take place only after registration with the Brazilian Securities and Exchange Commission and with the central bank. Until February 2006 investment was subject to a 15% capital gains tax. However, other taxes still apply. In Colombia, restrictions apply for foreigners willing to invest in domestic paper. For instance, an investment trust must be established and taxes must be paid depending on the tax status of the investors (currently, the income tax rates can go up to 35%; moreover, a 10% surcharge applies which raises the maximum rate to 38.5%; a 0.4% financial transaction tax is also in place). Between the end of 2004 and June 2006, capital controls established a minimum period of one year for all portfolio investment.

⁴ The exposure of the Colombian financial system to government securities increased from 6% in 1998 to 45% in 2005 (Maiguashca (2005)).

Box 2 (cont)

Global government bonds in local currency: an overview¹

and higher domestic interest rates could worsen the market value of the securities.⁵ In addition, it could result in a “trade-off” for the central bank as it could be constrained to adjust interest rates up.⁶ Under such circumstances, global bonds may contribute to increase a country’s risk-sharing opportunities. In particular, such bonds would not only transfer the currency risk to foreign investors but also could “hedge” the domestic financial system from an excessive exposure to government securities.

Selected international government debt in local currency

Country	Issue date	Maturity date	Currency	Amount issued ¹	Coupon rate	Rating: Fitch/Moody’s/S&P	Market
Brazil	Sep 2005	Jan 2016	BRL	1,485	12.5	BB/Ba2/BB	GLOBAL
Brazil	Sep 2006	Jan 2022	BRL	1,382	12.5	BB/Ba2/BB	GLOBAL
Brazil	Feb 2007	Jan 2028	BRL	1,051	10.25	BB/Ba2/BB	GLOBAL
Brazil	May 2007	Jan 2028	BRL	371	10.25	BB+/Ba2/BB	GLOBAL
Colombia ²	Nov 2004	Mar 2010	COP	493	11.75	BB/Ba2/BB+	GLOBAL
Colombia	Feb 2005	Oct 2015	COP	1,102	12	BB/Ba2/BB+	GLOBAL
Colombia	Jun 2007	Jun 2027	COP	999	9.85	BB+/Ba2/BB+	GLOBAL
Peru ³	Jul 2007	Aug 2037	PEN	1,240	6.9	BBB–/Baa3/BBB–	GLOBAL
Uruguay ^{3,4}	Oct 2003	Oct 2006	UYU	290	10.5	B+/WR/NR	GLOBAL
Uruguay ³	Aug 2004	Feb 2006	UYU	255	17.75	B+/WR/NR	GLOBAL
Uruguay ^{3,4}	Sep 2006	Sep 2018	UYU	401	5	B+/B1/B+	GLOBAL
Uruguay ^{3,4}	Oct 2006	Sep 2018	UYU	296	5	B+/B+/B+	GLOBAL
Uruguay ³	Apr 2007	Apr 2027	UYU	504	4.25	B+/B1/B+	GLOBAL
Uruguay ^{3,4}	Jun 2007	Jun 2037	UYU	500	3.7	BB–/B1/B+	GLOBAL

Note: A private placement avoids the cost of registration with the Securities and Exchange Commission (which is required for a global issue), and has more restrictive protective covenants that are easier to renegotiate in the event of a default. Also, the cost of distributing bonds is lower.

¹ Calculated using the monthly average exchange rate when official numbers were not available; in millions of US dollars. ² This issuance was reopened in January 2005 for an additional amount of \$125 million. ³ Principal and interest paid in US dollars. ⁴ These bonds are indexed to inflation.

Source: Bloomberg.

However, “going global” in local currency is probably a “second best” solution for broadening the pool of investors. A notable downside is that fragmenting liquidity global bonds in local currency may have an adverse effect on the development of domestic debt markets. Despite this potential disadvantage, the Colombian government has been promoting the trading of global bonds.

In the case of a smaller economy, such as Uruguay, global bonds in local currency may have had a more favourable influence by setting a benchmark for the development of domestic securities. Uruguay introduced such bonds in the midst of a financial crisis but has slowly extended the maturity of new issues. As such, they offer an interesting case study of how to rebuild financial markets following a crisis.

⁵ The concern is not a loss stemming from a day-to-day fall in TES price, but rather a rapid and persistent increase in interest rates such as those recorded in Colombia in 2002.

⁶ Section 5 discusses this in detail. See also Vargas (2006) and Maiguashca (2005).

Another significant change in policy has been the shift to more flexible exchange rate regimes, which has reduced the risk of sudden “earthquake” currency movements. In addition, this shift has contributed to make the risks associated with exchange rate fluctuations more explicit. As a result, issuers have been more reluctant to borrow in foreign currency given the higher risk implied by such borrowing, thus strengthening the relative attractiveness of domestic issuance.

At the microeconomic level, the reform of institutional investment has played an important role in boosting demand for longer-term debt. Most countries have implemented reforms of their pension systems for private sector employees whereby existing defined benefit systems have been replaced by compulsory defined contribution plans that are funded by individuals and managed by private administrators. Moreover, countries have been widening the range of assets that pension funds can invest in.²⁰ Governments have also implemented a host of other microeconomic initiatives aimed at improving demand for debt, including a removal of restrictions on foreign investment and a simplification of investment regulations.²¹ In addition, they have supported the development of derivatives and repurchase markets.

Initiatives have also been taken to improve the supply of government debt. While the actual measures introduced have varied from country to country, they have included some combination of the following elements: a shift to the domestic financing of fiscal deficits, a move to greater predictability and transparency of debt issuance, a lengthening of the maturity structure of government debt and the development of liquid domestic benchmarks.

Lastly, the authorities have taken steps to develop corporate bond markets, in part through improvements to legislation on corporate governance. In this regard, discussions concerning the adoption of international accounting standards have constituted a positive opportunity. The implementation of Basel II has also created favourable externalities regarding the further development of external credit risk assessment (BIS (2007)).

3.3.2. *Exogenous factors: favourable external environment and long-term portfolio diversification*

The emergence of domestic debt markets in the region has also been supported by an unusually favourable international environment. Three elements stand out.

First, high commodity prices have fuelled economic growth and helped bring external accounts into balance. Such improved economic fundamentals have often created expectations of further currency appreciation, which have increased the attraction of financial assets issued by local entities. Second, the prevalence of easy monetary conditions in the major industrial countries in the first half of the 2000s led to a sustained decline in short- and long-term interest rates globally (Figure 6), which prompted international investors to return to emerging debt markets in a search for higher yields.²² In turn, the search for yield eased financing conditions along the maturity spectrum. This favourable climate encouraged investors to purchase local securities and thus facilitated primary market issuance. Third, those favourable cyclical factors have been reinforced by a more secular process of integration between mature and emerging economies (Wooldridge et al (2003)). This process

²⁰ In Mexico, for instance, quantitative limits on investment in selected private sector securities were recently lifted and replaced by ratings-based limits.

²¹ Although capital controls have been re-introduced recently in Argentina, Colombia and Venezuela.

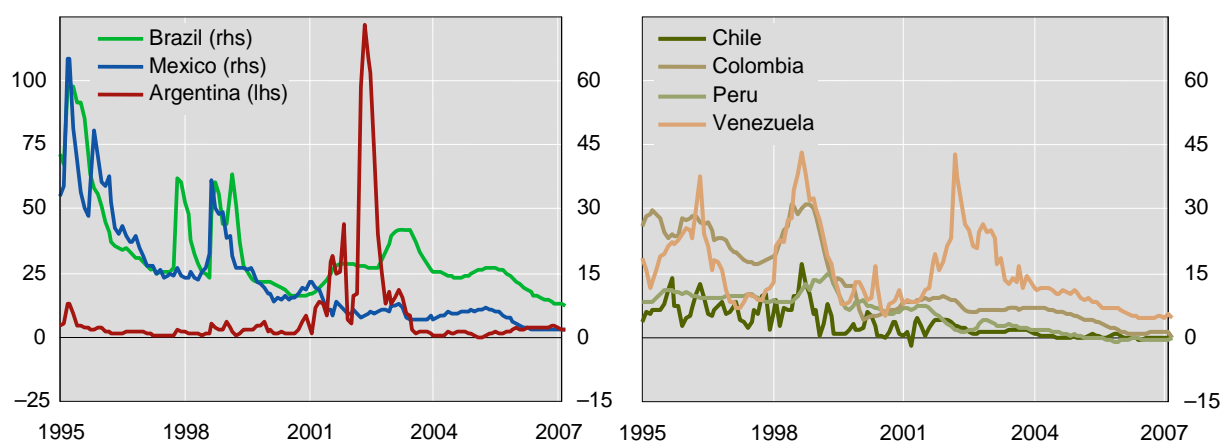
²² Although there are no comprehensive data on non-resident investor holdings of domestic bonds, the sustained increase in the share of domestic bonds in the total volume of trading by international financial intermediaries reported by the Emerging Markets Trading Association (EMTA) suggests that foreigners have become more involved in domestic bond markets in the region (see Figure 1, right-hand panel).

includes the growing availability of low-cost and real-time information about the performance of countries and firms. This has significantly weakened the information asymmetries between financial market participants that traditionally created a home bias in investment. At the same time, the development of electronic trading technologies has greatly reduced transaction costs and processing times, further broadening market participation. Lastly, the entry of foreign financial institutions in domestic markets has provided a new channel for investment in the region.

However, questions remain as to whether this investment process is temporary or permanent. There are good reasons to believe that the factors supporting the development of bond markets in Latin America are largely of a permanent nature – in particular, those associated with improvement in policies and economic performance. Notwithstanding this improvement, the expansion of local bond markets depends in part on the sustainability of the global process of portfolio diversification. The reduction in nominal interest rate differentials observed in recent years would have been expected to weaken the search for yields, but capital continued to flow strongly to the region. However, the extent to which domestic bond markets will constitute a dependable source of funding for the region remains to be tested under less auspicious market conditions.

Figure 6

Interest rate differential¹



¹ Three-month rate; domestic rate minus US rate, in per cent.

Sources: IMF; national data.

Table 3 presents more general evidence concerning the diversification benefits offered by Latin American domestic bond markets relative to other asset classes in global portfolios, at least from the point of view of US dollar-based investors. Such benefits have been evident given the relatively low return correlations since January 2003 of Latin American local currency bonds with: (a) Asian and European emerging market local currency bonds (0.48 and 0.30, respectively); (b) the foreign currency EMBI index (0.52); and (c) 10-year US Treasury notes (0.18). This last set of correlations has been lower for Latin American local currency bonds than the corresponding sets for Asian and European local currency instruments (0.26 and 0.29, respectively) or the EMBI Global Diversified index (0.67). The final row of Table 3 indicates that these diversification benefits did not come at the cost of lower returns over the sample period. From 2003, cumulative returns on local Latin American fixed income securities exceeded those of other emerging markets as local nominal yields declined and currencies appreciated. Complementary evidence is reported in Table 4. The Sharpe ratio shows that local currency bond markets in Latin America offered during the past few years had higher excess returns in dollars per unit of risk than investing in other markets such as Asia or Europe (0.38 versus 0.17 or 0.31). However, in 2006 the attractiveness of

Latin American markets declined on average, due in part to the sharp market adjustment observed in Colombia.

Table 3
Domestic bond market correlations and returns

January 2003–October 2007

Correlations		GBI-EM ¹						EMBI ²	10-yr US Treasury bond	
		Brazil ³	Chile	Colombia	Mexico	Lat Am	Asia			Europe
GBI-EM ¹	Brazil ³	1.00								
	Chile	0.38	1.00							
	Colombia	0.50	0.28	1.00						
	Mexico	0.59	0.49	0.42	1.00					
	Lat Am	0.85	0.49	0.69	0.85	1.00				
	Asia	0.44	0.18	0.45	0.31	0.48	1.00			
	Europe	0.25	0.33	0.30	0.25	0.30	0.49	1.00		
EMBI ²		0.49	0.35	0.40	0.51	0.52	0.45	0.43	1.00	
Ten-year US Treasury bond		0.06	0.10	0.09	0.18	0.13	0.26	0.29	0.67	1.00
Returns										
2003		21.70	27.67	19.46	7.12	16.45	7.91	14.19	22.31	1.23
2004		20.86	11.89	43.45	3.10	12.92	3.09	27.70	11.30	4.84
2005		37.63	18.18	23.01	23.05	23.58	5.17	4.95	10.80	2.23
2006		31.71	3.16	8.01	10.91	18.89	12.49	14.91	9.77	1.47
Cumulative		293.26	91.34	156.81	54.29	121.34	42.98	104.51	71.19	14.76

¹ GBI-EM Broad Diversified. ² EMBI Global Diversified. ³ Sample starting in May 2003.

Source: Authors' calculations, based on JPMorgan Chase and Datastream data.

Overall, diversification benefits depend in part on whether yield correlations with other fixed income instruments remain low during periods of stress. There is some supportive empirical evidence that this may be the case (Bayliss (2004)). But there are not enough data to test the stability of correlations over more than a limited time span. An extended episode of significantly less favourable market conditions would be required to arrive at more definite conclusions.

Table 4
Domestic bond market Sharpe ratios¹
 January 2003–October 2007

	GBI-EM ²							EMBI ³
	Brazil ⁴	Chile	Colombia	Mexico	Lat Am	Asia	Europe	
2003	0.70	0.30	0.26	0.13	0.30	0.23	0.13	0.84
2004	0.24	0.27	0.68	0.03	0.28	-0.12	0.53	0.50
2005	0.76	0.32	0.76	0.60	0.84	0.04	0.00	0.41
2006	0.26	0.20	0.01	0.23	0.26	0.43	0.33	0.38
2003–2007	0.48	0.29	0.30	0.20	0.38	0.17	0.31	0.45

¹ US 10-yr treasury bond as a benchmark. ² GBI-EM Broad Diversified. ³ EMBI Global Diversified.
⁴ Sample starting in May 2003.

Source: Authors' calculations based on JPMorgan Chase and Datastream data.

4. Conclusions

Latin American economies have made significant progress in developing their domestic bond markets. However, important challenges remain. The most pressing are the need to reduce the vulnerability of structures to refinancing risk and to increase secondary market liquidity (as will be discussed in more detail in the accompanying chapter, "Financial stability implications of local currency bond markets: an overview of the risks"). Moreover, the extent to which such markets constitute a dependable source of funding remains to be tested. Although the region appears today to be less vulnerable to financial shocks, less auspicious market conditions could expose these incipient domestic markets to additional unforeseen pressures. In this respect, policy makers should encourage the further development of such markets.

References

- Amante, A, M Araujo and S Jeanneau (2007): "The search for liquidity in the Brazilian domestic government bond market", *BIS Quarterly Review*, June, pp 69–82.
- Bank for International Settlements (BIS) (2005): *Foreign exchange and derivatives market activity in 2004, Triennial Survey*, March.
- (2007): *Evolving banking systems in Latin America and the Caribbean: challenges and implications for monetary policy and financial stability*, BIS Papers, no 33.
- Bayliss, J (2004): "Emerging markets external debt as an asset class", JPMorgan Emerging Markets Research.
- Borensztein, E, B Eichengreen and U Panizza (2006a): "A tale of two markets. Bond market development in East Asia and Latin America", mimeo.
- (2006b): "Building bond markets in Latin America", paper prepared for the Inter-American Development Bank Network on the Growth of Corporate Markets in Latin America.

Burger, J D and F E Warnock (2003): "Diversification, original sin and international bond portfolios", International Finance Discussion Papers, no 755, Federal Reserve Board, April.

Committee on the Global Financial System (CGFS) (2007): *Financial stability and local currency bond markets*, CGFS publication no 28.

Crabbe, C (2005): *A quarter century of pension reform in Latin America: lessons learned and next steps*, Inter-American Development Bank.

Eichengreen, B and R Hausmann (eds) (2005): *Other people's money: debt denomination and financial instability in emerging market economics*, The University of Chicago Press.

Goldstein, M and P Turner (2004): *Controlling currency mismatches in emerging markets*, Institute for International Economics, Washington DC.

Inter-American Development Bank (IDB) (2006): *Living with debt: how to limit the risks of sovereign finance*, 2007 issue of *Economic and Social Progress Report*, October.

Jeanneau, S and C Tovar (2006): "Domestic bond markets in Latin America: achievements and challenges", *BIS Quarterly Review*, June, pp 51–64.

Jiang, G and R McCauley (2004): "Asian local currency bond markets", *BIS Quarterly Review*, June, pp 67–79.

Maiguashca, A (2005): "Colombian issuance of local currency debt abroad: some notes on the opportunities and challenges in the current juncture", paper prepared for the XX IADB Meeting of the Latin American Network of Central Banks and Finance Ministries, October.

Mathieson, D, J Roldos, R Ramaswamy and A Ilyina (2004): *Emerging local securities and derivatives markets*, World Economic and Financial Surveys, International Monetary Fund, Washington DC.

Mohanty, M (2002): "Improving liquidity in government bond markets: what can be done?", *BIS Papers*, no 11, pp 49–80.

Sack, B and R Elsasser (2004): "Treasury inflation-indexed debt: a review of the US experience", *Economic Policy Review*, vol 10, no 1, May, pp 37–63.

Scatigna, M and C Tovar (2007): "Securitisation in Latin America", *BIS Quarterly Review*, pp 71–82, September.

Tovar, C (2005): "International government debt denominated in local currency: recent developments in Latin America", *BIS Quarterly Review*, December, pp 109–18.

Turner, P (2002): "Bond markets in emerging market economies", *BIS Papers*, no 11, pp 1–12.

——— (2006): "Local currency bond markets in emerging markets: what are the links with financial stability?", paper prepared for the Latin American and Caribbean Economic Association conference, November, Mexico City.

Vargas, H (2006): "Public debt market risk: a constraint on monetary policy? The effects on the financial system and on monetary policy: the case of Colombia", *BIS Papers*, no 28, pp 189–201.

Wooldridge, P, D Domanski and A Cobau (2003): "Changing links between mature and emerging financial markets", *BIS Quarterly Review*, December, pp 45–54.

World Bank (WB) (2001): "Developing government bond markets: a handbook", special spring meeting edition.