Bond markets in emerging economies: an overview of policy issues

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1. Introduction[1]

Central banks have multiple interests in the development of bond markets. At a fundamental level, the government bond markets help to fund budget deficits in a non-inflationary way and so enhance the effectiveness of monetary policy. In addition, many central banks use government bond markets for the conduct of monetary policy. They often act as agents for the government in various aspects of the management of government debt. They oversee clearance and settlement systems, and they are responsible for the stability of the financial system, often directly supervising banks. This multiplicity of interests means that the policy issues that arise are very diverse. Many of them were considered by a small group of central bankers at the BIS during a two-day meeting in December 2001. This paper summarises some of the more important issues discussed in this volume.

There has been a very large increase in emerging market debt securities outstanding during the past few years. For emerging markets as a group, outstanding bonds amounted to 36% of GDP in 2000, compared with only 24% in 1994 (Table 1). During this period, the proportion of short-term debt in Latin American domestic debt has fallen appreciably.

Table 1

Recent developments in securities markets

	Outstanding[1]		**Short-term debt as a percentage of total debt**			
			domestic securities		**international securities**	
	1994	**2000**	**1995**	**2000**	**1995**	**2000**
Asia	26	39	19	22	5	6
Latin America	22	37	53	37	12	7
Central Europe	24	24	15	15	...	...
Total	24	36	29	25	9	6

[1] International and domestic bonds as a percentage to GDP.

Source: See Mihaljek, Scatigna and Villar in this volume.

[1] This overview in particular, and the volume in general, has greatly benefited from the cooperation, comments and statistical input of the central banks represented at the meeting. Thanks go to Steve Arthur, Marc Klau and Michela Scatigna for the tables and graphs, to Patricia Mosquera and Tracy Provenzano for secretarial assistance, to Nigel Hulbert, Arwen Hopkins, Tom Minic and Alison Spurway for editorial suggestions and to Liliana Morandini for production assistance with the whole volume. Helpful comments were received on this paper from Eli Remonola, Bill White and the authors of the BIS papers in this volume. Particular thanks are due to Peter Stebbing, who made extensive comments and suggestions. Opinions expressed are those of the author and not necessarily shared by the BIS or the central banks involved.

2. Debt markets: some general policy issues

2.1 Why develop debt markets?

The motivations for developing debt markets are partly specific (related to satisfying particular borrowing needs efficiently) and partly general (related to making financial markets function more effectively).

The prime specific reason for developing a bond market in most countries was to finance fiscal deficits. Under the highly regulated financial regimes prevalent before the 1980s, governments in many emerging markets could meet much of their borrowing needs by simply forcing local banks to hold government paper, usually to meet demanding reserve requirements. In many countries, inflation "financed" part of the government deficit. Foreign borrowing was also a possibility. The exchange rate risk of such borrowing appeared, in an earlier world of fixed exchange rates, relatively small. Such methods of financing have been undermined by the progressive liberalisation of financial markets and of capital flows worldwide, the adoption of anti-inflationary policies and the adoption of flexible exchange rates. Governments were increasingly forced to borrow from domestic markets. In addition, several countries have faced the need to finance very large extraordinary expenditure. The finance required for bank restructuring has been one recent example in many emerging markets.

A second specific reason for developing a local bond market was the need to sterilise large capital inflows. This was a particularly difficult challenge for several central banks during the first half of the 1990s. In the absence of well developed bond markets, the central bank has only short-term debt instruments at its disposal in conducting open market operations. Sterilisation that relies exclusively on issuing short-term paper tends to drive up short-term interest rates and encourage further inflows into such paper. This risks biasing the structure of inflows towards the short end. Sterilisation through the sale of bonds reduces such a risk. [2]

Although the specific impetus for developing bond markets came mostly from the public sector, borrowers in the private sector also need access to long-term finance, either directly from capital markets or mediated by banks. Corporations need to finance fixed investment projects that are expected to yield returns only in the long-term. Households' acquisition of houses is another example. In some cases, then, it was specific private demands for finance that furthered the development of debt markets.

There are several general reasons for developing debt markets.[3] The most fundamental reason is to make financial markets more complete by generating market interest rates that reflect the opportunity cost of funds at each maturity. This is essential for efficient investment and financing decisions. Moreover, the existence of tradable instruments helps risk management. If borrowers have available to them only a narrow range of instruments (eg in terms of maturity, currency, etc), then they can be exposed to significant mismatches between their assets and their liabilities. If bond markets do not exist, for instance, firms may have to finance the acquisition of long-term assets by incurring short-term debt. As a result, their investment policies may be biased in favour of short-term projects and away from entrepreneurial ventures. If firms attempt to compensate for the lack of a domestic bond market by borrowing in international bond markets, they may expose themselves to excessive foreign exchange risk.

The risks entailed by such mismatches have to be managed and the ability to do so will often depend on whether certain exposures can be adequately hedged. The availability of such hedges tends to be larger the wider the range of financial instruments actively traded in markets.[4] Liquid markets help financial market participants to hedge their exposures. As risks are spread across many participants – and not concentrated on a few – and as risks can be transferred to entities best placed to bear them,

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[2] Frankel (1993) provides a good summary of these issues.

[3] For a good exposition on why bond markets are central for financial development, see Herring and Chatusripitak (2001).

[4] This is not always the case. One important factor is that banks can provide such hedges to the extent their business generates natural hedges.

the costs of intermediation are reduced and the financial system can be made more stable. The need to strengthen the financial system in this way becomes all the greater as capital account liberalisation progresses. If capital inflows are forced into short-term obligations (bank deposits or securities) because longer-term paper does not exist, the vulnerability of the capital-importing nation to sudden reversals will be all the greater.

A second general reason for developing bond markets is to avoid concentrating intermediation uniquely on banks. Since banks are highly leveraged, this may make the economy more vulnerable to crises. The damage caused by such crises to the real economy is generally much higher, and the restructuring process more difficult, in the absence of a well functioning bond market. However, only well developed capital markets can realistically be expected to substitute for banks. For many – probably most – emerging markets, bank intermediation continues to dominate.

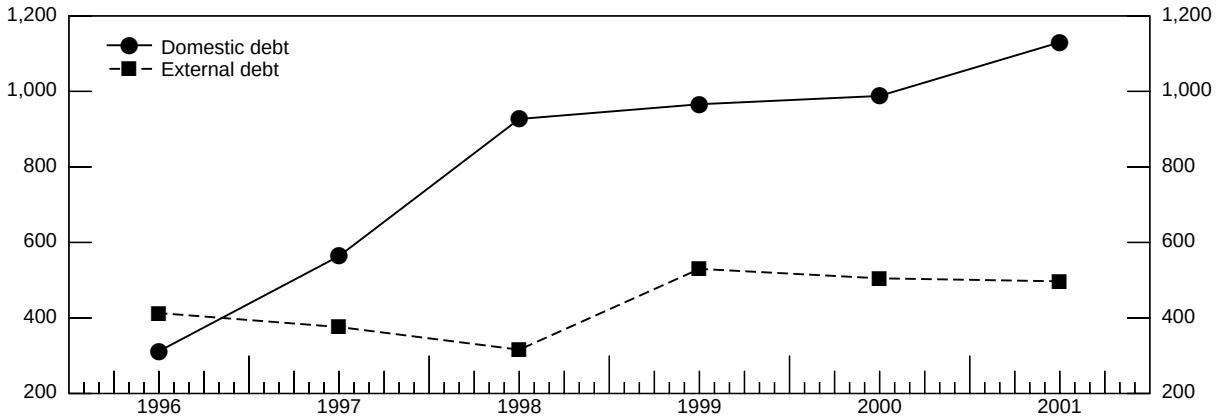
A third general reason for fostering debt markets is that such markets can help the operation of monetary policy. A well functioning money market is essential for the smooth transmission of policy as monetary policy relies increasingly on indirect instruments of control. In addition, prices in the long-term bond market give valuable information about expectations of likely macroeconomic developments and about market reactions to monetary policy moves.

2.2 Switching from international to domestic debt securities

A key question is how far the domestic market can become a viable alternative to reliance on international bonds. Many would agree that the scope for relying more on domestic markets, and less on international markets, is considerable in many emerging economies. In aggregate, the outstanding volume of domestic debt issued by emerging market entities has indeed risen significantly relative to international debt.[5] Moreover, one recent estimate suggests that the total international trading in emerging market domestic debt is now larger than trading in international bonds, even though international bonds are still much more liquid instruments. Graph 1 illustrates one assessment of the relative sizes of international and domestic debt that is tradable.

Graph 1

Emerging market tradable debt[1]



[1] In billions of US dollars.

Source: Merrill Lynch (2002).

Several reasons have been put forward to explain this trend. One is that conscious efforts have been made to improve the infrastructure for bond trading (including taxation reform) and to carefully tailor issuance policy to the needs of enhancing secondary market activity. A second reason is that lower

[5] Domestic bonds outstanding in emerging markets for which data are available rose from 20% of GDP in 1994 to 29% of GDP in 2000. See Mihaljek, Scatigna and Villar in this volume.

rates of inflation in many countries have made domestic-currency debt more attractive to investors.[6] The paper by Mihaljek et al in this volume does indeed find clear evidence that lower inflation is associated with longer average maturities of government bonds.

In some cases, the domestic market has also been used to float dollar-denominated debt. There have been reports that difficulties experienced in international markets in recent years (wider credit spreads, the periodic drying-up of liquidity) have led some local borrowers to float dollar-denominated bonds in local markets.[7] It has also been noted that the demand for dollar-denominated paper – which can be used to hedge foreign exchange exposures – rises when the exchange rate floats.

2.3 Structure of domestic debt and risk exposures

It was a commonplace that debt in many emerging markets was too short-term, tended to be at floating rather than fixed rates and was generally denominated in foreign rather than domestic currency. These features have exacerbated several crises in the emerging markets.[8] Considerable efforts have been made to improve the structure of domestic debt securities. Hence the question: how far have these features been corrected during the past few years?

Although the proportion of total domestic debt securities that is short-term has fallen in recent years, it is still relatively high. In Latin America, 37% of domestic debt securities were short-term in 2000, down from 53% in 1995, but still higher than in Asia or central Europe. Moreover, 28% of debt was inflation indexed in 2000 and 22% was linked to the exchange rate. In Asia, however, debt is more long-term and relatively little is indexed to inflation or the exchange rate. Floating rate debt remains a high proportion of total debt (Table 2).

Table 2

Type of domestic debt at issuance

(percentage of total at end-2000)

	Floating rate	Fixed rate	Inflation indexed	Exchange rate linked
Asia	35	63	0	2
Latin America	34	16	28	22
Central Europe and other[1]	13	65	20	2
Total	**27**	**48**	**16**	**9**

[1] Includes Saudi Arabia and Israel.

Sources: Calculated by normalising to 100 the data from Table 6 on page 27.

Some countries have changed the structure of their marketable debt in stages. For instance, Mexico moved away from dollar-linked debt towards inflation-linked or floating rate debt after the 1994 crisis. More recently, the government has issued marketable long-term fixed rate debt. This experience raises a more general issue of sequencing, that is, how far the development of "better" debt structures needs to proceed in stages. For instance, it will often be difficult for countries with a history of high and volatile inflation to move from dollar-linked to classical fixed rate nominal debt in one step. Many have found that some form of indexation or recourse to floating rate debt was a desirable transitional phase.

[6] However, not all domestic debt is denominated in domestic currency.

[7] The paper by Cifuentes, Desormeaux and González in this volume reports that for local borrowers issuance costs in local markets have been as little as one seventh of those in international markets. They find that the local market is open all year, while placing debt in the foreign market requires a "window of opportunity".

[8] See, for example, Financial Stability Forum (2000).

Brazil is an important recent case in point of a country striving to develop a more sustainable debt structure in stages. At the end of 1999, the Treasury and the Central Bank of Brazil set a number of guidelines for domestic debt management, including: the lengthening of the average maturity of debt; an increase in the share of fixed rate securities; and a reduction in the share of dollar-linked or overnight rate-linked debt. Some progress in achieving these aims was made during 2000 and (for some of the objectives) part of 2001.

But the more difficult international and macroeconomic environment during 2001 created dilemmas for the authorities, resulting in some policy choices that led to a partial reversal of the earlier movement away from dollar-linked debt. As many countries have grappled with such dilemmas, they merit some consideration. First, there is the dilemma that arises in attempting to reduce foreign currency issuance after a major depreciation in the exchange rate. The Brazilian currency depreciated sharply (about 40% from end–2000 to September 2001). This depreciation had the mechanical effect of increasing the share of outstanding foreign currency debt in total debt. At the same time, the high yields on domestic paper made borrowing in domestic currency very expensive; and it seemed all the more expensive to those who believed the exchange rate had fallen too far and was likely to bounce back. A further consideration was that exchange rate volatility – and the prospect of still further weaknesses – increased the demand for exchange rate hedges. In the event, the central bank decided to increase issuance of dollar-linked notes.

There is a similar dilemma between floating and fixed rate debt: when the yield curve steepens (as happened in Brazil), long-term borrowing becomes more expensive, and the temptation is to shorten maturities or to rely more on floating rate debt. In each case, policy-makers can react to prices (eg the exchange rate, the long-term interest rate) they believe to be significantly "wrong". If their judgement is vindicated, they can economise on financing costs.[9] But there are risks in such strategies if their expectations prove wrong (eg long-term rates rise further). As the paper by Sokoler in this volume points out, there could be the added drawback of distorting financial market reactions, which might have the effect of blurring warnings to governments about unsustainable policies.

3. Institutional investors and the bond markets

Investment by institutional investors is much smaller as a proportion of GDP in emerging markets than it is in the major industrial countries (Table 3). Because institutional investors such as insurance companies and pension funds need to hold long-dated debt, many see such institutions as key to the development of debt markets.[10] The development of funded pension schemes is likely to exert a particularly powerful influence; the accumulated funds of pension systems when fully mature will often approach an amount equivalent to the size of annual GDP. Moreover, the net demand for assets in a "young" pension fund is substantial during the process of maturation. If local bond markets are underdeveloped, institutional investors may be induced to hold short-term paper. Pension funds in some countries have an incentive to hold short-term paper either because of an inverted yield curve or because money market instruments can be traded more readily than long-term paper.

The most cited example of pension fund development in emerging markets going hand in hand with bond market development is that of Chile, which launched a funded pension system in 1981. This contributed to a long boom in Chilean asset prices, led to pension funds holding (by 2000) the equivalent of over 50% of GDP and made the Chilean capital market the most developed in Latin America.[11] The use of inflation-indexed debt was a central feature of this success. The paper by

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[9] The Brazilian real did indeed appreciate in the months that followed, appreciating by 17% against the dollar between October 2001 and March 2002: in retrospect, then, real denominated borrowing during mid–2001 proved to be much more expensive than dollar-denominated borrowing.

[10] For a good recent discussion of the policy issues raised by institutional investors see Carmichael and Pomerleano (2002). This book reviews recent studies which show that the growth of pension schemes helps financial markets to develop. See pp 108-110.

[11] At least on this measure.

Cifuentes, Desormeaux and González in this volume notes that pension fund investments in local bond markets continued to rise over a recent period when other investors were pulling out, suggesting that pension funds lend stability to the market.[12]

Table 3

Assets of institutional investors

(as a percentage to GDP)

		Insurance companies	Pension funds	Pooled investment schemes
G10 countries	(1990-97)	62.4	46.0	13.5
Emerging markets	(1990-97)	10.8	...	...
Chile	(1981)	3.1	1.2	2.6
	(1990)	6.7	24.2	3.2
	(2000)	16.7	53.8	7.7

Sources: Karacadag and Shrivastava (2000), Cifuentes et al (this volume).

The importance of institutional investors is such that rules governing portfolio decisions can raise wider issues. One problem with rules forcing institutional investors to hold a high proportion of their assets in government bonds is that they can create a "captive" market. This can undermine the creation of a true market in bonds, and in effect deter other investors.

A second issue concerns rules governing the credit quality of their investments. In order to protect investors, rules are often imposed to prevent or limit investment in non-investment grade paper.[13] Such a rule can, however, have several consequences that may undermine financial stability. It could magnify the impact of credit downgrading on a company's bonds as institutional investors are forced to sell downgraded bonds. Another possible consequence is that poorer credits could in effect be forced onto the banks, a process of adverse selection.

Another issue concerns investment in foreign securities. This is often prohibited or restricted, on the grounds that forcing institutional investors to buy domestic securities helps to deepen local financial markets. Two reservations can be raised about such reasoning. The first is that small countries typically have a greater need of diversification, and hence of investment in foreign securities. A high proportion of institutional investor assets held abroad (denominated in foreign currency) can give a country a buffer against the volatility of exchange rates. The second reservation has to do with the size of the domestic market. If pension funds are forced to put all their assets in domestic securities, they acquire ever-larger shares of often rather small domestic markets. This could create major distortions in local market functioning.

A final issue concerns the regulatory incentives or disincentives for institutional investors to trade. Long-term investors such as pension funds or insurance companies do not have the same need for liquidity as many other participants in financial markets. For this reason, they are well placed to trade by buying illiquid bonds that have become relatively cheap (so earning the liquidity premium) and selling highly liquid issues. Such activity could make bond markets as a whole more liquid. But such trading does not appear to happen in most markets. One important reason for this is apparently the absence of mark-to-market accounting. Because historic cost accounting means that losses or gains are registered only on trading, trading is often avoided for accounting reasons (eg so as not to report a loss). The experience of several countries was that banks became more active traders once they were required to mark at least parts of their portfolio to market. Institutional investors might respond in much

[12] Pension funds hold 70% of outstanding central bank and government bonds in Chile.

[13] An alternative rule might be to allow institutional investors to invest as they please, but impose higher reserve requirements or provisions against investment in riskier assets. The paper by Choy in this volume points out that this approach is applied in Peru. Another approach is to limit what institutional investors buy rather than hold.

the same way. In many countries, savings institutions (aimed at small savers) hold a significant proportion of government bonds. Some would argue that their exemption (on the grounds that they are "buy-and-hold" investors) from mark-to-market rules should be reconsidered.

4. The corporate bond market and the role of banks

4.1 The corporate bond market

With the exception of a few Asian countries, corporate bond markets have traditionally been underdeveloped in most emerging markets (Table 4). The main exception has been Korea, perhaps largely because of the size of the large chaebol. The paper by Kim and Park in this volume traces the recent history of their corporate bond market: massive issuance of three-year corporate bonds during the crisis years of 1997–98 (bonds outstanding rose above 25% of GDP); initial public interest in earning the higher yields available through the bond-type beneficiary certificates issued by the investment trust companies (ITCs); the evaporation of public confidence following the collapse of the Daewoo group in mid–1999; and then a prolonged period when various government measures to shore up demand failed to prevent massive withdrawal of funds.

Table 4

Issuers of domestic debt securities

(percentage of total, end-2000)

	Financial institutions	Central bank	Public sector	Corporate sector
Asia[1]	20	10	40	31
Latin America	26	22	32	20

[1] Simple average of Hong Kong, Korea, Malaysia and Thailand.

This experience contrasts with that of Thailand. Corporate bond issuance also rose strongly after the Asian crisis but from a much lower initial level. Moreover, liquidity has tended to improve over the years. What are the reasons for this very different performance? One possible element of an answer is that, early in the post-crisis period, the outstanding volume of corporate bonds may have been artificially driven above a sustainable level. The mechanisms of channelling household savings through ITCs may have misled households about the real risks involved. This meant that credit risks were not properly assessed. A second element mentioned in the paper by Kim and Park in this volume is the poor accounting practices of investment institutions. The maintenance of historical cost accounting contributed to the early massive flow of funds into the bond-type beneficiary certificates issued by the ITCs. The absence of mechanisms designed to protect bond investors' interests in the event of liquidation was another factor.

One implication often drawn from US experience is that a key prerequisite for the development of a corporate bond market is the existence of some form of independent credit risk assessment. For this reason – and because of the greater reliance on external assessment envisaged in the proposed new Basel Accord – most countries have reinforced efforts to develop credit ratings in their country. How successful have these efforts been? In most countries, this is very difficult to judge because the practice of the independent credit rating of corporations is still rather new. The historical record of the correspondence between default rates and credit ratings in a number of emerging economies is mixed: for example, in Korea the default rate for borrowers rated BB has been less than those rated A (see pages 141-2). One issue concerns the role of policy in fostering the development of credit rating agencies. Is it possible to reconcile the overriding need to promote objective ratings with more activist official policies (eg to promote credit rating agencies or subject their performance to official audits)?

Can independent credit rating be reconciled with provisions that allow some regulators of institutional investors to themselves determine credit ratings of the paper "their" firms can invest in?

A related issue concerns the level of corporate disclosure. In some cases, corporations may seek to evade the strict disclosure requirements for public issuance by relying on private placements. This phenomenon has been noted in India, for example, raising the issue of the governance provisions that need to be put in operation for private placements.

4.2 The role of banks

The relationship between intermediation through banks and intermediation through capital markets is controversial. Even in developed economies, two rather distinct systems have grown up – one where capital markets are very important (mainly the English-speaking countries) and one where banks dominate. In bank-dominated systems, banks were historically protected from competition from capital markets. The issuance of short-term debt that could compete with bank deposits was often limited and bond issuance by corporations was restricted.[14]

During the last decade, however, the sharpness of this dichotomy has been eroded by the development of capital markets worldwide. For many, banks can survive only if they adapt to this trend and learn to play a major role in capital markets – a conclusion reached in several international forums in the emerging markets, notably in Asia.[15] According to this view, banks need to be fully involved in bond underwriting and in the sale of capital market products to households. In addition, they will have to be able to bundle bank loans into packages to be sold in the market (securitisation). This can work best for home mortgages and consumer credits, two areas of recent strong growth in several developing Asian economies, because decisions about the pricing of such loans tend to depend not on any special knowledge or relationship, but rather on "objective" criteria (such as income, valuation of the collateralised asset and age). As this process develops, new debt instruments come on to the market.

In addition, such developments mean that prices derived from markets can be applied to the valuation of bank loans. This inevitably blurs the traditional distinction between intermediation through a bank (which typically acquires long-term non-marketable loans held on the balance sheet until maturity) and that through capital markets (where assets trade in secondary markets).

How far these trends will go in emerging markets is an open issue. At present, the securitisation of bank assets is still rather uncommon in emerging economies. This is partly because, in the current environment of weak credit demand, banks are very liquid. Nonetheless, there are also significant (and undesirable) barriers to the securitisation of bank loans in emerging markets. Some of the papers in this volume mention reforms facilitating the development of mortgage-backed securities (collateral rules; bankruptcy procedures etc).

A second question concerns the role that banks could play in developing bond markets. The view that increased bond issuance just takes away profitable business from the banks is oversimplified. First, the problem of "taking the best business" arises largely because of the regulatory framework, which can be changed. If banks are forced to hold excessive capital against loans to low-risk borrowers, this can force a migration of "good" borrowers from banks to markets that would not otherwise occur. This could represent a distortion and can be inefficient. Moreover, it could raise systemic dangers in concentrating the poorer risks on banks. The Basel Committee's proposed revision to the Capital Accord should go a considerable way to correcting such distortions. Secondly, the relationship between banks and capital markets is more symbiotic than the traditional view envisaged. The various elements of symbiosis are outlined in the paper by Hawkins in this volume.

A somewhat separate issue is whether the transition to more market-dominated bond rates has meant that the exposure of banks to unhedged interest rate risk has increased. Several papers in this volume suggest this is a nagging worry and reflects the relative lack of interest rate hedging instruments in

[14] The classic reference for comparisons of bank-based financial systems with market-based systems is Allen and Gale (2000).

[15] See in particular Yoshitomi and Shirai (2001). APEC (1999) enunciates 36 key elements for developing bond markets.

emerging markets. Another aspect concerns the application of mark-to-market discipline. Are the rules on this sufficiently rigorous? Do they ensure the proper management of interest rate risk?

5. Monetary policy and debt management

5.1 Conflicting objectives

In the simplest case where it has only one objective (price stability), the central bank sets the overnight rate (or very short-term rate) appropriate to macroeconomic conditions. It is then up to the market to determine longer-term rates without central bank intervention. Many feel it is best not to tamper with market rates which convey valuable information about market expectations and about the perceived impact of policy changes.

In others cases, however, the central bank may have additional responsibilities that require it to pursue other objectives specifically related to bond markets. For example, some central banks are responsible for the management of government debt. A debt manager normally wants to minimise the rate of interest paid on government debt, an objective that may conflict with setting interest rates needed to achieve price stability as well as leading to short-falls in sales of government debt (which causes further problems for monetary policy). This is why many countries have moved to a system for selling government securities in which the authorities set the quantity of government securities they want to sell and the market sets the price or interest rate. Such arrangements help to discipline government spending – because the government has to accept the interest rate consequences of its financing needs – and they also ensure that budget financing does not impinge on financial conditions in a way that undermines monetary policy.

Another related concern, frequently raised in the context of emerging markets, is the sensitivity of local markets to volatility in international capital markets. Several central banks have intervened directly in government bond markets when bond yields have come under strong upward pressure – often as a result of external shocks (eg in the aftermath of the 11 September attacks). One view is that preventing extreme volatility increases the underlying demand for bonds. This may be particularly true of banks, which are typically highly exposed to interest rate risk. If they can be assured that extreme volatility of bond prices can on occasion be moderated by official action, the argument runs, then they will be more willing to hold bonds. A counterview is that such action could simply featherbed the banks. This would give them less incentive to put in place proper risk management mechanisms. It could also impede the market development of hedging instruments. The balance of arguments depends on circumstances: thin or nascent markets may require more intervention.

5.2 Fostering deep and liquid government bond markets[16]

What can or should the central bank (or government) do to help develop a deep and liquid government bond market? There is no easy answer. One polar view is that the authorities need to do nothing: as issuance increases, liquidity will follow provided that trading by financial institutions is not impeded by regulation. The other view is that central banks and treasuries need to take the "necessary first steps" to get the market started – and perhaps to do so over several years. These issues, considered in more detail in the paper by Mohanty in this volume, are summarised below.

Primary markets: issuance techniques and price discovery

What can be done to improve issuance techniques and the dealership system? One strategic choice is between multiple price auctions (winners pay what they bid) and uniform price auctions (all pay the same price, that bid by the marginal winner). Some have argued that the burden of the "winner's

[16] Note that this is exhaustively analysed in the comprehensive handbook of the World Bank and the IMF (2001).

curse" (you have paid more than the cut-off price if you win) from multiple price auctions will keep investors away from auctions. This suggests that uniform price auctions will be more efficient in minimising the government's borrowing costs. But others argue that uniform price auctions in thin markets are more open to collusion among buyers. Even without collusion, uniform price auctions may not work well in thin markets where the risk of bids falling short of the amount of securities being issued is quite high. In such circumstances, debt managers may be reluctant to use a uniform-price system unless they have the discretion to set a minimum price or not allot the full amount on offer. Such hybrid auction mechanisms (for example, uniform price auctions subject to side constraints) are used in some countries.

Country experiences discussed in the paper by Mohanty in this volume do not suggest a unique pattern. Korea has recently switched from multiple price to a uniform price auction. In Mexico only fixed coupon notes are sold through uniform price auctions. India has introduced uniform price auctions for 91-day Treasury bills on an experimental basis. This diversity of experience may suggest that the type of auction system may be less important than adherence to the general principle of letting markets set prices.

Another issue is who should be allowed to participate in the auction and what role should central banks play. One view is that limiting participation in the auction to only a few dealers would restrict competition. The counterview is that allowing too many participants would increase costs and undermine the market-making role of primary dealers. The question is also whether setting up primary dealers is important to improve liquidity. For example, bond markets in Chile developed without primary dealers. In many other countries, by contrast, primary dealers are seen as playing a critical role in sustaining liquid markets. Primary dealers often help central bank understanding of the market. In addition, the two-way quotes provided by primary dealers play a significant role in developing a transparent secondary market. Bond market turnover increased significantly in several countries after primary dealers were introduced. In most countries primary dealers were extended some privileges, including the exclusive right to bid at the primary market, access to non-competitive bids, access to security-lending facilities from the central bank, or certain tax exemptions. Inviting foreign firms to become primary dealers on the same basis as domestic firms can help the transmission of best international practice in the local market.

A final dilemma is whether the central bank should directly participate in auctions. The dominant view is that direct central bank participation in ways that affect the auction result should be avoided. Indirect participation may be inevitable as the central bank replaces securities which are maturing in its portfolio; ideally, central banks should acquire such securities passively, as a non-competitive residual buyer. The paper by Reddy in this volume, however, points out reasons why central banks could intervene or acquire securities directly from the government so as to help stabilise expectations in turbulent periods.

The secondary market

There is also the question as to what central banks and debt managers should do to improve secondary market liquidity. Developing a repo market in government bonds was seen as essential for facilitating arbitrage across the yield curve and absorbing excess liquidity in the market. Yet a major shortcoming identified in this meeting was that repo markets remain underdeveloped in most emerging economies. Many papers in this volume also note that the inter-bank repo market tends to be very short-term, not usually beyond overnight. The lack of good collateral and the inclusion of repo transactions in eligible assets for reserve requirements were identified as the main factors limiting the development of repo markets. One suggestion has been that central banks should be an active player in repo markets, thus adding liquidity to securities that would otherwise be illiquid in the hands of banks.

Others have argued for an even more proactive role such as permitting market participants to take short positions in securities. Central banks could complement this effort by lending securities to primary dealers and other market players (for example, as is done by Hong Kong and Mexico) to enhance liquidity. The counterview could be that allowing short-selling may entail systemic risks by increasing leverage and creating an additional channel through which shocks can be transmitted in the financial system. There is also a concern that if central banks impose too restrictive conditions to limit such risks (for example, imposing a high "haircut" or a large interest rate premium), market participants may stay away.

A more moderate version of activism is that central banks should just "help the market find its own depth." According to this argument, central banks could be active in developing benchmarks and fostering product innovation to attract investors and encourage trading. In many cases, the fragmentation of government debt outstanding into a large number of distinct issues hinders liquidity: one symptom of this is often a very bumpy yield curve. A policy of consolidation by the central bank (that is, buying back illiquid issues and selling popular issues) can make the yield curve much smoother, and thus provide a better benchmark.[17]

Many countries have adopted such strategies in order to develop benchmarks. Singapore has recently switched to buy-back operations in order to develop benchmarks and legal changes have been introduced in Thailand to help the debt manager to buy back securities. New instruments (zero coupon bonds and "stripping") have been launched in many countries to broaden the range of instruments. In addition, developing futures market has been given emphasis in many countries. In Korea, trading in bonds received a boost after the establishment of a bond futures market. A similar trend has also been noted in Singapore. Lowering or even eliminating taxes on securities transactions have been suggested to improve trading. Nevertheless, many have argued that government bonds should not have preferential tax treatment since this would affect the "level playing field" vis à vis private issuers who may be crowded out from the market.

Many emphasise that how far these initiatives will help improve liquidity depends on the efficiency of organising and settling trades in the market. A trade execution process that leads to more competition among traders and improves the information flow to market participants should lower spreads and increase liquidity. According to this view, more open and anonymous trading should develop as electronic trading platforms take root (through either organised exchanges or the inter-broker dealer system). Greater transparency could also be achieved by publishing an issue calendar and information about post auction results. The counterview may be that in developing markets, the position of dealers may be adversely affected by a high degree of transparency, which could reduce their margins. The government may lose flexibility in addressing uncertainties if they publish an issue calendar. A final important issue concerns the payments and settlement system. It is argued that government should invest in promoting infrastructure such as an efficient depository and custodial arrangement and a robust payment system to raise investors' confidence in bond markets and lower systemic risks from securities transactions. How far central bank involvement should go is debatable.

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[17] See Stebbing (1997) for an account of Australia's experiences (especially Chart 2) that draws many useful implications for emerging market economies.

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