

## Promoting Liquidity in Domestic Bond Markets

Keynote speech by Mr Malcolm Knight, General Manager, Bank for International Settlements at the Government Borrowers Forum held on 23–25 May in St Petersburg

It is an honour for me to address this distinguished audience in the splendid city of St Petersburg.

Domestic bond markets – by which I mean the markets for domestic debt securities issued by residents of a country in its own domestic currency – have experienced impressive growth since the late 1990s, especially in emerging market economies. Yet this growth has not been accompanied by a commensurate increase in market liquidity. Today I will first discuss some of the reasons for this lack of liquidity. Then I want to draw upon the recent experience of various countries to offer a few practical ideas for improving this situation. I shall conclude with some remarks about the Asian Bond Fund 2, which I see as an important recent initiative to reduce impediments and boost liquidity in the emerging domestic bond markets of Asia.

### ***The Growth and Development of Domestic Bond Markets***

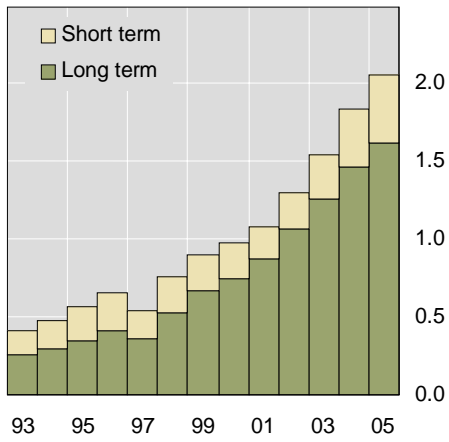
In the aftermath of the 1997–98 financial crises in a number of Asian countries, many emerging market governments resorted to substantial local borrowing to fund massive fiscal deficits as well as to finance the heavy costs of systemic bank restructuring. More generally, policymakers, particularly in Asia, sought to foster domestic intermediation to address a situation in which residents of emerging economies were buying low-yielding foreign financial assets while residents of advanced countries were investing in higher-yielding local emerging-market assets. Charts 1-3 illustrate the substantial expansion of emerging market domestic debt that ensued: since 1997, the stock of domestic currency debt outstanding as measured by the BIS has almost tripled, to over \$3 trillion. Total outstanding domestic debt securities in the emerging markets were equivalent to almost 40% of GDP in 2005, compared to only 20% in 1997. Domestic bonds now constitute around four-fifths of the long-term debt of emerging economies, up from around three-fifths in 1997.

**Chart 1**

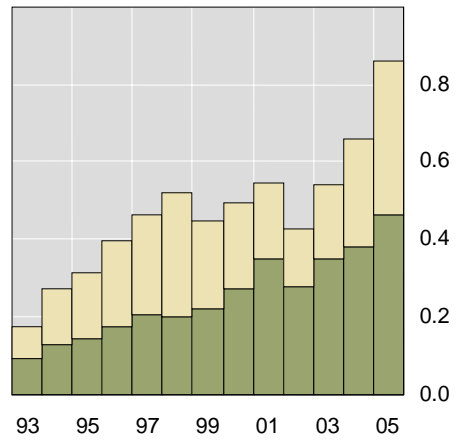
**Domestic debt securities outstanding<sup>1</sup>**

In trillions of US dollars

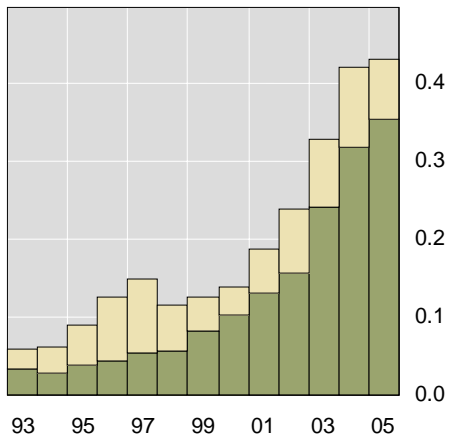
**Developing Asia**



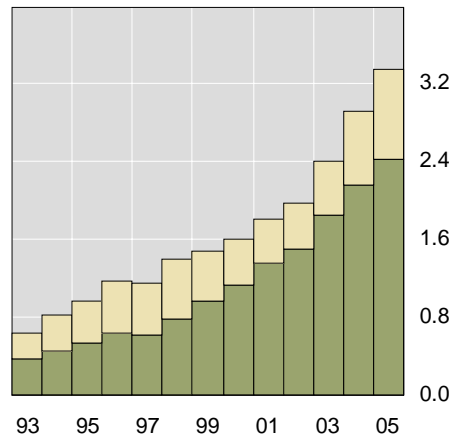
**Latin America**



**Developing Europe**



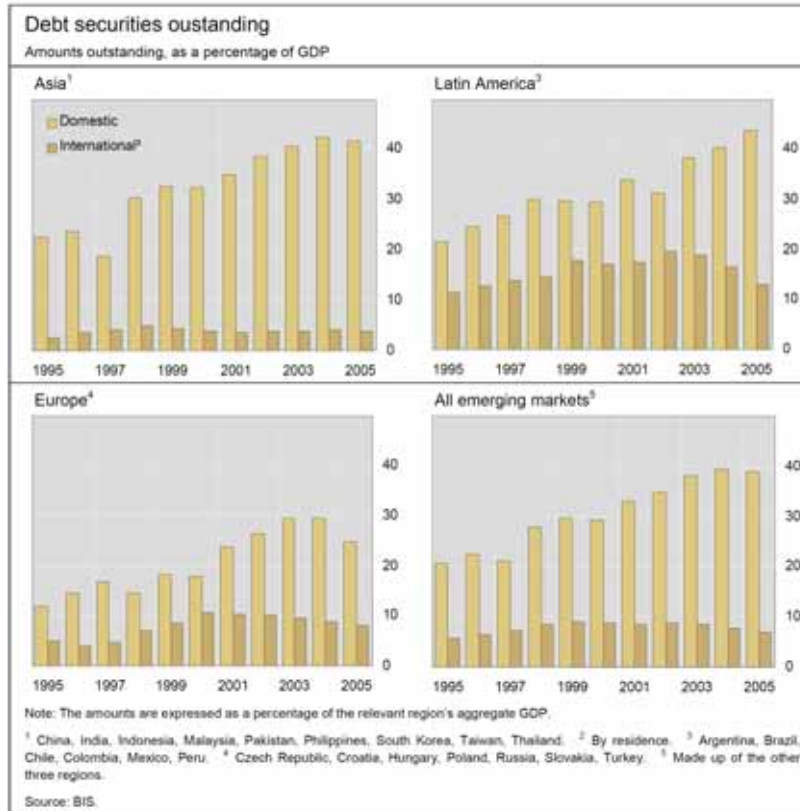
**All emerging markets<sup>2</sup>**



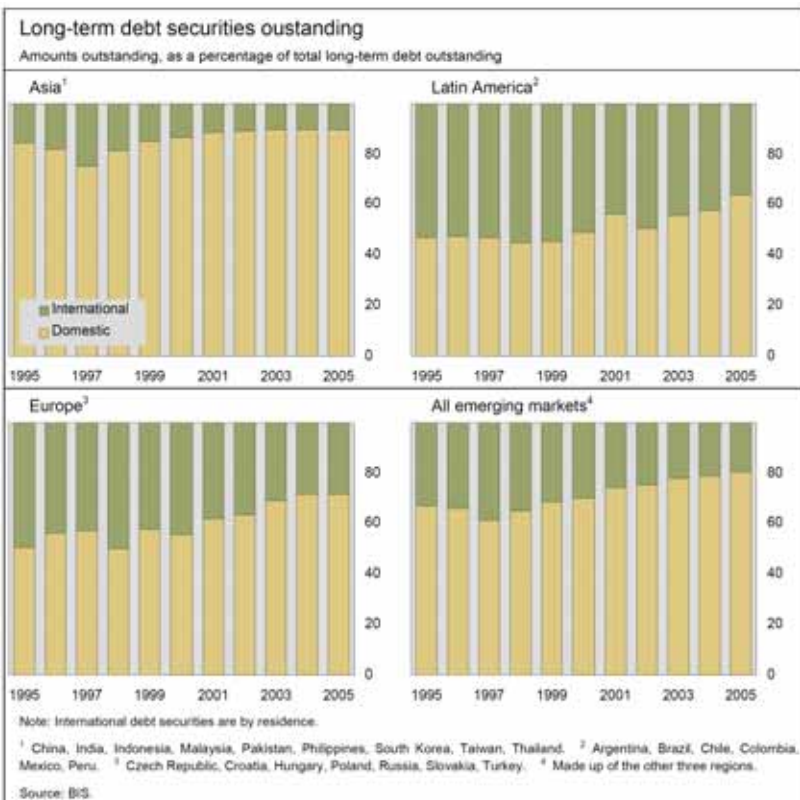
<sup>1</sup> End of period. <sup>2</sup> Made up of the other three regions.

Source: BIS.

### Chart 2



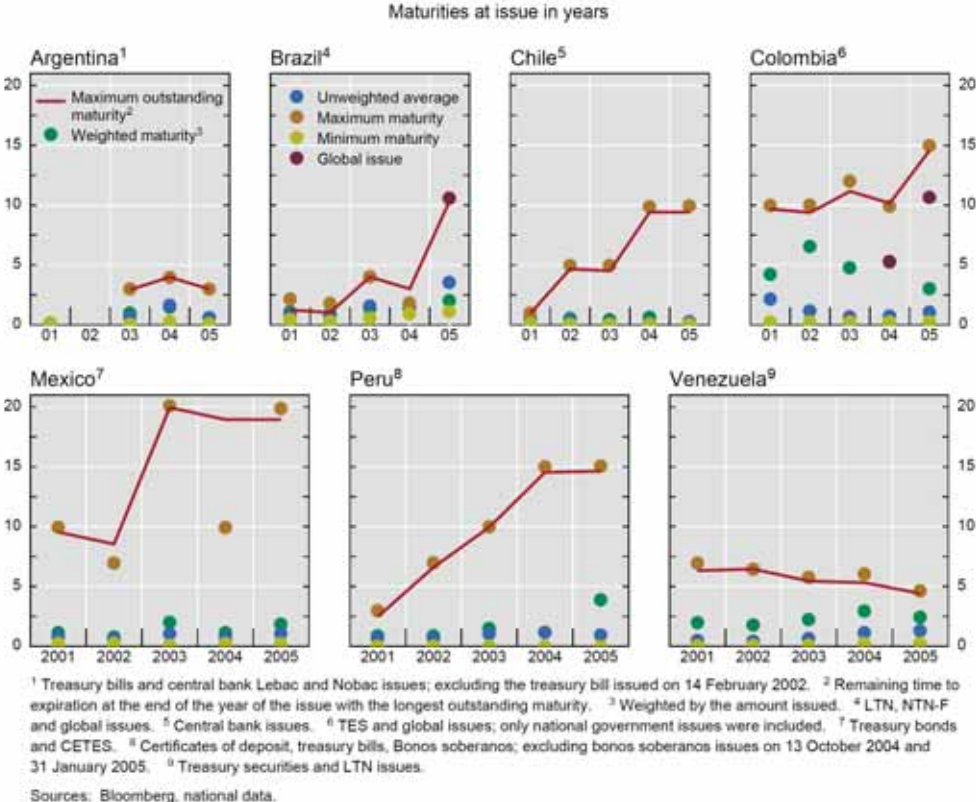
### Chart 3



Moreover, many domestic bond markets have experienced a significant lengthening of maturities along the yield curve. As a percentage of total domestic emerging market debt, bonds that only have a remaining maturity up to one year declined from 44% in 1997 to 25% in 2004. In Mexico 10 years ago it was only possible to issue maturities at around six months, but last year Mexico was able to launch a 20-year maturity issue. In Chile, over the last five years, the maximum maturity has moved from around 12 months to 10 year ( see Chart 4 below).

**Chart 4**

**Maturities of new domestic fixed coupon government bond issues in Latin America**



These developments owe much to the recent strong demand of global investors for domestic emerging market debt, giving the lie to the view that such investors only buy emerging market debt if it is denominated in US dollars. Although there are no comprehensive data on non-resident holdings of domestic bonds, there is some evidence to confirm widespread anecdotal reports of increased foreign investor appetite for domestic securities over the past several years. A BIS survey of emerging market central banks that used data for the year 2000 found little evidence of significant foreign investment in Latin American domestic bond markets. But by 2005, according to the Bank of Mexico, fully 7% of domestic debt in Mexico was held by foreign investors. Clearly, improvements in the fundamentals of these economies – reflected in narrower sovereign spreads – have done much to focus investor interest on opportunities in domestic bond markets. Against the background of low interest rates and flat or inverted yield curves that existed until recently in developed economies, global investors, pursuing their “search for yield”, have identified significant diversification opportunities in the domestic bond markets of emerging economies. Table 1 illustrates that, in recent years, yields in these markets have responded more to domestic factors, and have exhibited comparatively low correlations with yields in developed markets or indeed other emerging markets.

**Table 1**

Local currency bond market correlations and returns										
January 2003 - April 2006										
Correlations		GBI-EM <sup>1</sup>							EMBI <sup>2</sup>	10yr US treasury bond
		Brazil <sup>3</sup>	Chile	Colombia	Mexico	Latin	Asia	Europe		
GBI - EM <sup>1</sup>	Brazil <sup>3</sup>	1.00								
	Chile	0.34	1.00							
	Colombia	0.52	0.29	1.00						
	Mexico	0.50	0.56	0.48	1.00					
	Latin	0.78	0.53	0.72	0.89	1.00				
	Asia	0.33	0.07	0.31	0.31	0.35	1.00			
	Europe	0.10	0.21	0.21	0.28	0.25	0.42	1.00		
EMBI <sup>2</sup>		0.52	0.24	0.49	0.50	0.56	0.49	0.49	1.00	
10 Yr US treasury bond		0.23	0.00	0.22	0.25	0.24	0.37	0.37	0.71	1.00
<b>Returns</b>										
2003		23.7	27.7	19.4	7.1	16.7	7.9	14.0	22.3	2.1
2004		24.1	16.3	33.6	5.6	13.8	3.0	28.9	11.7	5.7
2005		36.9	16.2	26.1	21.2	22.8	5.2	3.9	10.3	2.4
2006 (ytd)		14.7	-1.6	3.2	-0.7	6.1	3.5	1.5	1.5	-3.1
Cumulative		142.2	65.8	117.5	34.9	73.2	21.1	55.4	53.1	7.2
<sup>1</sup> GBI-EM Broad diversified. <sup>2</sup> EMBI Global diversified. <sup>3</sup> Sample starting on May 2003. Source: Authors' calculations based on JP Morgan Data.										

These developments have brought a number of clear benefits. First and foremost, well-functioning domestic bond markets generate properly-functioning interest rates that reflect the opportunity costs of funding across a wide spectrum of maturities. As an alternative vehicle for allocating financial savings, these bond markets open up new channels for financial intermediation, increasing competitive pressures and helping to avoid over-reliance on intermediation by commercial banks. Secondly, they reduce the scope for foreign exchange risk and currency mismatches that accompany foreign currency borrowing. And third, domestic bond markets offer the authorities a wider range of tools for a more effective implementation of monetary policy, at the same time allowing clearer signals to emerge about the sustainability of official policies.

**Problems with Secondary Market Liquidity**

But for the most part, the growth and development of domestic bond markets have not been accompanied (at least in emerging economies) by a corresponding increase in secondary market liquidity – that is, the ability to execute market transactions cheaply and rapidly without affecting the price. This is important because liquid bond markets make it easier for market participants to adjust their portfolios in a cost-effective manner. Conversely, bond market investors can be expected to demand compensation for a lack of market liquidity, causing persistently high borrowing costs for governments and other issues. The effects of a lack of liquidity can be estimated most easily in developed countries: yield differentials

between benchmark and post-benchmark issues in the United States and Spain have been measured at around 5 basis points. It would be reasonable to conclude that these effects are more pronounced in emerging market economies.

Liquidity has various dimensions, but the two most important are market depth and the width of bid/offer spreads on trades. Market depth can be gauged by the ratio of turnover during, let's say, a calendar year, to the average outstanding stock. To judge from Table 2, there seems to be a marked disparity in market depth among emerging market economies: in Latin America market depth ranges from .4 for Venezuela to nearly 5 for Mexico; in Asia it ranges from less than .5 for Indonesia to around 15 for Korea. In any case, these indicators of market depth in emerging market countries appear to be much less than in the US, where the annual turnover ratio for all nominal Treasury debt, calculated a few years ago, was around 40.

Bid/offer spreads on emerging market government securities vary considerably from case to case, but are generally much wider than those for US or German government debt, where bid/offer spreads are typically less than one basis point. The bid/offer spreads for Mexican and Colombian fixed-rate government bonds, also shown on Chart 5, are 3 to 5 basis points; in Indonesia, they average around 7 basis points and in Peru between 10 to 20 basis points. Even though bid/offer spreads in some parts of East Asia appear at first sight to be quite narrow, this may partly reflect government or exchange rules that constrain market-makers' spreads. These rules can undermine the willingness of market-makers to deal in size, so the cost of this apparent liquidity may in fact be a reduction in market depth.

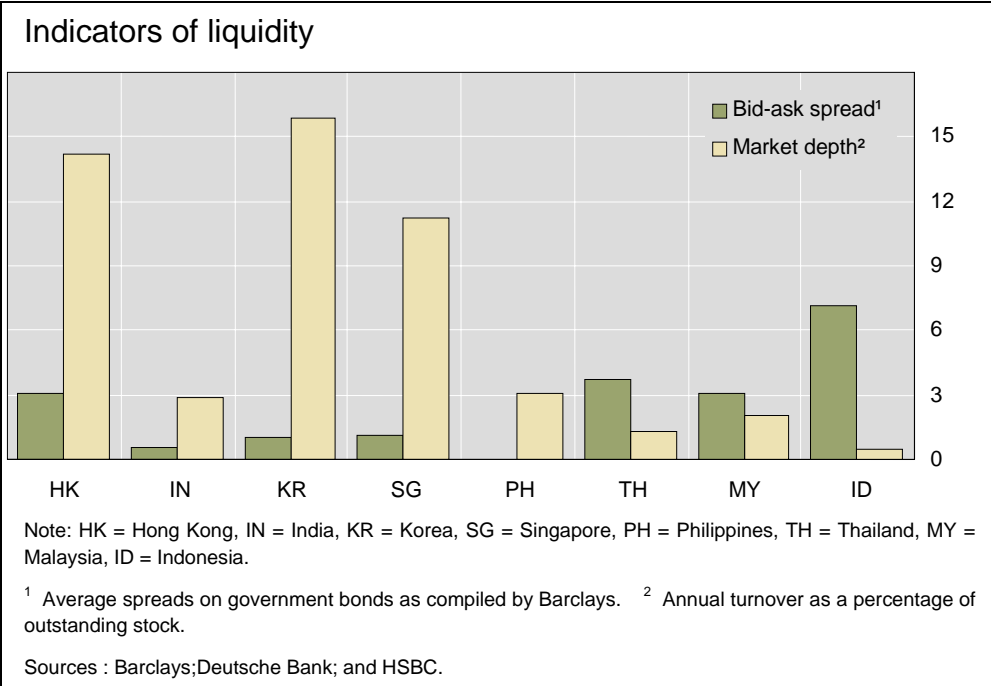
**Table 2**

Indicators of secondary market liquidity in local government securities markets in Latin America in 2005				
	Annual turnover in billions of US dollars	Annual turnover over stock outstanding	Bid-ask spread	Average size of transactions
Argentina	91.5	1.9	10-50 bp on fixed rate and indexed bonds	USD 1 mn
Brazil	433.0	0.8	5 bp on fixed rate bonds	BRL 10-50 mn
Chile	26.0	1.0	5 bp on fixed rate bonds	CLP 100 mn
Colombia	45.0	1.2	5-10 bp on inflation indexed bonds	UF 100,000
Mexico	696.7	4.9	3-5 bp on fixed rate bonds	MXN 50-100 mn
Peru	2.6	0.5	5-15 bp on inflation indexed bonds	MXN 5-10 mn
Venezuela	2.8	0.4	10-20 bp	USD 1 mn
			50-100 bp on floating rate bonds	VEB 2.4 bn

Source: BIS, Citigroup, EMTA, FRB, IMF and JP Morgan

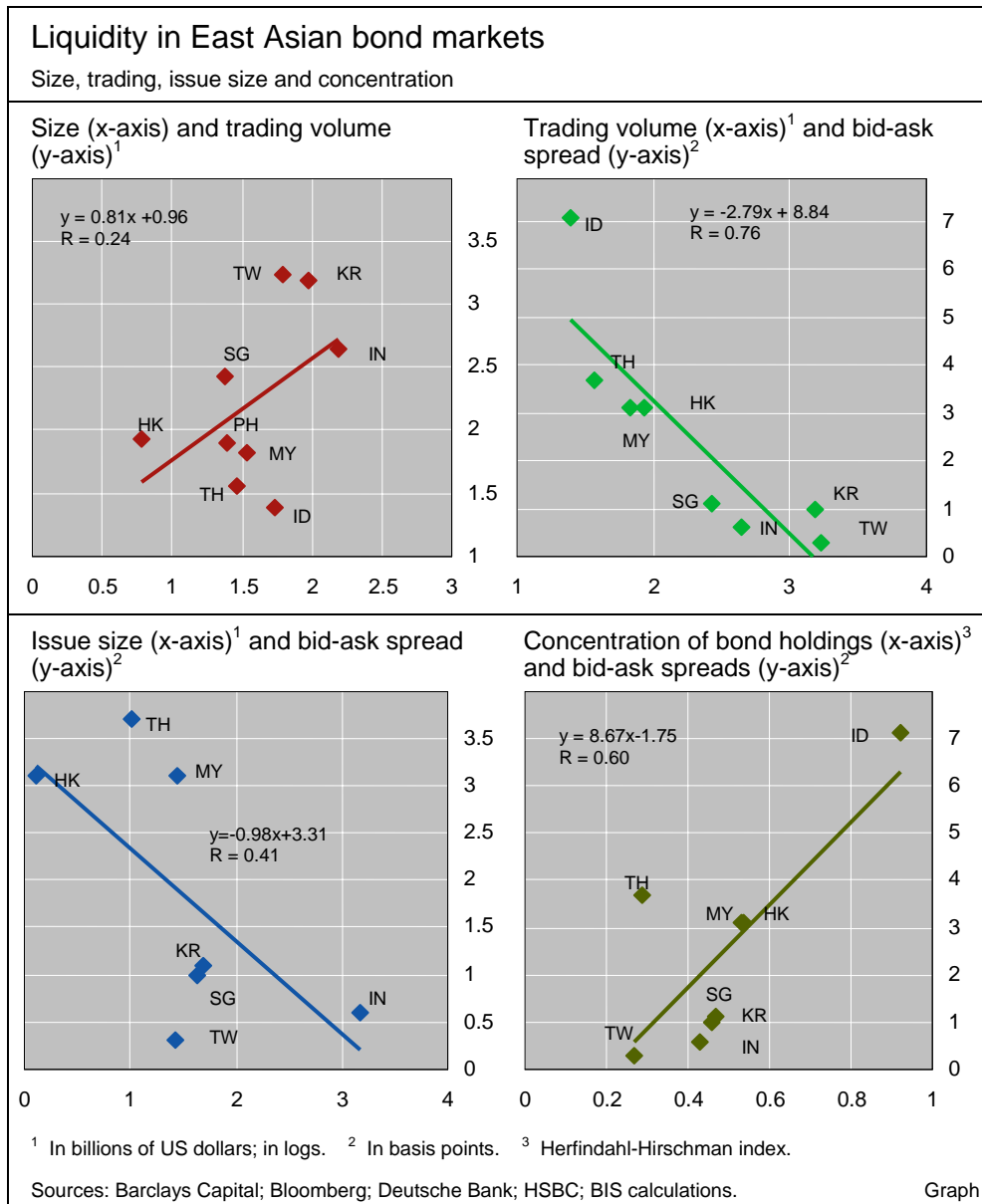
Lack of liquidity in domestic bond markets arises from two broad underlying causes. On the demand side, a narrow investor base, dominated by local banks or government funds and agencies, can diminish liquidity, especially if these market participants follow buy-and-hold strategies. On average, over half of Asian domestic debt securities are held by banks, a share that is significantly higher than that in developed economies. The lower right-hand quadrant on page 6 of the Handout suggests that concentration of bond holdings is associated with wider bid/offer spreads. Indonesia, for instance, has the highest concentration of bond holdings: 0.9 as measured by the Herfindahl-Hirschmann index; it also has the largest average bid/offer spreads of around 7 basis points. By contrast, Taiwan province of China and India, with Herfindahl-Hirschmann indices of considerably lower values, have much narrower bid/offer spreads.

**Chart 5**



On the supply side, there is evidence that liquidity can be deterred not just by the small size of individual issues but also by the small size of the bond market as a whole. BIS research into the operation of government bond futures markets and bid/offer spreads in the G 10 markets suggests that there is a size threshold of around \$100 – \$200 billion below which the costs of illiquidity increase markedly. In Asian countries, to judge from the top two panels on Chart 6, it seems fairly clear that the overall size of markets has been associated with greater market depth (characterised as higher trading volumes), which in turn is associated with tighter bid/offer spreads.

**Chart 6**



**Policy Options**

What can be done to promote greater liquidity in domestic bond markets? Of course, the two fundamental prerequisites for liquid, well-functioning domestic bond markets are good economic policies and good governance. If a country’s overall fiscal position is sustainable; if the tax system is well-designed and efficient; if government expenditures are well-controlled and directed at achieving public policy objectives that are widely accepted by the public; if the central bank is independent and accountable, it implements a monetary policy that has the clear goal of maintaining price stability; and if these policies foster confidence in the authorities’ firm commitment to maintain full convertibility of the domestic currency – if all these good policies are put in place and sustained, then both domestic and foreign residents will have the confidence to participate actively in a country’s domestic bond markets. Even more important as an underpinning for liquid domestic financial markets is good governance. If the government has a clear mandate from the public; if tax burdens and the allocation of government spending are seen as fair; if property rights are clear; and if the legal system is appropriate and effective – then both savers and investors will know that their investments are secure. So these two elements – good policies and good governance, are the sine qua non, not just of well-functioning bond markets, but of modern, open societies. Of course, I am



sure that these are elements that all of you in this room understand and appreciate. Rather than discuss them, I shall limit myself this morning to suggesting four specific, practical measures that could also play a role in developing liquidity in domestic bond markets.

First, governments can consolidate various forms of public sector debt under a single obligor. The issuance of separate public sector bonds under a variety of different names – the government, the central bank and other public agencies – raises questions about the nature of the government backing and guarantee, and it may serve to divide the market into relatively less liquid segments. Consolidating such debt under a single obligor – “lumping” as the jargon has it – can resolve these ambiguities and enhance liquidity. The cost of segmentation in the government bond markets offers a powerful incentive to consolidation. In Korea, for example, the 2-year monetary stabilisation bond has sometimes traded nearly 20 basis points above the 3-year Treasury bond, even though they enjoy the same explicit government guarantee.

Secondly, liquidity can be improved by concentrating government issuance in a limited number of benchmarks, reopening issues where necessary. While there is clearly a trade-off between the number of benchmarks available along the yield curve and the liquidity achieved in any one, estimates from developed countries suggest that savings of around 5–15 basis points can be achieved by a judicious grouping of benchmark issues. In Canada, quarterly reverse auctions are used to call back old loans before they mature in order to maintain a constant supply of benchmark issues. Many emerging markets have taken specific initiatives to develop benchmark issues: Thailand replaced a large amount of maturing bonds by reissuing them with existing terms and features; Singapore shifted to replacing a maturing security with a new issue with a similar tenor and fixing a minimum size for benchmark issues.

Thirdly, in my view, authorities should consider a more liberal attitude to short-selling. Many emerging markets continue to restrict this practice of selling a security that is not actually owned and “borrowing” it looks to finance the position. Yet to judge from the experience of industrial countries in the 1990s, the ability of investors to sell short significantly promotes market liquidity. The UK Financial Services Authority, in its review of short-selling activity, recognized that short-selling adds to pricing efficiency by bringing additional trading opportunities and liquidity to markets in general. The reasons frequently advanced to justify restrictions on short selling – such as fears about increasing leverage or concerns about local institutions’ risk management systems – point rather to the need for better supervision of the financial system.

Fourthly, central banks can also make an effective contribution to the liquidity of bond markets by using government and other high-grade securities as collateral for their lending operations. Repurchase transactions (“repos”) have less impact on markets than outright transactions because they do not directly affect bond prices. But the injection of good collateral into markets through central bank money market operations can provide a powerful stimulus to bond trading, significantly adding to liquidity and market depth. In the United Kingdom, there is evidence that the introduction of repo markets facilitated arbitrage along the securities yield curve, as reflected in a narrowing of the average gap between yields on outstanding securities and fitted yield curves.

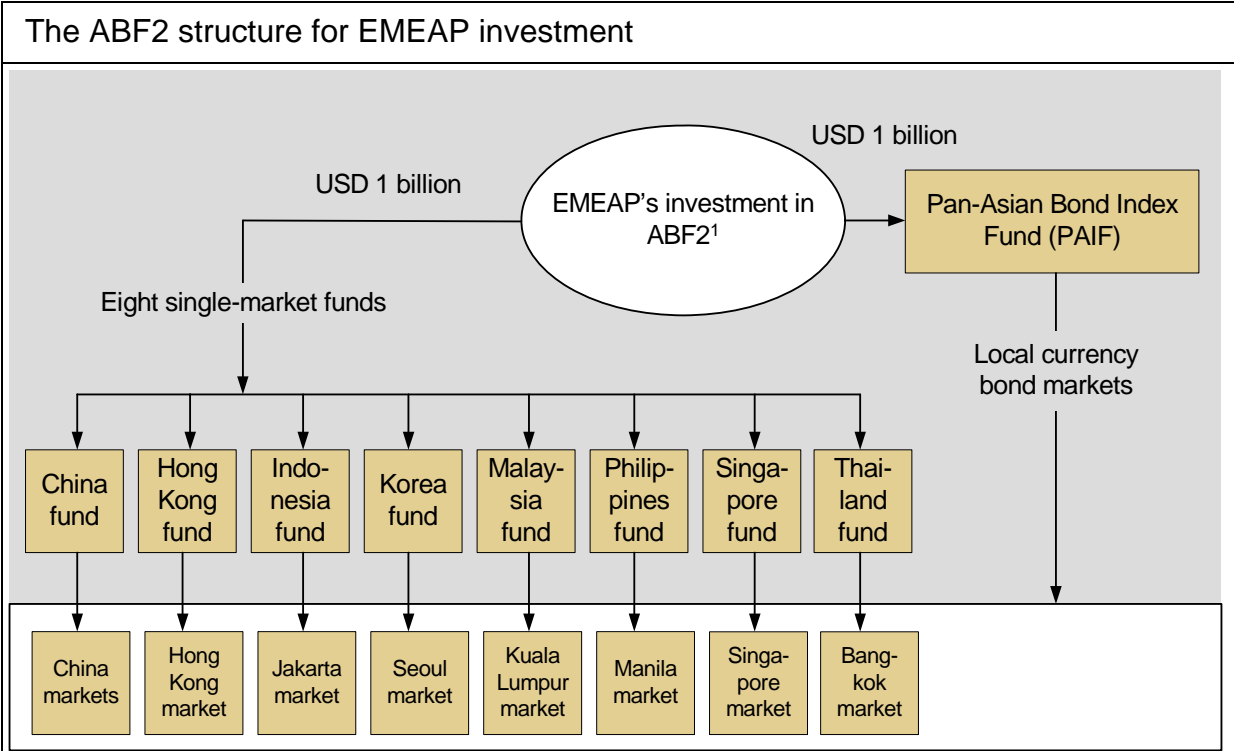
Let me conclude with some observations about a recent initiative to boost liquidity in local Asian bond markets. I said at the beginning of my remarks that despite a rapid expansion of these markets over the last decade, data on capital flows indicate that Asians have largely been investing in low-yielding foreign financial assets while residents of other regions have been buying higher-yielding domestic assets in Asia. Now Asian policy makers have responded by launching a number of co-operative initiatives, but perhaps the most intriguing is the Asian Bond Fund 2, a regional fund (for which the BIS has been appointed

administrator) established by the 11 monetary authorities of the Executives' Meeting of the East Asia and Pacific group<sup>1</sup> (or EMEAP as it is better known). In less than two years, this collaborative venture has identified – and in many cases addressed - myriad impediments to trading in local bond markets.

**A Case Study in the Promotion of Domestic Bond Markets: The Asian Bond Fund 2**

As you can see from Chart 7, ABF2 actually consists of nine separate funds: a Pan-Asian Bond Index Fund that invests in sovereign and quasi-sovereign domestic currency bonds in eight Asian markets; and eight single-national market funds each investing in the respective local market for government and government-guaranteed domestic currency bonds. These nine local currency-domestic bond funds, which are managed by private sector managers, replicate specific bond benchmarks provided by a third party. Although investments in ABF2 were initially confined to placements of official international reserves by the 11 EMEAP founders, the Fund is now being opened up to other institutional and retail investors.

**Chart 7**



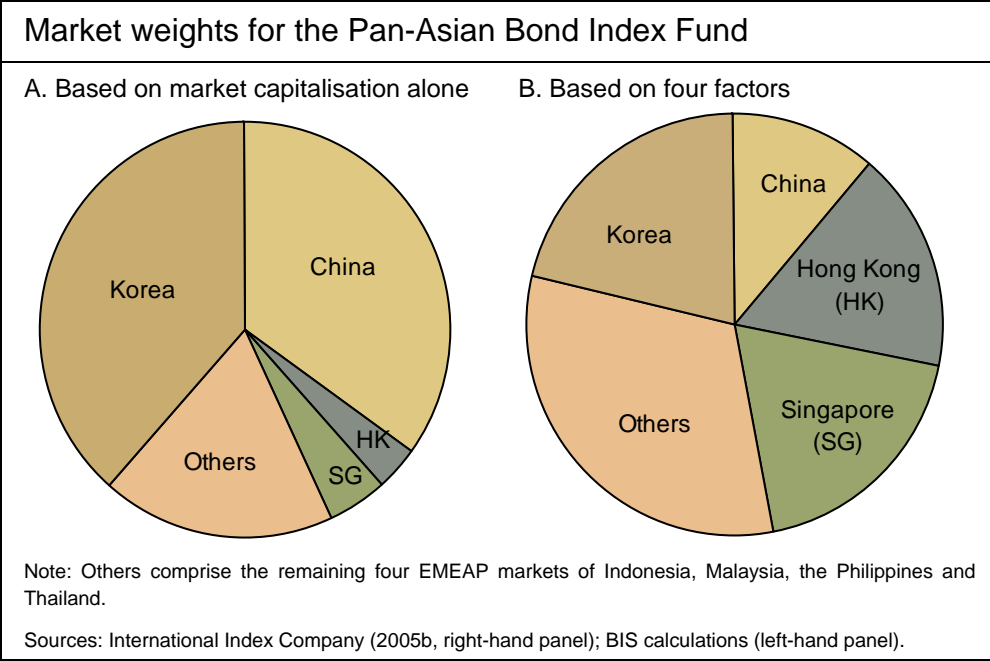
<sup>1</sup> The BIS acts as the fund administrator for the EMEAP's investment in ABF2. Figure

Despite its relatively modest size (some \$2.4 billion at present), ABF2 has proven to be unusually effective in promoting reform efforts within domestic bond markets. By bringing together officials from the EMEAP countries to discuss the practicalities of actually establishing these bond funds, the ABF initiative has helped to improve their understanding of idiosyncrasies in their own domestic markets and to identify in detail significant market impediments. In general, it has highlighted the importance of standardization of issues and the perils of segmentation. More specifically, ABF2 has prompted various countries to liberalise their capital control regimes – Malaysia, for example, has dismantled many of the

<sup>1</sup> The 11 EMEAP central banks and monetary authorities are the Reserve Bank of Australia, People's Bank of China, Hong Kong Monetary Authority, Bank Indonesia, Bank of Japan, Bank of Korea, Bank Negara Malaysia, Reserve Bank of New Zealand, Bangko Sentral ng Pilipinas, Monetary Authority of Singapore and Bank of Thailand.

restrictions that were introduced during the Asian crisis. Other measures have been introduced to reduce tax impediments: five out of eight participating countries have so far exempted non-residents investing in domestic sovereign or quasi-sovereign issues from withholding tax. And ABF2 has also fostered a better understanding among participants of each other’s regulatory framework, enabling a fund domiciled in one jurisdiction to be sold in another. For example, the Pan-Asian Bond Index Fund is domiciled in Singapore where it can take advantage of a variety of bilateral tax agreements between Singapore and other EMEAP members. Yet it has been initially listed in Hong Kong in recognition of the greater liquidity available in that market.

**Chart 8**



A particularly innovative aspect of ABF2 is a mechanism that helps to provide incentives for EMEAP countries to reduce market impediments in their jurisdictions. In determining the portfolio allocations within the Pan-Asian Bond Index Fund among the eight EMEAP markets, a significant weighting is given to “market openness”, which takes account of the extent to which capital controls and withholding taxes are still in place, the availability of hedging instruments and the effectiveness of clearing and settlement systems. Starting from an equal proportional allocation of the Pan-Asian Bond Fund for bonds issued in each local market, the allocation for bonds of a given domestic market will be increased over time if its “market openness” (as well as other lower-weighted factors) scores better than the averages for the other markets. Chart 8 shows that such weight adjustments can be significant.

Ladies and Gentlemen, the impressive expansion in domestic bond markets since the late 1990s has not only allowed governments and other borrowers to fund themselves more efficiently but has contributed to the overall stability of domestic financial systems. But these opportunities have been offset by a lack of liquidity, which often falls considerably short of that found in developed economies. Aside from more general considerations of taxation and accounting rules, there are a number of practical measures – consolidation of public sector issuers, concentration of issuance in benchmarks, more liberal treatment of short-selling, development of repo transactions – which experience elsewhere suggests could usefully stimulate market liquidity. The experience of the Asian Bond Fund 2 demonstrates how determined efforts to remove market impediments can achieve very concrete results within a surprisingly short timeframe.