

Unifying government bond markets in East Asia¹

One conclusion drawn by policymakers from the Asian crisis of 1997–98 is that broader and deeper domestic bond markets would serve to reduce the financial vulnerability of banks and firms to sudden shifts of risk perception on the part of global investors. Better able to sell domestic currency bonds, firms would be less likely to sell foreign currency bonds in order to obtain long-term funding. This would reduce the risk of introducing a mismatch between the currency of cash flows and debt. The temptation to finance long-term investments with short-term bank debt would also be lessened.

Another conclusion drawn is that higher levels of official foreign exchange reserves can likewise serve to reduce financial vulnerability. Asian economies with high reserves, namely China, Hong Kong SAR, Singapore and Taiwan, China (hereinafter Taiwan) seem to have been spared the worst effects of the crisis. Whether coincidence or cause, foreign exchange reserves in the region have since grown strongly (see Aizenmann and Marion (2002)).

These two conclusions are usually seen as complementary but distinct. In June 2003, a group of Asia-Pacific central banks announced that they would be investing about \$1 billion in dollar bonds issued by governments and quasi-governments from eight economies in the region. This highlighted the possibility of using the success in the build-up of reserves to advance the development of local bond markets. Indeed, at that time, the group, called the Executives' Meeting of East Asia-Pacific Central Banks and Monetary Authorities (EMEAP),² set its sights on establishing a second fund that would invest in the domestic currency bond markets: "After the launch of the US dollar Asian Bond Fund (ABF), the EMEAP Group will proceed to study the extension of the ABF concept to include bonds denominated in regional currencies, further strengthening the contribution of the initiative to the broadening and deepening of bond markets in the region".³

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² EMEAP comprises the monetary authorities of Australia, China, Hong Kong SAR, Indonesia, Japan, Korea, Malaysia, New Zealand, the Philippines, Singapore and Thailand.

³ See EMEAP (2003).

This special feature identifies a potential synergy between the growth of foreign exchange reserves and the development of regional bond markets. The synergy arises from the use of public obligations to finance (or to sterilise) holdings of foreign exchange reserves. The fact that these obligations have commonly taken the form of central bank debt, however, has meant that much of the opportunity for them to develop the bond market has been missed.

Drawing on Singapore's experience, one can envision how changes in debt management practices by governments, and corresponding changes in liability structures of central banks, could help realise the potential. In particular, the government can "overfund" its fiscal needs. Subsequent deposits of the proceeds in the central bank would then replace the central bank's liabilities to market participants. As side benefits, money markets in the region would gain better balance (in a sense defined below) and central banks would obtain sufficient government securities to allow the normal use of repurchase operations. The greatest impediment to the adoption of the proposal would probably be the natural reluctance of finance ministers to issue and parliaments to authorise the needed expansion of recognised government debt. The political commitment in the region to the development of regional bond markets could, however, overcome this.

This special feature focuses on East Asia, especially Indonesia, Korea, Malaysia, Taiwan and Thailand.⁴ In addition, The People's Bank of China, faced with the need to sterilise a significant increase in foreign exchange reserves, has also begun to issue substantial amounts of its own bills. Thus, consideration of mobilising government debt for this purpose is timely. India also seems to be reaching the stage at which other central banks have begun to issue their own liabilities in the past.⁵

The following sections outline the transactions needed to transform central bank debt to market participants into government debt proper, and the benefits to the bond market and to monetary operations of doing so. The next section discusses the issues that arise, including servicing the government deposit at the central bank, the duration of the extra government debt, implications for credit ratings and consistency with the government budgetary process.

Overfunding the fiscal deficit to transform central bank debt

To unify the domestic bond market, the government can "overfund" its own fiscal needs in order to replace debt issued by the central bank to market participants. First, the government sells more debt than it needs to finance any deficit and to roll over maturing issues (overfunding). This produces a cash surplus that the government places on deposit with the central bank, thereby

Transforming
central bank debt
into government
debt ...

⁴ Because Hong Kong SAR does not have a government debt, the argument of this special feature does not apply there. Similarly, it would not apply to Chile, where the central bank is the only issuer of public debt.

⁵ At the moment, however, the Reserve Bank of India does not seem to have legislative authority to issue its own debt securities.

| Mechanics of overfunding and refunding | |
|--|-------------------------------|
| <i>Government:</i> | |
| <i>Overfunds its deficits and places the proceeds on deposit with the central bank</i> | |
| Assets | Liabilities |
| + deposits due from the central bank | + government securities |
| <i>Central bank:</i> | |
| <i>The government deposits transform the balance sheet</i> | |
| Assets | Liabilities |
| Foreign exchange reserves | Monetary base |
| + government securities | + deposits due government |
| | – central bank debt to market |
| Table 1 | |

draining bank reserves. The central bank is then in a position to pay off its maturing obligations to market participants, thereby re-injecting bank reserves. From the standpoint of the private sector, this would essentially mean a swap of claims on the central bank for claims on the government. The case shown in Table 1 entails an overfunding of sufficient scale to permit the central bank to buy some government securities outright for further use in monetary operations.

... as seen in
Singapore

Singapore has recently engaged in such an operation. In order to develop its bond market, the Singapore government more than doubled its outstanding government securities, thereby raising the outstanding stock to 39% of GDP at end-2001, despite fiscal surpluses (see Lian (2002, p 184)). In fiscal 2001/02 and 2002/03, deposits placed by the government with the MAS grew by SGD 21.7 billion, mainly reflecting “the proceeds from the larger issuance of Singapore Government Securities through the [Monetary] Authority to the public and the Central Provident Fund Board”.⁶ This allowed “provisions and other liabilities” to fall by SGD 10.9 billion over the two years, “due largely to

| Selected changes to the Monetary Authority of Singapore's balance sheet, 2001/02–2002/03 | | | |
|--|---------|---------------------------------------|---------|
| In millions of Singapore dollars | | | |
| Assets | | Liabilities | |
| Foreign assets ¹ | +23,967 | Provisions and other liabilities | –10,866 |
| Singapore government securities | +118 | (“largely ... borrowings from banks”) | |
| | | Deposits of Singapore government | +21,699 |
| ¹ Includes SGD 15,986 from the merger of the Currency Fund on 1 October 2002. | | | Table 2 |

⁶ This and the following citations are from MAS (2002, 2003, p 62 and p 84, respectively).

the reduction in the Authority’s borrowings from banks as part of its money market operations”. At the same time, holdings of Singapore government securities (SGSs) by the MAS rose by SGD 118 million. “The increase was in line with the Authority’s policy to build up its portfolio of SGSs for more active use in repurchase transactions as part of its money market operations.” These transactions implied the changes shown in Table 2.

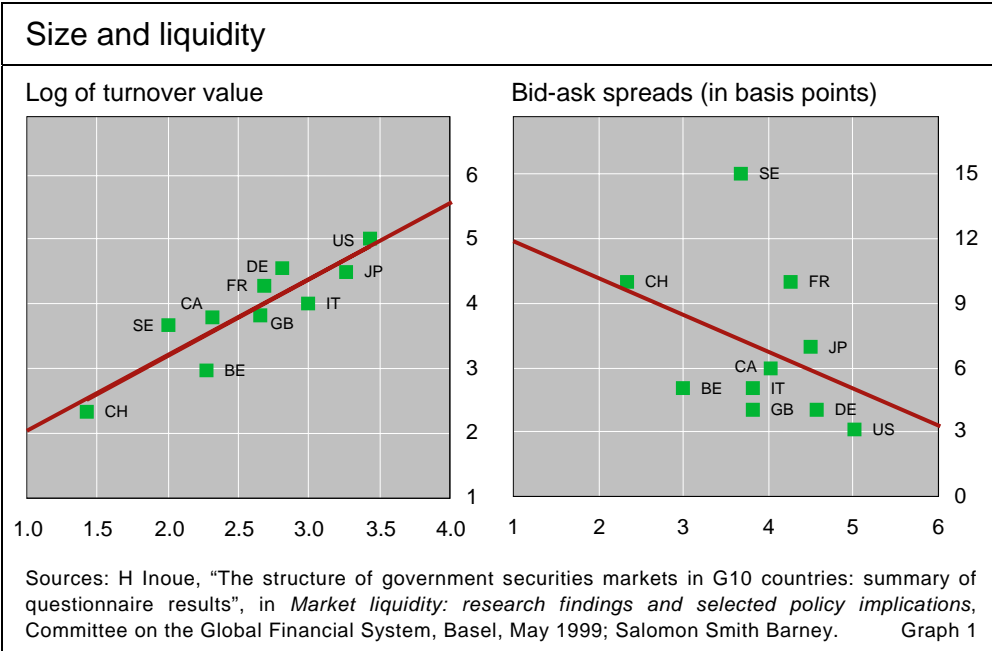
Benefits to the bond market and monetary operations

Significant benefits could be gained from the overfunding operation described in the previous section. The main benefit arises from the increased liquidity in the secondary market that could be fostered by consolidating all the public debt. In some Asian economies, the increase in the size of the government bond market could be significant, representing growth of anything from 137% to 222%. In aggregate, the five markets considered could be \$220 billion larger. In the next section, the general advantage that size provides for liquidity is elaborated. Measures are then offered for how much larger regional bond markets could be were central bank debt to be transformed into government debt.

Size and liquidity in government bond markets⁷

The relationship between the size and liquidity of government bond markets is complicated by the fact that size has several dimensions. In dealer markets, liquidity is generally supplied by market-makers, who not only provide quotes but also take positions. How far size matters for liquidity thus hinges on the various economies of scale in market-making. The size of individual issues

Larger size leads to more trading and greater liquidity ...



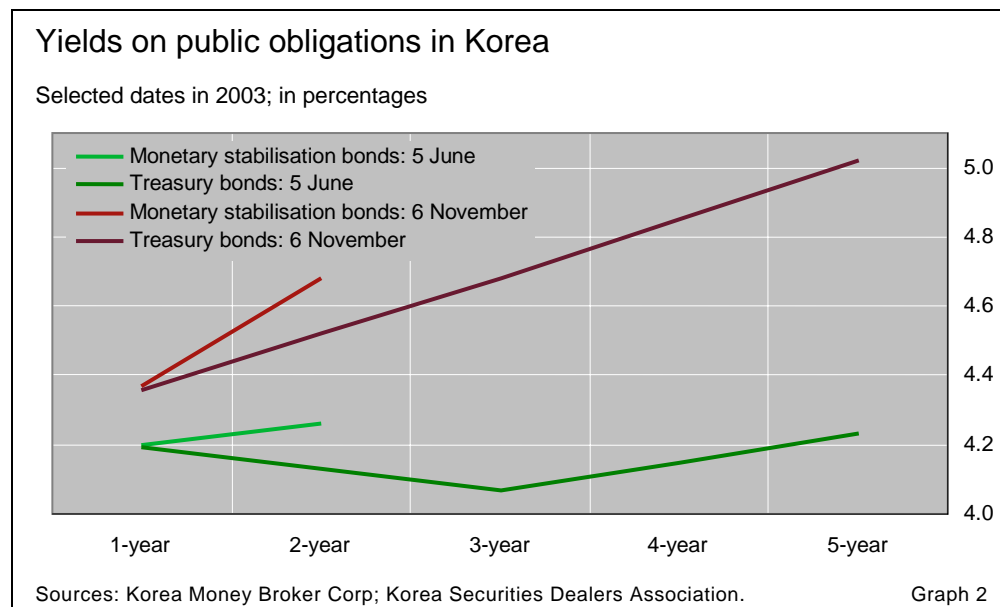
⁷ This section draws on McCauley and Remolona (2000).

matters and debt managers can attain larger sizes by concentrating issuance in fewer maturities, holding auctions less frequently or reopening issues, and buying back illiquid issues. In addition, the overall size of the market matters. One economy of scale arises from market-makers' assembling information about the future path of interest rates. The cost of this in a \$500 billion government bond market is not likely to be 10 times its cost in a \$50 billion bond market. Similarly, if the extraction of information from order flows entails economies of scale, then overall trading activity may also matter.

The evidence from G10 bond markets suggests that size does make a difference to the liquidity of government bond markets (Graph 1), though it is not the only factor of importance.⁸ The larger the outstanding stock of publicly issued central government debt, the higher the turnover in cash and futures trading. And the higher the turnover, the better the liquidity as measured by the tightness of the bid-ask spread.⁹ Nevertheless, other factors also play a role. These include: holdings by government accounts and other "buy and hold" investors; the concentration of outstanding debt in benchmark issues; the industrial organisation of the dealers and construction of trading platforms; taxes; arrangements for sale and repurchase; and the efficiency of clearing and settlement systems (see CGFS (1999b)).

The benefit of consolidating central bank and government debt can be illustrated by the case of Korea. The fact that central bank and government bonds of the same maturity do not trade with identical yields suggests that having two sovereign issuers reduces liquidity. The Bank of Korea sells monetary stabilisation bonds of a maturity of up to two years, while treasury bonds extend out to five or 10 years. Where the two debt programmes overlap,

... as illustrated by yields on central bank and government debt in Korea



⁸ See CGFS (1999a).

⁹ The bid-ask spread measures only one dimension of liquidity, since it does not capture market depth or resilience in respect of absorbing large orders. See CGFS (1999a,b) and Borio (2000) for a discussion.

| Potential increase in size of government bond markets | | | | | |
|---|-----------------------------|------------|-----------------------------|------------|--|
| | Government bond market size | | Central bank debt to market | | <i>Memo: Size of combined market as a % of current</i> |
| | Domestic currency | \$ billion | Domestic currency | \$ billion | |
| Indonesia ¹ | 398.2 trillion | 47.1 | 147.3 trillion | 17.3 | 137 |
| Korea ² | 81.5 trillion | 69.0 | 98.9 trillion | 84.0 | 222 |
| Malaysia ³ | 109.6 billion | 28.8 | 77.9 billion | 20.5 | 171 |
| Taiwan, China ¹ | 2.5 trillion | 73.5 | 2.8 trillion | 82.4 | 212 |
| Thailand ² | 1,269.5 billion | 30.5 | 648.0 billion | 15.6 | 151 |
| Total | . | 248.9 | . | 219.8 | 188 |

Note: Central bank debt: for Indonesia, Bank Indonesia certificates, August 2003; for Korea, monetary stabilisation bonds (MSBs), August 2003; for Malaysia, Central Bank of Malaysia bills/bonds and net deposits of banks, finance companies and merchant banks with Central Bank of Malaysia other than statutory reserves, September 2003; for Taiwan, China, negotiable certificates of deposit (NCDs), September 2003; for Thailand, net borrowing under repo from banks and other financial institutions, Bank of Thailand net forward sales of baht, and Bank of Thailand bonds, August 2003.

¹ End-September 2003. ² End-July 2003. ³ End-December 2002.

Sources: CEIC; national data.

Table 3

for instance at the one-year maturity, the yields are often not identical (Graph 2). The fact that they are not identical despite the practical identity of the issuers' credit standing points to their trading as separate instruments. If they were lumped together into a single instrument, it might trade at a yield lower than either one: liquidity divided is liquidity lost. Another observation that suggests the loss of liquidity from two sovereign issuers is the small, often negative, difference between the yield on the very liquid three-year bond (served by a successful futures contract) and the two-year monetary stabilisation bond. Confronted by such a strong demand for a benchmark issue, a single debt manager might well issue more three-year bonds and fewer two-year bonds.

The case of Korea suggests that transforming central bank debt into debt of longer maturity might be particularly advantageous in that it would allow greater issuance at longer benchmark maturities. But it also suggests that market functioning would be improved even if government debt simply replaced central bank debt at the shorter maturities characteristic of the latter.

Prospective increase in the size of government bond markets in East Asia

How much of a difference would the transformation of central bank debt into government debt make to the government bond markets in East Asia? The answer varies across the region. The potential stock of government debt would be a third as high again as its current level in Indonesia, half as high again as its current level in Malaysia and Thailand (Graph 3), and more than twice its current level in Korea and Taiwan (Table 3 and Graph 4). This could make a substantial difference to liquidity. For instance, Malaysia's bond market is dominated by such buy and hold investors as the provident fund (see Harun (2002)). Were the level of government debt to rise by 50%, a significant amount of this debt might be available for trading by more active accounts.

Debt consolidation would substantially increase the size of government bond markets ...

Monetary policy operations and the repo market

... and permit central banks to acquire government debt for operations

Three related advantages pertaining to monetary operations would arise from the transformation of central bank liabilities into explicit government debt. Such a step would help rebalance monetary operations, would allow the central bank to engage in reversed transactions against government bonds and would thereby help to develop the bond market further.

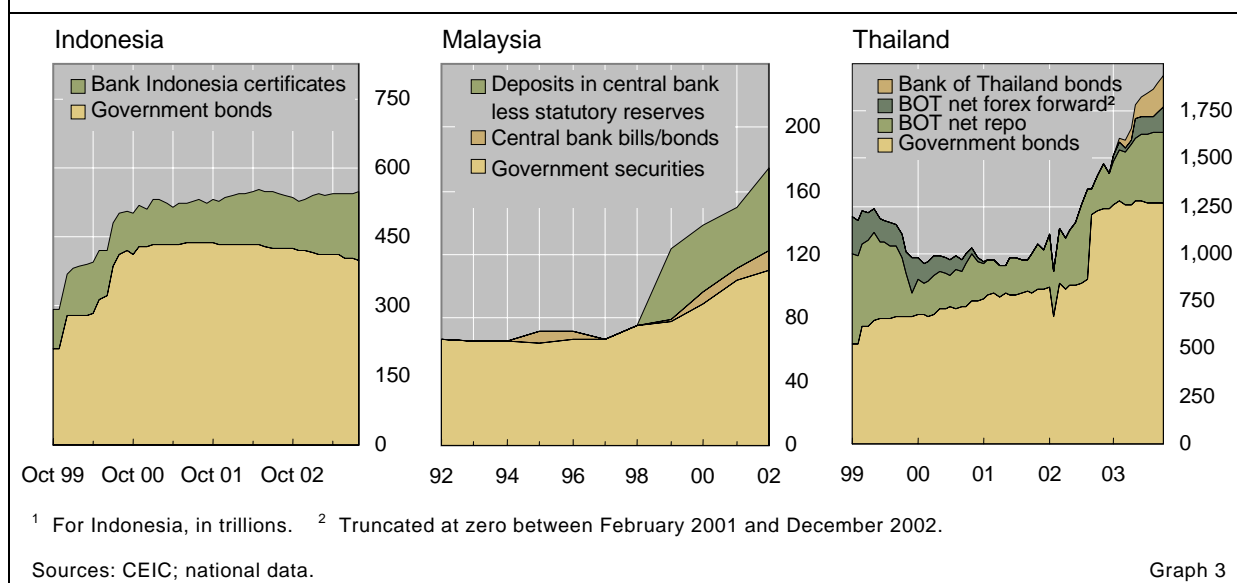
First, the central bank could have a firmer influence over short-term rates if the structural balance in the money market could be shifted from structural surplus to deficit. At present, redemptions of maturing central bank debt and interest payments on such debt represent predetermined injections of bank reserves that must be offset by active draining operations. Sufficient overfunding, and the stability of the government's deposit with the central bank, could make the money market structurally short of funds and therefore dependent on regular injections of reserves by the central bank. While it is not technically necessary for effective policy implementation, most central bankers instinctively prefer a situation where market participants need to come to the central bank for funding.

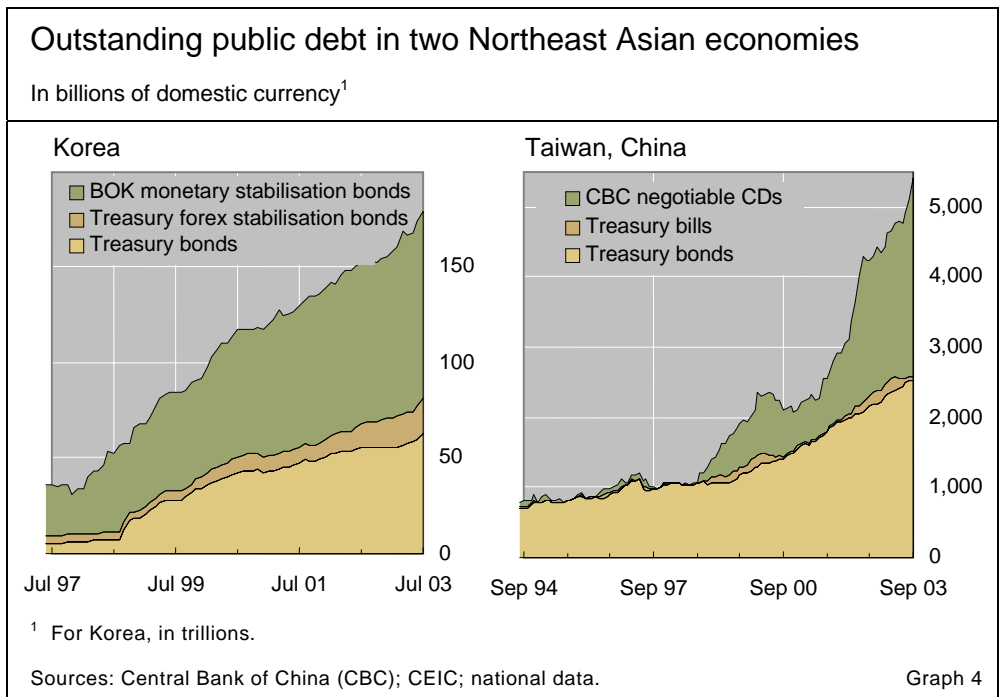
Second, sufficient overfunding would give the central bank a substantial holding of government paper. This would permit it to carry out reversed transactions (repos and reverse repos) against government securities, either to drain or to inject bank reserves. Moreover, to the extent that the central bank can encourage the development of a repo market, not only for its own operations but also among market participants themselves, it would lead the banking system away from outright and towards collateralised interbank transactions. This can enhance counterparty risk management.

Third, development of a deep and liquid repo market that benefits from central bank operations is conducive to the increased depth and liquidity of the

Outstanding public debt in three Southeast Asian economies

In billions of domestic currency¹





government bond market more generally. Short positions become easier to fund and smaller securities firms find it easier to finance themselves. This would contribute to a broadening of the dealer market and more active trading.

Issues to be resolved

A number of practical issues need to be resolved before central bank debt can be transformed into government debt. First, there is the question of what yield the central bank should pay on the government deposits. Available models include profit-sharing and fixed returns.¹⁰ A second issue is the choice of duration of the government securities used to finance foreign exchange reserves. This choice should be considered along with the choice of duration of the international reserve holdings. A third issue is whether rating agencies might see the larger gross stock of government debt as a negative for the sovereign rating. This would happen if the rating agencies looked strictly at the reported gross debt of the government. In contrast, they should be encouraged to put more emphasis on a net concept, recognising that the government's deposits with the central bank (and ultimately the foreign exchange reserves) are assets to be accounted for. A final issue is reconciling the uncertain extent of sterilisation in a year with the prior authorisation of government debt in the budget cycle (an issue in Japan today, where foreign exchange reserves are financed at the margin by government debt issues). Central bank debt might be issued in the first instance, and subsequently transformed in the next budget year.

Servicing the government deposit ...

... choice of duration ...

... reaction of rating agencies ...

... and integration with the budget cycle

¹⁰ The HKMA (2003) remunerates different government deposits on both bases. The Bank of Thailand would require legislation to enable it to remunerate government deposits. For practice across industrial countries, see Borio (1997, pp 60–62).

As difficult as these issues might be to resolve, probably the greatest impediment to the consolidation of central bank and government debt is the natural reluctance of finance ministers to increase outstanding debt for which they are explicitly responsible. This may be grounded in the fear of seeming to make a virtue out of more government debt, thus opening the door to further spending or tax cutting. The legislature, for its part, may distrust the argument that the increase in public debt will have as its counterpart a deposit at the central bank. This may seem an unstable bargain, with the government then being able to draw down the deposit at will to meet some unanticipated need without having to go to the legislature to authorise an increase in debt (see Smith (1937)). As the reference to rating agencies above suggests, however, market discipline substitutes in some measure for the legal discipline of setting debt ceilings.

Conclusions

If these issues can be resolved, then the central bank debt that has financed large holdings of foreign exchange reserves could be consolidated with government debt. In particular, issuing government debt beyond the need of the public sector borrowing requirement could finance a government deposit with the central bank. This would allow a run-off of central bank liabilities.

The benefits from lumping central bank liabilities into government debt are likely to be substantial. Government bond markets could grow to anywhere from 137% to 222% of their current size. Properly handled, such an increase would make these bond markets more liquid and thereby more attractive to investors.

References

Aizenmann, J and N Marion (2002): "The high demand for international reserves in the Far East: what's going on?", *NBER Working Papers*, no 9266, October.

Borio, C (1997): *The implementation of monetary policy in industrial countries: a survey*, *BIS Economic Papers*, no 47 (July).

——— (2000): "Market liquidity and stress: selected issues and policy implications", *BIS Quarterly Review*, November, pp 38–48.

Committee on the Global Financial System (1999a): "Market liquidity: research findings and selected policy implications", *CGFS Working Group Reports*, no 11, May.

——— (1999b): "How should we design deep and liquid markets? The case of government securities", *CGFS publications*, no 13, October.

Executives' Meeting of East Asia-Pacific Central Banks and Monetary Authorities (2003): "EMEAP central banks to launch Asian Bond Fund", 2 June, www.emeap.org.

Harun, S (2002): “The development of debt markets in Malaysia”, in *BIS Papers*, no 11, June, pp 147–50.

Hong Kong Monetary Authority (2003): *Annual Report 2002*.

Lian, T S (2002): “Debt market development in Singapore”, in *BIS Papers*, no 11, June, pp 183–89.

McCauley, R N and E Remolona (2000): “Size and liquidity in government bond markets”, *BIS Quarterly Review*, November, pp 52–8.

Monetary Authority of Singapore (2002): *Annual Report 2001/2002*, August.

——— (2003): *Annual Report 2002/2003*, August.

Smith, A (1937): *The wealth of nations*, New York, Modern Library, book 5, chapter 3, “Of public debts”.