

The costs and benefits of developing debt markets: Hong Kong's experience¹

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1. Introduction

In the aftermath of the Asian financial crisis, the role of the debt market has received increased attention. A common view, shared and advocated by Asian policymakers, has been the need to promote the development of local as well as regional debt markets as part of the response to the crisis. This view is based on the belief that the crisis was caused in part by the over-reliance of Asian corporations on the banking system for short-term, often foreign currency denominated, funding.² Such capital flows were highly volatile, and led to currency and financial sector crises when large inflows suddenly reversed. Since Asian economies had the highest savings rates in the world, corporations would not have needed to resort to banks for such foreign capital flows for financing if local debt markets had existed to channel more savings into domestic investment. This paper sheds some light on the rationale for developing the Hong Kong debt market from the perspectives of macroeconomic stability and microeconomic efficiency. Section 2 gives an overview of the financing channels in Hong Kong. Section 3 discusses how well the debt market could function as an alternative source of financing. Section 4 examines how development of the debt market could improve the efficiency of financial intermediation. Section 5 concludes by looking at policy implications.

2. Financing channels in Hong Kong

Bank lending and equity and bond issuance are the main vehicles for corporate fund-raising and channelling savings. Several features of these financing channels in Hong Kong are notable.

Bank lending and equity financing in Hong Kong dominate corporate financing. Savings - which are high by international standards - are mostly channelled through the banking system and the equity market. This is similar to other Asian economies, but significantly different from the United States and several Latin American countries, where direct financing from the capital markets (stock and bond markets) dominates indirect financing intermediated by commercial banks

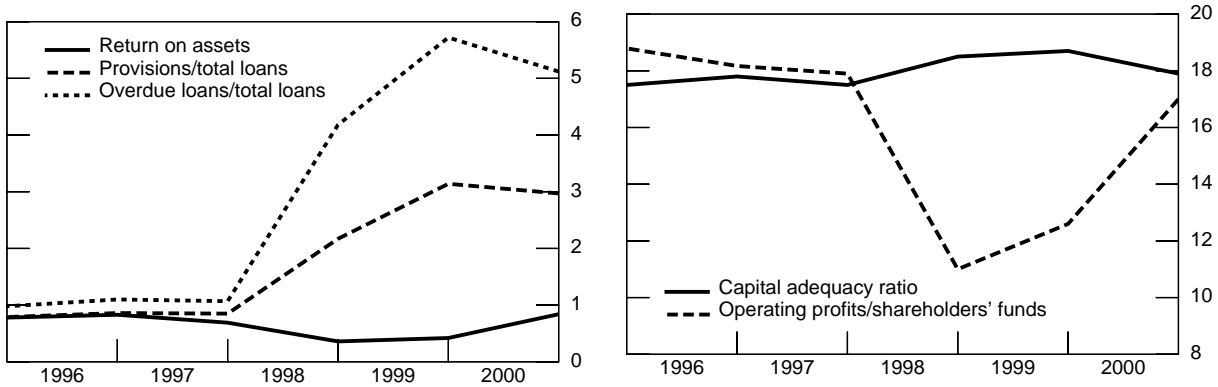
The banking system in Hong Kong is well supervised, and proved to be resilient to external shocks during the Asian financial crisis (Graph 1). Although the non-performing loan ratio jumped after the crisis from 1% of total loans during 1995-97 to over 5% in 1999, provisions increased and returns on assets declined, banks remained well capitalised at about 18% throughout the period. By 2000, indicators of banking sector performance started to improve again.

¹ This is an edited version of the paper "Cost-benefit analysis of developing bond markets", published in the November 2001 issue of the *Hong Kong Monetary Authority Quarterly Bulletin*.

² One explanation for the overreliance of Asian economies on short-term, foreign currency denominated funding, offered by Eichengreen and Hausmann (1999), is that the incompleteness of financial markets, which they term "original sin", resulted in the inability to borrow abroad in domestic currency or to borrow long-term domestically. This led to financial fragility because of the currency and maturity mismatches for domestic investment and was exacerbated by a weak banking system, which has shown its inability to intermediate savings to investment efficiently in many of the Asian economies. As a result, dollarisation and the development of a domestic debt market have been proposed as solutions to the currency and maturity mismatches.

Graph 1
Performance of Hong Kong's banking sector

In percentages



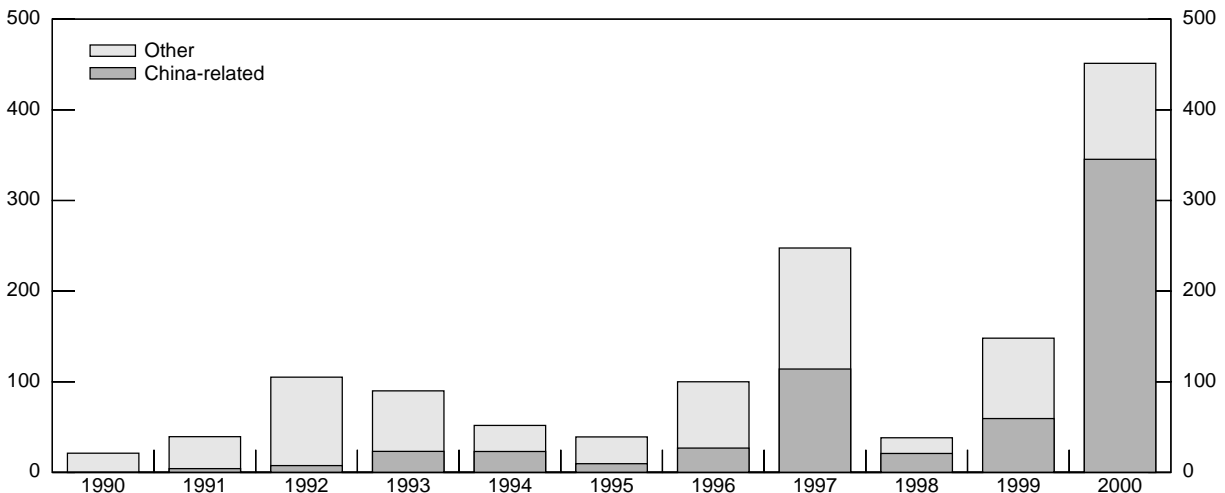
Notes: Figures are for all authorised institutions in Hong Kong except operating profit/shareholders' funds and the capital adequacy ratio, which refer to local banks only. Up to 1998, overdue loans include loans overdue for more than three months and bills and rescheduled loans. Thereafter, overdue loans include loans overdue for more than three months and rescheduled loans, excluding loans also reported under loans overdue for more than three months.

Source: HKMA.

The stock market has been functioning well in Hong Kong, channelling substantial amounts of finance to the corporate sector. Although equity prices have been quite volatile, they have outperformed US equities over the past decade. Market capitalisation has more than doubled since 1990, reaching 377% of GDP in 2000. Total equity funds raised on the main board increased from HK\$ 20 billion in 1990 to HK\$ 450 billion in 2000, while China-related entities raised a record HK\$ 345 billion from the Hong Kong stock market in 2000. Even excluding the funds raised by China-related entities, the amount of funds raised for Hong Kong corporations increased fourfold over the past decade (Graph 2). Despite the rapid growth in market capitalisation and impressive long-term returns to investors, price-earnings ratios have been modest, generally fluctuating in the range of 10-20. The average P/E ratio of 15.7 was lower than the post-World War II average value of 17 for US stocks. The earnings growth of listed companies averaged 18% per year over the past decade (Graph 3).

Graph 2
Total equity funds raised in the main board, 1990–2000

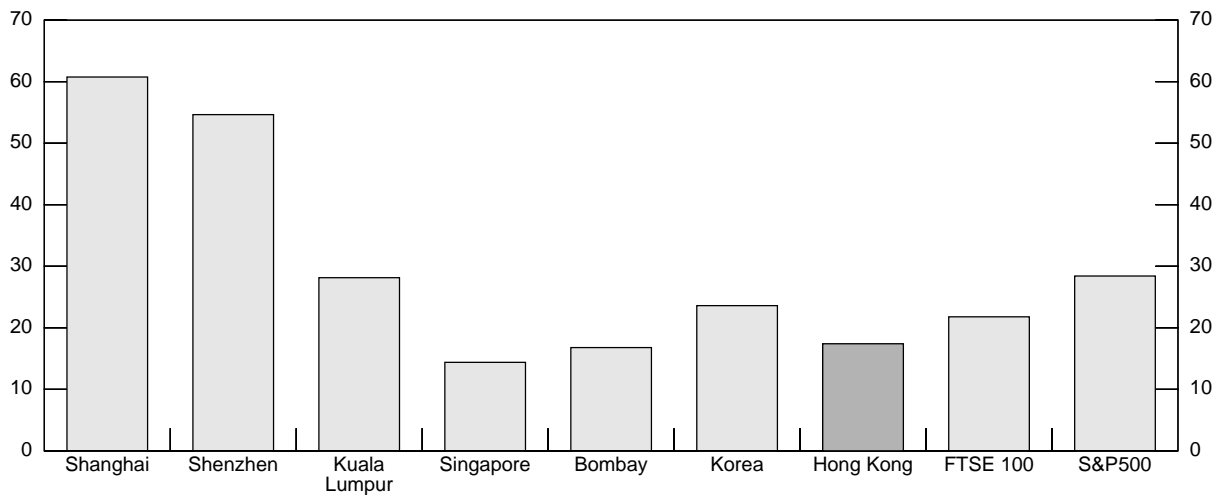
In billions of Hong Kong dollars



Source: Hong Kong Exchanges and Clearing Limited.

Graph 3

P/E ratios of selected stock markets



Note: P/E ratios are at end-May 2001, except for Shanghai and the S&P 500, which are at 30 April and 20 June respectively.

Sources: CEIC; Bloomberg.

Overall, the banking sector in Hong Kong has been functioning well in providing financial intermediation, and the stock market has provided an effective alternative source of funding to bank lending for long-term, non-debt-creating financing in the local currency. The stock market also improves corporate governance by protecting minority shareholders' rights in listed companies and ensuring that transparent accounting and auditing standards are followed (see Cheung (2000)). The rest of the paper studies what major potential gains and costs may arise from the development of the local debt market in Hong Kong, drawing from international experience.

3. Debt market as an alternative source of financing

Finance plays an increasingly important role in economic growth. In channelling savings to investment, the financial system contributes to economic performance through several channels - mobilising savings, allocating funds to their most productive uses, monitoring managers and transferring and sharing risks (see World Bank (2001)). In modern economies, disruptions in the flow of credit are detrimental to economic activity and lead to unemployment, cancelled investment plans and even recession. Capital account liberalisation and increasing globalisation add an international dimension for capital flows.

The development of debt markets might mitigate the adverse impact of financial crises or reduce the likelihood that a crisis will happen. The reasoning is that bond markets could provide an alternative source of financing if other financing channels, such as bank financing, dry up. Greenspan (2000) stressed the importance of having multiple avenues of financial intermediation, which served the United States well during the credit crunch of the late 1980s when bond markets substituted for the loss of bank financial intermediation in a banking system crisis related to the real estate cycle. This view has gained popularity in recent years, especially in the aftermath of the Asian financial crisis. However, whether the bond market constitutes such an effective alternative source of financing depends crucially on there not being a high co-movement between bank lending, bond and equity financing in a domestic setting, and the absence of contagion in the international capital markets, especially for countries with open capital accounts.

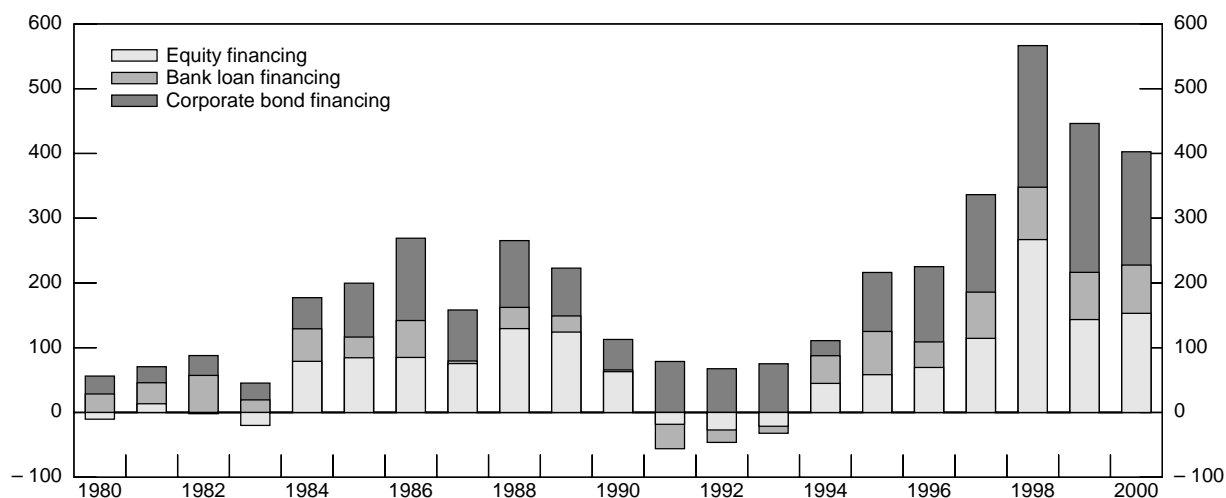
In the international setting, a large body of literature has examined the effect of contagion and the channels for transmission in emerging markets, both theoretically and empirically, since the 1997 Asian financial crisis (eg Pritsker (2000) and Hernandez and Valdes (2001)).³ Contagion has been defined broadly as the transmission of shocks in one economy (or one sector) to another not explained by changes in economic fundamentals. Though it is difficult to control for fundamentals in empirical studies, contagion could occur through a number of channels, including the real sector, financial markets and financial institutions, and through the interaction of financial institutions and financial markets. Empirical studies have found increasing evidence indicating the importance of financial factors in spreading the shocks, in addition to real sector linkages such as similar macroeconomic fundamentals and trade flows. One implication of the important role financial contagion plays in crises is that financial markets, including the debt market, could provide a mechanism through which financial crises spread. This challenges the view that debt markets are likely to mitigate the negative effects of crises by providing an alternative source of financing at times of stress.

In this section, we look at a number of country experiences during financial crises, which suggest that debt markets could provide either an alternative source of financing (Box 1 and Graph 4) or a channel through which contagion spreads (Box 2). A simple panel regression is estimated to study the potential for the domestic debt market to function as an alternative source of financing.

The experience of US bond markets during two banking crises - one resulting from the Latin American debt crisis in the 1980s and the other from the real estate crisis of 1990 - showed how bond markets can provide an alternative source of financing in a domestic setting (Box 1 and Graph 4). During these periods, the US banking sector suffered large losses that reduced its capital base drastically and severely curtailed its ability to lend. The ensuing liquidity crunch substantially reduced bank credit to US corporations. The US domestic bond markets, to varying degrees, functioned as alternative sources of financing for corporations when the banking sector was under stress.

Graph 4
Funds raised by US corporates

In billions of US dollars



Notes: US non-farm and non-financial corporations. Net funds raised by US corporates are measured in terms of flow-of-funds statistics calculated as the difference in outstanding amounts of different time periods.

Source: Federal Reserve Bulletin (Flow of Funds).

³ The earlier literature focuses on the characteristics of the linkages of financial markets, especially after the October 1987 stock market crash in the United States. These studies find that there is an increase in the interdependence of national equity markets, and high levels of correlation between national equity markets during times of market stress. The spillover effects are found to be asymmetric - negative shocks in one market had a larger effect on volatility in another market than positive shocks. Recent studies, such as Clare and Lekkos (2000), of the correlation between national bond markets in Germany, the United Kingdom and the United States found similar results - the linkages between these markets become stronger at times of market stress.

The US bond market during two banking crises

Latin American debt crisis in the 1980s

The debt crisis in less developed countries (LDCs) broke out in August 1982, when Mexico was unable to service its outstanding debt to US commercial banks. The situation continued to worsen and, by 1983, 27 countries owing US\$ 239 billion could not meet their debt obligations. Sixteen of them were in Latin America and the four largest - Mexico, Brazil, Venezuela, and Argentina - owed about 75% (about \$176 billion) of the total LDC debt outstanding. This crisis was largely attributable to the overexposure of major US commercial banks to LDCs, which were eager to expand their overseas markets amid strong local competition. LDCs, especially rapidly growing Latin American countries with low domestic savings rates, needed external funding to finance investment activities.

The oil price increases in 1979, rising interest rates in the United States and a strengthening dollar in the early 1980s severely affected the LDCs' capacity to service their debt, triggering the crisis. The US banking system was at risk, as by end-1982 major US commercial banks' exposure to the LDCs represented about 250% of their capital. Massive loan losses on LDC debt led to a sharp reduction in bank lending - bank loans to US non-farm and non-financial corporations tumbled to \$19 billion in 1983, down 66% from 1982 (Graph 4).

Commercial real estate crisis of the late 1980s - early 1990s

The banking crisis in the late 1980s and early 1990s was a result of aggressive lending to the commercial real estate industry. Against the backdrop of the unanticipated and sharp rise in inflation in the late 1970s, there was a strong speculative demand for commercial real estate, especially in the office sector. Many commercial banks were active in real estate lending, partly owing to the large up-front fees. From 1980 to 1990, commercial real estate loans increased from \$64 billion to \$238 billion.

Starting in the late 1980s and continuing into the early 1990s, the credit quality of real estate loans deteriorated rapidly, as the 1990-91 recession reduced the demand for commercial space, resulting in sharp falls in rents and prices. The downturn in the real estate sector was compounded by loose underwriting standards of commercial banks focusing on collateral values, and the closing of insolvent savings and loan institutions. As a result, many banks failed or suffered heavy losses. The ensuing contraction of loan financing for corporations became inevitable. Borrowing from banks by US corporations dropped from \$32 billion in 1988 to a net repayment of \$38 billion in 1991.

Multiple avenues of financial intermediation

One feature of the US financial system is the availability of multiple avenues of financial intermediation. During the above two banking crises, the existence of different sources of financial intermediation served the United States well. The liquidity crunch in the wake of banking crises, caused by either external (the LDC debt crisis) or domestic (commercial real estate crisis) shocks, threatened to disrupt normal credit flows in the economy, which could have had severe adverse effects on the real economy. In the event, cutbacks in bank loans after 1982 and the early 1990s were substituted by increases in bond financing (Graph 4). The fact that no particular increases in the yields of investment grade corporate bonds were observed when the bond market took over from the banking sector as a source for corporate financing demonstrates the smooth functioning of the bond market. Had a functional debt market not existed, corporations could have been more vulnerable to the banking crises.

In contrast, the experience of several emerging economies that went through financial crises did not show strong evidence that debt markets functioned as an alternative source of financing (Box 2). The bond markets in Argentina, Brazil, Russia and Turkey did not help to reduce the volatility during crises - on the contrary, the bond markets usually were the first markets to collapse under pressure and seemed to be a channel for spreading financial contagion. One possible explanation is that banks have more information about individual borrowers than bondholders do. As a result, bondholders tend to act quickly on the same information - they are more likely to exhibit herding behaviour than the banks. Such herding behaviour could be rational given imperfect information (see Bikhchandani and Sharma (2000)).

Empirical analysis

Most of the available empirical studies have focused on financial contagion across countries and have provided evidence on the role played by debt markets as alternative sources of financing in an international setting. However, the degree of co-movement of domestic bank financing and bond and equity issuance remains an important question, particularly in judging the effectiveness of the local debt market as an alternative source of financing in a domestic setting.

Jiang et al (2001) present the detailed result of a regression study using the database on financial development and structure, constructed by Beck et al (1999) at the World Bank. In the first model, the dependent variable is the growth rate of the ratio of long-term private debt issues to GDP. The independent variables include bank lending (measured by the growth rate of the ratio of domestic credit to the private sector to GDP), the growth rate of the ratio of equity issues to GDP, a lagged dependent variable, and the growth rate of real GDP. The last variable is included to account for the fact that if the economy is in a recession, total demand for financing is likely to be reduced irrespective of funding availability. In the second model, the dependent variable is the growth rate of bank lending. The independent variables include growth rates of bond and equity issuance, bank profitability, the output gap, the risk spread over US Treasuries and a lagged dependent variable. This model examines the relationship between bank lending and bond issuance, after controlling for some of the common factors affecting bank lending. A group of 32 economies⁴ is covered for the period of 1981-95 for the first model. Only 13 OECD countries are covered for the second model, owing to limited data availability.

The panel regression results indicate evidence for the co-movements of bank lending and bond issuance. In particular, under most model specifications, increases in bond issuance are associated with increases in bank lending, while the coefficients on equity issuance are also positive but not significant. Under the first model, the relationship is even stronger for OECD countries than for non-OECD countries, though the quality and availability of data on the latter country group may have contributed to this result. Higher real GDP growth has the expected positive effect on bond issuance. Under the second model, we also find that bond issuance is positively related to bank lending, after the effects of bank profitability, output gap and risk spreads are taken into account.

⁴ Argentina, Austria, Brazil, Canada, Chile, China, Colombia, France, Germany, Greece, Hong Kong, India, Indonesia, Italy, Japan, Jordan, Korea, Luxembourg, Malaysia, Mexico, the Netherlands, Peru, Philippines, Portugal, Spain, Switzerland, Thailand, Tunisia, Turkey, the United Kingdom, the United States and Venezuela.

Box 2

Bond markets in emerging economies during recent financial crises

The underlying causes of the recent financial crises were the deterioration in the external environment (eg the US economic slowdown, a tightening of liquidity conditions in industrial countries, or adverse commodity price movements) and individual country weakness in policies (such as incompatible fiscal, monetary and exchange rate policies and fragile financial sectors). However, developments in the international and domestic bond markets played an important role.

Russia - August 1998

In August 1998 the Russian government devalued the rouble and unilaterally restructured its domestic debt. The crisis had its root in the large and chronic fiscal deficit. This led to a rapid build-up of government debt, held by domestic as well as foreign investors. By late 1997, rouble-denominated instruments were the main ones issued by the Ministry of Finance to finance the deficit, with non-resident investors holding about one third of the outstanding domestic securities. Domestic political events and weak oil prices in the first half of 1998 made the issuance of rouble-denominated debt difficult and the government increased US dollar-denominated eurobond issuance, sending the stock of eurobonds from \$4.6 billion to \$15.9 billion during March-July 1998. As bond redemptions and coupon payments reached over \$1 billion a week in the second half of 1998, the eurobond yield spread rose to 1800 bp in August, and oil prices reached 10-year lows, the government was unable to roll over its debt in the domestic as well as foreign bond markets. Massive sell-offs followed in the debt, equity and foreign exchange markets. Liquidity in the interbank market dried up as fears of bank failures led to runs on bank deposits. The crisis led to a widespread flight to quality and liquidity, and quickly spread to both emerging and mature markets.

Brazil - January 1999

The root of Brazil's crisis was the failure of the government to control the fiscal deficit, with the public sector borrowing requirement approaching 8% of GDP in 1998. Large financing needs made Brazil vulnerable to investor sentiment and capital outflows. In the wake of the Russian crisis, non-resident and domestic holdings of Brazilian debt and equity instruments were significantly reduced. The need to roll over large amounts of domestic debt in September-November 1998 added to the pressure in the domestic debt market. The sell-off in domestic debt and foreign exchange markets led to massive capital outflows, with international reserves falling to \$42 billion at end-October 1998 from \$71 billion in July. The treasury and the central bank had to cancel domestic debt auctions in September 1998 and reduced the amount for tender in subsequent auctions as the spreads soared. In January 1999 the Brazilian real was floated.

Argentine and Turkish bond market sell-off - November-December 2000

In late 2000, Argentina suffered a massive sell-off of its bonds in the international market, with spreads on sovereign debt increasing from around 650 bps in early October to about 1000 bps in early November. The deterioration of the external environment, mainly the rapidly widening US high-yield spreads, led to sharp across-the-board widening of emerging market spreads. Chronic fiscal weakness, which made Argentina the largest emerging market borrower in the international debt markets, and heightened political tensions attracted investors' attention.

Turkey suffered a full-blown liquidity crisis in late November-early December 2000, following the sell-off in Argentina. The crisis reflected deteriorating external liquidity conditions and weak domestic banking and exchange rate systems. The crisis was triggered by the withdrawal of external credit lines and syndicated loans to Turkish banks. The ensuing credit crunch in the banking system forced banks investing heavily in the government securities market to sell their T-bill holdings. This pushed the yields above stop-loss levels of foreign investors and other local banks, triggering a massive sell-off in the domestic bond markets. In turn, this forced the primary dealers to suspend trading in government paper. Foreign investors, who had substantial positions in local markets, rushed for the exit, as concerns about the foreign exchange exposures of the domestic banking system and the quality of their forward cover mounted. During the crisis, Turkey lost about \$7 billion in foreign exchange reserves. Overnight interest rates rose sharply (to over 2,000% at one time). The external debt spread widened by 174 bps. Trading in T-bills was suspended with yields jumping from around 35% to 90%, and the equity market lost over 35%.

The positive correlation between bond issuance and bank lending, even after controlling for demand and supply factors, implies that bond markets may not function as an effective alternative source of financing. The development of the bond market may not help to prevent, or to mitigate the effect of,

financial crises. Loss of confidence among a large investor base - resulting from a deteriorating macroeconomic situation or a banking sector problem, or even self-fulfilling prophecies - could turn into a credit squeeze in the bond market, which could in turn spread to other financing channels, aggravating the situation. In fact, as observed in a number of recent financial crises, no matter where the initial tension (overextensions in bank lending, government/corporate overborrowing in bond markets, overvalued exchange rates or equity market bubbles), it could quickly spill over to other credit channels (Box 2)

Whether the debt market can function as an alternative source of financing during times of stress is debatable - it seems to depend on the underlying causes of the crises. The US experience indicated that bond markets could function well, as long as the cause of the banking system crisis is limited in scope. In other emerging market cases, rapid contagion effects across financing channels and countries appear to render the bond market a source of instability.

Emerging debt markets have shown high correlations of bond returns in individual countries and periodic closures of all emerging debt markets to new issues. This is indicative of the high degree of market co-movement. Table 1 shows the unweighted average cross-correlation of daily bond returns among nine major emerging market countries - Argentina, Brazil, Ecuador, Mexico, Panama, Peru, Poland, Russia and Venezuela - from 1994. It also shows the closures of the emerging debt markets from 1993, defined as the periods when the issuance level was less than 20% of the period's trend issuance level.

- Over 1994-2000, the average cross-correlation was 0.51, indicating substantial co-movement of individual country returns.
- The average cross-correlation rose sharply during the crises and fell afterwards. The increases were particularly large during the Asian and Russian crises, reaching 0.8-0.9.
- The average cross-correlation has declined substantially since the Russian crisis in August 1998. Recent peaks observed during the Brazilian and Argentine/Turkish crises were in the range of 0.5-0.6, from around 0.2-0.4 during normal times.
- The inability of the emerging markets to issue new debt was characterised by the rapid widening in spreads, rather than their absolute level. Such closures were closely related to the sharp increases in the average cross-correlation of individual country returns.

Table 1

Co-movement of emerging debt markets during financial crises

Period	Average cross correlations	Durations of market closures
Mexican crisis - January 1995	0.80	5 weeks
Thai baht attacked - early May 1997	0.72	
Asian financial crisis - October 1977	0.92	8 weeks
Russian default - August 1998	0.82	13 weeks
Floating of Brazilian real - January 1999	0.60	
Argentine and Turkish sell-offs - Nov/Dec 1999	0.53	5 weeks
Average 1994-2000	0.51	

Source: IMF (2001).

The experience of Hong Kong seems to be closer to that of the United States. Financing activities of local corporations in Hong Kong during the past few years demonstrate that the local debt market did substitute for bank financing to some extent in the aftermath of the Asian financial crisis. However, its effect has been limited owing to its small size (Table 2). The collapse of property prices and the recession led to deteriorating asset quality and the adoption of a conservative lending stance by the banking sector. Compounded by the withdrawal of Japanese banks owing to domestic financial sector

problems, total bank lending dropped substantially in 1998-99. Meanwhile, corporate bond issuance, traditionally outweighed by bank and equity financing, increased significantly and partially filled the gap. This contrasts with the experience during the early 1980s when the property market collapsed and a few banks failed. The sharp contraction in bank lending resulted in major financing difficulties for local corporations, as the debt market was virtually non-existent at the time.

Table 2
Financing activities of local corporations
(in billions of Hong Kong dollars)

Year	New Hong Kong dollar debt issuance by local corporates	Funds raised in Hong Kong equity market*	Increase in domestic loans	Total
1996	4	100	250	354
1997	13	248	408	668
1998	6	38	– 121	– 76
1999	24	150	– 176	– 2
2000	16	463	33	512

* Includes H-shares and Red Chips, and covers IPOs, rights issues, private placements and funds raised from the GEM.

Source: HKMA.

4. Debt market and efficiency gains

In the microeconomic context, arguments based on the theory of information asymmetries suggest that bond markets may improve efficiency in an economy and reduce vulnerability to financial crises (see Herring and Chatusripitak (2000)).⁵

Bank loans and corporate bonds deal differently with information asymmetries. Banks take the credit risks away from the depositors and manage their risks by monitoring borrowers. Bond financing involves public investors taking on credit risks themselves. As a result, bond financing spreads the risks over a large group of diverse bondholders, much wider than bank financing could achieve. In addition, bond financing does not involve maturity transformation, as investors are fully aware of the yields and time horizons of their investment. Bank financing, on the other hand, inevitably involves maturity transformation, as liabilities of banks are typically short-term in nature, while assets have longer maturities. The existence of a domestic bond market may also reduce the need to borrow abroad and so reduce potential currency mismatch. An economy with a well developed corporate bond market has stronger market discipline than one dominated by bank lending, as investors would require disclosure of information and transparency in corporate operations to protect their interest and reward strong performers with lower funding costs (see Hakansson (1999)).

A well developed debt market can also increase economic welfare as it complements other financial instruments to provide a full spectrum of investment vehicles whose payoffs across contingencies or states of nature cannot be easily replicated by other securities in the market. For example, certain classes of investors (such as pension funds and insurance companies) prefer to hold low risk debt instruments, with a stable income stream, which could not be provided by the equity market.

A well developed bond market also provides important benefits to the economy:

⁵ In perfect capital markets, Modigliani and Miller (1958) showed that no matter how the capital structure of a firm was divided among debt, equity or other claims, the investment value would be the same, since the total investment value of a corporation depends only on its underlying profitability and risk.

- It provides a yield curve, a market-determined term structure of interest rates. The key use of the yield curve is to serve as a benchmark for pricing credit risk, bank loans and equities. For macroeconomic policymakers, the shape of the yield curve provides useful information about market expectations of future interest rates and inflation rates. The bond market is the base for developing efficient derivatives markets (forwards, futures, swaps and options) for managing financial risks at low cost.
- It could lower funding costs for best quality borrowers, as intermediation costs are lower for bond than for bank financing. Borrowers on the borderline between investment and non-investment grade creditworthiness require more customised analysis, underwriting and structuring by banks, which are better equipped to assess such borrowers.
- It introduces competition with the banking sector, perhaps reducing the dominance of banks in providing corporate financing. If banks themselves issue bonds, they will be subject to increased market discipline, with their performance being reflected in bond prices. This discipline may serve as a useful adjunct to official banking supervision.
- It allows the transfer of risks through securitisation. The bond market provides an important venue for banks to repackage loans and sell them as bonds (such as mortgage-backed or other asset-backed securities). This reduces banks' exposure to liquidity risk and mitigates their maturity mismatch.

Though bond financing could mitigate the maturity mismatch, empirical studies have yielded mixed results on the effect of the bond market on the maturity structure of corporate debt. A cross-country study by Schmukler and Vesperoni (2000) covering Argentina, Brazil, Indonesia, Korea, Malaysia, Mexico and Thailand examines the financing choices of the corporate sector based on firm-level balance sheet data. It finds that firms with access to international bond markets increased long-term debt and extended their debt maturity structure (with a lower proportion of short-term debt over total debt), relative to firms with no access to international bond markets. This is consistent with bonds generally having a longer maturity than bank loans. However, the same study finds no significant differences in the maturity structure of debt in bank-based and market-based economies. The experience in Chile indicates that the development of the domestic bond market did not lengthen the maturity structure of firms' debt.

5. Conclusions

There are substantial macroeconomic and microeconomic benefits in a well developed bond market. Microeconomic efficiency gains, through diversification and control of credit and liquidity risks, improved corporate governance and better pricing of risks, are likely to have the macroeconomic effect of reducing the probability of financial crises and limiting any negative effects from them.

However, it should be noted that there are also risks arising from the development of debt markets, which may act as a potential channel for spreading financial contagion. In addition, the debate on the relative merits of a bank-based versus a market-based financial system is far from conclusive, despite the potential efficiency gains discussed above. Levine (2000) examines the relationship between financial structure and economic growth based on a broad, cross-country database. He finds no cross-country empirical evidence favouring either market-based or bank-based financial systems. Neither system is particularly effective at promoting growth; "countries with well developed banks but poorly developed markets do not perform notably differently from those with very well developed markets but poorly developed banks, or than those with more balanced financial systems after controlling for overall financial development". However, the study does find that the legal system is a crucial factor in financial development and that better developed financial systems enhance growth.

As a result, policy efforts should not be directed at favouring a particular financial structure, such as bond markets over the banking sector. Instead, efforts should be directed at improving the functioning of the financial sector, whether it is bank-based or market-based. This highlights the importance of efforts to build an efficient market infrastructure and to reduce information asymmetries. Such efforts also help realise the full potential of efficiency gains from the debt market and limit the downside risks of herding behaviour often observed in emerging bond markets. In particular, improvements in market transparency such as accounting and disclosure standards, and the establishment of a legal and regulatory framework consistent with international best practice and with strong enforcement, will help

investors to differentiate better among emerging markets at times of pressure and reduce contagion effects. The recent decline in the cross-correlation of the emerging debt markets could be partly attributed to international efforts in this area.

The HKMA, together with other government regulatory and supervisory agencies, has focused its efforts over the past decade in developing a supportive environment in which a well functioning debt market in Hong Kong can grow. The Exchange Fund Bills and Notes programmes introduced in 1990 established a benchmark yield curve extending to 10 years. A market-making system has been set up, and efficient clearing and settlement systems, for both Hong Kong dollar and US dollar payments and instruments, are in operation. In addition to the establishment of an efficient market infrastructure, the accounting and disclosure standards are high by international standards, and have constantly been improved to match international best practice, and a transparent legal and regulatory framework ensures that market discipline functions effectively.

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