The HKMA has issued a consultation paper on the mortgage corporation proposal on 15 April 1996. Below is an extract of the consultation paper. The consultation exercise is expected to take about two months. The HKMA will seek comments from various industry associations in the banking, capital market and other relevant fields. In the light of the outcome of the consultation exercise, the Government will decide on whether it should proceed to set up the mortgage corporation.

Introduction

The secondary mortgage market started to develop in Hong Kong in 1994 when some banks packaged their mortgage loans into mortgage-backed securities (MBS) for sale to investors in the capital markets. To study the issues involved in market development, an Informal Group on Secondary Mortgage Market was convened by the HKMA in February 1994. In its report published in July 1995, the Group considered that there were fertile grounds for the development of the secondary mortgage market in Hong Kong, in view of the large pool of residential mortgages outstanding and the growing demand for mortgages along with rising home ownership. The Group further considered that the establishment of a mortgage corporation operating under prudent and profit-oriented principles would be the most effective avenue to develop the market.

To follow up on the recommendation of the Informal Group, the HKMA has initiated a study on the mortgage corporation proposal and engaged Fannie Mae, the largest and most profitable among the US mortgage corporations, to provide consultancy support for the study.

Role of a Mortgage Corporation

A mortgage corporation typically :

(a) purchases residential mortgage loans for its own portfolio and funds its mortgage purchases through the issue of unsecured debt securities; and/or

(b) packages the mortgage loans from its own portfolio or from loan originators into mortgage-backed securities (MBS), usually with a guarantee on the timely payment of principal and interest on these securities.

Benefits

(a) Contribution to home financing

As Hong Kong people become more affluent as a result of their hard work and dedication, there is rising aspiration for home ownership. As can be seen from Table 1, the number of private residential units more than doubled within a time span of 15 years from 1980 to 1995, thereby pushing the ratio of owner-occupied households from 26.5% to 45.2%. As a consequence, the demand for home

Table 1:
Supply of Private Residential Units

	Per capita GDP (HK$)	Total private residential units*	Ratio of owner-occupied households# (%)
1980	28,006	485,678	26.5
1985	49,788	657,732	32.8
1990	102,121	879,071	42.6
1995	179,552	1,087,165	45.2

* including private housing units and those under Home Ownership Scheme and Private Sector Participation Scheme
\# Source: General Household Survey, Census and Statistics Department

financing has also increased phenomenally. During the same period, outstanding mortgage loans increased by almost 30 times from $11.7 bn to $348 bn, i.e. at an annual average growth rate of 25%. As the demand for home financing has been growing faster than the growth in nominal GDP and overall domestic bank loans, the ratios of outstanding residential mortgage loans to GDP and domestic loans have risen to 31.3% and 22.1% respectively (Table 2).

Hong Kong's experience is in fact quite similar to that of the developed economies, such as the USA and the UK, both of which have demonstrated a positive relationship between per capita GDP and outstanding residential mortgage loans. In the USA, the ratio of outstanding residential mortgage loans to GDP is 50%. The corresponding ratio in the UK is just under 60%. Both are significantly higher than that of Hong Kong (Chart 1).

It is difficult to be precise or accurate in projecting the future demand for residential mortgages. But it is obvious that the demand for mortgage funds will continue to be underpinned by an expected steady increase in the supply of private housing units. As a core strategy to promote home ownership, it is the target of the government to facilitate the production of 195,000 private residential flats in the next six years (1996-2001). In addition, the Housing Authority projects that the supply of flats under the Home Ownership Scheme (HOS) and the Private Sector Participation

Table 2:
Residential Mortgage Loans

	Outstanding residential mortgage loans (HK$ bn)	As a % of GDP	As a %of total domestic loans
1980	11.7	8.3	9.9
1985	37.2	13.7	13.8
1990	145.8	25.0	18.9
1995	347.9	31.3	22.1

Chart 1
Hong Kong, USA & UK
Mortgage Debt Outstanding and GDP Per Capita

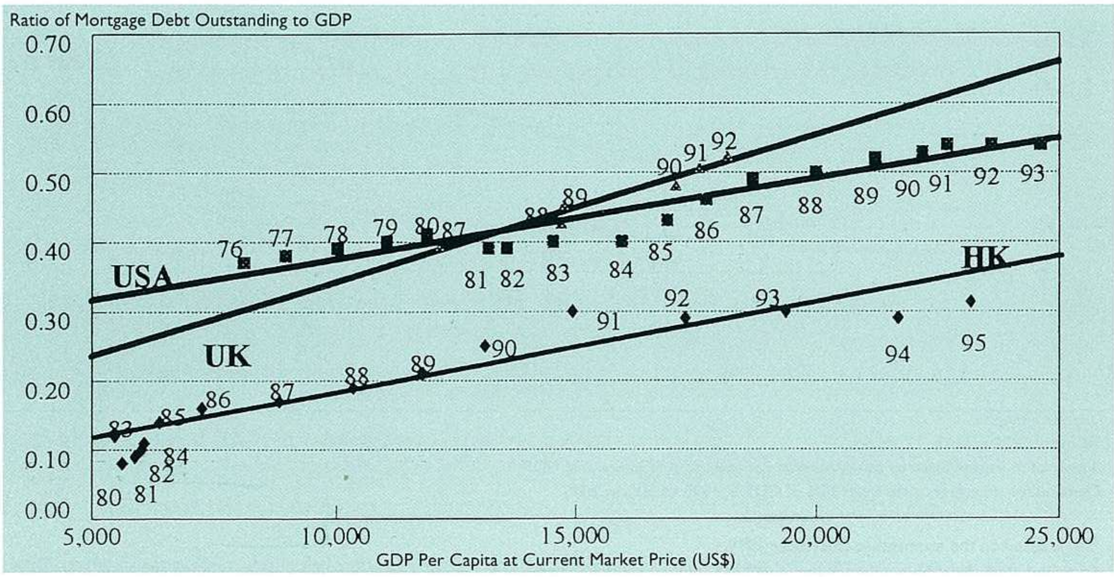


Table 3:
Projection of Demand for Residential Mortgages

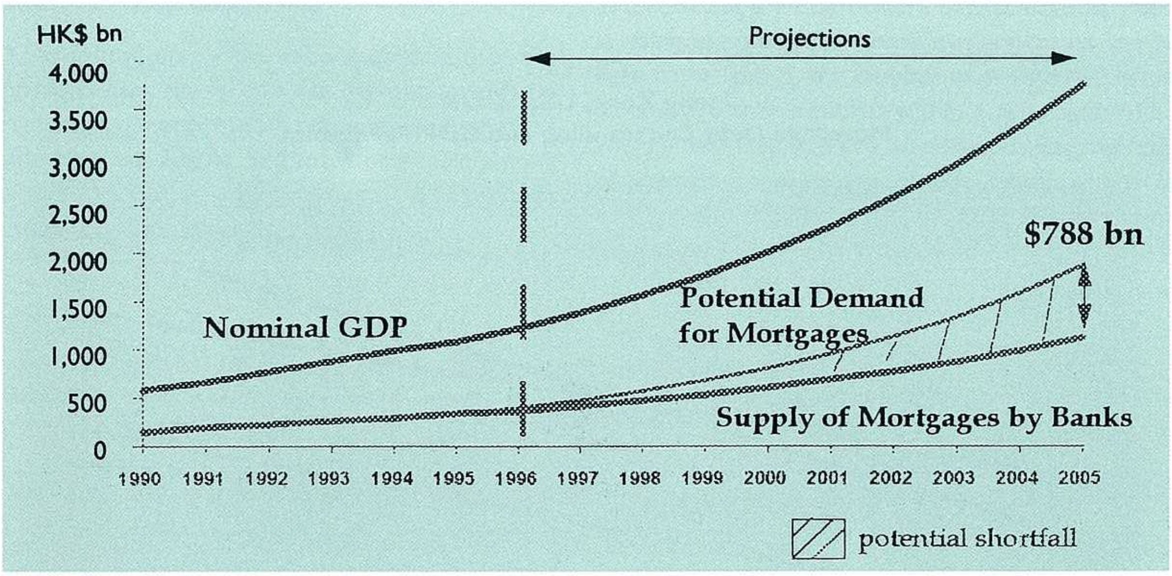
	Production (1996-2005) (units)	Assumed average sale price ($mn)	Demand for mortgages # (HK$ bn, 1995 prices)
Private residential flats	325,000	3	682.5
HOS/PSPS flats	276,700	1	249.0
			Total : 931.5

The assumed loan to valuation ratios are as follows:

private residential units	70%
HOS/PSPS flats	90%

Scheme (PSPS) would amount to 166,020 units during the same period[1]. These estimates suggest that the combined annual production of private residential units and the HOS/PSPS flats will be 60,000 units. While the government has not decided on the production target beyond 2001, a mathematical projection using 60,000 new units per annum would mean a total supply of 600,000 new units in the next ten years, an increase of 55% compared with the present stock[2]. Using the crude estimation shown in Table 3, the maximum potential demand for mortgage loans arising from the take-up of these new flats would be $931.5 bn (at 1995 prices). Action is in hand to assess land supply and flat requirement beyond 2001 in the context of the current review of the Long Term Housing Strategy. However, there are clear indications that there will continue to be an enormous demand for home financing although there are many factors affecting the actual supply and prices of new housing units.

Chart 2
Potential Demand-Supply Gap in Home Financing



Working assumptions:

1. Nominal GDP growth: 13.5% p.a.
2. Supply of mortgage loans by banks remains constant at 30% of nominal GDP
3. Demand for mortgages rises from 30% of GDP in 1995 to 50% in 2005

1 This is based on the estimates in December 1995.

2 As at end 1995, total housing stock was 1,087,165, of which 885,677 units were private domestic housing stock and 201,488 units were under HOS/PSPS scheme.

For reasons to be discussed more fully below, the banking system is unlikely to be able to meet the potential demand without increasing its concentration and liquidity risks beyond a prudent level. Chart 2 presents a possible approach in assessing quantitatively the likely gap between the potential demand and the amount of mortgage loans that the banking system would be able to provide. As an alternative method to project the demand for residential mortgage loans, assuming that such demand rises to 50% of GDP by the year 2005 (a level which has already been attained by the USA and the UK in the early 1990s), loan demand in absolute terms would increase from $347.9 bn at end 1995 to around $1,970 bn in 2005[3] (or $871 bn at 1995 prices[4]). If we further assume that the banking sector increases the supply of mortgage loans at a rate in line with the growth of nominal GDP in order to avoid increasing the concentration risk of mortgage lending, loan supply would increase to $1,183 bn in 2005 (or $523 bn at 1995 prices). A potential gap of $788 bn (or $348 bn at 1995 prices) thus appears.

The disequilibrium in the demand and supply for residential mortgage loans will no doubt trigger off adjustments in the market. One form of adjustments is the entry of more banking institutions to provide the mortgage funds. There is however a structural constraint in relying solely on the banking institutions to provide long-term mortgage funds, as their funding sources are mainly of short-term nature.

It is likely that the gap in supply and demand would be closed mainly through a rise in residential mortgage interest rates. We did have this experience not long ago. Along with the rapid increase in the demand for mortgage loans in the early 1990s when the property market was booming, the mortgage rate edged up from 100-150 bp over best lending rate (BLR) in 1990 to 130-210 bp over BLR in 1994. A significant rise in the mortgage rate would adversely affect the affordability of potential home buyers and is therefore not conducive to the promotion of home ownership.

A robust solution to meet the expected shortfall in the supply of mortgage funds is to channel long-term savings, such as pension and insurance funds to the mortgage loan borrowers. However, these suppliers of long-term funds are not natural investors in the primary mortgage market because of the illiquidity of individual mortgages. As a wholesale institution, a mortgage corporation can play a strategic role in the intermediation of these long term funds in an efficient and safe manner. As such, it facilitates the growth of a deep and liquid secondary mortgage market that will help to promote home ownership. In the USA, for example, the mortgage corporations (Fannie Mae, Freddie Mac and Ginnie Mae) have together intermediated almost 50% of residential mortgage funds through the issue of MBS and purchase of residential loans from the loan originators. These MBS are sold mainly to institutional and individual investors who are

Table 4:
Delinquent/default loans as a percentage of total mortgage loans

No.of days from payment due date	Hong Kong (September 1994)	USA (1994)			
		Fannie Mae		Freddie Mac	
		Single-family	Multi-family	Single-family	Multi-family
more than 60 days	0.43%		1.21%		3.3%
more than 90 days	0.13%	0.57%*		0.57%*	

* Based on number of loans (the other figures are based on the dollar amount).

3 While seemingly a huge figure, the implied average annual growth rate, of around 19%, is lower than that in the past 15 years, at 25%.
4 Although this figure is derived using a different method, it does not appear to be out of line with the estimation in Table 3.

Table 5:
Balance Sheet of the Banking System (As at end-1995)

HK$ Liabilities		HK$ Assets	
Customer Deposits	$1,122 bn	Mortgage Loans	$348 bn
less than or equal to 3 months	(95.2%)	average contractual life	15.2 yrs*
more than 3 months	(4.8%)	average seasoning	1.9 yrs
Interbank Deposits	$637 bn		
less than or equal to 3 months	(93.1%)		
more than 3 months	(6.9%)		
Other Liabilities	$341 bn	Other Assets	$1,711 bn

* September 1994 figure; average actual life of mortgage loans is shorter.

attracted by the high quality, yield and liquidity of the paper. It is difficult to envisage how the level of home ownership in the USA could be as high as 64% without the mortgage corporations.

The advantages of the mortgage corporation to the home buyers are apparent. It will help to ensure the availability of mortgage funds, which will in turn alleviate potential upward pressure on the mortgage interest rate. Over the long term, a lowering of mortgage rate may be possible because the improved liquidity of residential mortgage loans will allow a reduction in the risk premium on such loans. Besides, as discussed below, the mortgage corporation will help stimulate the introduction of new mortgage products such as fixed rate mortgage loans.

It has sometimes been suggested that the introduction of a mortgage corporation would increase the supply of funds for mortgages and therefore raise the price of property. The price of housing is a function of both demand and supply. There is considerable real demand for housing and in Hong Kong, prices have also been determined by the supply constraints. Both the government and the private sector developers are committed to increase the supply of housing to meet demand. Setting up a mortgage corporation is one mechanism that deals with the efficiency of the financial market, not the efficiency of housing supply.

(b) Banking stability

Residential mortgage loans in Hong Kong are of very high credit quality by any standards, given their low loan to valuation ratio (53.3% on average according to a survey conducted by the HKMA in September 1994) and a very low default/delinquency rate (Table 4). Besides, the overwhelming majority (96%) of mortgage loans are on floating rate terms while the bulk of authorised institutions' funding is also on floating rate terms. Thus, the interest rate risk incurred by the banking system is relatively small under normal circumstances.

There are nevertheless other more significant risks associated with mortgage lending, namely the funding risk arising from maturity mismatch, the liquidity risk and the concentration risk. On average, mortgage loans have a contractual life of 15.2 years (September 1994). With prepayment, the actual average life of mortgage loans is in fact shorter and varies in accordance with the prevailing conditions in the property market. But it is still much longer than the average maturity of funding, which takes the forms mainly of customer deposits and interbank borrowings of short-term nature, mostly less than three months. There is thus a significant maturity mismatch (Table 5). If the actual maturity of the residential mortgage loans is lengthened due to an unexpected decline in prepayment rate, or if the funding sources become more volatile, banks will be exposed to the funding risk. This risk can be substantially reduced if the mortgages can be liquidated quickly. However, there is only limited development in the secondary mortgage market at present. A mortgage corporation can play an important role in reducing the funding and liquidity risks of mortgage lending as it provides an effective avenue for authorised institutions to unload the mortgage loans as and when needed. Authorised institutions will also have the choice of holding liquid MBS instead of illiquid mortgage loans with some reduction in yield.

Turning to the concentration risk, as mentioned above, the share of residential mortgage loans in the total domestic loan portfolio rose from 9.9% to 22.1% in the past 15 years. Including loans for property development and investment, property-related loans as a whole account now for 39% of total domestic loans. This is by no means a low level by international comparison. While the loan default rate for residential mortgages is low, a high concentration of mortgage lending involves a sectoral risk. In abnormal conditions (see the example below), the quality of the loan book as a whole will be adversely affected. The greater the proportion, the higher the risk. Similarly, there is a business risk if banks become too reliant on income from one line of business and competitive conditions in that market change adversely.

The banks themselves do recognise the liquidity, funding and concentration risks involved. That is why it is not unusual for banks themselves to ration their mortgage lending once self-imposed balance sheet limits are reached. In other words, the risks are not purely the concerns of the supervisors. Banks themselves would not be willing to expand the proportion of property loans in their balance sheet indefinitely.

(c) Monetary stability

Under the linked exchange rate system, the interest rate in Hong Kong tracks closely the US interest rate. Given the open nature of our economy, volatility in capital flows may occasionally give rise to interest rate fluctuations. Such fluctuations would have an impact on borrowers with floating rate debt. The biggest liability item for an average household in Hong Kong is probably the residential mortgage. It is estimated that roughly 40% of the private residential units in Hong Kong have outstanding mortgages and 96% of residential mortgages are on floating rate basis. In the event of a sharp rise in interest rate, mortgage rates may increase. This will have implications on the cash flow of home owners, who are the main borrowers, with a potential impact on the property market and consequently the banking system. This reflects the pain tolerance level of Hong Kong people and the economy to possible interest rate shocks.

A mortgage corporation can encourage the origination of fixed rate mortgage loans. It may use the fixed rate funds borrowed from the debt market to purchase fixed rate mortgage loans originated by authorised institutions. The mortgage corporation is free from interest rate risk as the fixed rate liabilities arising from its debt securities is matched by fixed rate receivables from the mortgage loans.[5]

Borrowers of fixed rate loans are insulated from short-term volatility in interest rate movements. To the extent that a larger proportion of mortgages are arranged on fixed rate terms, the pain tolerance level of the economy as a whole in the event of a sharp rise in interest rates will be enhanced. This will contribute to the resilience of our monetary system. Holders of fixed rate debt securities will, however, suffer a capital loss because of the interest rate hike. Nevertheless, many of them are long-term investors who are in a better position to weather the short-term volatility in interest rate. The interest rate risks are therefore spread more evenly in the economy.

(d) Development of debt market

The mortgage corporation plays a crucial role in developing the debt market through supplying paper either in the form of unsecured debt securities or MBS. In the USA, for instance, unsecured debt securities issued by the three key mortgage corporations (i.e. Fannie Mae, Freddie Mac and Ginnie Mae) amounted to US$349 bn at end 1994, while MBS guaranteed by these corporations stood at US$1,436 bn at end 1994. By comparison, the outstanding amount of US Treasuries was around US$3,126 bn. In other words, the mortgage market is the second most important debt market in the USA.

The experience of Hong Kong in the last two years suggests that efforts by individual institutions to securitise mortgages have not been entirely successful. The heterogeneity of issuers and the lack of conformity of the underlying pool of mortgages have kept many potential investors away from the MBS market. There is little, if any, liquidity

5 There is however a prepayment risk which is discussed in section "risk management" below.

in this paper. A mortgage corporation can play a major role in improving market efficiency and stimulating the development of the secondary mortgage market. It packages mortgage loans into standardised MBS, which are comparatively easier to understand and trade. It will also be a well accepted issuer in its own right. In developing Hong Kong's debt market, the supply of high quality and liquid securities is as important as the demand by institutional investors. The rapid growth in the size of the insurance and pension funds, aided by the Mandatory Provident Fund Scheme, will certainly increase the appetite for high quality HK dollar debt securities. The development of a deep and liquid secondary mortgage market in turn would enhance Hong Kong's status and reputation as an international financial centre.

Impact on residential property market

By helping authorised institutions to reduce the liquidity and concentration risks in mortgage lending and by mobilising funds from investors in the capital markets, the supply of funds for home mortgages is expected to increase. However, this factor by itself is unlikely to give a strong boost to property prices. In the first place, availability of mortgage finance is only one of the factors affecting the underlying demand for housing. There are a host of other factors such as household formation, income level, general property market conditions, interest rate etc. affecting the demand for housing. Secondly, it would be prudent for the banking system to continue to exercise restraint on mortgage loan exposure in order to avoid excessive concentration and liquidity risks. In fact, a mortgage corporation will also help establish prudent origination standards as only mortgage loans of reasonable quality would be purchased by the corporation. As a prudent commercial institution, a mortgage corporation would be cautious in protecting itself from being exposed to any property bubbles. Thirdly, the purchase of mortgages by the mortgage corporation would probably be fairly gradual and staggered, at least in the initial period of its operation. This means that a sudden flood in the supply of funds for mortgages is unlikely to occur in practice.

Over the longer term, if the mortgage corporation succeeds in facilitating the supply of mortgage funds from long term investors, thereby enabling more potential home buyers to acquire flats, it would be commensurate with the Government's objective of encouraging home ownership. It is reckoned that there is still substantial scope for lifting the home ownership ratio, as well as for attaining progressively better housing in the long run.

Findings of the Fannie Mae Study

The Fannie Mae consultant team paid a two-week visit to Hong Kong in early February to study the feasibility of setting up a mortgage corporation. Their overall assessment of the mortgage corporation proposal is that:

(i) the establishment of a mortgage corporation is both feasible and beneficial as a long-term goal;

(ii) Hong Kong is in an enviable position compared to many other economies as the development of the secondary mortgage market is driven by a long-term vision, not in reaction to a crisis in the housing market or credit system; and

(iii) preconditions are met for setting up a mortgage corporation in Hong Kong. These preconditions include a strong primary mortgage market, a well-developed legal system, a stable macroeconomic environment and supportive government policies in respect of encouraging prudent mortgage lending and promoting home ownership.

Proposed framework of the Mortgage Corporation

(a) Ownership

As evidenced in the success stories behind the mortgage corporations in the USA and Malaysia, all of which owe their success to their government or quasi-government agency status, it seems appropriate to set up the mortgage corporation initially as a wholly government owned corporation. This is also seen as the most expeditious way to "jump-start" a secondary mortgage market because:

(i) the high credit standing will enable the corporation to raise funds at favourable rates;

(ii) mortgage loan originators will be provided the assurance that the corporation has strong staying power and hence will serve as a steady and reliable avenue for them to unload their mortgages as and when needed;

(iii) complicated issues such as the choice of equity participants and the conflict of interests which may possibly arise in the case of equity participation by authorised institutions can be avoided; and

(iv) synergies can be gained through sharing the resources with other parts of the government where possible.

(b) Capital base

Assuming that the target is for the mortgage corporation to build up its mortgage portfolio to around $20 bn (equivalent to about 6% of the total outstanding residential mortgages in Hong Kong) in the initial years, and a capital base to total assets ratio of 5% is to be maintained, the capital base of the mortgage corporation should be in the region of $1 bn.

(c) Business strategy

It is proposed that the business scope of the mortgage corporation should be expanded in two phases. In the first phase, the corporation would concentrate on the purchase of residential mortgage loans for its own retained portfolio, with funding obtained through the issue of unsecured debt securities. When the mortgage corporation becomes more established, it may consider expanding its business scope by introducing the MBS programme. It will package mortgage loans from its own portfolio and from authorised institutions into MBS, and provide a guarantee on the timely payment of interest and principal on these MBS in exchange for a guarantee fee.

(d) Structure of the corporation

It is proposed that the mortgage corporation would be set up as a limited company under the Companies Ordinance, and the transactions between the mortgage corporation and its counterparties would be carried out on a voluntary and commercial basis.

The mortgage corporation would operate on prudent and profit-oriented principles. Its business scope will be appropriately defined in the Memorandum and Articles of Association. The Board of Directors would be made up of members drawn from the HKMA and other relevant government bodies, as well as those in the banking sector and capital markets. It is envisaged that private sector members as a whole would have majority representation in the Board.

In terms of the organisational structure, the corporation may be organised into four main departments: Operations, Finance, Credit and Technology. In addition, a strong legal team will be needed in view of the large volume of legal work.

Risk management

Mortgage corporations are subject to the following types of risks:

(i) Credit risk of mortgage loan portfolio: this can be managed primarily through stipulating stringent purchasing standards (70% Loan-To-Valuation ratio, seasoning, income test, geographical diversification of properties etc.) and selection of prudent loan originators;

(ii) Interest rate risk: the issuance of floating rate paper to fund purchase of floating rate mortgage loans should not pose any major interest rate risk other than the basis risk which arises because of the differences in reference rates (i.e. prime rate for mortgage loans and HIBOR for the floating rate debt paper issued by the mortgage corporation). Such risk can be managed through the use of basis swaps or the issuance of prime-based paper. Alternatively, the mortgage corporation may build up a reserve fund to serve as a cushion to absorb any losses that may arise. The issuance of fixed rate paper to fund the purchase of floating rate mortgage loans will require the use of more complex hedging techniques because of the structural mismatch in interest rate between assets and liabilities;

(iii) Pre-payment risk: In Hong Kong's case, the prepayment of floating rate mortgages should not pose any major problems as prepaid mortgages can easily be replaced by floating rate loans of comparable quality with similar yields. However, the pre-payment risk will increase as fixed rate mortgage loans become more popular. The management of such risk will require more sophisticated hedging techniques, such as callable bonds, and pre-payment modelling technique; and

(iv) Operational risk: this risk is dependent on the robustness of the internal control, audit and computer systems of the mortgage corporation.

Conclusion

The proposal to set up a mortgage corporation is driven by a long term vision to enhance the robustness of the mechanism for channelling long term savings to long term borrowing in the form of residential mortgage loans. The experience in the USA demonstrates that a mortgage corporation can play a crucial role in intermediating between long term savers/investors and long term borrowers of home finance.

As an international financial centre, Hong Kong must utilise the best practice and experience internationally to manage its own risks in a demonstrably safe and sound manner. The mortgage corporation would become part of the robust financial infrastructure that underpins Hong Kong's financial system on solid foundations.

In conclusion,

(i) a mortgage corporation will bring significant benefits to Hong Kong in terms of promoting home ownership, improving banking and monetary stability and facilitating the development of the local debt market;

(ii) there do not appear to be major legal, business or technical obstacles to the setting up and the profitable operation of a mortgage corporation. Initial government ownership will help to nurture it in a favourable environment. Once it has established a track record of profitability to command market confidence, we will consider broadening the ownership structure; and

(iii) there are risks involved in the operation of the corporation. But they can be managed through putting in place prudent risk management measures.