Review of Currency Board Arrangements in Hong Kong

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Foreword

The unfolding of the Asian financial crisis has stimulated a growing interest in the way in which we manage monetary stability in Hong Kong. The collapse of other currencies in the region has encouraged many outside Hong Kong to look to our experience of a stable exchange rate maintained through an effective Currency Board system. Within Hong Kong, interest rate volatility caused by speculative attacks on the Hong Kong dollar has exacerbated the pain of our economic adjustment and has quite naturally prompted extensive discussion about how the Currency Board system might be improved. Various modifications have been made to the Currency Board system during the course of the year: the most substantial of these, the seven technical measures of September 1998, have strengthened the system and helped reduce the scope for interest rate volatility caused by market manipulation. But Currency Board reform must be a continuous process, and it can benefit greatly from a broad and informed examination of current practices, fundamental principles, and future possibilities. With the aim of further encouraging the productive discussion that is already in progress, I am now making available to a wider readership this extended paper on the Review of Currency Board Arrangements in Hong Kong.

Currency Boards are an esoteric topic, and until recently were something of a rarity outside of books on nineteenth-century monetary history. Their successful revival in many parts of the world over the last decade or two has given rise to increasing and often heated debate over the principles that govern them. The purists have tended to adopt a dogmatic approach, with a nostalgic eye to the simpler days when the monetary base was largely a matter of notes and coins. While accepting that Currency Boards must operate according to certain fixed principles, this paper takes a more practical view: it seeks to set out the core principles necessary for a credible and effective Currency Board and to examine where adaptations and refinements are required to meet the rapid changes taking place in technology, communications and global financial markets. This paper examines the fifteen years' practical experience of a Currency Board system in Hong Kong and attempts to bring some intellectual discipline to this examination by suggesting a conceptual framework for understanding and developing a modern day Currency Board system. It assesses the performance of our linked exchange rate system against this conceptual framework and considers where improvements might be made.

I completed this paper in early August. Much has happened since then. Many of the improvements suggested in the paper have already been implemented and are working well. These include the Convertibility Undertaking, the transferability between Exchange Fund paper and the Aggregate Balance, and the creation of a Currency Board committee, now more appropriately named the Currency Board Sub-committee of the Exchange Fund Advisory Committee. Despite these important developments, I have left the paper largely as it was drafted: the arguments and the details that support them remain relevant, and many of the measures since implemented can be found here as proposals, rather than as retrospective explanations. Many other issues touched on by this paper still require considerable further study: among the more important of these are the scope and form of the Convertibility Undertaking and transferability among different components of the Monetary Base.

The theoretical exploration in Chapter Two of this extended paper was published last month as a separate paper entitled 'A Modern Day Currency Board System'. The positive effect of this publication in stimulating discussion among market participants, academics, politicians, and the wider community has encouraged me to publish this paper in its entirety with the hope that it will help keep the discussion going. To facilitate a wider understanding of this highly technical subject, a glossary of technical terms has been added at the end of the paper.

Joseph Yam
Chief Executive
Hong Kong Monetary Authority

5 December 1998

Chapter I
Winds of Change

1 Four concerns prompted me, as Monetary Authority responsible amongst other things for the operation of the Currency Board arrangements in Hong Kong, into writing this rather technical paper.

2 My **first** concern is a somewhat academic one. There is some confusion as to how a Currency Board system should be structured nowadays, having regard to the technologically sophisticated arrangements of modern day finance, where money is transmitted electronically and transactions are settled largely without the use of cash. The International Monetary Fund has on 20 December 1996 issued two internal papers on Currency Board arrangements for discussion by the Executive Board. They contain an extensive survey of Currency Board arrangements currently practised in a number of economies. They show how Currency Board systems are differently structured, even amongst the handful of examples available.

3 Whilst domestic circumstances have been important in shaping each system now in practice, there seems to be a lack of discussion, theoretical as it may be, on how a Currency Board system should ideally be structured. The danger therefore is that domestic circumstances, may lead a Currency Board to stray from the discipline of the Monetary Rule, eventually undermining the credibility of the system.

4 My **second** concern is a rather political one, arising out of the changing domestic circumstances of Hong Kong itself, and, in particular, out of the current relationship between government and politics. Hong Kong is well served by its politicians, who, whether directly or indirectly elected, are increasingly effective and conscientious in articulating the views of the community. Politicians have the right to be heard and the government stands to gain much from their contributions to the formulation of policy, even in so abstruse an area as monetary management. But the day-to-day operations of a rule-based currency board system must be insulated from any form of short-term political interference, however well meaning, if it is to maintain long-term credibility. A responsible government should not engage in short-termism to the detriment of the long-term interests of the community.

5 Hong Kong is fortunate in possessing a legislature and a government that recognize the importance of a currency board insulated from short-term political interference. Nevertheless, in the interests of guaranteeing and enhancing that insulation, it is highly essential that there should be a solid theoretical and institutional foundation, on which sound arrangements are promoted and practised in a highly professional and transparent manner. There are many examples of this in central banking arrangements in other jurisdictions.

6 My **third** concern is a technical one. Notwithstanding that the Monetary Rule of the Currency Board system is a simple one, there are many variations in respect of the actual arrangements. The Currency Board system of Hong Kong has undergone significant changes since its establishment in October 1983. Many of its features are a reflection of the peculiarities of monetary arrangements in Hong Kong at different periods in the monetary history of Hong Kong, and shaped inevitably and realistically by influence from different players in the monetary system from time to time. I am privileged to have been closely involved throughout the past 16 years in the monetary affairs of Hong Kong. Indeed, I can unashamedly claim credit, and responsibility, over the design, introduction and implementation of most of the recent monetary reform measures of Hong Kong, other than the linked exchange rate itself. The latter was the able work of Anthony Latter, then the Deputy Secretary for Monetary Affairs seconded from the Bank of England and to whom I had the privilege to work as a Principal Assistant Secretary. His valuable contribution to monetary stability in Hong Kong, which is far greater than that of anybody else involved or claimed to be involved, in whatever capacity, at that time, should not be left unnoticed.

7 As it is, nevertheless, the Currency Board system of Hong Kong is not exactly a role model, although it has worked well and has served Hong Kong well over the years. Indeed, strictly speaking, the Currency Board arrangements of Hong Kong were not put onto a proper foundation until December 1996. This was when all licensed banks were required to operate clearing accounts with the Hong Kong Monetary Authority (HKMA), the operator of the Currency Board arrangements, on the occasion of the introduction of the Real Time Gross Settlement (RTGS) payment system in Hong Kong. This was when the crucial component of the Monetary Base

was properly subject to the Monetary Rule. There is as always scope for refinement of the technical arrangements. And this is very much a continuous process, as in the case of the last 15 years in the operation of the linked exchange rate system. There is a need for a clearer framework to examine these technical issues which are market sensitive and the intentions of which could be easily misunderstood.

8 My **fourth** concern is a strategic one. The shape of global finance is changing rapidly, characterized by volatile capital flows. Sophisticated information and telecommunications technology have made the global financial system highly efficient. Such an efficient system punishes policy mistakes of individual economies, particularly the small open economies, brutally, as evidenced by the conditions some of the Asian economies are currently in. With economic troubles and structural problems in the financial system persisting in Japan, and the birth of the Euro, the global financial system is becoming dominated by two currencies—the US dollar and the Euro—with the tendency that the Japanese yen, and other minor currencies, becoming increasingly marginalized. They are also becoming popular speculative targets in the foreign exchange market.

9 This development has strategic implications for exchange rate policies for individual economies. The scope for currencies to be loosely pegged to another currency is diminishing as the tidal waves of capital flows, spurred by speculative plays, toppled one peg after another. For an exchange rate regime to survive, even assuming the existence of prudent policies, there is an increasingly accepted view that the exchange rate has to be either freely floating or firmly fixed to a major currency. And how the exchange rate of a currency is fixed is consequently subject to very close scrutiny by everybody in the financial world, more so by the currency hawks who are always ready to prey on the weak.

10 In my opinion, the most sturdy small boat cannot realistically ride and float in the rough seas for long. It will be tossed around until it cracks and sinks. It is a lot better for it to be welded inseparably onto the biggest ship in sight and sail along in its wake. Sometimes it may be under water or above, but it will not sink. Before the sea gets rough again, it would be prudent to see if the welds for the Hong Kong dollar's link with the US dollar are tight enough or are adequate for the purpose.

11 Chapter II of this technical paper attempts to outline a theoretical framework of a modern day Currency Board system. It also discusses practical issues on how such a system should be structured, concluding with a model system. Against this background, chapter III describes the characteristics of the Currency Board arrangements in Hong Kong, as they are now practised, and chapter IV attempts an assessment of the performance of the system over the 15-year period of its existence. Chapter V makes recommendations on pre-emptive and contingency measures to strengthen the Currency Board arrangements in Hong Kong with a view to enhancing confidence in the currency and exchange rate stability.

12 I am grateful to Charles Goodhart of The London School of Economics, who has a long standing involvement in monetary affairs in Hong Kong, since giving advice on the exchange rate link in 1983, for giving me valuable comments on an earlier version of this paper. I am also grateful to my three very able Deputies, David Carse, Andrew Sheng and Norman Chan for their views on issues discussed in this paper. Donald Tsang, Financial Secretary, and Rafael Hui, Secretary for Financial Services, have both given me useful guidance and encouragement beyond that normally expected of finance ministers to central bank governors. However, I alone am responsible for any inaccuracies and mistakes in this paper.

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5 August 1998

Chapter II
A Modern Day Currency Board System

13 There is some confusion as to how a Currency Board system should be structured nowadays, having regard to the technologically sophisticated arrangements of modern day finance, where money is transmitted electronically and transactions are settled largely without the use of cash. Unlike the days when transactions were predominantly cash based, a modern day Currency Board system has to cater for and cope with free and therefore volatile capital flows which can be voluminous, move around with high velocity and facilitated by a large variety of financial instruments including derivatives. This chapter attempts to outline a theoretical framework of a modern day Currency Board system.

Monetary Rule

14 Essential to the Currency Board system is a Monetary Rule that requires any **change** in the Monetary Base to be brought about only by a corresponding change in Foreign Reserves in a specified foreign currency at a fixed exchange rate. The Monetary Base and the Foreign Reserves should respectively be on the liability and asset sides of the balance sheet of the Currency Board. Operationally, this Monetary Rule often takes the form of a Convertibility Undertaking for the Currency Board to convert Domestic Currency into Foreign Reserves at the fixed exchange rate. The Convertibility Undertaking may be one that is triggered from time to time by the Currency Board or an evergreen one without discretion on the part of the Currency Board. Domestic Currency covered by the Convertibility Undertaking may just be the Monetary Base, or it may be some other definition of domestic money, whether or not including the Monetary Base. But it is essential that the settlement of transactions arising from the Convertibility Undertaking be effected through the Monetary Base in order that the automatic adjustment mechanism under a Currency Board system can function to ensure exchange rate stability.

15 The Monetary Rule of a Currency Board system is almost sacrosanct. Confidence in the Currency Board system hinges very much on the Monetary Rule being observed. It will be useful if the operator of the

Currency Board is structured in such a way as to enhance the impression that the Monetary Rule is indeed strictly observed. A high degree of transparency and disclosure is essential, particularly in respect of changes in the various components of the Monetary Base and the corresponding changes in Foreign Reserves. Operational independence of the Currency Board is also essential. The Currency Board must not be influenced for political purposes into, for example, exercising discretion to deviate from the Monetary Rule, create money without the backing of Foreign Reserves and depress interest rates in order to ease the pain imposed by the discipline of the Monetary Rule on the economy.

Foreign Reserves

16 Theoretically, all that is required for the Currency Board to hold is the amount of Foreign Reserves adequate to meet comfortably the anticipated reduction in the Monetary Base in stressful conditions. The Monetary Rule focuses on the flow rather than the stock of the Monetary Base, although obviously if it is extended to the stock of the Monetary Base the Currency Board would have greater credibility. It would therefore be desirable, if only psychologically, for the Foreign Reserves held by the Currency Board to be larger than the Monetary Base and perhaps even larger than the amount of Domestic Currency covered by the Convertibility Undertaking. This is notwithstanding the requirement that transactions arising from the Convertibility Undertaking are to be settled through the Monetary Base.

Monetary Base—Definition

17 The Monetary Base, in layman terms, is money that can be used for settling transactions. As almost all transactions have to be somehow settled with the use of money in some form, monetary control is normally exercised through controlling the Monetary Base, by an automatic or discretionary mechanism determining its price, however measured, or its supply. In order that the control is effective, the definition of the Monetary Base should be a comprehensive one covering all money that can be used for settling transactions. It must also be practical, enabling control to be effectively exercised. This inevitably requires the Monetary Base to be on the balance sheet of the authorities responsible for monetary control, in this case, the Currency Board.

18 In Currency Board systems of the old days, the Monetary Base focuses very much only on Currency Notes as these were the predominant medium for the settlement of transactions. Nowadays, Currency Notes are only used for the settlement of day to day retail transactions in the economy. Large transactions are settled through the use of electronic and other forms of money. And the great majority of these transactions involve settlement through payments between banks on behalf of their customers, including the clearing of cheques. It is therefore no longer appropriate or adequate, and indeed theoretically no longer necessary, to focus only on Currency Notes.

19 In a modern day Currency Board system, the Monetary Base should, at the minimum, be the aggregate of the balances (the Aggregate Balance) held in the clearing accounts which banks maintain with the Currency Board. It is predominantly through the Aggregate Balance that the automatic interest rate adjustment mechanism of a Currency Board system, as described later in this chapter, works to ensure exchange rate stability. This realistically requires the Currency Board being responsible also for the running of the interbank clearing system, a function that may, if not carefully handled, involve departures from the Monetary Rule and undermine the credibility of the Currency Board. This is because of the need for the Currency Board to provide liquidity to facilitate the smooth clearing of interbank transactions, involving possibly the creation of additional money in the Aggregate Balance, or the Monetary Base, without additional Foreign Reserves.

20 This unavoidable downside risk can be managed, however, in either of two ways. **First** is to minimize the risk through appropriately structuring the interbank payment system. The use of Real Time Gross Settlement (RTGS) would minimize the need for day end liquidity support from the Currency Board. The consequently small amount of such day end liquidity, when required, can further be provided against collateral, in the form of obligations of the Currency Board that are already backed by Foreign Reserves held by the Currency Board. But this still involves an increase in the Monetary Base, if it is defined only to include the Aggregate Balance, without the corresponding increase in new Foreign Reserves held by the Currency Board. This may be seen as a departure from the Monetary Rule, and for the purists, a dangerous departure. That is why it should be kept to the minimum. It should also be provided only at adequately penal rates of

interest to discourage the facility being inadvertently used for more permanent money creation that gets around the Monetary Rule of the Currency Board.

21 **Second** is to eliminate the risk altogether through expanding the definition of the Monetary Base. Assume that the Currency Board has indeed created a pool of Currency Board debt paper backed fully by Foreign Reserves. The Monetary Base can then be defined as the sum of the Aggregate Balance and the amount, perhaps a limited amount, of such debt paper outstanding. As the Currency Board debt paper provides the liquidity for banks to effect the settlement of transactions, it is indeed necessary to take account of it in the Monetary Base. In accepting the debt paper as collateral for intraday or day end liquidity, the Currency Board will merely be switching its liability in the form of the debt paper into the Aggregate Balance. No increase in the Monetary Base, as more widely defined, is involved. Neither is there any need for an increase in Foreign Reserves.

22 The Monetary Base may also include the amount of Currency Notes (and coins) issued in order psychologically to instill greater confidence on the part of the holders of Currency Notes. Traditionally this is the case, and indeed Currency Notes were probably the only element in the Monetary Base in the old days. It is a tranquilizing feeling to have for the community when the money in their hands, money that they can feel, is actually backed by and convertible into Foreign Reserves at the fixed exchange rate. It is as if the Domestic Currency is as good as the specified foreign currency.

23 But, desirable as it may be, this is strictly speaking not a necessary feature of a modern day Currency Board system. For as long as the Currency Notes are issued and redeemed against the Aggregate Balance, the banking system would be forced to surrender Foreign Reserves to the Currency Board indirectly to back the issue of Currency Notes through having to reconstitute the Aggregate Balance. Thus when the Currency Board issues Currency Notes to a particular bank, it should settle the required amount by debiting the balance in the clearing account of the bank concerned. As the Aggregate Balance falls, the banking system as a whole would soon find it necessary to sell Foreign Reserves to the Currency Board, so as to bring the Aggregate Balance back to its original level. This in effect means that the issue of Currency Notes is backed by Foreign

Reserves, although there is no clear Convertibility Undertaking for the Currency Notes themselves.

24 The choice of the appropriate definition for the Monetary Base depends on the characteristics of other domestic monetary arrangements and the circumstances under which the Currency Board system is established. Adequacy of Foreign Reserves is obviously a key factor. Confidence considerations would require Currency Notes being included along with the Aggregate Balance. If payment system responsibilities require the provision of liquidity by the Currency Board to facilitate the smooth settlement of transactions, then this should also be adequately dealt with in the Monetary Base. The inclusion of an amount of Currency Board debt paper that can be used as collateral for such liquidity, with properly structured arrangements, will be appropriate. But the paper, to the extent that it can be used for this purpose, will need to be backed by Foreign Reserves.

25 In any case, the absence of reserve requirements and the presence of an efficient interbank payment system mean that the size of the Aggregate Balance may be quite small relative to the normal day to day volume of the flow of funds. As a result, small flows of funds involving transactions with the Currency Board may lead to unnecessarily sharp fluctuations in interbank interest rates. In other words, the "leverage" of the Aggregate Balance, whilst effective in bringing about the necessary adjustments, may put too much pressure on the financial, particularly the banking, system. In such circumstances, a wider definition for the Monetary Base, enabling a degree of transferability of other components of it into the Aggregate Balance, may help to dampen unnecessary volatility in interest rates.

Monetary Base—Internal Transferability

26 Whatever the definition of the Monetary Base, the transferability between the different components of it should be carefully handled. Theoretically, transferability amongst them could be allowed given that all components of the Monetary Base have already been backed fully by Foreign Reserves. But it will be useful to examine carefully the implications of such transferability. For this purpose, it is assumed that the Monetary Base has been defined to include the Aggregate Balance, Currency Notes

and a pool of Currency Board debt paper, all fully backed by Foreign Reserves.

27 Transferability between Currency Notes and the Aggregate Balance is a delicate matter. If this is allowed, then a bank could place Currency Notes with the Currency Board and receive value in its clearing account with the Currency Board, or withdraw Currency Notes and pay for them through the Currency Board debiting its clearing account. This arrangement has important implications. On the one hand, it may give people the impression that the issue and redemption of Currency Notes are not against, and therefore not fully backed by, Foreign Reserves. It may further affect confidence in the currency and in the robustness of the Currency Board system itself. On the other hand, such transferability would give the banks a choice in their transactions of Currency Notes with the Currency Board. They can obtain value either in Foreign Reserves at the fixed exchange rate or in Domestic Currency in the form of their clearing balances with the Currency Board, or draw Currency Notes against either their clearing balances or Foreign Reserves.

28 This choice for the banks would create opportunities for Currency Notes arbitrage when the market exchange rate deviates from the fixed exchange rate level. For example, when the exchange rate is weak, a bank can sell Foreign Reserves for the Domestic Currency in the market at the weak market exchange rate. It can then withdraw Currency Notes against its clearing balance with the Currency Board and return those Currency Notes to the Currency Board for Foreign Reserves at the fixed rate, thus recouping the Foreign Reserves sold earlier and make a profit. Such arbitrage, in effect, amounts to the Currency Board undertaking to convert the Aggregate Balance into Foreign Reserves at the fixed exchange rate. If this were explicitly stated as a Convertibility Undertaking, then there would be no need for the rather operationally tedious Currency Notes arbitrage to take place.

29 Transferability between Currency Notes and Currency Board debt is, by comparison, of less significance. There is no incentive for the holders of Currency Board debt paper to have it sold for Currency Notes, unless of course they could in doing so acquire Foreign Reserves at a cheaper rate than the exchange rate in the market. Neither is there any incentive for

anybody to buy Currency Board debt paper by the use of Currency Notes, notwithstanding that the former carries interest and the latter do not. It would be a lot more convenient for the buyer to make use of deposit money and in the case of a bank to make use of its clearing balance with the Currency Board, particularly when Currency Notes are transferable into the Aggregate Balance.

30 Transferability between Currency Board debt paper and the Aggregate Balance is a tricky issue. When the Currency Board buy and sell its own debt, whether passively or actively, it could be seen to be conducting money market operations of a discretionary nature, typical of central banks operating with other monetary policy objectives. It could undermine credibility of the Currency Board system. This is notwithstanding that the Currency Board debt paper is defined as part of the Monetary Base and is already fully backed by Foreign Reserves. There is the unavoidable impression that the Currency Board is aiming at influencing the level of interest rates or the level of interbank liquidity on a discretionary basis.

31 To deny transferability between Currency Board debt paper and the Aggregate Balance would, however, mean greater volatility in interbank interest rates. The Aggregate Balance could frequently move up and down in response to small flows of Foreign Reserves into and out of the Currency Board, particularly for economies with a relatively large external sector involving quite large volumes of external transactions. The susceptibility of the system to such volatility may be considered undesirable for the economy. Indeed, this weakness could be exploited. It does not take much for speculators who have built up a long position in the Domestic Currency to dry up the Aggregate Balance or send it into negative territory, thereby producing a sharp hike in interest rates and benefit from it.

32 Given also the responsibility of the Currency Board in ensuring the smooth operation of the interbank payment system, some transferability between Currency Board debt paper and the Aggregate Balance will have to be carefully prescribed. The Currency Board could allow the use of its debt paper as collateral for intraday liquidity in the case of an RTGS system as well as day end liquidity through a discount window. It will be useful if it could do so passively to avoid the impression that it is conducting discretionary money market operations, although the Currency Board will still have to determine a discount rate.

Convertibility Undertaking—Settlement

33 Three aspects of the Convertibility Undertaking can usefully be distinguished. First and arguably more importantly is how transactions arising from the Convertibility Undertaking are to be settled. The second aspect is the coverage and the third aspect is the form of the Convertibility Undertaking.

34 Whatever the coverage and the form of the Convertibility Undertaking, it is crucially important for the success of the Currency Board that transactions arising from the Convertibility Undertaking are settled through the Aggregate Balance. For example, in taking in Domestic Currency from (and providing Foreign Reserves to) a counterpart, pursuant to the Convertibility Undertaking, the Currency Board should debit the clearing account of the counterpart's bank the required amount of Domestic Currency. The bank should in turn debit the counterpart's deposit account the same amount of Domestic Currency or effect the payment through other means of their own choice. The counterpart could of course be the bank itself, in which case the settlement arrangements are simpler.

Convertibility Undertaking—Scope

35 Concerning the scope of the Convertibility Undertaking there are a number of choices. **First,** a simple and bold choice may be for the Currency Board to undertake to buy or sell Domestic Currency against Foreign Reserves at any time at the fixed exchange rate with whoever that wants to do so. But operationally this can be rather tedious for the Currency Board as it may not have the capacity physically to cope with the demands for conversion. Credibility of the Convertibility Undertaking may also be a concern. No matter how substantial Foreign Reserves are, the volume of international capital is enormous, so is the amount of Domestic Currency and assets denominated in it. And the leverage of the Aggregate Balance is not something that one can expect the community fully to comprehend.

36 It may therefore be necessary to limit the counterparts that the Currency Board wishes to deal with. As the Aggregate Balance is the sum of the balances (or assets) of the banks clearing with the Currency Board, it may be convenient, as a **second** choice, for the Convertibility Undertaking to be given only to the banks and for the Currency Board only to deal with

the banks. As long as the banks have money in their clearing accounts, the Currency Board undertakes to convert it into Foreign Reserves and have their clearing accounts debited. Similarly, as long as the banks have Foreign Reserves, the Currency Board undertakes to provide Domestic Currency through crediting their clearing balances, thereby increasing the Aggregate Balance.

37 In practice, the banks enjoying the Convertibility Undertaking should be in a position to extend it more widely to non-bank customers, and it would be beneficial to confidence in the currency for them to do so. But in doing so they may incur a funding risk in that a non-bank customer taking advantage of the Convertibility Undertaking through them may put them in a difficult position of having to borrow interbank funds at expensive interest rates to cover the resultant shortage of interbank funds. Nevertheless this risk is not a lot different from that they would incur in servicing the normal day to day activities of their customers. The only difference is that these other day to day activities would not normally lead to a fall in the Aggregate Balance, but that taking on the Currency Board through the Convertibility Undertaking would. This may be adequate disincentive for the banks not to extend the Convertibility Undertaking to non-bank customers or to charge a fee for the service. If this extension is considered desirable, having regard to the specific circumstances of each economy, the Currency Board will have to ensure that the banks comply with the requirements of the system and possibly regulate or prohibit the charging of any fees.

38 Alternatively, the Currency Board, as a **third** choice, may wish to target the non-bank customers, as they are the ones that matter. They are holders of the Domestic Currency and assets so denominated. Their confidence in the currency is crucial and not that of speculators without the Domestic Currency but funded by the banks. Thus the Currency Board may wish specifically to give the Convertibility Undertaking to all non-bank holders of the Domestic Currency and in whatever form it is being held and require the cooperation of the banks in effecting settlement arising from the Convertibility Undertaking through the Aggregate Balance. Again the banks may be reluctant, but they will just have to be made to comply and be sensible about the charging of fees.

39 As in the first choice, the wide scope may carry a downside risk in that there may be doubts on the ability of the Currency Board to honour the Convertibility Undertaking. Members of the public are typically not familiar with the fine technicalities of monetary affairs generally and the leverage of the Aggregate Balance in a Currency Board system specifically. If the Foreign Reserves are only a small fraction of the amount of Domestic Currency covered by the Convertibility Undertaking, there may be a credibility problem. Covering the Aggregate Balance, which is small in relation to Foreign Reserves, is fine. But they may feel that it is a little too much for the Currency Board to handle if the Convertibility Undertaking is to cover every bit of the Domestic Currency under the sun. Even for an economy with very large Foreign Reserves, they would only be a fraction of the total deposit base or the money supply.

40 To ensure credibility of the Convertibility Undertaking, and give the impression of targeting a group of beneficiaries that is worth the while, the Currency Board may wish, as a **fourth** choice, to be rather more selective in defining the scope of the Convertibility Undertaking. But it must be realized that it will be impossible and indeed unnecessary to prevent shifts of Domestic Currency from outside of the scope to inside it. One such target group may be the small savers.

Convertibility Undertaking—Form

41 The exact form of the Convertibility Undertaking is also important. There may be room to choose between flexibility and rigidity, and between (constructive) ambiguity and clarity. The Convertibility Undertaking may be a rigid evergreen undertaking that can be invoked anytime at the initiative of the beneficiaries at the fixed exchange rate with no discretion on the part of the Currency Board. Alternatively, having regard to other considerations, this may be a rather more flexible undertaking to be brought into play by the Currency Board only when there is a perceived need to do so at or around the level of the fixed exchange rate, for example when there is currency speculation. It should be noted that this more flexible approach does not involve any departure from the Monetary Rule, in that when the Convertibility Undertaking is not in force, the Aggregate Balance simply does not change at all.

42 When confidence in the currency is an issue, then a rigid Convertibility Undertaking with no discretion on the part of the Currency Board may be the correct form. But when Foreign Reserves are substantial and confidence in the currency is not really an issue, some flexibility can be tolerated, if this is considered desirable for whatever reasons. In this connection, it should be noted that a Currency Board system inhibits the development of the foreign exchange market. In the case where the Convertibility Undertaking is rigid, at a fixed rate, has a universal coverage and can be invoked any time at the discretion of holders of Domestic Currency, there will be no need for a foreign exchange market. Everybody will just convert Domestic Currency into Foreign Reserves, or vice versa, with the Currency Board, when they have a need to do so.

43 Hence if the foreign exchange market is considered to be a beneficial feature of the economy, there may need to be some flexibility in the Convertibility Undertaking. Flexibility may take the following form. Under normal circumstances, the Currency Board leaves the foreign exchange market alone to find its level at around the fixed exchange rate specified. Meanwhile, the Currency Board reserves the right anytime to trigger and offer convertibility at the fixed rate or at a particular level of the exchange rate close to the fixed level should it consider that the circumstances justify so doing. Needless to say, however, flexibility, even with total transparency, can undermine credibility. Discretion is involved, in the sense that the Convertibility Undertaking is there only when the Currency Board feels that it is needed. This may bring into question whether the Currency Board is adequately committed to the Monetary Rule. The decision on the part of the Currency Board may also cause market operators profits and losses, and hence aggravation and distrust.

44 In circumstances when the Convertibility Undertaking is for whatever reason in doubt, it may be useful for the Currency Board somehow to exact a price for it so that it is seen to be worth something. More importantly, the Convertibility Undertaking is then no longer an empty promise of the Currency Board but a contract enforceable in court. This can take the form of an insurance premium for the target group of beneficiaries, for example the small savers, who should also be given the choice whether to buy such insurance. The price, or the insurance premium, however, may be manifested as a built-in interest rate premium for the Domestic Currency over the foreign currency.

The Adjustment Mechanism

45 Whatever are the specific features of the Currency Board system in terms of the definition of the Monetary Base, the transferability of its components, and the scope and form of the Convertibility Undertaking, theoretically two rather distinct adjustment mechanisms can be distinguished. There is Currency Notes arbitrage on the one hand and interest rate adjustment on the other.

46 With a Convertibility Undertaking for Currency Notes at the fixed exchange rate, any deviation of the market exchange rate from the fixed exchange rate would theoretically create opportunities for arbitrage, thus keeping the market exchange rate close to the fixed level. Assume, for example, that the market exchange rate is weaker than the fixed exchange rate. A person carrying out arbitrage can sell Foreign Reserves for Domestic Currency at the market rate and withdraw from his bank Currency Notes against the deposit balance which he got from the transaction. He can then take advantage of the Convertibility Undertaking to recoup from the Currency Board the Foreign Reserves that he has sold earlier at the more favourable fixed exchange rate and therefore make a profit.

47 It is not difficult to see that the feasibility or otherwise of Currency Notes arbitrage hinges upon quite a number of factors. **First,** the Convertibility Undertaking is obviously crucial, but as this is a clear commitment on the part of the Currency Board there should not be any difficulty in honouring it.

48 **Second,** there is however doubt as to whether or not banks would allow their customers to obtain a large amount of Currency Notes against their deposit balances. This is particularly so when the banks have to acquire Foreign Reserves in the market at the weaker exchange rate in order to submit them to the Currency Board to obtain the necessary Currency Notes for their customers. This may lead to banks charging a fee for the handling of large amounts of Currency Notes, with the fee, in percentage terms, reflecting the differential between the market exchange rate and the fixed exchange rate. This would inhibit the effectiveness of Currency Notes arbitrage in ensuring exchange rate stability.

49 **Third,** transaction costs may also be involved in moving large amounts of Currency Notes around, from a commercial bank to the Currency Board, or vice versa, thus further inhibiting Currency Notes arbitrage as an effective adjustment mechanism.

50 **Fourth,** foreign exchange transactions are typically for value spot, that is, for settlement two days hence and not for same day value. The two-day time lag between the taking of the decision to conduct Currency Notes arbitrage and its completion is probably too long for the comfort of those involved. This is particularly so at a time when the market exchange rate is weak and understandably rumours abound concerning the possibility of the Currency Board not being able to hold. Thus it is doubtful whether Currency Notes arbitrage is an effective adjustment mechanism to ensure exchange rate stability under a Currency Board system.

51 **Fifth,** in any case, if there is transferability between the Aggregate Balance and Currency Notes, and if the Convertibility Undertaking covers the Aggregate Balance at the fixed exchange rate, there is no need for Currency Notes arbitrage to take place.

52 The more effective adjustment mechanism of a modern day Currency Board system works through interest rates. With the Convertibility Undertaking for Domestic Currency working through the Aggregate Balance, capital inflows or outflows will lead to corresponding changes in the Aggregate Balance and therefore interbank interest rates. Within the limit of credibility, the resultant interest rate differential would create interest rate arbitrage opportunities and therefore generate offsetting capital flows. Meanwhile, the market exchange rate, if there is one, depending on the form of the Convertibility Undertaking, remains close to the fixed exchange rate level.

53 This adjustment mechanism, which works through interest rates, obviously involves pain for all borrowers of the Domestic Currency and thus for the economy as a whole, not just the speculators shorting the Domestic Currency for short-term gains. Depending on the level of confidence and the severity of the attack on the Domestic Currency, the pain can be quite sharp and prolonged. In this context, a number of factors are relevant. These include, but obviously not limited to, the determination

of the government in adhering to the Currency Board system; the credibility of fiscal and other economic policies; the external environment including sentiment in the regional and global financial system; the domestic social, economic and political environment; the ability of the domestic economy to adjust, etc. Confidence may also be affected by the technical details of how the Currency Board system is structured. A clear and credible Convertibility Undertaking without discretion on the part of the Currency Board that is also legally enforceable will of course be more favourable to confidence, particularly amongst the holders of the Domestic Currency, than one with flexibility. When the community is in pain, they are likely to try and find someone to blame and the Currency Board responsible for inflicting the pain, albeit not so much at its initiative, is a very good target. But changes to the technical details should not lightly be considered precisely for the purpose of avoiding confidence being undermined. This is a delicate issue that can only be dealt with in the light of domestic circumstances.

54 No matter how a Currency Board system is structured, whether there is a rigid or a flexible Convertibility Undertaking, it will always be useful to ensure a high degree of transparency that the Monetary Rule is adhered to. To achieve this, it will be useful to provide up to date information on the Aggregate Balance and the other components of the Monetary Base. Given foreign exchange deals are typically for value spot and money market transactions are for value the same day, forecasts on the Aggregate Balance should also be provided. These will enable banks to prepare themselves well for any sharp changes in the Aggregate Balance, thus possibly avoiding market panic when any shortage occurs, dampening the sharp hikes in the short-term interbank interest rates and preventing overshooting of the interest rate pain.

Tolerance of Pain

55 For economies operating with Currency Board systems, it will be useful to pay attention to enhancing the ability of the economy generally to tolerate the interest rate pain. It will obviously be advisable for the innocent borrowers of the Domestic Currency, for example, those conducting their businesses or paying their mortgages, to be insulated as much as possible from the interest rate pain. This would help to prevent political pressures from building up against the Currency Board and calling for painkillers,

notwithstanding that these would damage the health of the system in the long term. One way of doing so would be to promote the use of fixed interest rates, particularly for home mortgages and where borrowers are less able to protect themselves from interest rate fluctuations.

56 It is important also to realize that the leverage of the Aggregate Balance, whilst very strong, transmits the pressure of adjustment onto the banking system. When there is capital outflow, whether or not initiated by the banks or by the bank customers, leading to the Aggregate Balance shrinking or evening going into debit, the banks are forced to surrender Foreign Reserves to the Currency Board in order to reconstitute the Aggregate Balance. Failure to do so will mean that their interbank obligations may not be settled and their going into default. Under the influence of higher interest rates, there may hopefully be offsetting capital inflows, but this is never guaranteed particularly when there is panic. And the banking system, in the mean time, may be forced into running down their Foreign Reserves and thereby incurring a short foreign currency position. The settlement risk and foreign exchange risk specific to a Currency Board system will need to be carefully managed. Furthermore, under a Currency Board system the banks may be exposed to sharper interest rate fluctuations and therefore greater interest rate risk than would otherwise be the case. There is a need for banks to pay special attention to managing these risks, working closely with the supervisory authorities, who will also have to promote better understanding amongst banks and provide suitable guidance.

Dollarization

57 Hopefully the necessary adjustments arising from a domestic or an external shock, including a currency attack, would be temporary. But the process may be sustained, involving a breakdown of confidence in the Domestic Currency, notwithstanding the Convertibility Undertaking of the Currency Board. In that case the adjustment pressures centering around high domestic interest rates may lead borrowers to seek the agreement of the lenders to re-denominate loans in foreign currency. The banks themselves may, in view of the risk profile of their balance sheets, seek to do the same with their customers. And in turn, or at the same time, providers of goods and services may demand receipts, and workers may

demand remuneration, in foreign currency. Legislation may need to be put in place to facilitate this. The process would in effect amount to "dollarization", if the foreign currency to which the Currency Board is anchored is indeed the US dollar, and a gradual and orderly demonetization of the Domestic Currency, with the exchange rate remaining fairly stable throughout.

The Model System

58 On the basis of the theoretical discussions earlier in this chapter, a model modern day Currency Board system is outlined below. It is assumed that there is an abundance of Foreign Reserves and no lack of confidence in the currency. This is asking a lot, given particularly that with these conditions there may not be a need for a Currency Board system in the first place. But this model system may be used as reference for structuring a new system or for modifying an existing one in the light of domestic circumstances.

(a) The Monetary Base should include the Aggregate Balance, the Currency Notes and a pool of Currency Board debt paper to an extent adequate to facilitate the smooth settlement of interbank transactions.

(b) The Monetary Base should be backed fully by Foreign Reserves and, as a whole, be subject to the Monetary Rule.

(c) The three components of the Monetary Base should be fully transferable amongst themselves at the initiative of the owner and the Currency Board should facilitate this.

(d) Individual components of the Monetary Base could be changed against a corresponding change either in Foreign Reserves, in accordance with the Monetary Rule, or against a change in the other components of the Monetary Base in the opposite direction.

(e) The Convertibility Undertaking should be an evergreen one for all Domestic Currency held by anybody at the fixed exchange rate, and passive on the part of the Currency Board, with transactions arising from the Convertibility Undertaking settled through the Aggregate Balance.

(f) There should be a high degree of transparency and disclosure on how the Monetary Rule is being strictly observed by the Currency Board.

(g) Up to date information should be published on all three components of the Monetary Base with possibly real time updating of the Aggregate Balance and forecasts thereon, and on the Foreign Reserves held by the Currency Board.

Chapter III
The Currency Board System of Hong Kong

59 The Currency Board system of Hong Kong has undergone significant changes since its establishment in October 1983. Many of its current features are a reflection of the peculiarities of monetary arrangements at different periods in the monetary history of Hong Kong, and shaped by influence from different players in the monetary system from time to time. As it is, therefore, the Currency Board system of Hong Kong, described factually in this chapter, contains significant differences from the model system developed from the theoretical framework outlined in the previous chapter. Nevertheless, it has obviously worked well and served Hong Kong well over the years.

Control over the Aggregate Balance

60 One peculiarity in the Currency Board system of Hong Kong, now rectified, was that the crucial element of the Monetary Base, that is, the Aggregate Balance, was not subject to the Monetary Rule for the period from October 1983 to July 1988. When the linked exchange rate system was first put in place in October 1983, the interbank clearing system was run by a commercial bank and not by the Currency Board. The Management Bank of the Clearing House of the Hong Kong Association of Banks, as it was then called, was The Hongkong and Shanghai Banking Corporation Limited (HSBC). All licensed banks in Hong Kong maintained a clearing account directly, or indirectly through another Settlement Bank, with HSBC. Thus, HSBC was the controller of the Aggregate Balance and was therefore in a position to create money.

61 There was no arrangement imposed upon HSBC to subject the Aggregate Balance to the Monetary Rule and there was no Convertibility Undertaking for the Aggregate Balance. The Aggregate Balance was determined by the commercial activities of HSBC, more specifically by its activities in the money and foreign exchange markets, and by the activities of its customers. When HSBC lent to other banks or bought assets including foreign exchange, or when HSBC's customers drew cheques and paid them to customers of other banks, the Aggregate Balance increased. There was no

requirement and therefore no need for HSBC to fund itself. At times therefore conditions in the interbank market were inconsistent with those that one would expect to see in the automatic adjustment process that ensures exchange rate stability under a Currency Board system.

62 One peculiar arrangement led to another. In order artificially to produce the tightness in the interbank market which otherwise would be automatically felt in a Currency Board system where the Aggregate Balance is subject to the Monetary Rule, a scheme whereby the Currency Board borrowed in the interbank market was implemented. This involved HSBC borrowing Hong Kong dollars in the interbank market on behalf of the Currency Board so that the Aggregate Balance was kept low. So, instead of HSBC having to fund its commercial activities, just like other commercial banks having to fund theirs, money was created (a higher Aggregate Balance) without any consideration of the requirement of the Monetary Rule, and the Currency Board had to sterilize the money created (lowering the Aggregate Balance).

63 As the Currency Board was at that time a non-bank customer of HSBC, such borrowing activity, on settlement, involved a shift of HSBC's Hong Kong dollar liabilities from the Aggregate Balance then on its balance sheet to the deposit account of the Currency Board. The borrowing was expensive and the resultant deposit placed with HSBC was non-interest bearing. This obviously was quite costly to the Currency Board. And there was no safeguard against new money being created and leaked into the Aggregate Balance, however inadvertently, attracted by the high interbank interest rates prevailing, leading to bigger and bigger amounts having to be borrowed in order to sustain the effort.

64 Control over the Aggregate Balance was eventually brought under the Currency Board (operated then by the Office of the Exchange Fund and now by the Hong Kong Monetary Authority) only in July 1988 through the so called Accounting Arrangements. These reversed the customer-banker relationship between the Currency Board and HSBC in that HSBC was required instead to operate a clearing account with the Currency Board. As HSBC was still the Management Bank of the Clearing House and all other licensed banks still maintained clearing accounts directly or indirectly with it, HSBC was further required to conduct its interbank activities so that the

net clearing balance of the rest of the banking system was not bigger than the Balance in its account at the Currency Board. The Balance thus operated as a cap on HSBC's ability to create money, beyond which the Accounting Arrangement imposed a penal rate of interest on the excess. Given that the Balance can only be altered when transactions are conducted with the Currency Board, the Aggregate Balance was only then defined and subject to the indirect control of the Currency Board.

65 The Accounting Arrangements were later, in December 1996 on the occasion of the introduction of RTGS to interbank clearing in Hong Kong, replaced by a rather more normal arrangement. This requires all licensed banks to operate clearing accounts with the Currency Board rather than working through a commercial bank. Only then was the Aggregate Balance, the crucial element of the Monetary Base, properly defined and put directly onto the balance sheet of the Currency Board.

Discipline of the Monetary Rule

66 Prior to July 1988, the Monetary Rule of the Currency Board system applied only to the issue and redemption of Certificates of Indebtedness, and therefore indirectly to the issue and redemption of Bank Notes. The crucial part of the Monetary Base, the Aggregate Balance, by virtue of the fact that it was not on the balance sheet of the Currency Board, was not subject to the Monetary Rule. In operating the Accounting Arrangements from the period July 1988 to December 1996, and subsequently the RTGS system from December 1996 to now, the Currency Board adhered largely, but admittedly with justifiable exceptions, to the Monetary Rule in respect of the Aggregate Balance.

67 The justifiable exceptions fall into two categories. One concerns the need to facilitate the smooth settlement of interbank transactions, which is described in greater detail in the section on payment system responsibilities later in this chapter. The other concerns situations when large scale Hong Kong dollar commercial transactions unrelated to currency speculation, such as the Initial Public Offerings of shares, carry the risk of creating extreme conditions in the interbank market and affecting the stability of the exchange rate. The Currency Board may lend to or borrow Hong Kong dollars from the interbank market temporarily to dampen such extreme conditions.

Monetary Base

68 The Monetary Base, as it is currently defined and understood, includes the Aggregate Balance and, indirectly through the Certificates of Indebtedness issued to the Note Issuing Banks for backing the Bank Notes issued by them, the amount of Bank Notes issued. There is no transferability between Bank Notes (or the Certificates of Indebtedness) and the Aggregate Balance.

The Convertibility Undertaking

69 The Convertibility Undertaking in respect of the Certificates of Indebtedness backing the issue of Bank Notes has always been clearly laid down, although this does not apply to the Bank Notes themselves directly. But there has never been any clear Convertibility Undertaking given on the part of the Currency Board to convert the Aggregate Balance or any definition of Domestic Currency into Foreign Reserves at the fixed exchange rate of HK$7.80 to US$1.

70 Instead, the Currency Board has the discretion to trigger convertibility for Domestic Currency sold in the foreign exchange market, with settlement through the Aggregate Balance, whenever it feels necessary to do so. Invariably, this would be under circumstances when the currency is under attack. But under normal circumstances, the Currency Board leaves the foreign exchange market alone and the exchange rate can therefore deviate under the influence of free market forces somewhat away from the fixed exchange rate of HK$7.80 to US$1.

71 The Currency Board further triggers convertibility not always at precisely the fixed exchange rate level. For example, it has been doing so recently at a level somewhat stronger than 7.80. The purpose was to avoid too sharp and large a movement in the market exchange rate back towards 7.80 leading to the shorting of Hong Kong dollars snowballing into something uncontrollable as the market panicked and as more people jumped onto the bandwagon. But once convertibility is triggered at a particular level of the exchange rate near to the fixed level, the Currency Board maintains a passive stance, taking in whatever amount of Domestic Currency sold in the foreign exchange market in exchange for Foreign Reserves and requiring settlement through the Aggregate Balance.

72 It can be argued that the opportunity should have also been taken in July 1988 or December 1996, when respectively the Aggregate Balance was first defined and properly put onto the balance sheet of the Currency Board, for the Currency Board to give some form of clear Convertibility Undertaking. For example, it could take the form of an undertaking, on demand by the commercial banks, to convert the Aggregate Balance into Foreign Reserves at the fixed exchange rate, and vice versa. Or the Currency Board could have boldly given the Convertibility Undertaking in respect of Domestic Currency in whatever form, as long as settlement is effected through the Aggregate Balance. But the desire to keep changes to an apparently well tried system to the minimum was an important consideration of the day. In any case, the currency has never been under any serious pressure to justify making too significant changes. There was also concern that a Convertibility Undertaking would undermine the development of the foreign exchange market that was considered essential for the development of Hong Kong as an international financial centre.

Payment System Responsibilities

73 In assuming control over the Aggregate Balance and putting it properly onto the balance sheet of the Currency Board, the responsibility for running the interbank clearing system was also assumed by the Currency Board. The Currency Board therefore has responsibility to provide intraday and day end liquidity to the banking system to facilitate the smooth clearing and settlement of interbank transactions. In doing so, the Currency Board may have to create money and increase the Aggregate Balance or the Monetary Base without a corresponding increase in Foreign Reserves. This would risk contravening the Monetary Rule.

74 But the arrangements of the Exchange Fund Bills and Notes Programme introduced in 1990, the Liquidity Adjustment Facility (LAF) introduced in 1992 and RTGS introduced in 1996 provide an adequate mechanism to minimize this risk. Under the Programme, there is a significant pool of Exchange Fund debt paper issued and held by licensed banks for use by the licensed banks as collateral for obtaining intraday and day end liquidity from the Currency Board. However, to safeguard against the Monetary Base being indiscriminately increased without the corresponding increase in Foreign Reserves, the end of day transferability

of the Exchange Fund debt paper into the Aggregate Balance is limited by the penal interest rates charged for borrowing through the LAF and for repeated borrowings.

75 The interest rate (the LAF offer rate) at which Exchange Fund debt paper is discounted (through an overnight repurchase agreement at LAF) is currently 150 basis points above the US Fed Funds Target Rate. (There is also a LAF bid rate, currently at 150 basis points below the US Fed Funds Target Rate at which the Currency Board takes in surplus funds at the end of the day. But this is there for a historical and non-monetary purpose unrelated to the operation of the Currency Board.) The interest rate applicable for repeated borrowers is determined at the absolute discretion of the Currency Board. Hitherto no bank has been a repeated borrower which is defined as a bank which has borrowed through LAF on eight occasions in any period of 25 days or on four consecutive days in which LAF is open.

76 Further comfort is provided by the fact that the proceeds from the issue of the debt paper have been largely switched into Foreign Reserves, so that the debt paper is in effect already backed fully by Foreign Reserves. So, where the payment system responsibilities of the Currency Board involve a temporary increase in the Aggregate Balance, the increase is backed by Foreign Reserves already held by the Currency Board, although it is not so much matched by a corresponding increase in new Foreign Reserves.

Note Issue Arrangements

77 Another peculiarity of the Currency Board system of Hong Kong, still currently in place, is the fact that Currency Notes are not issued by the Currency Board. They, more appropriately called Bank Notes, are issued by three commercial banks. HSBC and the Standard Chartered have been Note Issuing Banks for a long time and the Bank of China became the third one in May 1994. The Currency Board, nevertheless, retains control over the issue of Bank Notes through the long established requirement that Certificates of Indebtedness issued by the Currency Board are needed as backing for the commercial banks to issue Bank Notes. On the introduction of the linked exchange rate system in October 1983, the Note Issuing Banks were required to acquire the Certificates of Indebtedness from the Currency Board with US dollars at the fixed exchange rate of HK$7.80 to US$1.

78 Thus the Convertibility Undertaking applies only to Certificates of Indebtedness backing the Bank Notes and not to the Bank Notes themselves. It is only given to the Note Issuing Banks as the holders of Certificates of Indebtedness. A holder of Bank Notes, by contrast, is not able to convert his Bank Notes into US dollars at the fixed exchange rate of HK$7.80 to US$1. For a period after the introduction of the system in October 1983, there were arrangements whereby the Note Issuing Banks issued and redeemed Bank Notes to other licensed banks also against US dollars. But the practice of the licensed banks charging a fee for the handling of large amount of Bank Notes from their customers to cover any deviation of the market exchange rate from the fixed exchange rate led to the abolition of those arrangements in January 1994. With the natural increase in the amount of Bank Notes in circulation over time, the Note Issuing Banks then stand to benefit when the exchange rate is stronger than 7.80 and to lose when the exchange rate is weaker than 7.80. Thus they collectively have an incentive to keep the exchange rate on the strong side of 7.80.

Summary of Current Practice

79 In summary, and making use of the theoretical framework described in chapter II, the Currency Board system of Hong Kong can be characterized as follows.

(a) The Monetary Base consists of the Aggregate Balance and, indirectly, the Bank Notes, both subject to the Monetary Rule in that changes are brought about only by corresponding changes in Foreign Reserves held by the Currency Board.

(b) The Aggregate Balance is directly and the Bank Notes are indirectly (through Certificates of Indebtedness issued to the Note Issuing Banks) on the balance sheet of the Currency Board.

(c) There is no transferability between the Aggregate Balance and the Bank Notes.

(d) There is a clear Convertibility Undertaking for Certificates of Indebtedness held by the Note Issuing Banks backing their issue of Bank Notes. But there is no Convertibility Undertaking for the Bank Notes themselves.

(e) There is no clear Convertibility Undertaking in respect of the Aggregate Balance or any forms of Domestic Currency.

(f) Convertibility of Domestic Currency sold in the foreign exchange market is triggered occasionally by the Currency Board at a level of exchange rate close to HK$7.80 to US$1, determined at a time considered necessary and appropriate by the Currency Board. Settlement of transactions between the Currency Board and those selling Domestic Currency is through the Aggregate Balance.

(g) Once convertibility is triggered, the Currency Board adopts a passive stance and takes in whatever amount of Domestic Currency sold in the foreign exchange market directly from licensed banks or through its agent licensed banks.

(h) Reconstitution of the Aggregate Balance works through the Currency Board buying back US dollars in the foreign exchange market at the market exchange rate which, given tightness in the interbank market, will be stronger than the rate at which the Currency Board sold US dollars.

(i) In assisting the reconstitution of the Aggregate Balance, the Currency Board is prepared to deal for value the same day or for value tomorrow, as well as for value spot in the foreign exchange market.

(j) The Currency Board publishes on an hourly basis the Aggregate Balance and forecasts of it for the next two days and beyond.

(k) The LAF enables the Aggregate Balance very temporarily to be reconstituted without Foreign Reserves sold to the Currency Board. But the provision of liquidity by the Currency Board through LAF is secured upon Exchange Fund paper that is backed by Foreign Reserves.

(l) Borrowing from LAF attracts a penal but pre-determined interest rate and repeated LAF borrowers, a term clearly defined, are subject to the charging of interest rates determined at the absolute discretion of the Currency Board.

(m) The Currency Board may lend to and borrow Hong Kong dollars from the interbank market temporarily to dampen extreme conditions in the interbank market. This is done only in exceptional circumstances when large scale Hong Kong dollar commercial transactions unrelated to currency speculation, such as the Initial Public Offerings of shares, carry the risk of creating extreme conditions in the interbank market and affecting the stability of the exchange rate.

Chapter IV
An Assessment of Performance

80 In terms of delivering a stable exchange rate, the Currency Board system of Hong Kong seems to have done well during the nearly 15 years of its operation. But looking deeper into the structure of the system and its evolution over time, and the mechanics of its operation, there are a few interesting observations. This chapter attempts an assessment of the performance of the Currency Board system of Hong Kong, distinguishing between the different phases of its development in the past 15 years, and in conclusion identifies significant departures of the present system from the model system developed in chapter II of this paper. This would hopefully serve the purpose of guiding future improvements in the system, if considered necessary, in the light of changes in the operating environment.

The Early Years

81 During the initial period of about five years from October 1983 to July 1988 when the Accounting Arrangements were introduced, the Currency Board system did not really work that well. The Monetary Rule requiring changes in the Monetary Base to be matched by changes in Foreign Reserves was observed strictly, but only in respect of Bank Notes and not the Aggregate Balance. The Convertibility Undertaking extended only to Certificates of Indebtedness and not to the Bank Notes themselves. Further, with banks discouraging the withdrawal or the deposit of large amounts of Bank Notes against deposit balances, Bank Notes arbitrage did not take place at all in any significant or meaningful way.

82 The exchange rate was kept stable then simply by intervention in the foreign exchange market. And by virtue of the fact that the Aggregate Balance was not on the balance sheet of the Currency Board but on the balance sheet of a commercial bank, the favourable money market effects of foreign exchange market intervention was not assured. The Currency Board was a non-bank customer. Its agent bank in intervention, HSBC the Management Bank of the Clearing House of the Hong Kong Association of Banks, sold US dollars in the market on behalf of the Currency Board. But

Hong Kong dollars were recycled or leaked back into the interbank market through the money market activities of HSBC, on its own or on behalf of its customers. The foundation of the Currency Board at that time was a shaky one.

The "Middle Ages"

83 The period from July 1988 to December 1996 marks the "Middle Ages" of the Currency Board system of Hong Kong. It was during this period that a more solid foundation was built for the Currency Board in that the Aggregate Balance was put onto the balance sheet of the Currency Board and therefore subject to the Monetary Rule. But the control over the Aggregate Balance was indirect, with the Currency Board still working through the balance sheet of HSBC, the Management Bank of the Clearing House of the Hong Kong Association of Banks, under the Accounting Arrangements.

84 The Currency Board also took time to adjust to the new responsibility of ensuring that the Aggregate Balance was subject to the Monetary Rule. This has not been straight forward as, admittedly, pressures in the money market and the difficulty of operating effectively through the umbilical cord of the Accounting Arrangements have prompted, with the benefit of hindsight, unnecessary shifts in its mode of operation. The need to act as lender of last resort also complicated matters. Instead of studiously adhering to the Monetary Rule in operating the Aggregate Balance in the form of the Balance of the account HSBC maintained with the Currency Board, there were times when the Currency Board strayed into targeting interest rates or the Aggregate Balance. Although exceptions from the Monetary Rule were individually well justified, it took some time before a well argued modus operandi emerged. Furthermore, there had been no speculative pressure for the currency to devalue during the period, other than one episode at the beginning of 1995 arising from a general concern about emerging markets as a result of the Mexican crisis. Adherence to the Monetary Rule in operating the Aggregate Balance enabled the Currency Board to deal with that comfortably.

Modernization

85 With the introduction of RTGS in December 1996 and the Aggregate Balance at the same time being put directly onto the balance sheet of the Currency Board, the Monetary Rule in respect of the Aggregate Balance became well established. The scope for the Currency Board inadvertently straying from the Monetary Rule also diminished.

86 The system was modernized just in time for it to cope with some real tests as Asian financial turmoil broke out on 2 July 1997 in Thailand. The robustness of the Hong Kong Currency Board system, buttressed by very substantial Foreign Reserves, meant that Hong Kong was the last and the least to be affected. There were, nevertheless, intermittent attacks on the Hong Kong dollar. At the time of writing this paper, there had been three such attacks—in October 1997, January 1998 and June 1998. On all three occasions the Currency Board, adhering to the Monetary Rule for the Aggregate Balance, held up well and the exchange rate remained very stable, although interbank interest rates did rise sharply.

87 This was particularly the case in October 1997 when the amount of shorting of Hong Kong dollars was intense. The amount of Hong Kong dollars sold to the Currency Board (for value spot on 21 October 1997) was many times greater than the Aggregate Balance. And as the banks began to realize that this was the case only on settlement day (23 October), notwithstanding repeated warnings on the previous two days by the Currency Board, interbank interest rates were bid up to very high levels. But the money that they were bidding for was simply not there. And it took some time for the banks to realize that the only way whereby the Aggregate Balance could be reconstituted was for them to sell US dollars back to the Currency Board, despite elaborate explanations by the Currency Board to that effect. When eventually they realized this, indeed they started selling US dollars for Hong Kong dollar liquidity which the Currency Board provided also for value on the settlement day (i.e. foreign exchange deals for value today instead of for value spot). This enabled the Aggregate Balance to be reconstituted and the tightness in the interbank market to be relieved.

88 In order to assist banks in more efficiently arranging their Hong Kong dollar funding, and to avoid market panic and overshooting of interest rates, the Currency Board started in June to provide hourly forecasts on the Aggregate Balance in the next two days and beyond. This seemed to have helped greatly in calming the market and the impact of the third currency attack that came after such disclosure of information was a lot less than in October 1997, although the amount of shorting of Hong Kong dollars involved was also less.

89 But interest rates have remained high. At the time of writing, Hong Kong dollar best lending rate was 125 basis points higher than that for the US dollar. And interbank interest rates in the three-month area were around three percentage points higher. It is not possible to be precise about the reasons behind the persistent interest premium. Concern about the Asian financial turmoil, with all currencies other than the Hong Kong dollar and the Renminbi having devalued substantially, and the natural apprehensiveness on the ability of the Currency Board of Hong Kong to hold must, however, be amongst the most important reasons. Market sentiment has been jittery and the sharp downward adjustment of asset prices and economic growth did not help. Furthermore, political change has also meant that even technical issues of this nature are receiving much attention, understandably also because there has been so much pain inflicted on the community, in terms of higher interest rates, higher unemployment, sharply lower asset and equity prices and negative economic growth.

90 Some have attributed higher interest rates to the manner in which the Currency Board was being operated. Schemes to relieve the interest rate pain have been suggested. Some were based on the notion that the Currency Board could somehow maintain a stable exchange rate and low interest rates at the same time, even facing a currency attack. None of these, however, are workable without some risk of compromising the Monetary Rule and therefore undermining the credibility of the Currency Board system. These have been dealt with in detail in the Report on Financial Market Review published in April 1998.

91 On the other hand, Hong Kong's currency board system, as currently structured, is not entirely free from shortcomings. After all, in examining the Currency Board system of Hong Kong against the theoretical framework

outlined in chapter II, particularly against the model system, one cannot help noticing the following departures.

(a) The Monetary Base includes the Aggregate Balance and the Certificates of Indebtedness backing the issue of Bank Notes. Exchange Fund debt paper issued by the Currency Board and backed by Foreign Reserves is, however, not a part of the Monetary Base. Yet the intraday repo arrangement of the RTGS system and LAF, however restrictive, allow its transferability into the Aggregate Balance.

(b) The Monetary Base, as defined, is fully backed by Foreign Reserves and subject to the Monetary Rule with the exception of lending through the intraday repo arrangement of the RTGS system and through LAF.

(c) There is no internal transferability between the two components of the Monetary Base, although they are both backed fully by Foreign Reserves.

(d) There is a lack of a clear Convertibility Undertaking in both scope and form, other than in respect of the Certificates of Indebtedness backing the issue of Bank Notes, but not the Bank Notes themselves.

(e) There is flexibility or constructive ambiguity, and therefore uncertainty, on the part of the Currency Board only temporarily triggering a Convertibility Undertaking against Domestic Currency sold in the foreign exchange market.

(f) This is done at an undisclosed exchange rate determined by the Currency Board from time to time but not at the fixed exchange rate of HK$7.80 to US$1. This results in the market exchange rate deviating significantly from the fixed rate, possibly creating doubts on the robustness of the system.

Chapter V
Pre-emptive or Contingency Measures

92 Economic hardship, whether or not caused by high interest rates, may lead to a deterioration of confidence in the currency. Given the severity of the economic downturn at present, it would be prudent to explore whether there are measures that could be introduced to the Currency Board arrangements in Hong Kong so as to enhance general confidence in the currency. A crucial objective must be to strengthen the ability of the Currency Board system of Hong Kong in delivering exchange rate stability rather than doing anything that may risk undermining this ability. The same applies to the reputation and credibility of the organization responsible for operating the Currency Board arrangements.

93 Whether or not such measures would bring down interest rates must only be a secondary consideration. With the benefit of the analysis in earlier chapters, a number of recommendations are outlined in this chapter and their implications discussed. They, or variations of them, may be considered for introduction either as pre-emptive measures to strengthen or forestall a deterioration of confidence in the currency, or as contingency measures when, for one reason or another, confidence in the currency deteriorates.

A Currency Board Committee

94 Notwithstanding an abundance of HKMA publications on both the theory and practice of the Currency Board system of Hong Kong, the technical details are still considered to be quite esoteric by the community. The degree of understanding on the key issues continues to be quite low, even within the banking community. Lack of understanding often gives rise to misunderstanding, and when the currency is under stress and the community in pain, there is a serious risk that community support for the system will be eroded. There is correspondingly also the risk of erosion of confidence in the currency, in monetary management in Hong Kong and in the reputation of the HKMA.

95 It is important to continue with the efforts to explain to the community the appropriateness of the policy of a fixed exchange rate for Hong Kong

and the Currency Board mechanism whereby this policy objective is achieved. It is also important to continue to explain repeatedly and clearly the discipline that the Currency Board system of Hong Kong imposes on the economy and on monetary management. For the same reasons, it is vital that we safeguard the operational independence of the Currency Board and ensure that, while its activities are subject to a high degree of transparency and disclosure, it is insulated from short-term political interference. This is particularly important at a time of interest rate volatility like the present: at such times the temptation to avoid interest rate pain by compromising sound Currency Board principles is a strong one, and, quite understandably, the political pressure to give in to the temptation is considerable.

96 In any political system, the best protection for the integrity of monetary management still lies in the operator of the Currency Board to be professional and independent, and be seen and recognised by the community to be so.

97 Having regard to this view, three directions of change concerning the operation of the Currency Board arrangements in Hong Kong are now worth greater attention. **First** is for the operations of the Currency Board to be more clearly distinguishable from other activities of the HKMA, so that they become rather more self-contained, possibly also with separate accounts. **Second** is for the key issues of the Currency Board, namely, the Monetary Rule, the Monetary Base, the Convertibility Undertaking, etc., which are in fact quite simple issues, to be more clearly laid down or defined. **Third** is for the relevant data to be disclosed in order that the operations of the Currency Board arrangements, in particular how the Monetary Rule is being observed in respect of the Monetary Base, can be even more transparent and subject readily to public scrutiny.

98 By way of achieving these, it is proposed that a Currency Board Committee be established to oversee the operation of the Currency Board arrangements. It should be a small Committee chaired by the Monetary Authority, with the three Deputy Chief Executives as members from the HKMA and four from outside the HKMA. A low key approach would be for the Committee to be established as a Sub-committee of the Statutory Exchange Fund Advisory Committee (EFAC) and the members appointed

by the Financial Secretary. This would minimise the chances of the Committee being politicised with politicians wanting to get involved. The four private sector members should therefore be drawn from the EFAC, although this would limit the choice substantially. The academic and accountant members should be included, leaving the remaining two seats to be filled by the bankers, who would preferably include the representative of the Chairman Bank of the Hong Kong Association of Banks.

99 The Currency Board Committee would be akin to the monetary policy committees of central banks in other jurisdictions, for example, the Federal Open Market Committee of the Federal Reserve System of the United States, chaired by Alan Greenspan as Chairman of the Fed, and the Monetary Policy Committee of the Bank of England, chaired by Eddie George as Governor of the Bank of England. But obviously, unlike the others, its function is not to exercise discretionary monetary management. By contrast, its role is basically to ensure that discretion, which can be damaging to the Monetary Rule, is not exercised.

100 The Currency Board Committee should meet regularly, and the frequency will have to be monthly, at least initially. It will report to the Financial Secretary through the Exchange Fund Advisory Committee. The Currency Board Committee should be established as soon as possible and should have the following **Terms of Reference**:

(a) to ensure that the operation of the Currency Board arrangements in Hong Kong is in accordance with the policies determined by the Financial Secretary in consultation with the Exchange Fund Advisory Committee;

(b) to report to the Financial Secretary through the Exchange Fund Advisory Committee on the operation of the Currency Board arrangements in Hong Kong;

(c) to recommend, where appropriate, to the Financial Secretary through the Exchange Fund Advisory Committee, measures to enhance the robustness and effectiveness of the Currency Board arrangements in Hong Kong;

(d) to ensure a high degree of transparency in the operation of the Currency Board arrangements in Hong Kong through the publication of relevant information on the operation of such arrangements; and

(e) to promote a better understanding of the Currency Board arrangements in Hong Kong.

Currency Board Accounts

101 Amongst the first issues that the Currency Board Committee should look at is the provision of more information on the operation of the Currency Board arrangements in Hong Kong. This could take the form of Currency Board Accounts. The HKMA has other important central banking responsibilities, along with the operation of the Currency Board arrangements to ensure exchange rate stability. There is always the risk therefore that market activities arising from these other responsibilities may be misinterpreted in a manner that undermines the credibility of the Currency Board arrangements. For example, when the HKMA takes in fiscal reserves from the general revenue onto the account of the Exchange Fund and recycles the money by lending in the interbank market, in order that the Monetary Base is unaffected, such action is often misunderstood. As a consequence, there would be press reports that the HKMA is lending aggressively in the interbank market to depress interest rates. It would be useful therefore if the operation of the Currency Board arrangements could be separately accounted for and presented periodically for public scrutiny. This would enhance public understanding of how tightly the discipline of Hong Kong's Currency Board arrangements are observed, and hopefully also enhance the credibility of the Currency Board system itself and general confidence in the currency.

102 It is proposed that initially the balance sheet of the Exchange Fund be administratively partitioned to show clearly a Currency Board balance sheet. On the asset side of the balance sheet would be Foreign Reserves designated specifically for the purpose of backing the Monetary Base. They may need to be separately managed and be held in US dollar liquid assets. On the liability side of the balance sheet would be the components of the Monetary Base, currently the Certificates of Indebtedness and the Aggregate

Balance, and also the Exchange Fund debt paper outstanding, if the Monetary Base is redefined to include them. This balance sheet would be a very simple one capable of being produced as frequently as it is desirable for the information to be disclosed. It could even be produced on a real time basis, in line with the current practice concerning the disclosure of the Aggregate Balance, which has been quite well received.

Redefining the Monetary Base

103 The Currency Board Committee should also review the definition of the Monetary Base. The existing definition, being the sum of the Certificates of Indebtedness and the Aggregate Balance, is proving to be problematic. The provision of intraday and day end liquidity through intraday repo arrangements of the RTGS system and LAF respectively is being seen by some as a departure from the Monetary Rule. Yet there is clearly a need for the Currency Board, where clearing accounts of licensed banks are held, to facilitate the smooth settlement of interbank transactions. Exchange Fund debt paper that could be used for obtaining liquidity to facilitate the settlement of interbank transactions should form part of the Monetary Base.

104 The Aggregate Balance is also proving to be so small as to encourage volatility in interbank interest rates and invite speculation aiming at creating and benefiting from such volatility by large players in the money and foreign exchange markets. Given the abundance of Foreign Reserves in the Exchange Fund, an argument can be made to expand the Monetary Base to include the Exchange Fund debt paper as a new component, and allow some degree of transferability between it and the Aggregate Balance, suitably controlled. The threat of charging a penal interest rate on repeated LAF borrowers can then be removed, with possibly favourable effects on interest rates.

105 The more general question of the transferability between the different components of the Monetary Base should also be addressed. The analysis in this paper leads one to conclude that full transferability amongst the three components of the Monetary Base is theoretically sound, with consequential beneficial effects on exchange rate stability and possibly reduction in interest rate volatility. But moving present arrangements towards this

theoretically sound position needs very careful handling. The risk of such action being misunderstood is high.

106 For example, allowing Bank Notes to be freely transferable into the Aggregate Balance, or Bank Notes to be issued against the Aggregate Balance will raise some doubt as to whether the Bank Notes are fully backed by Foreign Reserves. There are also costs involved, in terms of the possible diminution of activity in the foreign exchange market in respect of spot HK$/US$ deals. But there is no urgent need for all these to be resolved in one go. The three components of the Monetary Base involve six permutations of two, and their practical significance varies. They could be considered and dealt with in the fullness of time in their order of importance, starting with the transferability of Exchange Fund debt paper into the Aggregate Balance.

Convertibility Undertaking

107 One area important to the strengthening of confidence in the currency, given present Currency Board arrangements in Hong Kong, lies in clarifying the Convertibility Undertaking. It will be useful to look at this comprehensively again from the points of view of the settlement of transactions arising from, the scope and the form of the Convertibility Undertaking.

108 It should again be emphasized that whatever the scope or form of the Convertibility Undertaking, the **settlement** of transactions arising therefrom must be effected through the Aggregate Balance. This must not be circumvented. The leverage of the Aggregate Balance must be protected. There is no workable alternative here.

109 There is a wide spectrum within which the **scope** of the Convertibility Undertaking can be defined. The choice here, however, is more of a psychological one rather than one that is of technical significance, although there are relevant operational considerations. Money is quite capable of being shifted from outside whatever scope to within it, and there are different dimensions for doing so. Whatever the choice, it must be accepted that the Convertibility Undertaking will in effect be given to all, be they speculators or holders of Hong Kong dollar deposits or whoever. As long as

the licensed banks are prepared to provide them with the settlement service through the Aggregate Balance, they will be protected by the Convertibility Undertaking.

110 Against the background of the analysis in this paper, the following are a few choices on the **form** of the Convertibility Undertaking:

(a) buy and sell at 7.80, no discretion;

(b) buy and sell with an announced spread around 7.80, no discretion;

(c) buy Domestic Currency at 7.80, no discretion, and sell at market rate at the discretion of the Currency Board;

(d) buy Domestic Currency passively at unadvertised exchange rate determined from time to time by the Currency Board, and sell at market rate at the discretion of the Currency Board, as at present; and

(e) buy and sell at the market rate around 7.80 at the discretion of the Currency Board.

111 The problem of confidence in a currency, if there is one, is asymmetric, in that the tendency for a currency to weaken is always of greater concern than the tendency for a currency to strengthen. The form of the Convertibility Undertaking can therefore also be asymmetric. Choice (c) may therefore be the appropriate one, although choice (a) would ensure the highest degree of exchange rate stability. Each of these choices have implications for the foreign exchange market for the Hong Kong dollar against the US dollar. They need also to be considered along with the scope of the Convertibility Undertaking.

Bank Notes

112 The rather peculiar arrangements for the issue and redemption of Bank Notes in Hong Kong undermine the effectiveness of the Convertibility Undertaking in respect of them. The Currency Board has in effect given that

undertaking but the holders of Bank Notes do not actually benefit from it. The Note Issuing Banks do, in respect of the Certificates of Indebtedness they hold as backing for the Bank Notes. And the benefit takes the form of opportunity to profit when additional Bank Notes are issued at a time when the exchange rate is on the stronger side of 7.80. Given that the amount of Bank Notes in circulation increases over time, there is an incentive for the Note Issuing Banks, to the extent that they can influence it, to keep the exchange rate at the stronger side of 7.80. This is something that the Currency Board has been quite prepared to condone in the light of the circumstances.

113 As analyzed earlier in this paper, however, there is strictly speaking no need to have a separate Convertibility Undertaking for the Bank Notes or the Certificates of Indebtedness. The former are already issued and redeemed between the Note Issuing Banks and the licensed banks against transfers among the balances in the clearing accounts of licensed banks. The latter can be issued and redeemed between the Currency Board and the Note Issuing Banks against the balances in the clearing accounts of the Note Issuing Banks, thus forcing the requirement of Foreign Reserves backing for the Bank Notes through the Aggregate Balance. But the psychological benefit of the Bank Notes being fully backed by identifiable Foreign Reserves should not be lightly dismissed.

114 Having regard to these arguments, there are the following choices:

(a) do nothing and let the incentive to the Note Issuing Banks to keep the exchange rate at the stronger side of 7.80 prevail and continue with the built-in bias for the exchange rate in that direction, to the extent that the Note Issuing Banks are in a position to influence it;

(b) extend the Convertibility Undertaking to all Bank Notes issued;

(c) replace the specific Convertibility Undertaking for Certificates of Indebtedness by going through the Aggregate Balance instead; and

(d) the Currency Board to take over the function of issuing Currency Notes in Hong Kong.

115 There are pros and cons of each choice. Choice (a) is the least risky. Current arrangements are untidy, but they have a long history and represent an accepted tradition; so it is best to let it be. This argument would mean that choice (d) is not favoured, although it is a lot neater. Choice (b) has a favourable psychological effect in that the notion that the Hong Kong dollar in your hands is as good as the US dollar is clearly confirmed. This choice, however, would involve rather tedious administrative arrangements. The Currency Board would have to meet demands for converting Hong Kong dollar Bank Notes into US dollars. It would have to keep an adequate stock of US dollar notes and ensure that it has the administrative capacity to handle this. Operationally this would be a nightmare in the unlikely event of a breakdown of confidence. Choice (c) is technically the correct one, but the general level of understanding on the leverage of the Aggregate Balance may not be high enough for this not further to undermine confidence. This is something to contemplate from a position of strength, when confidence in the currency is high, and not a measure to boost confidence. It will also have to be considered along with the transferability between the Bank Notes and the Aggregate Balance. Perhaps it is best for the time being to refrain from making changes in this area, at least not until after the other more important issues have been addressed.

Summary of Recommendations

116 The recommendations of this paper are summarized as follows:

(a) As a matter of priority, a Currency Board Committee should be established with the terms of reference outlined in this chapter.

(b) The Currency Board Committee should specifically consider the publication of Currency Board Accounts or management information on the operation of Currency Board arrangements in Hong Kong.

(c) As a matter of priority, the Currency Board Committee should review the definition of the Monetary Base, specifically to consider and make recommendations on whether Exchange Fund debt paper should be included as a new component, and if so, what are the implications on the operation of LAF.

(d) The Currency Board Committee should examine and make recommendations on the transferability amongst the various components of the Monetary Base; the scope and the form of any Convertibility Undertaking; and the arrangements for the issue of Bank Notes.

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Hong Kong Monetary Authority

5 August 1998

Glossary

Accounting Arrangements

An agreement reached in July 1988 between the Financial Secretary as the Controller of the Exchange Fund and The Hongkong and Shanghai Banking Corporation Limited (HSBC) as the Management Bank of the Clearing House of the Hong Kong Association of Banks (HKAB). It required the HSBC to open a clearing account with the Exchange Fund. The balance in that account (i.e. the Balance) could only be altered by the HKMA. The Arrangements required HSBC to manage the Net Clearing Balance of the rest of the banking system (the NCB) having regard to the level of the Balance of HSBC's account with the HKMA. If the NCB was greater than the Balance, the HKMA would charge a penal interest on HSBC in respect of the excess amount, which was tantamount to the amount that the HSBC had overlent to the rest of the banking system. If the NCB was negative, a penal interest would be charged on the debit balance. The Accounting Arrangements came to an end with the introduction of the Real Time Gross Settlement system in December 1996 which requires all licensed banks to maintain a clearing account with the HKMA.

Aggregate Balance

The sum of balances in the clearing accounts and reserve accounts maintained by commercial banks with the central bank. In Hong Kong, this refers to the sum of the balances in the clearing accounts maintained by the licensed banks with the Hong Kong Monetary Authority (HKMA) for settling interbank payments and payments between banks and the HKMA. This represents the level of interbank liquidity.

Arbitrage

Interest rate arbitrage: Activities that seek to profit from the deviation between the interest rate differential and interest equivalent of the spread between the forward exchange rate and spot exchange rate.

Currency Notes arbitrage: The mechanism through which economic agents seek to profit from the deviation between the official exchange rate applicable to the issue and redemption of banknotes and the market exchange rate. For example, when the market exchange rate is stronger than the official exchange rate, banks can buy foreign currency in the foreign exchange market, surrender it to the Currency Board in exchange for domestic currency at the fixed exchange rate, and thereby make a profit from the differential between the two rates.

Automatic/Autopilot Adjustment Mechanism

Under Hong Kong's Currency Board system, when there is an inflow of funds involving the HKMA buying the US dollars sold to it by the banks at their initiative, the clearing balance and hence the Monetary Base will expand. This is so because in settling the deals the HKMA credits the clearing accounts of the banks selling the US dollars to it with the Hong Kong dollars required for settlement. In the other direction, when there is an outflow of funds involving the banks selling the Hong Kong dollars to the HKMA at their initiative, the clearing balance and hence the Monetary Base will shrink when the HKMA debits the clearing accounts of the banks concerned in the settlement of the deals. The expansion and contraction of the Monetary Base will cause domestic interest rates to fall or rise respectively, creating the market condition necessary to counteract the initial capital flows to restore exchange rate stability.

Bank Note

A note issued by a bank promising to pay the bearer the par value of the note on demand.

Base Rate

The interest rate which forms the foundation upon which different Discount Rates for repo transactions through the Discount Window are computed. The HKMA announces the Base Rate everyday before the interbank market opens in Hong Kong.

Best Lending Rate

The lowest interest rate a bank charges on loans extended to its best customers (generally in respect of retail customers). It is often used as a base for quoting interest rates for mortgage loans.

Certificate of Indebtedness (CIs)

Under the Exchange Fund Ordinance, note-issuing banks are required to obtain Certificates of Indebtedness from the Exchange Fund as cover for the banknotes they issue.

Clearing Account

The account maintained by banks or other organizations with the central bank or the clearing house for the purposes of payment and settlement of transactions between the banks themselves or between the banks and the central bank.

Clearing House of HKAB

The clearing facility provided by the Hong Kong Association of Banks (HKAB) before the introduction of the Real Time Gross Settlement system in December 1996. The interbank settlement system then was characterized by a three-tier structure involving the Management Bank of the Clearing House (the Hongkong and Shanghai Banking Corporation Limited), 10 Settlement Banks and 171 Subsettlement Banks. The Subsettlement Banks maintained clearing accounts with their respective Settlement Banks, which in turn maintained their clearing accounts with the Management Bank.

Convertibility Undertaking

An undertaking by a central bank or Currency Board to convert domestic currency into foreign currency at a fixed exchange rate. In the case of Hong Kong, the HKMA undertakes to convert the Hong Kong dollar balances held by the licensed banks in their clearing accounts with the HKMA into US dollars at the fixed exchange rate of HK$7.75 to US$1. As from 1 April 1999, the exchange rate under Covertibility Undertaking in respect of the Aggregate Balance will move from the present level of 7.75 to 7.80 by 1 pip (i.e. HK$0.0001) per calendar day.

Currency Board Accounts

Currency Board Accounts list the various liability and asset items relating to the operations of the Currency Board arrangements. On the asset side, it shows Foreign Reserves designated to back the Monetary Base and other liabilities of the Currency Board. On the liability side, it shows the Monetary Base (which includes banks notes and coins issued, and the Aggregate Balance) and the outstanding amount of debt paper issued by the Currency Board.

Currency Board System

A monetary system that complies with the Monetary Rule requiring any change in the Monetary Base to be brought about only by a corresponding change in Foreign Reserves in a specified foreign currency at a fixed exchange rate. Operationally, the Rule often takes the form of an undertaking by the Currency Board to convert Domestic Currency into Foreign Reserves at the fixed exchange rate.

Currency Note

A note issued by a bank or Currency Board promising to pay the bearer the par value of the note on demand. In the case of Hong Kong, currency notes are issued by the note-issuing banks.

Discount Rate

The interest rate at which licensed banks obtain overnight Hong Kong dollar liquidity from the HKMA through repurchase agreements involving Exchange Fund paper or other eligible papers under the Discount Window. The Discount Rate consists of two tiers:

Percentage of Exchange Fund paper held by a licensed bank	**Applicable Discount Rate**
First 50 percent	Base Rate
Next 50 percent	Base Rate plus 5 percent or overnight HIBOR for the day, whichever is higher

Discount Window

In Hong Kong, the facility through which licensed banks can borrow Hong Kong dollar funds overnight from the HKMA through repurchase agreements using eligible securities as collateral.

Dollarization

The replacement of a domestic currency by a foreign currency as a store of value, unit of account and medium of exchange.

Euro

The single currency in the European Union which will come into operation on 1 January 1999 to replace initially 11 out of the 15 currencies of the individual countries of the Union.

Exchange Fund

Established in 1935 by the Currency Ordinance (later renamed the Exchange Fund Ordinance) as a reserve backing the issue of Hong Kong's banknotes. In 1976, the bulk of the foreign exchange assets of the Government's General Revenue Account and all of the assets of the Coinage Security Fund (i.e. funds received against issue of coin) were transferred to the Exchange Fund and debt certificates were issued in exchange. Thus, the resources available to regulate the exchange value of the Hong Kong dollar were centralized in the Fund. The Exchange Fund is under the control of the Financial Secretary and is used primarily for "affecting, either directly or indirectly the exchange value of the currency of Hong Kong". In addition, it may be used to maintain the stability and the integrity of the monetary and financial systems of Hong Kong with a view to maintaining Hong Kong as an international finance centre. The Exchange Fund may be held in Hong Kong currency, foreign exchange, gold or silver, or in such securities or assets as the Financial Secretary considers appropriate after having consulted the Exchange Fund Advisory Committee. The Monetary Authority is appointed by the Financial Secretary to manage the Exchange Fund, amongst other duties.

Exchange Fund Advisory Committee (EFAC)

Under section 3(1) of the Exchange Fund Ordinance, the Financial Secretary's control of the Fund is exercised in consultation with an Exchange Fund Advisory Committee of which the Financial Secretary is the ex-officio chairman and of which the other members are appointed by the Chief Executive of the Hong Kong Special Administrative Region. The Committee advises the Financial Secretary on general policy on the uses and the investment of the Exchange Fund.

Exchange Fund Bills and Notes

Debt instruments issued by the HKMA for the account of the Exchange Fund. Introduced in March 1990, the Exchange Fund Bills and Notes programme has expanded progressively over the years. At present, the total outstanding size is around HK$97.5 bn and the maturity profile extends from 3 months to 10 years. These instruments are fully backed by Foreign Reserves. The HKMA has also undertaken that new Exchange Fund paper will only be issued when there is an inflow of funds, thus enabling the additional paper to be fully backed by Foreign Reserves.

Fiscal Reserve Account

The account held at the Exchange Fund by the Government for accumulating its fiscal surpluses. In 1976, the bulk of the foreign exchange assets of the Government's General Revenue Account were transferred to the Exchange Fund. From then onwards, the Government has started to place the surpluses of the General Revenue Account to the Exchange Fund.

Fixed Exchange Rate System

Exchange rate regime under which the rate of exchange between domestic currency and a foreign currency (or a commodity such as gold or a basket of currencies) is fixed. The fixed exchange rate regime usually takes the form of a commitment by the monetary authorities/central banks to uphold the stability of exchange rates within agreed narrowly defined margins, disclosed or undisclosed.

Floating Exchange Rate System

Exchange rate regime under which the exchange rate between domestic currency and foreign currencies are determined by market forces without intervention by the government in the foreign exchange market (see also “Managed Floating Exchange Rate”).

Foreign Exchange Market

An international system of dealers and brokers buying/borrowing and selling/lending currencies for spot (i.e. immediate) or forward (i.e. future) deliveries.

Foreign Reserves

Stock of foreign assets, held primarily for making foreign payments without the need to sell domestic currency in the market. In most economies, Foreign Reserves are primarily used to support the exchange rate of the domestic currency.

Hong Kong Interbank Offer Rate (HIBOR)

The rate of interest offered on Hong Kong dollar loans by banks in the interbank market for a specified period from overnight to a year.

Hong Kong Association of Banks (HKAB)

Established in 1981 under the Hong Kong Association of Banks Ordinance to replace the Hong Kong Exchange Banks Association. All licensed banks are required to become members of HKAB and observe the rules made by the Association under the HKAB Ordinance. The objects of HKAB are, among others, to further the interests of licensed banks, to make rules for the conduct of the business of banking, to act as an advisory body in matters concerning the business of banking and to provide clearing facilities for cheques and other instruments.

Initial Public Offerings (IPO)

The first offer of new securities to the public by an issuer of its own securities for cash.

Interbank Market

The market in which banks borrow or lend money among themselves to accommodate short-term shortages or to productively dispose of surplus funds in their clearing accounts.

International Monetary Fund (IMF)

International organization established by the Bretton Woods conference in 1947 to foster international monetary cooperation through the stabilization of exchange rates, the removal of foreign exchange restrictions and the facilitation of international payments and international liquidity. The IMF has been funded by contributions, or quotas, from member countries.

Lender of Last Resort

The responsibility of an institution, normally a central bank, to accommodate demands for funds in times of crisis or liquidity shortage. The institution discharges this duty either through open-market purchases of assets of acceptable quality from the banking system or by making loans through the discount window to solvent but temporarily illiquid banks usually at penal rates and on good collateral.

Licensed Banks

One of the three types of deposit-taking institutions in Hong Kong licensed under the Banking Ordinance. Only licensed banks may operate current and savings accounts, and accept deposits of any size and maturity.

Linked Exchange Rate System

A form of currency board system adopted in Hong Kong on 17 October 1983 characterised by the requirement that the issue and redemption of Certificates of Indebtedness (backing the bank notes) by the note issuing banks be made against US dollars at the fixed exchange rate of HK$7.80 to US$1. There have been significant modifications and improvements to the system since 1983.

Liquidity Adjustment Facility (LAF)

The Hong Kong version of a Discount Window, established in 1992. Under the facility, licensed banks can borrow overnight funds from the HKMA through repurchase agreements of eligible securities at the Offer Rate and can place surplus funds overnight with the HKMA at the Bid Rate. The LAF was replaced by the Discount Window in September 1998.

Managed Floating Exchange Rate System

Exchange rate regime under which the government moderates exchange rate movements through foreign exchange market intervention.

Monetary Authority

The person appointed by the Financial Secretary under section 5A of the Exchange Fund Ordinance to assist the Financial Secretary in the performance of his functions under that Ordinance and other functions as assigned.

Monetary Base

Money that can be used for settling transactions. To enable effective control, financial instruments constituting the Monetary Base generally appear on the balance sheet of the authorities responsible for monetary control. In a modern day monetary system, the Monetary Base is, at the minimum, defined as the sum of the currency in circulation (banknotes and coins) and the balance of the banking system held with the central bank (the reserve balance or the clearing balance). In Hong Kong, the Monetary Base comprises the Certificate of Indebtedness (for backing the currency notes) and coins issued, the balance of the clearing accounts of licensed banks kept with the HKMA for the account of the Exchange Fund and the outstanding amount of Exchange Fund Bills and Notes.

Monetary Rule

Under the Currency Board system, the Monetary Rule requires changes in the Monetary Base (liabilities of Currency Board) to be brought about only by corresponding changes in Foreign Reserves in a specified foreign currency (assets of the Currency Board) at a fixed exchange rate.

Real Time Gross Settlement (RTGS)

The continuous settlement of payments on an individual order basis without netting debits with credits across the books of the central bank.

Repeated LAF Borrowers

Those licensed banks which have borrowed through LAF (now replaced by Discount Window) on eight occasions in any period of 25 days or on four consecutive days in which LAF is open. A penal rate may be charged on repeated LAF borrowing. The above definition was provided by the HKMA on 12 November 1997 to improve market order and remove uncertainty towards the banks' access to the LAF. The restriction in repeated borrowings through repo transactions of Exchange Fund paper was removed as from 7 September 1998 upon the replacement of LAF by the Discount Window. However, the restriction still applies to Discount Window borrowings through repo transactions using other eligible paper other than Exchange Fund paper.

Report on Financial Market Review

The report published by Financial Service Bureau of HKSAR Government in April 1998 which covers the mechanism for defending the linked exchange rate system and the operating mechanisms of the securities and futures markets during the period of volatility in October 1997.

Repurchase Agreement (repo)

A transaction in which one party sells securities to another party in return for cash, with an agreement to repurchase the same securities at an agreed price and on an agreed future date. As such, repos are akin to collateralized borrowing and lending although legally the transaction involves a sale of the securities which passes full ownership of such securities to the provider of cash. It is widely used between the central bank and the money market as a means of relieving short-term shortage of funds in the money market and thus as a means of monetary management by some central banks.

Subcommittee on Currency Board Operations

A Subcommittee established under the Exchange Fund Advisory Committee in late August 1998 to oversee the operation of the Currency Board in Hong Kong and to recommend to the Financial Secretary, where appropriate, measures to enhance the robustness and effectiveness of Hong Kong's Currency Board arrangements. The Subcommittee is chaired by the Chief Executive of the HKMA. Other members include professionals in the financial industry, academics and senior officials of the HKMA.

US Fed Funds Target Rate

In the US, depository institutions can trade their reserves held by the Federal Reserve among themselves in the Fed funds market. The Fed Funds Rate is the cost for the overnight borrowing of these reserves. The Fed Funds Target Rate is the Federal Reserve's desired target rate for the Fed Funds Rate. The Federal Reserve conducts money market operations to influence the Fed Funds Rate if it considers the rate to be deviating too much from the target rate.

US Federal Open Market Committee (FOMC)

Chaired by the Chairman of the Board of Governors of the Federal Reserve System in the US, the Committee meets eight times a year to set Federal Reserve guidelines in the open market as a means of influencing the volume of bank credit and money in the economy. It also establishes policies relating to system operations in the foreign exchange markets.