MONETARY AND EXCHANGE RATE MANAGEMENT WITH INTERNATIONAL CAPITAL MOBILITY: THE CASE OF HONG KONG *

As a small open economy with no capital controls, Hong Kong is potentially vulnerable to destabilising capital flows. Its monetary policy has been directed towards maintaining a linked exchange rate which has resulted in rapid monetary growth at times. While this has meant that the burden of internal adjustment has been borne by other policies, the flexibility of the economy has meant that domestic economic performance has been favourable.

Introduction

The monetary system of Hong Kong has evolved and been reformed over the past decade. The most important features of our system are the exchange rate link to the US dollar, which is essentially a currency board arrangement, and the perfectly open capital account.

External trade is very important to Hong Kong – total exports and imports of goods and services sum to almost three times her GDP. Furthermore, in the early 1990s, external capital has flowed from the OECD nations to East Asia, attracted by the relatively strong economic fundamentals in the region and the decline in interest yields in major industrialised nations. Hong Kong's status as a gateway to China has made it a particularly attractive destination. Consequently, Hong Kong's monetary environment is very vulnerable to the influence of external factors. There is the potential for sizable cross-border funds flows to threaten exchange rate stability if not properly managed. Short-term capital inflows, in particular, can be reversed quickly, which may have a destabilising effect on the domestic economy.

In practice, though, our monetary system has proven successful in achieving Hong Kong's monetary policy objective of exchange rate stability against the US dollar. Hong Kong's real GDP registered a strong growth of 6% per annum on average between 1987 and 1993, and inflation, having peaked at 12% in 1991, is now stable at 8-9% per annum. The external orientation of our economy means that stability in the exchange rate is important for economic development.[1] Having a credible nominal anchor, such as the link, is particularly important for the overall stability and prosperity of Hong Kong given the political transition faced by Hong Kong in the coming years.

This paper starts by describing the Hong Kong environment. It briefly sketches the established theory on the effects of capital inflow under fixed and floating exchange rate regimes and then confronts the theory with the Hong Kong experience.

Monetary Policy and the Exchange Rate System in Hong Kong

In September 1983, in the midst of uncertainties in Hong Kong over the transfer of sovereignty in 1997, intense speculative pressure built up against the HK dollar. The currency fell at one point to about HK$9.60 to the US dollar, from about HK$6 in mid 1982. The Government introduced on 17 October 1983 the linked exchange rate system which successfully stabilised the HK dollar. Under this system, the three note issuing banks acquire or redeem HK dollars for US dollars against Certificates of Indebtedness, which are issued and redeemed by the Exchange Fund[2] at a fixed rate of HK$7.80 to the US dollar. The local currency has since then traded in a remarkably narrow range within about 1% of the linked rate.

After the institution of the linked exchange rate system in 1983, we continued to introduce

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1 Frankel and Wei (1993), p303 conclude from some econometric work that "the links to the US$ throughout the Pacific have helped to promote Pacific-wide trade and investment". A more general study by Cushman (1986) also found evidence that greater volatility in exchange rates depresses trade.

2 The Exchange Fund in Hong Kong is broadly comparable to the foreign exchange reserves of central banks elsewhere in the world. According to the Exchange Fund Ordinance, the Exchange Fund "shall be used primarily for such purposes as the Financial Secretary thinks fit affecting, either directly or indirectly, the exchange value of the currency of Hong Kong and for other purposes incidental thereto."

monetary reforms over the years to strengthen our capability in the conduct of monetary policy.[3] The "Accounting Arrangements" (1988) enable the HKMA to have effective control over the level of interbank liquidity, and therefore interbank interest rates. The issue of Exchange Fund Bills (1990) and Notes (1993) provides a cost-effective instrument for such open market operations. The establishment of the Liquidity Adjustment Facility (1992), which is Hong Kong's version of a discount window, provides further flexibility in managing the liquidity in the banking system. Adjustments to the bid and offer rates under the Facility help to influence interbank rates at the short end, which ultimately affect the whole range of interest rates in Hong Kong. Even a currency board system is not a perfect defence against exchange rate pressures (at least in the short term). But with the reform measures outlined above, we have the means to ensure exchange rate stability under the linked exchange rate system.

Since the adoption of the exchange rate link, domestic interest rates have been highly correlated with their US counterparts.[4] This suggests that the currency link has been, and remains, credible; the market expects the HK dollar to remain stable against the US dollar. This is very important for the overall confidence in the economy.

Central Bank Policy Options and Adjustment Dynamics

Net capital flows into a country will result in a capital account surplus in the balance of payments (BoP). In some cases this inflow will be largely offset by a corresponding deficit in the current account, for example if the inflow is financing investment projects where much of the capital equipment is imported. If the net inflow is not fully offset by the current account deficit, there will be excess demand for the local currency. In the standard analysis, the central bank of a small open economy without any payments restrictions will typically face two options, depending on its operational target. If its objective is to maintain stability in the money supply, there may be no alternative but to allow the nominal exchange rate to appreciate. On the other hand, if the operational target is exchange rate stability, then the monetary aggregates will grow faster.[5]

The adjustment processes following these two different policy responses to an overall BoP surplus can be quite different. Under the first policy option, the impact of adjustment in the nominal exchange rate will initially fall on the external variables: namely, higher imports and reduction of exports. The resultant deterioration in the current account will assist in restoring the external balance.

In the short run, a reduction in import prices due to currency appreciation will lessen inflationary pressure, with the size of the effect depending on the elasticity of substitution of imports for domestic goods and services. In the medium term there will be a shift of real income from exporters to consumers, which will affect domestic consumption and investment patterns and productivity levels.

Under the second policy option, the adjustment burden will fall initially on the internal variables. Under a fixed or stable exchange rate, the domestic money supply would increase, depending on the increase in net foreign assets and the size of the domestic credit multiplier. Other things being equal, an increase in money supply may lead to higher inflation, and consequently, a *real* appreciation of the domestic currency (despite there being no nominal appreciation). As in the first case, this would erode export competitiveness, encourage imports of goods and restore external balance. Meanwhile, the central bank will accumulate foreign exchange reserves. Alternatively, increased fiscal restraint can bring the economy back to equilibrium without higher inflation.

The choice of the policy responses will depend on the monetary policy objective of the central bank. If the objective is to prevent any upward trend in internal prices, the central bank will want tight control over monetary aggregates and so will need to adopt a relatively flexible exchange rate regime. If the monetary policy objective is to maintain nominal exchange rate stability, particularly in the form of a fixed exchange rate, the central bank may not have any control over money supply and interest rates, which will be

3 Further information on the reforms is in Yam (1992) and Sheng (1994).

4 The correlations are discussed in a feature article "The interest rate structure in Hong Kong" in the November 1994 issue of this Bulletin.

5 The standard analysis was developed from work by Mundell (1962) and Fleming (1962).

dependent on capital flows and the interest rate levels of the currency to which the domestic currency is pegged.

The Case of Hong Kong

The Asian region has seen considerable capital inflows in recent years and Hong Kong has had a fair share of such inflows. However, as Hong Kong does not compile a complete set of BoP statistics, there are no official records of such cross-border funds flows.[6] Other sources provide a clear picture of an economy with substantial *gross* capital inflow. For example, Woodall (1994) cites UNCTAD figures which place Hong Kong among the ten largest developing country recipients of foreign direct investment during 1988-1992.

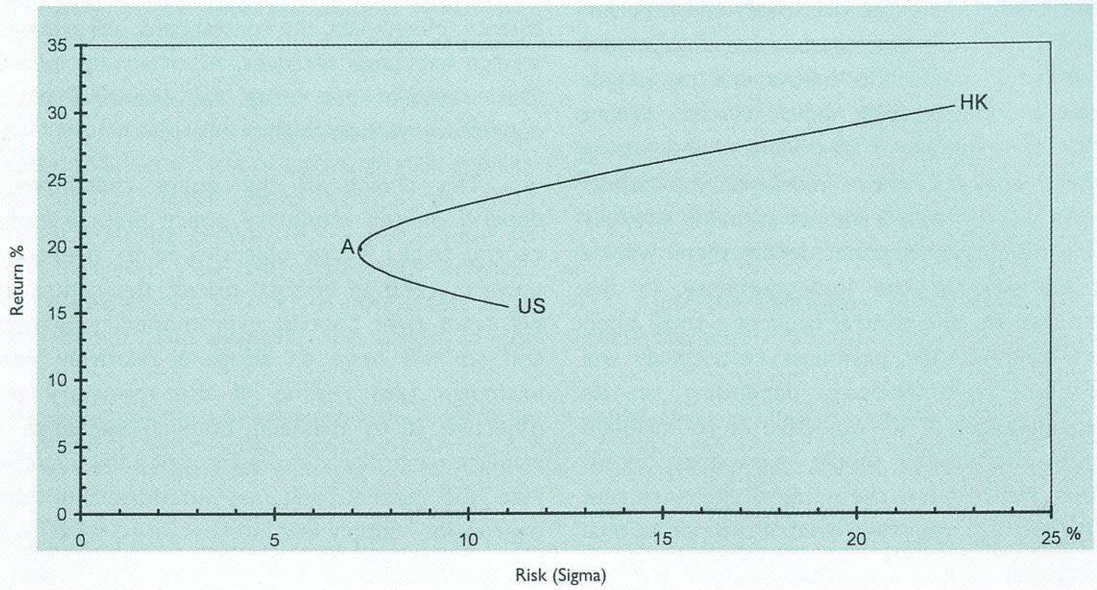
On foreign direct investment, there is some information available from other sources. According to Japan's Ministry of Finance, the cumulative value of Japanese investment in Hong Kong rose from US$ 3 billion to US$ 13 billion between March 1985 and March 1994. According to the US Department of Commerce, the cumulative value of US investment in Hong Kong rose from US $3 billion in 1985 to US$ 10 billion in 1993. Some press reports put Chinese investment in Hong Kong at up to $25 billion.

On the other hand, Hong Kong has also been a large foreign investor in its own right. According to China's Ministry of Foreign Trade and Economic Cooperation, Hong Kong's cumulative investment in China has grown from US$ 4 billion at end 1985 to around US$ 40 billion by end 1993. Hong Kong is also an increasingly active investor in other East Asian economies. According to figures published by the respective recipient economies, by end-1993 Hong Kong had cumulative investments of US$ 6 billion in Indonesia, around US$ 2 billion in both Thailand and Taiwan and over US$ 1 billion in Vietnam.

With both *gross* inflows and outflows quite large, it is hard to assess the *net* capital flow situation.

There are good reasons to expect a significant flow of investment funds into Hong Kong. One possible indicator is the market capitalisation of the stock exchange. Excluding the Chinese H-shares, this rose from US$ 35 billion at end 1985 to US$ 83 billion at end 1990 and US$267 billion at end-1994. This would be consistent with strong net capital inflows over the period. For US fund managers, the Hong Kong market provides the benefits of diversification with virtually no exchange rate risk. Over the past decade the Hong Kong

Chart 1
Effective frontier of the portfolio of Hong Kong Stocks and US Stocks



6 Problems with data on international capital flows are not only a problem in Hong Kong. Discrepancies in capital flow data are discussed in IMF (1992).

stock market has earned higher returns than the US market but has been more volatile. However, because the correlation between returns on the US and HK markets has been much less than one, a portfolio with a mix of HK and US stocks is better than a pure US portfolio. In Chart 1 the portfolio labelled A offers both lower risk and a higher return than the pure US portfolio.[7] The weight of HK stocks in portfolio A is about a third. So there is every incentive for US fund managers to increase their exposure to the HK market.

The Adjustment of Money Supply

The objective of monetary management in Hong Kong is to support the linked exchange rate. When the inflow of foreign funds exerts such upward pressure on the HK dollar that the exchange rate would otherwise move rapidly away from the linked rate, the HKMA will generally intervene by selling HK dollars in the foreign exchange market. This will stabilise the exchange rate, with the concommitant effect of increasing the foreign exchange reserves. The money supply will generally expand more rapidly in response to the inflows, with the size of the increase depending on the domestic credit multiplier.

As mentioned above, there is broad agreement in the literature that, with a fixed exchange rate, the authorities cannot isolate the money supply from external influences.

For many countries, as both Bercuson and Koenig (1993) and Calvo et al (1994) point out, domestic bonds are not a close substitute for foreign bonds. The monetary authority selling government bonds therefore incurs a quasi-fiscal cost equal to the difference between the interest rate on domestic bonds and the return on foreign exchange reserves and this cost may be sufficiently high that such activities can only be a short term measure.

Fortunately in Hong Kong, our Exchange Fund paper is regarded as a very close substitute for US paper, reflecting the credible exchange rate link and negligible government debt. Exchange Fund Bills and Notes therefore trade at similar yields to corresponding US securities. In fact, for Exchange Fund paper at the short end, our yields have often been lower than the corresponding US Treasuries. Any attempt to sterilise capital inflow by selling more Exchange Fund paper on a large scale may, of course, push up the yields and thereby attract more capital inflow.[8]

In Hong Kong the first-round expansionary effect on the clearing balance of the banking system (the reserve money) of purchases of US dollars by the Exchange Fund is generally sterilised. This is possible if the purchases of US dollars are funded from money in the banking system, eg. through swap transactions, or by reducing deposits with banks, or straight borrowings, or by the sale of Exchange Fund paper.[9] However, while the impact on the clearing balance can be sterilised by the procedures, a capital inflow leads to an increase in bank deposits and hence money supply.

The second-round expansionary effect on money supply will depend on the lending behaviour of the banks concerned, who will of course need to have regard to prudential requirements on, for example, liquidity and capital adequacy. The sterilisation effort is to ensure that the reserve money does not itself become an expansionary factor on overall money supply. However, no attempt is made to control total money supply growth.

Table 1 shows that changes in foreign exchange holdings play an important role in the determination of the domestic money supply over the medium term. They are also a significant contributor to annual fluctuations in the money supply, as is shown in Chart 2.[10]

7 The variance of the return on the portfolio is equal to the square of the weight given to HK times the variance of its return plus the square of the weight given to the US times the variance of its return less twice the product of the weights multiplied by the covariance of the returns. Risk (sigma) is the standard derivation, the square root of the variance.

8 This agrees with the findings of the Jurgensen Report (1983), which concluded that sterilised intervention has no long-run impact when capital movements are unhindered and markets regard domestic and foreign assets as close substitutes. Schadler et al (1993) put it more strongly; they state as "conventional wisdom" that "sterilization ..... is discredited".

9 The last of these options has become easier since March 1990, with the introduction of the Exchange Fund Bills and Note Programmes. By end 1994, Exchange Fund Bills and Notes on issue had reached over HK$50 billion, over 10% of total Exchange Fund assets.

10 The HKMA has disclosed the Exchange Fund balance sheet from 1986 onwards. M2 refers to all deposits with licensed banks. Admittedly, much of the high correlation is driven by the 1993 observation. Over 1986-1992, the correlation drops to around 0.5, but is still significantly different from zero.

Table I

Monetary Survey

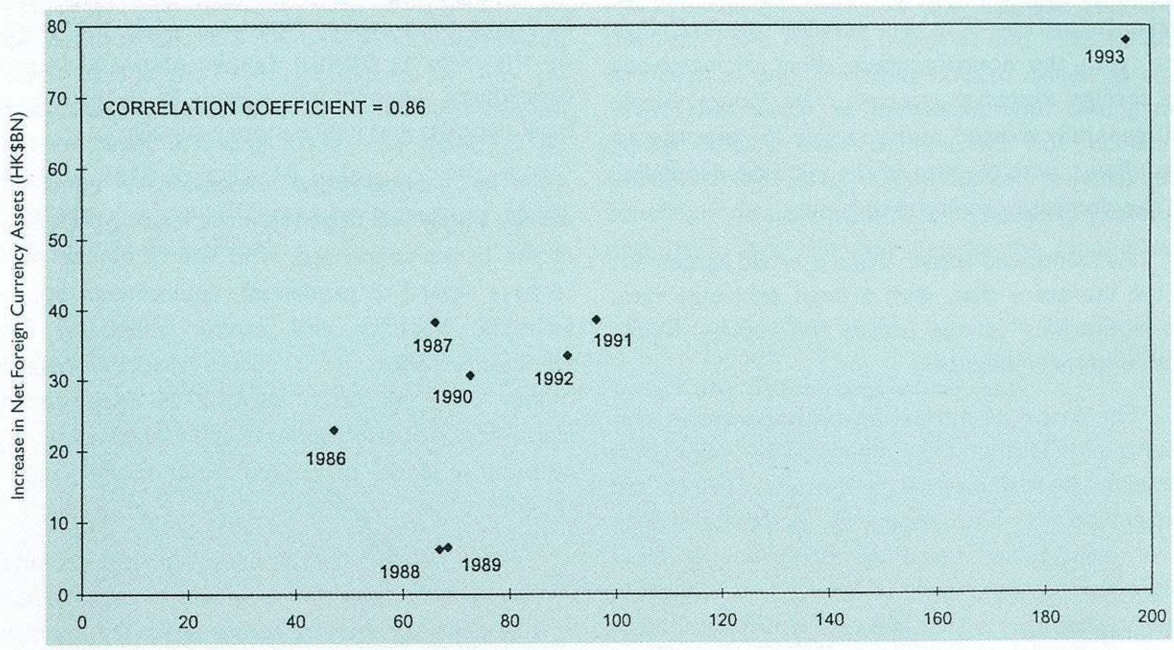
(share of contribution to growth in HK$M3)

	1983-1992	1993
Net foreign currency assets of the monetary system	42	45
Claims on government	-15	-20
Domestic credit to the private sector	109	83
Other items	-36	-8
HK$M3	100	100

Source: HKMA(1994a)

Chart 2

Money Supply and Foreign Currency Assets



While the balance of payments makes a larger contribution to the growth in the money supply than in many other countries, Hong Kong's fiscal prudence means that the government sector acts to restrain rather than add to monetary growth. The Hong Kong Government has been running a fiscal surplus since 1984/85. In 1993/94 the fiscal surplus was over 2% of GDP. By end-1993 the amount in the fiscal reserves account of the Exchange Fund had reached HK$116 billion, about a third of the total liabilities. While fiscal policy is not suited to fine tuning, Table I indicates that over the medium term the fiscal surplus offset a third of the contribution made by the net increase in foreign currency assets of the banking system to the growth of HK$M3. This fiscal restraint will be maintained. Not only is it the present government's clearly stated policy, it is embedded in the "Basic Law", Hong Kong's post-1997 constitution. Because of the small size of the government sector (17% of

GDP), maintaining fiscal discipline as a restraint to money growth from capital inflows is easier to achieve in Hong Kong than in many other countries.

Economic Stability with the Linked Rate System

The adjustment process under different policy responses has already been discussed. With the exchange rate as the nominal anchor for the system, Hong Kong relies on the domestic economy to adjust to it. It is widely thought that the Hong Kong economy is so flexible and resilient that such adjustments can occur efficiently.

Nevertheless, some economists still criticise the classical adjustment process under a fixed exchange rate regime as slow-moving, in which case the economy may suffer from prolonged periods of high inflation (in the case of BoP surplus) or recession (in the case of BoP deficit). Empirically, they could cite relatively high inflation in Hong Kong since the late 1980s.

The economic theory behind this argument is well known. Greater exchange rate flexibility is said to be stabilising in the sense that real exchange rate changes are accomplished by movements in the nominal exchange rate rather than in domestic prices. However, this assumes that the nominal exchange rate moves in a smooth manner reflecting fundamental balance of payments influences. Krugman's (1993) survey of the literature highlights how floating exchange rates have in practice failed to live up to the claims of their supporters.

Hong Kong has a high reliance on imports for domestic consumption and investment. As 'retained' imports (ie. excluding those re-exported) meet about 50% of domestic demand, about half of domestic prices reflect import prices. Thus movements in import prices, likely to be larger under a flexible exchange rate may send a direct stimulus to domestic prices, leading to a potential inflationary spiral. In this sense a floating exchange rate could produce greater domestic price *instability*. This was what happened in 1982-83 before the link.

It is often argued that fixed exchange rates are inappropriate for economies subject to large changes in their terms of trade and that they best suit very open economies.[11] Table 2 shows that on these two criteria a fixed exchange rate seems the right choice for Hong Kong but a floating exchange rate is more appropriate for economies such as Japan and Australia.

Table 2
Economic Indicators

	Terms of Trade Variability	Openness
Hong Kong *	1.2	144
Netherlands *	1.9	52
Belgium *	2.0	70
France *	2.3	23
USA	2.3	11
Australia	5.9	19
Japan	8.0	10

Definitions and Sources: Economies with fixed exchange rates are marked with asterisk. ToT variability is the average absolute annual % change from 1984 to 1993, taken from the *IMF International Financial Statistics* and the *Hong Kong Monthly Digest of Statistics*. Openness refers to exports of goods and non-factor services as % of gross domestic product in 1992, taken from the World Bank's *World Development Report 1994*.

11 See, for example, Goodhart (1993) and Powell (1995).

Analysis of the relationship between the real exchange rate, domestic activity and the BoP is complicated by structural changes in the Hong Kong economy as it becomes ever more closely linked to the rapidly expanding Chinese economy. For example, although Hong Kong's trade account surplus has declined in recent years, the expansion of "outprocessing" activity in southern China by Hong Kong manufacturers has kept exports from Hong Kong high. It is estimated that Hong Kong manufacturers are employing 3 million workers in southern China, compared with a manufacturing workforce of less than 0.5 million in Hong Kong.

Inflation in Hong Kong

While the CPI(A) rose by 8.1% in 1994, it is worth noting that other price indices are growing less rapidly. In particular, tradable goods prices are growing much more slowly – the implicit price indices for exports and imports have both been increasing at average annual rates of less than 3% in recent years.[12]

One reason why services prices, and therefore total prices, have been growing more rapidly in Hong Kong than in the OECD countries is the faster growth in manufacturing productivity. As Goodhart (1993) explains, the opportunities for productivity growth, and unit labour cost reduction, are inherently less in services than in manufacturing but, with a flexible labour market, wages must equalise across the sectors. Service prices must therefore rise more rapidly than the prices of manufactured goods.[13] As well as this general influence, there have been specific factors raising the relative price of services in Hong Kong in recent years. The burgeoning growth in southern China has raised the demand for financial and other support services in Hong Kong. With the prices of manufactured goods, which are mostly traded, matched to world prices by the exchange rate link, the rise in the relative price of services takes the form of a somewhat higher rate of overall inflation. This is not, however, a sign of overheating or a loss of monetary control.

While government authorities recognise the positive role of capital inflows in promoting long-term economic growth, proper policies are necessary to reduce the accompanying risks.[14] In some countries, the capital inflow has been poorly employed, financing unsustainable (public or private) consumption rather than productive investment. This does not appear to have been the case in Hong Kong.[15] As noted above, the government budget has remained in surplus. Rather than financing a consumption boom, capital inflows helped raise gross domestic investment from 25% of GDP in 1986-89 to an average of 27% during 1990-1993. This investment is important in relaxing supply constraints, which will itself lessen inflation in the long run.

There is also concern expressed that foreign capital inflow may stoke inflation by bidding up asset prices in an unsustainable way. There have been signs of this in Hong Kong over the past few years. During 1993 alone, residential and office property prices increased by around 20% and stock prices by 116%. Of course, it is hard to know how much of this to attribute to capital inflow. Property prices were likely to rise in any case as a population growing in both number and affluence confronts a very limited supply of land. Price-earnings ratios in the stock market are lower than in other Asian markets.

It is also worth remembering that Hong Kong also experienced substantial asset price inflation during the period when it had a floating exchange rate. Similarly, countries as dispersed as the UK, Japan and Australia experienced rapid rises and then falls in asset prices in the 1980s despite having floating exchange rates for most of the period.

12 It was noted above that retained imports constitute half of domestic demand. In 1993 their prices were flat while the domestic demand deflator grew by 6%, implying growth in the prices of non-traded goods of around 12%. For 1994 our latest estimates are that the prices of retained imports rose about 5% and the domestic demand deflator by 7%, implying growth in the prices of non-traded goods of around 9%.

13 This effect is often known as "productivity bias" and was first highlighted by Balassa (1964). Officer (1976, p 19) cites examples of the argument being supported by Samuelson, Johnson, Kindleberger and Maddison.

14 Some of these risks are discussed further in Calvo et al (1994) and Chapter VII of Bank for International Settlements (1994).

15 Nor indeed in the other Asian NIEs. Calvo et al (1994) point out that the behaviour of investment during times of capital inflow is an important difference between the Asian and South American economies.

Co-ordination of Policy

Since the HK dollar is linked to the US dollar, interest rates are not available as a direct policy instrument to deal with demand management. Undesirable macroeconomic impacts, however, can be minimised by the co-ordination of public policies, such as the maintenance of fiscal discipline discussed above.

Regulatory measures in Hong Kong such as stamp duties on property and variations in the supply of land and public housing have also played a role in maintaining internal stability. For example, last year, following the recommendations of a Task Force, measures were taken by the Government to increase the supply of private flats. This led to drops in prices.

Equally important, on prudential supervision grounds, the HKMA has urged banks to tighten their credit policy towards exposure to the real estate and stock markets since the second half of 1991. Many Hong Kong banks have maintained a loan-to-valuation ratio of 50% for properties worth over HK$5 million. Banks have also been urged by the HKMA to keep loan growth for residential purchase in line with nominal GDP growth, which is around 15%, and seek to limit real estate loans to 40% of their total loan portfolio in Hong Kong. These supervisory policies not only help insulate the banking system from any "speculative bubbles", they may act to dampen such pressures in general (though other factors probably have a more direct impact on underlying demand). In this sense they are an alternative to interest rate increases in responding to the problem of an overheating property market. They also have the advantage over interest rate rises of being targeted at the area of concern rather than also hitting desirable investment elsewhere in the economy.

In considering the role of policy in reducing speculative activity, it is important to remember that sound and credible monetary policy itself plays a role in encouraging capital inflow into substantial longer term investment, rather than short-term speculation against the exchange rate. A credibly linked exchange rate also removes one area of uncertainty affecting longer-term investment decisions.

Recent Developments

Not long after the first draft of this paper was written there was an example of potentially destabilising capital flow in Hong Kong (although it took the form of an outflow rather than an inflow). In early January 1995, following the sharp depreciation of the Mexican peso, US funds managers began to trim their holdings of most foreign assets, including those in Latin America, developing Asia and even advanced economies such as Hong Kong and Canada.

This happened notwithstanding the great differences in fundamentals. For example, Mexico has a large current account deficit while Hong Kong has a surplus. Mexico has a large public sector external debt whereas Hong Kong has virtually none. Hong Kong has slower monetary growth than Mexico and far more international reserves.

While the bulk of the outflow was associated with portfolio fund repatriation, there were signs of some speculative selling pressure on several Asian currencies, including the HK dollar, taking advantage of bearish sentiments, arising from concerns over potential trade conflicts, rumours about the health of Mr. Deng Xiaoping and other matters that unsettled markets.

The HKMA began tightening liquidity in the interbank market on 12 January. The substantial rise in the overnight interbank rate, from under 6% to as high as 12% at one point, imposed a high funding cost on those speculators shorting the HK dollar. The action succeeded in stabilising the exchange rate and overnight rates soon eased back. With the tightening lasting only several days, banks' retail deposit and lending rates were unaffected.

Concluding Remark

Overall, Hong Kong is an example of how a small open economy can successfully maintain a fixed exchange rate policy. In this it is emulating the performance of the Western economies, which performed at their best during the Bretton Woods period when exchange rates were stable and the domestic economy was sufficiently flexible to adjust to shocks. Fiscal discipline, flexibility, strong reserves, high productivity and carefully co-ordinated policies have combined to make the link a success for Hong Kong. We do not pretend that this policy applies for other economies with different policy objectives.

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