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EXCHANGE RATE REGIMES AND THE MANAGEMENT OF ASSET-PRICE BUBBLES: IMPLICATIONS FOR HONG KONG

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Abstract

In the face of emerging risks of asset-price bubbles in economies such as Hong Kong and other Asian economies, there have been increasing discussions on the potential role of monetary policy in controlling asset-price inflation. Our findings suggest that history does not point to any conclusive observation whether regimes with discretionary interest-rate policies would outperform those without in the incidence of asset-price bubbles. In particular, small open emerging market economies are constrained in the use of monetary policy to manage asset-price inflation in the face of procyclical capital flows. In this context, macro-prudential policy can help limit the need for aggressive monetary policy reactions, and increase the resilience of the economy against asset-price booms and busts.

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I. INTRODUCTION

The global financial crisis of 2007-2009 has demonstrated the enormous costs to economic activity brought about by the bursting of asset-price bubbles. Meanwhile the recent asset market rally and indications of a stronger recovery in Hong Kong and other Asian economies have raised concerns that the monetary policy stance could be too loose, and that central banks should heed the potential building of asset-price bubbles.

In this context, questions may be raised about whether Hong Kong could benefit from a more independent monetary policy to manage asset-price bubbles. The concern could be that as Hong Kong has adopted a Linked Exchange Rate system and does not have an independent monetary policy, it would do less well when compared with economies with flexible exchange-rates and interest-rate policies.

Indeed this argument might be more relevant today in the aftermath of the global financial crisis, as there have been increasing discussions among economists and policymakers of an expanded role for monetary policy – that of maintaining financial stability in addition to monetary stability. While the debate is on-going and the outcome of those discussions remains uncertain, the increased focus on monetary policy and asset prices does offer hope that excessive asset-price volatility might be better managed.

But do floating exchange rate regimes outperform fixed exchange rate systems in managing asset-price inflation and preventing the build-up of asset-price bubbles, and eventually help promote financial stability? How large a role has monetary policy played in the propagation and deflation of asset-price bubbles? What has been the experience of small open economies that are subject to large capital flows?

This paper aims to answer these questions and is organised as follows: Section II reviews the role played by monetary policy in the formation of asset-price bubbles by reviewing the literature, and looking at historical associations between exchange rate regimes and asset-price booms in small open economies. Section III looks particularly at the case of whether Hong Kong, with its Linked Exchange Rate system, is necessarily

worse off in terms of managing asset-price bubbles and maintaining financial stability. The analysis provides some conceptual discussions and draws on several case studies to look at the experience of monetary authorities in the face of asset-price inflation. Finally, Section IV discusses the policy implications for Hong Kong.

II. How Large a Role does Monetary Policy Play in the Formation of Asset Bubbles?

Bubbles refer to asset prices rising significantly beyond a level justifiable by their fundamentals. The forming of bubbles is possible when there are general expectations that prices will continue to rise. In this section, we review the literature on the formation of asset bubbles, with a focus on the monetary policy conditions that are seen to be associated with asset-price booms, to see **what tools economies with flexible exchange rates could have at their disposal in attempts to influence asset-price inflation.**

Monetary policy in the lead-up to asset-price bubbles: a literature review

Findings are mixed with respect to the association of monetary policy conditions with the formation of asset-price bubbles. The IMF (2009) examines asset-price busts after 1985 for 21 advanced economies and finds that, while there is some evidence of loose monetary policy in the run-up to house-price busts before 1985, which may be related to the situation where monetary policy was not reacting sufficiently to inflation, since 1985 house-price busts have typically not been preceded by loose monetary policy. They also find virtually no association between the measures of monetary policy stance and house-price increases, suggesting the lack of a systematic relationship between monetary policy conditions and house-price gains across the economies studied. On the other hand, Detken and Smets (2004) find some evidence that monetary policy is loosened more during booms that are more costly in terms of subsequent output loss than those less so, especially towards the end of the booms, which could have contributed to the lengthening of the booms.

Nevertheless, higher-than-normal credit growth — the quantity variable related to monetary policy — seems to be a recurrent finding. This suggests that it is perhaps in situations where a loose monetary policy is associated with high credit growth that asset-price bubbles are likely to occur. Detken and Smets (2004) look at 38 aggregate equity and real estate boom periods since the 1970s for 18 OECD countries, and find that real monetary and real credit growth was larger during booms that resulted in a large output loss than in those that were associated with smaller output decline. The IMF (2009) also finds that significant expansion in domestic credit often features in the run-up to both house price busts and stock price busts.

Asset market boom-and-bust episodes were also found to be preceded by some common behaviour in other macroeconomic variables. There is also some evidence that asset-price booms are associated with output growth that is higher than trend. Detken and Smets (2004) find that asset-price booms are accompanied by a business cycle upturn, in that growth is high during and immediately before booms. Similarly, Bordo and Wheelock (2006) study stock market booms that occurred in 10 developed countries in the 20th century and find that booms generally occurred during periods of above-average economic growth, although a focus on the sub-period 1970s to 1990s shows that output growth tended to hover near trend rather than rise above trend as in earlier booms. Looking at the time since 1985, the IMF (2009) find that in the lead-up to stock price busts, output growth tends to be significantly higher than trend. On the other hand, however, output growth does not display any significant deviation from trend while inflation is below trend, in the run-up to house-price busts. Several other factors are also found to have a role to play in the lead-up to asset-price booms, such as higher-than-normal ratios of investment to GDP, a large deterioration in current account balances (IMF 2009), as well as changes in regulation and other events, such as oil-price shocks and political upheaval (Bordo and Wheelock 2006).

The observations cited above suggest that while monetary policy, together with credit supply, do seem to play a role in asset-price booms, there is little evidence that monetary policy alone is the main cause of asset-price booms. Quite a few other factors also seem to be associated with episodes of asset-price booms and busts, among them output

growth, investment growth, and financial liberalisation measures. It is therefore helpful to note that a combination of macroeconomic conditions have been identified with asset-price booms, which may suggest that some interactions between the variables may have played a role in asset-price bubbles, rather than any variable on its own.

Performance of floating vs. fixed exchange rate regimes in managing asset-price bubbles: experience in small open economies

If economies with discretionary monetary policy perform better in controlling asset-price bubbles, do we see economies with floating exchange rates consistently outperforming those with fixed exchange rates in managing asset-price bubbles? History does not point to any conclusive observation whether regimes with discretionary interest-rate policies will outperform those without in tackling asset-price bubbles. This partly reflects that the build-up of leverage depends on the overall "terms and conditions" of borrowed money, or lending standards, rather than the "price" of credit alone. For instance, the UK experienced booms and busts across different exchange rate regimes, such as the South Sea bubble of 1720, when it was on a de facto gold standard, and the recent credit-market bubble when its exchange rate was flexible. While a housing-market bubble developed in Hong Kong in the 1990s under a currency board regime, the one in the United States which ended in the sub-prime mortgage crisis developed under a freely floating exchange rate regime.

In order to shed light on whether Hong Kong would be better off with discretionary interest-rate policy in tackling asset-price bubbles**,** it would be interesting to see what the experience with asset-price booms of small open economies with different exchange rate regimes has been.[1] To make a comparison of asset-price developments under different exchange rate regimes, we follow the method used in Gochoco-Bautista (2008) to identify equity-price booms in 12 medium- and small-sized economies (the only exception is the large economy of Japan) from 1985:

[1] One might argue that in economies with floating exchange rate regimes, asset prices are not normally the target of monetary policy, particularly under the inflation targeting framework, and therefore their experience in asset-price bubbles does not reflect the performance of monetary policy in managing asset-price inflation. However, one could also note that asset-price busts often result in inflation undershooting its target, thus this might suggest that inflation-targeting central banks may also wish to avoid excessive asset-price volatility.

$$B_t = 1 \text{ if } \frac{p_t - \bar{p}_t}{\bar{p}_t} > threshold \text{ , and}$$
$$B_t = 0 \text{ otherwise} \quad (1)$$

where B_t is a binary variable which equals 1 when there is an equity-price boom at time *t* and 0 otherwise; p_t is the real equity price and $\bar{p}_t$ is the long-term trend of real stock price derived by the Hodrick Prescott filter.[2] The equation implies that when the real stock price is higher than its long-term trend by more than the pre-specified threshold value, the period is identified as a boom period. We set the threshold value at 10%, which is a value commonly used in the similar studies.

We only seek to identify equity market booms and not bubbles, as the identification of price bubbles is inherently more difficult given the need to evaluate unobservable fundamental factors. Nevertheless, we will see that many of the identified booms coincided with what are commonly viewed as bubble episodes in many of the economies. Chart 1 shows the identified equity-price booms in the various economies. The economies examined experienced between three (Australia and Sweden) and six (Korea, Malaysia, and Singapore) booms over the period 1985 – 2009. It can be seen that some of the commonly-perceived stock-price bubbles have been picked up by the method used, including the ones preceding the stock market crash of 1987 in Australia, Hong Kong, and Singapore; the ones preceding the Nordic banking crisis in the late 1980s and 1990s; the dot-com bubble of 2000; and the latest 2007 bubble which seems to have affected almost all of the markets examined here.

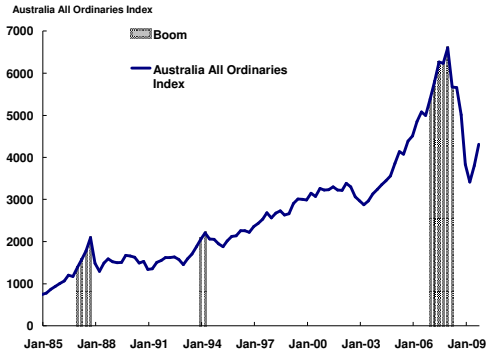
While this graphical comparison is necessarily informal, one may note that there seem to be no systematic differences that could be identified between the incidence of booms on the one hand and the kind of exchange rate regime on the other. It is not apparent from the charts that the frequency and duration of boom periods experienced by individual economies differ according to their exchange rate regime. But there appear to be some regional patterns in equity-price developments and in the incidence of equity-price booms, between Australia and New Zealand, between Finland

[2] Here we use Hodrick Prescott filter with a smoothing factor (λ) equals to 1,600.

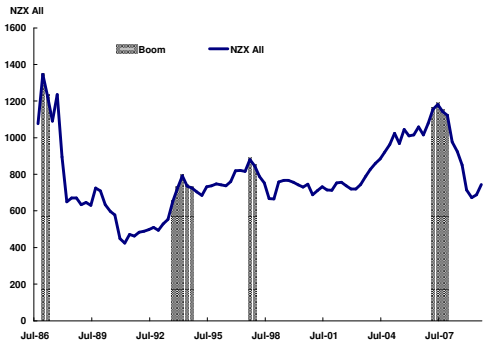
and Sweden, and among Hong Kong, Korea, and Singapore. For instance, Hong Kong has adopted the Linked Exchange Rate system since 1983, but the pattern of its boom incidence is similar to that of Korea, which has adopted a floating exchange rate since 1998. Both economies had a boom in the late 1980s, then in 2000 and in 2007. In fact, according to the method used, Hong Kong has one fewer boom episode than Korea, when Korea experienced a boom in 2002 against the background of robust private consumption and rising household credit. Separately, Malaysia pegged its exchange rate to the US dollar from 1998 to 2005, during which it experienced one boom episode in 2000 similar in timing and duration to that experienced by other regional economies. In the Nordic economies, Finland joined the euro in 1999, Sweden has floated its currency since 1992, and Norway broadly had a managed exchange rate before it floated its currency in 2001. It does seem here that Norway has a different pattern of boom incidence than its neighbours, as well as one more boom episode in 1997. **It is interesting to note that the country that stands out as having the fewest numbers of equity-price booms is Australia.** Sweden also has had three booms, but each of the boom episodes lasted longer than that in Australia. Also, Australia did not seem to go through the boom-and-bust episode of the early 2000s, or the dot-com bubble.

Chart 1: Estimated equity-market booms

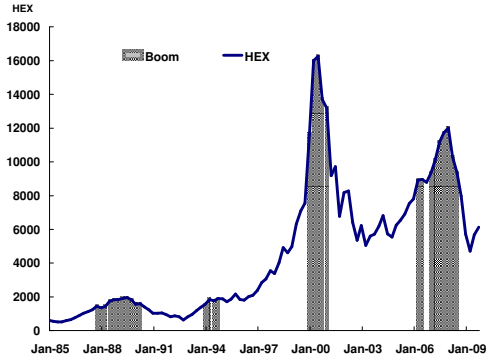
Australia



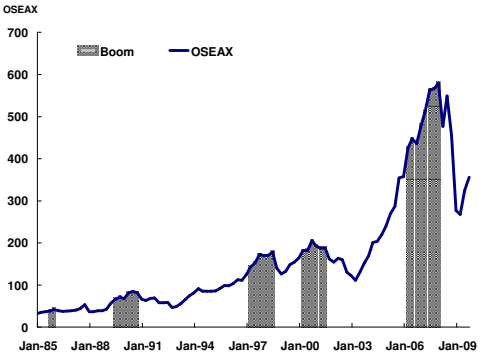
New Zealand



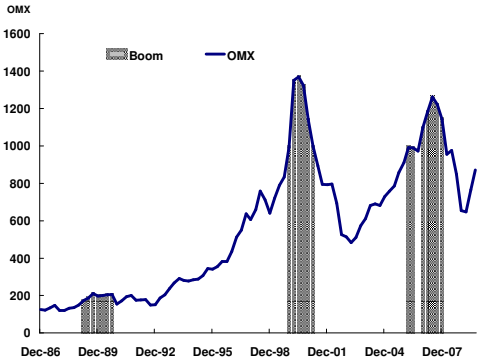
Finland



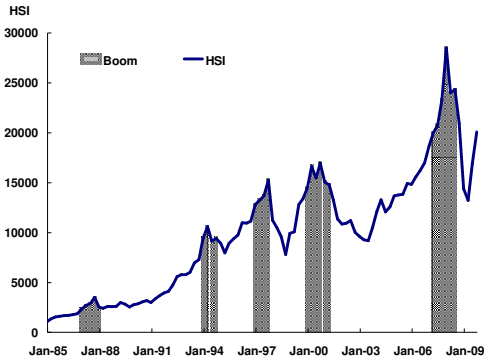
Norway



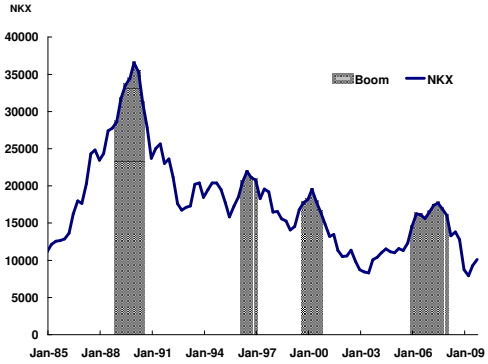
Sweden



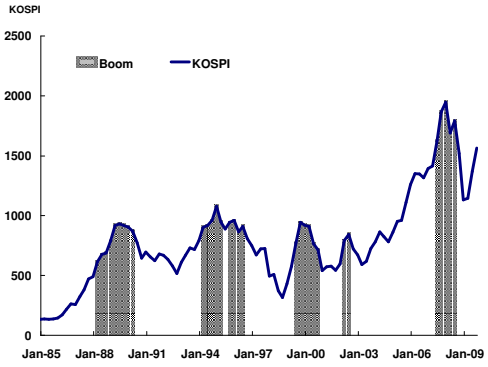
Hong Kong



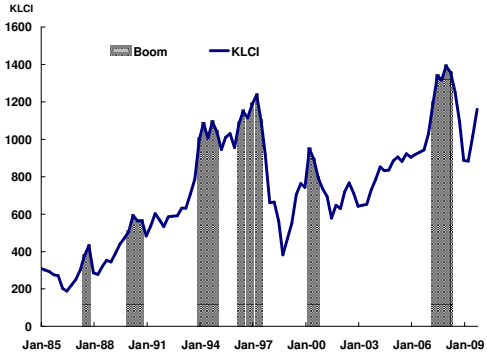
Japan



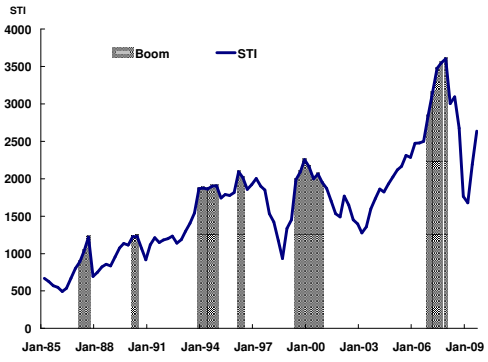
Korea



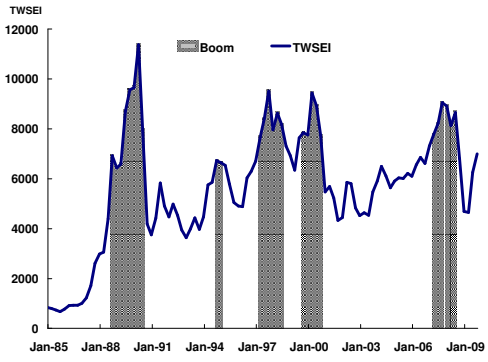
Malaysia



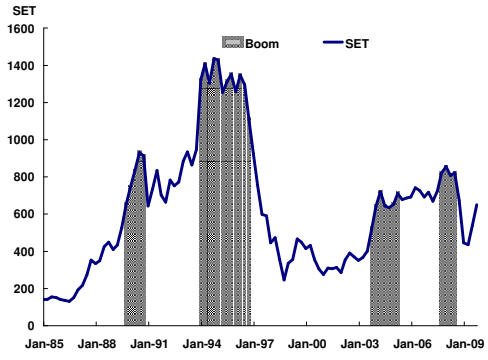
Singapore



Taiwan



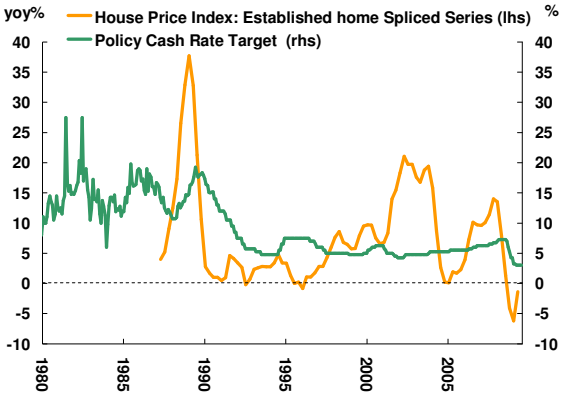
Thailand



Sources: Bloomberg, CEIC, Ecowin, HKMA estimates.

Some observers have commented that Australia demonstrated a successful case of using monetary policy to check the build-up on a potential property market bubble, when the Reserve Bank of Australia (RBA) refrained from lowering the policy rate in February 2002 and subsequently raised it amid a global slowdown, without causing undue harm to economic growth (Chart 2). Annual growth in house prices peaked at 21% in mid-2002, decelerated to about 9% in June 2004 and fell further to 0.1%in March 2005. This contrasted starkly with the situation in the US and UK, where prices surged. Australian GDP, meanwhile, grew steadily at 4.2% in 2002, 3.0% in 2003 and 3.8% in 2004.

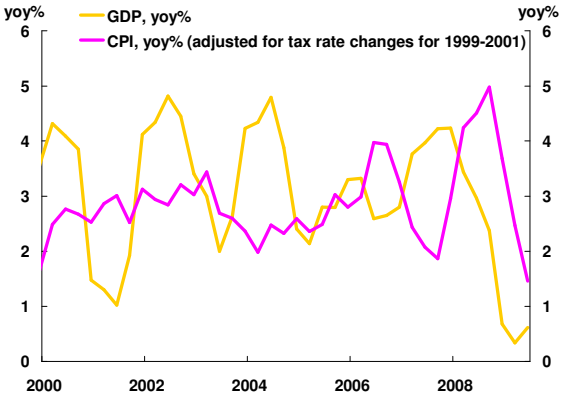
Chart 2:
Australia's house price and policy cash target rate



Sources: Haver Analytics and Bloomberg.

A careful look at the situation at the time, however, would suggest that the monetary policy decisions were actually made against the background of a relatively resilient economy, although the RBA did openly express concerns over the cumulative rise in house prices and the associated rapid expansion in household borrowing. Indeed, in contrast to most other economies, the Australian economy grew strongly through 2001 and going into 2002 despite the contractionary effect of the global slowdown, helped in part by the rebound in the housing sector which provided a boost to growth over the second half of 2001. GDP grew by slightly more than 4% year on year in 2001, and sustained a similar pace of growth in early 2002 (Chart 3). Indeed by early 2002 monetary easing by the RBA from 6.25% at the beginning of 2001 to 4.25% had already taken place, so that a pause in February 2002 may not be totally out of line. This is especially the case when seen in the context

Chart 3:
Australia GDP and inflation



Sources: RBA and Bloomberg.

of a clear shift in sentiment regarding prospects for the world economy at the beginning of 2002, with the US economy rebounding strongly in the first quarter of 2002 following modest growth in the prior quarter, and expectations of further monetary easing were scaled back sharply in most economies by February 2002. The interest-rate hike by the RBA in May 2002 was decided with the evaluation that inflation was expected to rise back towards the top of the target band, as the continuation of rapid growth in demand and activity would see capacity constraints put pressure on wages and prices. The housing-market boom was partly weighed down by oversupply in the market.

III. What are the Challenges in Managing Asset Price Bubbles with a Floating Exchange Rate?

How useful is it to have the instrument of monetary policy to manage asset-price inflation offered by flexible exchange rate regimes? Are economies with a fixed exchange rate necessarily worse off in terms of managing asset-price inflation and its potential fallout? How effective and sufficient will monetary policy be as an instrument to control asset-price bubbles in small open economies?

These issues are highlighted by the behaviour of "fear of floating", where many of the economies that have proclaimed themselves as having floating exchange rates appear to actively limit fluctuations in the external value of their national currencies, and accumulate vast war chests of international reserves, which would not be necessary if their currencies were truly floating. In other words, many countries float with "a large life-jacket", and this phenomenon appears pervasive in the emerging markets. Such behaviour is puzzling not only because it does not match official pronouncements by policymakers, but also because emerging market economies are typically buffeted by larger and more frequent external shocks, which in theory necessitate more rather than less exchange-rate flexibility.

Capital inflows due to structural disequilibrium

The greatest challenge lies in capital flows, which create a channel by which asset prices can be bid up over the course of the cycle. Large inflows will cause upward pressure on the exchange rate and are quite likely to lead to asset-price pressures. For most East Asian economies with flexible exchange rates in place since the 1997/98 crisis, the policy concern has not been that capital flows threaten price stability, but rather that the inflows set in train this appreciation/instability of the exchange rate.

More fundamentally, these capital flows reflect an on-going structural disequilibrium — a phenomenon faced by emerging economies (Grenville, 2007). Emerging economies have intrinsically better profit opportunities, as they are likely to be high-growth, high-productivity, high-profit economies, as they move towards the best-practice production frontier. Investors are attracted by the high growth potential of emerging markets, and capital flows in to benefit from these profit opportunities.

There is often enough inherent dynamism and profitability in the transition to the technological frontier that the equilibrium interest rate in these economies will, on average, be higher than in mature countries, because the return on physical capital is higher.[3] Inflows will not only be encouraged by these structurally higher interest rates, but will be further encouraged by the prospect of structural exchange-rate gains.[4] **The combination of structurally higher interest rates and trend appreciation gives foreigners an attractive potential return, and the resultant capital inflow puts additional upward pressure on the exchange rate.**

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[3] That is, the Wicksellian "natural" interest rate for emerging countries is likely to be higher than in mature economies.

[4] This might be explained in terms of the Balassa-Samuelson theorem (differential productivity performance in the tradable vis-à-vis the non-traded sectors), or may simply reflect the high overall productivity as capital-labour ratios rise and the country moves towards the best-practice production frontier. During this process, interest rates need to be higher, and the real exchange rate has the prospect of appreciation. This could be seen from the experience of Japan, where the yen appreciated from 360 yen per US dollar to 100 in the early 1970s.

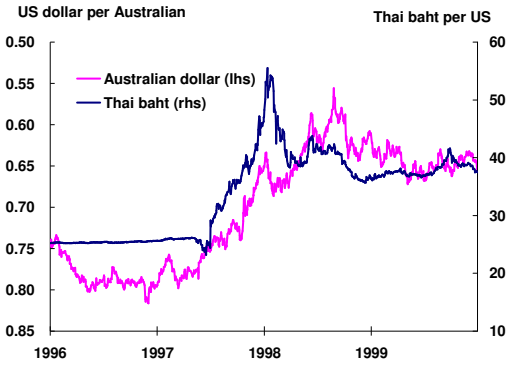
Exchange-rate trends may not be mean-reverting

In this environment, the exchange rate is not well anchored by the widely accepted views about the "fundamentals" or a long track record to establish a mean-reverting process. In mature economies, a depreciation in the exchange rate is supposed to create the expectation of a subsequent appreciation ("mean reversion"), but in emerging economies when the exchange rate is not well anchored, it can fall substantially without encouraging new inflows as seen during the Asian crisis. Therefore, if a flexible exchange rate is not well anchored by expectations and a well-established history of mean reversion around some longer-term trend, "sudden-stop" capital reversals are a constant danger.

This is not an issue of short-term volatility of the exchange rate, but of sustained departures from the equilibrium exchange rate. A comparison between Australia and Thailand's experience during the Asian financial crisis may shed light on this point (Chart 4). The fall of the Australian dollar was not as substantial as that of the Thai baht which depreciated by close to 60% against the US dollar, but it was nevertheless very substantial at around 30%. The relationship between such exchange rate falls and capital flows was, however, quite different. There was a huge reversal in capital flows in Thailand from an inflow of close to 10% of GDP in 1996 to an outflow of around 10% of GDP in 1998. This contrasts with Australia where there was no sign of reversal, despite the significant depreciation in the exchange rate. The RBA was prepared to let the exchange rate depreciate without raising interest rates in its defence, and the result was that the real economy was largely unaffected. In Thailand, on the other hand, the central bank was forced to raise interest rates to prevent capital flight that would undermine the exchange rate in an economy already in free-fall. What is it that makes investors prepared to hold their positions in the case of Australia, but not Thailand?

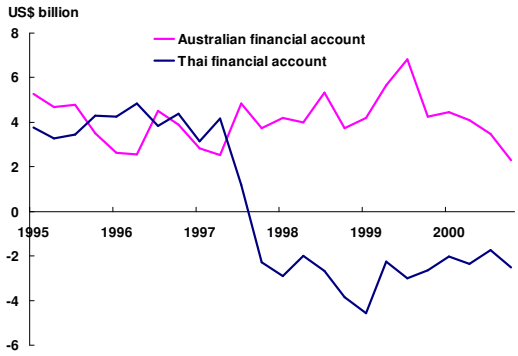
Chart 4: A comparison between Australia and Thailand during the Asian financial crisis

Exchange rates against the US dollar



Source: Bloomberg.

Capital flows



Source: Bloomberg.

According to Caballero et al (2004), **the reason that makes investors prepared to hold their positions in the case of Australia, but not Thailand, may be attributable to "currency trust".** With "currency trust", foreign investors are confident in holding assets denominated in the currency of a particular country, as they believe currency movements will not be used to expropriate their investment and also that the central bank has enough control over the currency that random shocks are unlikely to lead to perverse exchange-rate dynamics. This could be dependent on reputation and institutions which cannot be built quickly or easily. This may serve to explain the phenomenon that, unlike currencies of developing economies, the exchange rates of mature markets' currencies tend to be mean-reverting. It is worth noting that "currency trust" is distinct from "country trust", which refers to the degree of confidence foreign investors have more generally in the economy. It takes a well-recognised track record to establish "currency trust".

Procyclicality of capital flows causes policy dilemma

Even under a flexible exchange rate regime, policymakers have a limited armoury of effective instruments to handle asset-price inflation in a small open economy, given the procyclical nature of capital flows. For example, when the economy is experiencing a boom, it attracts capital inflows to profit from its higher growth prospects, which could be channelled to asset markets and lead to substantial asset-price inflation. Under these circumstances, a higher interest rate to cool the domestic economy is likely to attract further inflows, while lower interest rates would

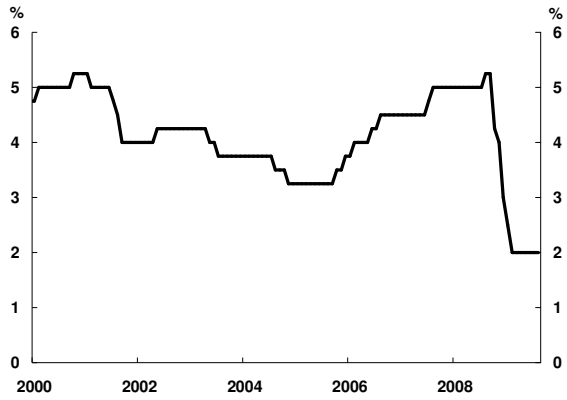
not help deter such inflows as more accommodative monetary policy will be conducive to further boom in the domestic economy and financial markets.

Experience does show challenges in the use of monetary policy to manage asset-price inflation

One can see from the experience of small open economies that the use of monetary policy to manage asset-price inflation may be complicated by large procyclical capital flows. For instance, **Korea** in the second half of 2005 and in early 2006 saw policy-rate hikes, large capital inflows, and strong asset-price increases going hand in hand. Capital inflows may have been encouraged by rising interest rates, and then helped to buoy the stock market, defeating one of the original intentions of the rate hikes, which is to manage financial excesses and any potential fallout on financial stability.

During 2005, when economic growth in Korea was accelerating, private sector spending picked up as reflected in stronger retail sales and industrial production, while inflation remained low and stable. As the economy firmed up, the Bank of Korea began a series of interest-rate hikes which took the policy rate from 3.25% in September 2005 to 4.5% in August 2006 (Chart 5). In their Monetary Policy Report, it was stated that these policy-rate hikes were conducted partly to address the heightened upward pressure on asset prices. In particular, the real estate market was explicitly mentioned to have been one of the factors considered to represent a latent source of instability. However, both stock and house prices continued to rise through this period (Chart 6). The Korea Composite Stock Price Index (KOSPI) broke above the 1,000 range in mid-2005 and traded above 1,400 by April 2006. In the meantime, the yearly growth in house prices accelerated from mid-2005 after several years of deceleration, with apartment prices in Seoul rising particularly sharply. Just as asset prices were rising, portfolio inflows into Korea were also rising. According to the balance-of-payments statistics, cumulative

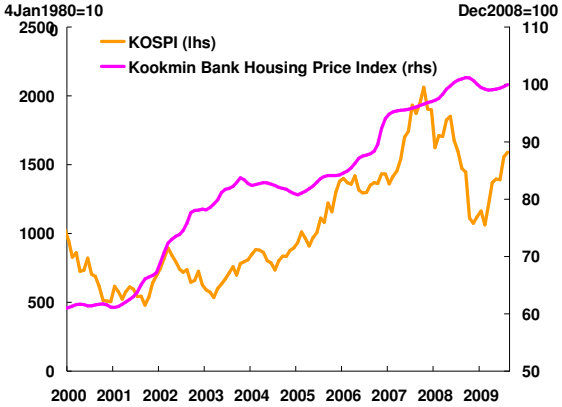
Chart 5:
Korea policy rate



Source: Bloomberg.

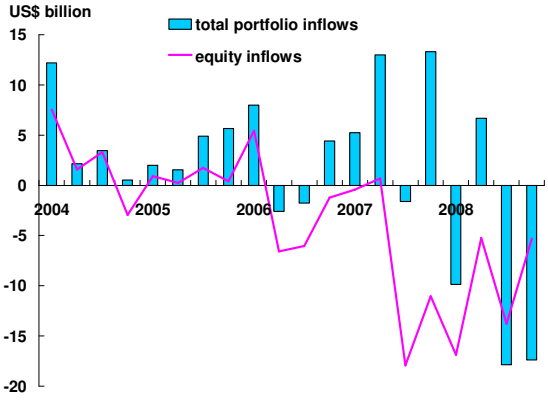
portfolio inflows into Korea amounted to over US$22 billion from the first quarter of 2005 to the first quarter of 2006, of which nearly US$9 billion were equity inflows (Chart 7).[5] More recently, we see the reverse of the relationship in action, when interest rate cuts, asset price declines, and capital outflows moved together.

Chart 6: Korea stock and housing price



Source: Bloomberg.

Chart 7: Korea portfolio inflows



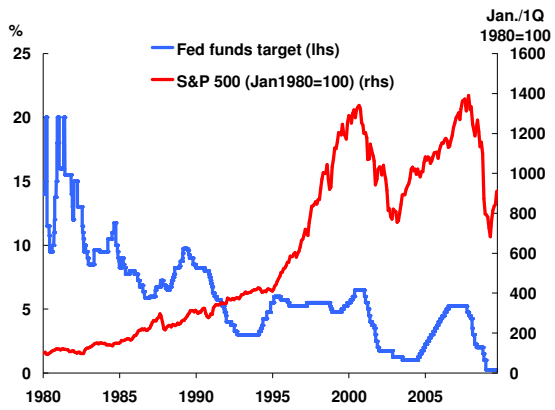
Source: Bloomberg.

In fact this is a situation that may not be dissimilar to the situations of some other Asian economies, as open asset markets, in particular stock markets, are buoyed by the inflow of funds which in turn may have been encouraged by the interest-rate hikes and the strengthening exchange rate. These potential linkages between the interest rate, capital flows, asset prices, and the exchange rate make the conduct of monetary policy in small open economies difficult enough in the context of maintaining price stability, let alone the management of asset-price inflation.

[5] It is less evident that capital inflows were flowing into the less-open housing market, but they may have had an impact on market psychology. In fact, reflecting concerns about housing market developments, the Korean Government introduced measures to cool down the housing market in August 2005, and when that failed to make a lasting impact, more announcements were made in early 2007, which were then met by a deceleration in house price increase.

Experience in the US also suggests that policy-rate hikes might not be a sufficient instrument to curb the rise in asset prices. Along with the series of federal funds rate increases that ended in 1989, early 1995 and in 2006, the stock market, as reflected by the S&P 500 index, continued to rise (Chart 8). This could be due to the improvement in fundamental factors, as the economy and prospects for company earnings were growing, and could also have to do with investor optimism, e.g. over productivity growth. This may also be due to factors other than fundamentals, such as market dynamics. A discussion on market dynamics is outside the scope of this paper but one may note that these forces may be self-reinforcing, until a certain point is reached and the market takes a turn. This suggests that monetary policy may not be an effective tool to influence asset-price inflation, or that the rise in policy rates would have to be substantially more than what was implemented in the US during those episodes for the stock market to be affected. Further, it is unclear what amount of monetary policy tightening may help gently deflate a bubble and what kind of increases may actually trigger a bust so severe that the real economy is badly affected.

Chart 8:
US Fed funds target rate and S&P 500 Index



Source: Bloomberg.

Aftermath of the bust most crucial: resilience of the economy is key

In fact, it is the extent of disruptions to financial stability and the economic fallout following the bursting of the asset-price bubbles that is the most relevant concern, rather than the existence of asset-price bubbles per se. While the bubble question is intrinsically interesting, it is extremely difficult to answer, and the emphasis on asset-price bubbles might be too narrow. As noted in Borio and Lowe (2002), for policymakers, the more relevant issue is not whether an asset-price bubble exists, but rather what combination of events in the financial and real sectors exposes the financial system to a materially increased level of risk.

Not all asset-price busts lead to severe economic downturn. As shown in Detken and Smets (2004) and IMF (2009), some busts are more costly in terms of their impact on growth than others. The bursting of housing-market bubbles for instance is broadly found to be associated with greater output loss than equity-price busts, probably because the housing asset represents a larger share of the household balance sheet and high debt is often involved. However, even within the same asset class, some busts are more costly, in that they lead to a more significant output loss.

It seems that, generally speaking, **financial instability characterised by banking sector distress is more likely to be associated with more severe and protracted downturns** than episodes of stress centred mainly in securities or foreign-exchange markets (IMF 2008). This may be due to the fact that a credit squeeze or credit crunch severely restrains economic activity and disruptions in the monetary transmission mechanism remove counter-cyclical support to the economy.

Thus one factor which influences the impact on the economy could be the degree of banking sector resilience in the face of asset-price boom-busts. Indeed, the outperformance of Australia in terms of the frequency of asset-price booms and busts, as well as its resilience in the aftermath of the busts may reflect, to a considerable extent, its sound banking system and financial regulatory and supervisory structure, and a generally high level of bank compliance with international standards. It is also at the forefront of best practices in a number of areas, including transparency. A comparison across Asian economies in the aftermath of the 1997 – 98 crisis may also illustrate the point. Table 1 shows the economic fallout on various Asian economies in the aftermath of the Asian financial crisis. While initial conditions differ and some other factors may also have played a role, it can be seen that broadly speaking, the fallout of the crisis on the economy is less severe in economies with sound banking systems such as Singapore and Hong Kong, while economies with relatively weaker banking sectors, such as Thailand and Malaysia underwent a deeper recession. In particular, some of the banks might have borrowed too much, particularly in foreign currency and in short-term loans during the boom, so that when foreign investors changed their minds about Asian economic prospects, the rush for exit left many economies and their banks high and dry. Also, inadequate regulation of banking activities helped sow the seeds for the sharp rise in loan losses and subsequent insolvency of some of the banks.

Table 1: The impact of the Asian financial crisis on Asian economies

	Peak-to-trough decline in real stock price (%)	Peak-to-tough output loss (%)	Number of quarters to trough	Rise in unemployment rate (%)
Hong Kong	56.9	8.8	5	2.1% (Sep 97) to 6.4% (Feb 99)
Korea	73.2	8.9	3	2.1% (Aug 97) to 8.6% (Feb 99)
Malaysia	74.6	12.3	5	n.a.
Singapore	60.4	4.5	4	1.3% (Sep 97) to 3.3% (Dec 98)
Thailand	87.1	14.9	8	0.9% (Sep 97) to 5.3% (Jun 99)

Sources: Bloomberg and CEIC.

The role of macro-prudential regulations

As some of the more costly boom-and-bust episodes are associated with banking sector distress, it may be useful to introduce measures to strengthen the banking system as part of a broader policy approach to manage asset-price inflation and maintain financial stability. As the recent global credit crisis demonstrates, banks may be individually sound according to traditional capital adequacy measures and stress test results, but when faced with a system-wide shock such as the liquidity and confidence crisis of the recent episode, the whole system may succumb. Also, the failure of one financial institution, such as Lehman Brothers, may act to weaken the other banks and financial markets with which they are involved, setting off market dynamics which may eventually lead to a larger financial crisis. Thus a more macro approach to banking sector regulation, which attempts to take into account some of the spillovers and externalities, as well as the procyclicality, of banking sector activities, would be helpful in the management of asset-price inflation, as well as in limiting the potential impact of any asset-price busts on the broader economy.

Prudential measures that generate counter-cyclical effects to dampen boom-bust cycles of asset prices may play a useful role in maintaining macroeconomic and financial stability. Some macro-prudential regulatory measures are counter-cyclical in nature, such as cyclically sensitive capital requirements and loan-to-value ratios that change according to changes in asset prices, helping to remove the need for constant review or to evaluate asset prices against their fundamental factors, and to ensure a prompt response to emerging financial imbalances. Seen in this context, greater co-operation between monetary and prudential authorities is important, not just in the management of financial instability, but in preventing their emergence.

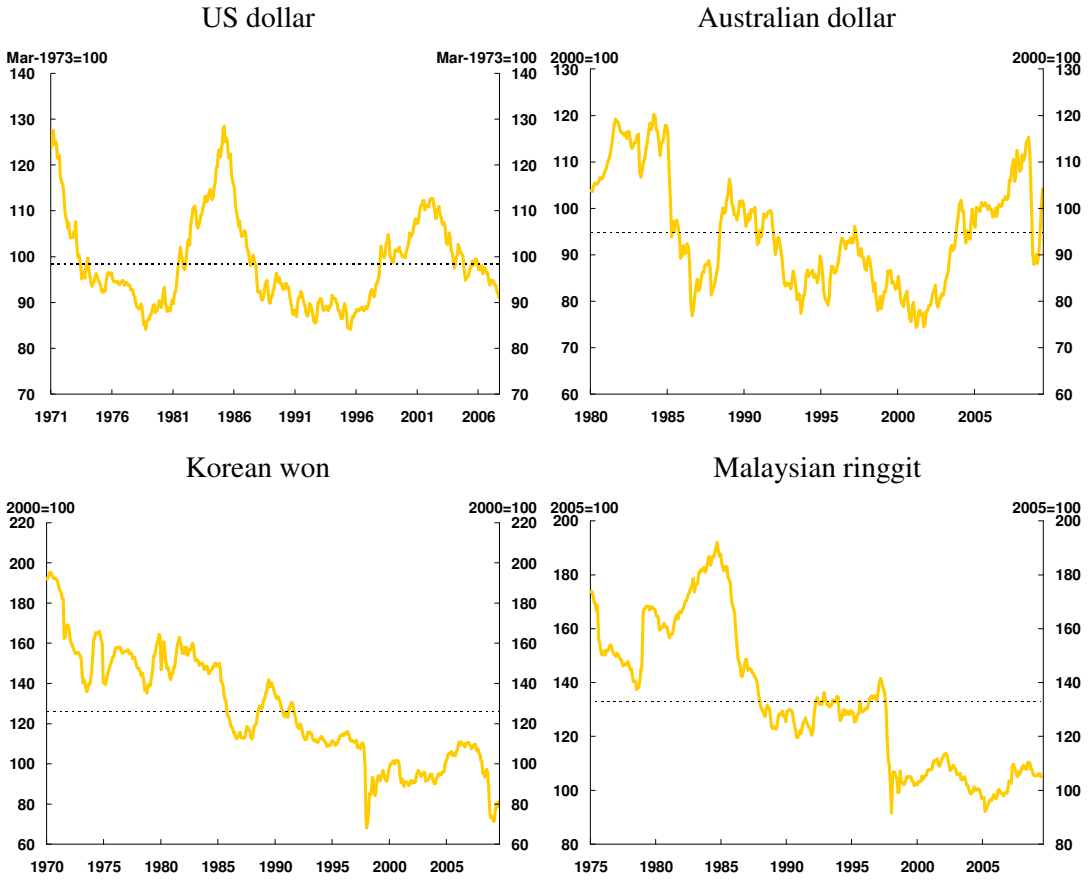
IV. POLICY IMPLICATIONS FOR HONG KONG

Monetary policy does play a role in asset-price bubbles, but **procyclical capital flows will make the use of monetary policy in managing asset-price inflation difficult to implement.** While monetary policymakers should take into account and react to emerging signs of increasing macro-financial risk, **monetary policy does not appear to be a sufficient instrument**. So what are the policy implications for Hong Kong?

In fact, **Hong Kong's link to the US dollar is one way to address the problem of capital flows associated with the structural disequilibrium of exchange rates facing developing economies.** As discussed above, a fall in the exchange rate would create the expectation of a subsequent rise in mature economies. Therefore, pegging the exchange rate to the US dollar should help to anchor the currency to a mean-reverting trend in the long term. Chart 9 shows the real effective exchange rates of the US dollar, the Australian dollar and two emerging Asian currencies – Korean won and Malaysian ringgit – over a longer-term horizon. The trends of the real effective exchange rates of the US dollar and the Australian dollar appear to be mean-reverting. On the other hand, currencies of the developing Asian economies are not, and some currencies never return to their previous

exchange-rate level after a sharp depreciation.[6]

Chart 9: Long-term trends of currencies



Source: Bloomberg.

To the extent that monetary policy can help reduce asset-price inflation, the use of monetary policy alone will not be sufficient and aggressive monetary policy reactions will be costly. It is true that policymakers should pay more attention and react more strongly to emerging signs of increasing macro-financial risk. To this end, central bank mandates could be expanded to include concern for financial vulnerabilities.

[6] It should be noted that the Korean won and the Malaysian ringgit have experienced changes in their exchange-rate regimes during the periods shown in the charts, which limits the comparability of these currencies' exchange rates over a long time horizon. In the early days, the Korean won was pegged to the US dollar (pre-1980s) and a currency basket (1980 to 1990). Between 1990 and 1997, the Bank of Korea adopted a Market Average Exchange Rate System, in which the exchange rate (against the US dollar) was allowed to move within a band. The central bank has then adopted the "freely float" regime since the end of 1997. On the other hand, the Malaysian ringgit was under a managed float regime between 1975 and 1997 before Bank Negara Malaysia pegged the ringgit to the US dollar in 1998. The central bank gave up the peg and let the currency float in 2005. Since then the value of the currency is basically determined by market forces, with the central bank monitoring its value against a currency basket.

However, if interest rates alone were used to tackle asset-price bubbles, very aggressive rate hikes may be needed, as the dynamics formed and optimistic expectations are such that small increments in policy rates may not be sufficient to deflate a bubble, and the use of one monetary policy instrument to handle different asset markets at the same time will be difficult (e.g. national house prices vs. house prices in large cities).

Macro-prudential policy can help limit the need for aggressive monetary policy reactions, and increase the resilience of the economy against asset-price booms and busts. Indeed, the severity of fallout on the real economy depends very much on whether or not a banking crisis is triggered, and it is the economic and financial consequences of the crisis that should be the more relevant focus of policymakers, not whether asset bubbles exist. It is true that macro-prudential regulation in maintaining the stability of the financial system is nothing new to the HKMA, and the sound banking sector has helped Hong Kong weather a number of crises in the past. What is new, however, is the broader range of intermediaries and institutions that form the focus of macro-prudential policy; the range and sophistication of the tools of macro-prudential analysis; the extent of co-ordination between monetary and prudential policy measures; and the need for international co-operation in policy formulation given the increasingly integrated financial markets across the globe.

REFERENCES

Bank of Korea, Monetary Policy Report, various issues, 2005 – 2007.

Bernanke B. and M. Gertler (1999), "Monetary policy and asset price volatility", in *New Challenges for Monetary Policy*, Federal Reserve Bank of Kansas City.

Bordo M. and D. Wheelock (2006), "When do stock market booms occur? The macroeconomic and policy environments of 20th century booms", Federal Reserve Bank of St Louis Working Paper Series, 2006 – 051A.

Borio C. and P. Lowe (2002), "Asset prices, financial and monetary stability: exploring the nexus", BIS Working Papers, Number 114.

Caballero R., K. Cowan, and J. Kearns (2004), "Fear of sudden floating," *Quarterly Journal of Economics*, 117(2): 379 – 408.

Detken C. and F. Smets (2004), "Asset price booms and monetary policy", European Central Bank Working Paper Series, Number 364.

Gochoco-Bautista (2008), "Asset prices and monetary policy: booms and fat tails in East Asia", BIS Working Papers, Number 243.

Grenville S. (2007), "Central banks and capital flows", Hong Kong Institute for Monetary Research Occasional Paper, Number 4.

International Monetary Fund (2008), *World Economic Outlook: Financial Stress, Downturns, and Recoveries* (Washington, October).

International Monetary Fund (2009), *World Economic Outlook: Sustaining the Recovery* (Washington, October).

Reserve Bank of Australia, Statement on Monetary Policy, various issues, 2002.