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On the Maintenance Costs and Exit Costs of the Peg in Hong Kong

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**Keywords: currency board, monitoring band, exchange rate policy,
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JEL Classifications: F41, E58.

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Abstract

This paper attempts to pioneer a discussion on the exit and maintenance costs of the Currency Board System (CBS) in Hong Kong, and hopes to invite more debate on the issue. It suggests that the exit costs will depend on the timing of an exit, whether there are supplementary packages to mitigate the exit costs, and the choice of an alternative exchange rate system. In particular, it suggests that the monitoring band system favored by Williamson (2000) could help to reduce the exit costs. In addition, the paper points out that there are ways to reduce both the exit and maintenance costs. It then proposes a reform that could benefit the economy regardless of whether the policy maker eventually chooses to continue with or abandon the peg. The study is not only crucial to Hong Kong, but also important to other economies with a CBS as well as to the debate on the choice of exchange rate system.

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1. Introduction

By integrating the latest empirical findings and discussions related to Hong Kong's Currency Board System (CBS), this paper first highlights the substantial costs Hong Kong (HK) has paid in maintaining the CBS during the crisis and post-crisis periods. Despite the gradual recognition that the maintenance cost of the peg is far much greater than originally anticipated, the Hong Kong Government – or at least the Hong Kong Monetary Authority (HKMA) – has chosen to stick with the peg. One possible reason for this is the worry of uncontrollable turbulence induced by abandoning the peg (i.e. in the terminology of this paper, the high uncertainty on the size of the exit costs). Thus, it is important to have a better conceptual understanding on both the exit and maintenance costs before such an important decision is made.

Based on this belief, this paper attempts to pioneer a discussion on both costs, and hopes to invite a more healthy debate on the issue. Despite the relatively rudimentary nature of the discussion, this paper suggests that the exit costs will depend on the timing of the exit, whether there is any supplementary package to mitigate the exit costs and the choice of the alternative exchange rate system that replaces the peg. In particular, the paper suggests that the monitoring band system favored by Williamson (2000) and adopted in Singapore [see Rajan and Siregar (2002) and Corrado et al (2002)] could help to reduce the exit costs. In addition, the paper points out that there are ways to reduce both the exit and maintenance costs. It then proposes a reform that could benefit the economy no matter if the policy maker eventually chooses to continue with or abandon the peg.

The study here is not only crucial to Hong Kong, but also important to other economies with the CBS as well as to the debate on the choice of exchange rate system. For example, among the economies with a CBS, Hong Kong is the one with the most developed financial sector and highest capital mobility (see Tse and Yip (2003)). Kwan and Lui (1996) also believed that the economic health of the Hong Kong economy has made its modern CBS an important benchmark for international comparisons, evaluations and theoretical developments. On the other hand, Williamson (2000) believed that the debate on exchange rate policy ought not to concern fixed versus floating rates, but rather currency boards versus monitoring bands.

The plan of the paper is as follows. Section 2 reviews the literature on the speculative attack in Hong Kong, and explains that the source of Hong Kong's economic adversity and high maintenance costs of the peg during the crisis period was due to the interest rate hike. Section 3 discusses the maintenance costs of the peg during the post-crisis period. In particular, it highlights that the assumption of a flexible price and wage behind the justification for the CBS in Hong Kong is simply not supported by latest empirical findings. Section 4 explains that the exit costs from the CBS will depend on the choice of an alternative exchange rate system. It then discusses three such alternatives and suggests that the monitoring band system could be the best alternative. Section 5 provides a deeper discussion on the exit costs and suggests that the exit costs could be reduced by supplementary packages. Section 6 proposes one such supplementary package. It also points out that the proposed package will still benefit Hong Kong even if the policy maker eventually chooses not to abandon the peg. The conclusions are in section 7.

2. The Crisis Period

2.1 Source of the problem: interest rate hike and absence of uncovered interest arbitrage

Hong Kong's financial market was under severe speculative attack during the financial crisis in October 1997. The strategy of the speculators was to bid up Hong Kong's interbank rate and subsequently profit from their huge short positions in stock futures built before the formal attack. In view of the surge in interest rate, the plunge in asset prices and hence the harm done to the Hong Kong economy, Chen and Chan (1998), Tsang (1999)¹, Miller (1998) and Yip (1999)² had each made their own proposals in late 1997 or early 1998 to bring down domestic interest rates, and hence the economic pains. Of particular interest are the proposals by Tsang and Yip. Tsang first argued that because of institutional imperfection, cash arbitrage (between the market exchange rate and the official linked rate) was never operative in Hong Kong's linked exchange rate system. He proposed to modernize Hong Kong's Currency Board by adopting the "convertible reserves mechanism" of Argentina, Estonia and Lithuania (the AEL model), under which arbitrage could be done electronically without moving cash around. In the design, each bank will have an account with the central bank, in which deposit reserves as well as other balances are kept. The central bank guarantees the full convertibility of these bank balances at the official exchange rate. Tsang believed this would correct institutional imperfection and make cash arbitrage operative. He also mentioned the possibility of interest arbitrage under this system. However, Tsang did not explicitly

¹ The proposals included in Chen and Chan (1998) and Tsang (1998) was first made in late 1997.

elaborate the mechanism to remove the exchange-rate risk of interest arbitrage, which was the main reason that stopped the Hong Kong interest rate from falling to the US level during the crisis. Yip on the other hand provided a detailed discussion of this. First, he noted that if the market believed the peg would continue, any speculative attack that bid up domestic interest rate would induce uncovered interest arbitrage activities until domestic interest fell back to the US level. Nevertheless, the speculative attack and the economic crisis had induced potential arbitragers a perceived risk of a collapse of the peg. Such expected chance of devaluation had in turn implied a substantial exchange rate risk in conducting uncovered interest arbitrage. As a result, there were no such arbitrage activities despite an enormous gap between the domestic and US interest rates. Thus, on top of Tsang's suggested set-up, Yip proposed to use the electronic Certificate of Indebtedness³ as a guarantee to remove the exchange-rate risk of uncovered interest arbitrage. With the guarantee, banks would be interested in earning the interest differential by borrowing US dollars (from abroad) at the low US interest rate and lending the Hong Kong dollar at the high Hong Kong interest rate. Thus, with the guarantee, interest arbitrage would continue until the Hong Kong interest rate fell back to the US level. Unfortunately, there were some kind of delays on the monetary authority side to incorporate the above proposals into its anti-crisis package, thus allowing the speculators to repeat the October 1997 attack in January, April, June and August 1998.

² The proposal was first made as an internal report in the Bank of China (Hong Kong-Macau Regional Office) in late 1997, and was released in a local newspaper (Hong Kong Economic Journal) on 24 February 1998. It was subsequently included in Yip (1999).

³ An electronic Certificate of Indebtedness will guarantee the arbitragers the right to use an equivalent amount of (electronic) HK dollar to redeem back the (electronic) US dollars (at the official rate) they originally exchanged or deposited with the Exchange Fund of the HKMA.

2.2 The HKMA's stock market intervention and the subsequent currency board reform

In the speculative attack in August 1998, the HKMA had opted for stock market interventions in mid August 1998. Nevertheless, with the weak market sentiment, traditional funds dumped about HK\$100 billion Hong Kong shares on 31 August 1998, and the HKMA was forced to purchase all these shares. To avoid the development in the stock market from deteriorating into a deeper crisis, the HKMA finally adopted and modified the proposals of the above researchers and came up with a reform package (or modern CBS) on 5 September 1998, highlighted under seven Technical Measures. Of the seven measures, the most important measures are: (i) an exchange rate guarantee (convertibility undertaking) for the banks' net balance in the account with the HKMA, and (ii) a modification of previous practice to a discount window which allows banks substantial freedom to use their holdings of Exchange Fund debts (and selected semi-government debt papers) as a collateral for over-night liquidity borrowing from the HKMA [see Yam (1998)].

Measure (i) removes the exchange-rate risk of banks' interest arbitrage activities and hence brings the Hong Kong interest rate in line with the US interest rate. Measure (ii) aims at allowing an increase in interbank liquidity in case of speculative attack, so that the impacts of the attack on the interbank rate can be mitigated. Before this reform, Hong Kong banks' net aggregate balance (and hence net interbank liquidity) were relatively small⁴. Thus, allowing the interbank liquidity to expand when deemed necessary may stop the speculators from squeezing the interbank liquidity (and hence

⁴ Because of this, it took only US\$1-2 billion spot selling of the HK dollar in the foreign exchange market to create a substantial shortage of interbank liquidity on 23 October 1997 (see Tse and Yip (2003)).

interbank rate) with a relatively small amount of spot selling of the Hong Kong dollar. To justify this arrangement, the HKMA redefined its monetary base to cover the currency issued, the banks' net aggregate balance with the HKMA and the debts issued by the Exchange Fund. The HKMA justified their definition of monetary base by arguing that all the three components were fully backed up by their holdings of foreign reserve⁵.

After the introduction of the Technical Measures, the interest rate in Hong Kong began to fall gradually towards the US level in the fourth quarter of 1998. By mid-October 1998, the three-month interbank rate was only 6%, as compared to 11.8% on 14 September 1998. With further cuts in the US interest rate and a continued reduction in the interest-rate differential, the Hong Kong three-month interbank rate fell further to 5.63% on 28 December 1998, which was only 0.4 percentage point higher than the US rate. On the empirical side, Tse and Yip (2003) reported evidence that the crisis did cause a surge in both the level and volatility of Hong Kong's 3-month interbank rate relative to the US, and the adoption of the anti-crisis package and the eventual fading out of the crisis had once again brought Hong Kong's 3-month rate back to the US level. Parallel with this, Yip (2003) noted that the average HK-US 3-month interbank rate differential during the crisis was 4.02% in Hong Kong⁶, far greater than the 0.74% in Singapore.

Although the above proposals and HKMA's seven Technical Measures managed to eliminate the interest hike engineered by speculators and hence re-established stability

⁵ No doubt, such definition and arrangement did help discourage speculative attacks. It is, however, interesting to note that Hong Kong is probably the only economy in the world that includes long-term bonds as a component of the monetary base.

⁶ Note that 4.02% is the average interest differential. During the crisis, there were periods that the interest differentials were more than 8% and periods differential were only marginally above zero. The unfortunate fact is that the former (occurred at the time of the speculative attack) had contributed to the plunge in asset prices, while the latter was not associated with sufficient rebounds in the asset prices.

in Hong Kong's financial market, prices and wages in Hong Kong could have still failed to adjust fast enough to eliminate any exchange rate over-valuation⁷ and output loss during the post-crisis period. The next section will discuss the empirical evidence and consequence of the sluggishness of price in Hong Kong.

3. The Post-Crisis Period

3.1 Flexible price: a major assumption behind the currency board system

One of the very important assumptions behind the original justification for Hong Kong's CBS is that price and wage will adjust sufficiently fast [Greenwood (1984a,b)] to offset any misalignment in exchange rate, shift in demand or other changes in market fundamentals. For example, suppose there is (a) a permanent depreciation of the Asian currencies vis-à-vis the US\$ during the crisis and post-crisis periods, leading to an over-valuation of the Hong Kong dollar; (b) a change in market fundamentals (such as substantial inflows of unskilled labor force from China, or faster relocation of operation and production lines from Hong Kong to China) that necessitate a downward adjustment in Hong Kong's relative price and wage; or (c) a prolonged slowdown in the US and global economy. If Hong Kong's price and wage are flexible, then there will be a low enough price and wage to re-establish a full-employment equilibrium. On the other hand, if Hong Kong's price and wage are sluggish downward, then the above changes could cause substantial unemployment during the adjustment period. In general, the slower Hong Kong price and wage can adjust, the greater the unemployment and adjustment

⁷ See the explanation of the over-valuation in section 3.

pain. Thus, flexibility of price and wage is of utmost importance to the adjustment cost and hence the debate on the choice of exchange rate system in Hong Kong.

3.2 Empirical findings: substantial price and wage sluggishness in reality

Proponents of Hong Kong's CBS had long believed that price and wage in Hong Kong should be highly flexible. However, Yip and Wang (2002) noted that this was just an assumption without any empirical evidence. They then provided empirical evidence to show that Hong Kong's (export) price was in fact far more sluggish than that presumed by the proponents of Hong Kong's CBS. To provide a rough idea on how fast Hong Kong's price and quantity adjust, they have chosen to estimate the adjustment speed of export-price and export-volume. It found that Hong Kong's export-volume would adjust relatively fast to disequilibrium in the export-volume equation (i.e. it can correct 41% of the disequilibrium in one quarter), while export-price would only adjust slowly to disequilibrium in the export-volume equation (i.e. it can only correct 14% of the disequilibrium in one quarter). Thus, (i) the original justification of Hong Kong's Currency Board System simply does not hold; and (ii) the long-perceived high flexibility in Hong Kong was in fact the high adjustment speed in quantity, not price. The former would imply a large adjustment cost in maintaining the peg in Hong Kong, while the latter explained why the volatility of Hong Kong's quantity (such as real GDP or export-volume) were usually large by international standards.

Parallel with the above evidence of price sluggishness, it should be noted that there could be interactive sluggishness between price and wage. That is, it will take at least a few rounds of alternative small reduction in price and wage to achieve a certain

required long-run reduction in price and wage. These could have contributed to the more than five years of deflation in Hong Kong. To illustrate the degree of sluggishness for other price indices in Hong Kong, Figure 1 plots Hong Kong's GDP deflator, CPI and export price index since the financial crisis. As we can see, although Hong Kong's GDP deflator tends to adjust faster than the other two indices, all the three price indices have been declining gradually throughout the five and half years since mid 1998, reflecting that the degree of price sluggishness in Hong Kong is substantial.

<Inset Figure 1 about here>

3.3 The costs of maintaining the peg during the post-crisis period

3.3.1 Singapore's experience: depreciation could mitigate the recession

Given that Hong Kong's price and wage could only adjust sluggishly, some flexibility of exchange rate could have mitigated the adverse impacts of the crisis, realignment of world exchange rates, China effect (of lower labor cost and outflows of labor to Hong Kong) and the world recession during the post-crisis period. In fact, as shown in Figure 2, Singapore has allowed a large enough ($\approx 17\%$) depreciation of the Singapore dollar vis-à-vis the US dollar so that Singapore's nominal effective exchange rate (NEER) depreciated moderately ($\approx 10\%$ by 2003Q4) against its major trading partner. This has in turn facilitated, or at least avoided hindering, the recovery of the Singapore economy (see Yip and Wang (2001) and Siregar and Rajan (2002)). On the other hand, Hong Kong's peg and the strength of the US dollar had caused Hong Kong's NEER during the five years post-crisis period between 1998 and 2002 to be on average 7%

higher than that of the pre-crisis quarter (1997Q2)⁸. This had in turn increased the burden of price and wage adjustment. If it was not for the latest adjustment of the US dollar in 2003, the extra adjustment burden and hence output loss could have remained for a longer period.

<Insert Figure 2 about here>

3.3.2 The peg worsened Hong Kong's recession

The peg has prevented the use of exchange rate depreciation to mitigate the adverse impacts of the crisis, the permanent re-alignment of world exchange rates, the China effect and the world recession during the post-crisis period. With the strength of the US dollar between 1998 and 2002, it has in fact increased the burden of price adjustment and deepened the recession in Hong Kong. If Hong Kong was free to depreciate its nominal effective exchange rate by 10-15%, adding this on the top of the 7% appreciation would mean 17-22% difference in exchange rate during the post-crisis period. This would in turn mean a far lesser price and wage adjustment burden, and hence less serious recession and deflation in Hong Kong.

The adverse impact of the strong Hong Kong dollar was not only limited to Hong Kong's competitiveness, but also affected its asset price. It aggravated the plunge in property price, and hence increased the financial distress and problem of "negative-asset"⁹. The latter had also spilled over to a weaker aggregate demand through lower consumption and investment. Of course, the plunge in Hong Kong's property price was

⁸ On top of this, there was another 10.6% appreciation of Hong Kong's NEER between 1995Q2 and 1997Q2.

⁹ The term "negative asset" is due to the more than 60% plunge in property price in Hong Kong, making the valuation of the property less than the liability (mortgage loan with the bank). This wide spread

also related to the bursting of the pre-crisis asset bubble and the subsequent excess supply. It is, however, no doubt that a sufficient depreciation of the Hong Kong dollar could substantially mitigate the further plunge in asset price and financial distress. Figure 3 plots the property price indices in Singapore and Hong Kong. While recognizing the property markets in the two economies could be significantly different, at least in terms of degree of bubble before the crisis and the changes in relative supply and demand, the far much smaller decline in Singapore's property price index is something that could reflect the contribution of the depreciation.

<Inset Figure 3 about here>

3.3.3 Has Hong Kong paid most of the costs for maintaining the peg?

After more than five years of deflation with high unemployment and under-employment rates (= 7.3% and 3.3%, respectively in 2003Q4), there were predictions that Hong Kong's price and wage adjustment could be close to being completed¹⁰. If this were the case, Hong Kong should have paid most of the costs for maintaining the peg, at least for this round of shocks. There were however reasons to doubt the validity of these predictions. Before listing the reasons, it should first be noted that deflation is part of the adjustment process. Any effort to stop or delay the deflation process will only lengthen the recession and economic pains. In fact, if the recession lasts for too long, hysteresis effect theory suggests that the rise in unemployment and the loss of business would persist even when the adjustment is completed [see Baldwin (1987,1988), Baldwin and

phenomenon in Hong Kong is now one of the main source of financial distress for most property owners in Hong Kong.

¹⁰ In fact, there had been such predictions, or guesses, over the past few years. The latest one was made by the Hong Kong government who predicted in early 2004 that deflation in Hong Kong would probably end at the end of 2004.

Krugman (1989), Baldwin and Lyons (1994), Dixit (1989, 1992), Blanchard and Summer (1986, 1987), Layard and Bean (1989), Pissarides (1992), and Blanchard and Diamond (1994) for the hysteresis effects on trade, investment and unemployment]. Let us now discuss the reasons for the doubt on the above predictions:

- (a) Years of asset inflation and a fixed exchange rate had pushed Hong Kong's price and wage to extremely high levels. Despite more than five years of deflation, the cumulated fall in price and wage during the post-crisis recession is still small when compared with the cumulated rise during the 7-8 years of asset inflation before late 1997. In fact, the cumulated rise in Hong Kong's Consumer price Index (CPI) between Jan 1990 and December 2003 is still substantially higher than that of US, suggesting that there could still be plenty of down side for Hong Kong's price and wage.¹¹
- (b) China's huge and cheap labor force (with rapid improvement in quality) has attracted more and more Hong Kong firms relocating their operation and production lines to China. This, plus the substantial amount of unskilled labor inflows from China, would require a permanent fall in Hong Kong's wages before full employment could be re-established. Similarly, the substantial shift of Hong Kong residents' consumption (and other)¹² demand from Hong Kong to China would also imply a permanent reduction in Hong Kong's prices and rentals.
- (c) The resistance of civil servants to accept any meaningful wage cut was accompanied with at most moderate wage cut in semi-government organizations (such as hospitals,

¹¹ For example, even including the 15.4% cumulated decline of CPI between May 1998 and December 2003, the cumulated rise in Hong Kong's CPI since January 1990 was 61.8%, far much greater than the 44.6% cumulated rise in the US.

schools and other statutory boards), public utilities (such as electricity, railway, mass transit and bus companies) and large private organizations (such as banks and conglomerates). As a result, prices charged by these organizations were highly rigid, which is limiting further adjustment in the basic living expenses and hence price and wage. In fact, there is growing signs the price and wage rigidity in these relatively large sectors is stopping Hong Kong's unemployment rate from adjusting to the natural, or more acceptable level (say, 5%) of, unemployment rate.

Thus, it is still not clear whether Hong Kong's price and wage has adjusted close enough to the natural full employment level. If not, this would mean Hong Kong will still have to pay substantial maintenance costs for the peg in terms of persistently high unemployment.

4. The monitoring band system as an alternative to the currency board

Having noted the high adjustment cost inherent in Hong Kong's CBS against the large exogenous shock and substantial mis-alignment of the exchange rate, one still needs to answer what are the viable alternatives to the CBS in Hong Kong. Broadly speaking, the alternative exchange rate system could be

- (a) a re-peg (to a new US\$ rate or a basket of currency¹³);
- (b) a shift to a floating regime; or
- (c) a shift to the monitoring band system favored by Williamson (2000).

¹² There were substantial shifts of consumption through Hong Kong residents' weekend, and even weekday, visits to China. There were also significant surge in Hong Kong residents' demand for flats in China.

¹³ Given the growing disparity in HK's economic structure from that of US, a re-peg to a new basket of currency is likely to be superior than a re-peg to a new US\$ rate.

A re-peg to a lower US\$ rate, if not excessive, will definitely help mitigate the high unemployment rate in Hong Kong. The first problem is that the credibility of the new peg would now be weaker because market participants would be more inclined to believe the rate could be re-pegged again when the government feels like doing so. The second problem is that it will be very difficult to decide the right value of the new exchange rate. If the rate chosen is too low, the result could be unnecessary inflationary spirals. On the other hand, if the rate chosen is too high¹⁴, we could still face the same old problems (albeit at a lesser extent) with a lower credibility. Finally, no matter what rate one has chosen, there could still be rebuilding up of mis-alignment of exchange rate in the longer future (say, by another asset bubble, or difference in the changes of market fundamentals between Hong Kong and its trading partners). By then, the peg could still face similar problems of high adjustment costs to large exogenous shocks and mis-alignment of exchange rates. Thus, even if a re-peg is viable, the above disadvantages should be taken into account when compared with other alternatives.

Similarly, if one decides to shift to a floating regime, Hong Kong dollar is likely to adjust towards the new market equilibrium level. Nevertheless, the exchange rate overshooting models by Dornbusch (1976) and Buiter and Miller (1980, 82) had already explained that price sluggishness and a fast adjustment speed in exchange rate could lead to an overshooting of exchange rate amid unanticipated monetary shocks. Similarly, the portfolio balance model had also explained the possibility of over-depreciation (overshooting) with respect of unanticipated monetary changes [see Kouri (1976), Calvo

¹⁴ Given that price and wage are usually more sluggish in the downward direction. If one has to make a bet out of uncertainty, it might be slightly better to have a rate with greater chance of being undervalued, especially if one believes recession and unemployment are more painful than inflation.

and Rodriguez (1977), Dornbusch and Fischer (1980), Rodriguez (1980) and Mussa (1980)]. Besides, Frankel and Froot (1986, 87) had explained that herding behavior in the foreign exchange market could lead to huge cycles in foreign exchange rate. Thus, **a shifting to a floating regime is likely to cause a certain amount of over-adjustment of the Hong Kong dollar at the initial stage**¹⁵. Besides, overshooting and herding behavior could still mean unnecessary volatility and/or huge cycles of exchange rate in the future. Nevertheless, it should be noted that if the maintenance cost of the peg is sufficiently high, shifting to a floating regime could still be a better choice.

Let us now come to the monitoring band system. According to Williamson, the monitoring band, similar to the crawling band, is an exchange rate band around a parity that is periodically adjusted in relatively small steps in a way intended to keep the band in line with market fundamentals. Thus, compared with a peg, other fixed exchange rate systems or Krugman's (1991) type of target zones, it will allow exchange rates to share the burden of adjustment and hence mitigate the adjustment cost. In addition, the continuous adjustment of exchange rate would pre-empt unnecessary building up of misalignment of exchange rate and hence reduce the chance of possible collapse in exchange rate or output loss arising from sustained over-valuation of the currency¹⁶. On the other hand, a monitoring band, as opposed to a crawling band,

“does not involve an obligation to defend the edge of the band. The obligation is instead to avoid intervening within the band (except in a tactical way, to prevent unwarranted volatility) ... the authority ... have a whole extra

¹⁵ If the Hong Kong dollar was over-valued (under-valued) at the time of un-peg, the Hong Kong dollar will probably over-depreciate (over-appreciate) in the initial stage.

degree of flexibility ... if they decide the market pressures are overwhelming, they can choose to allow the rate to take the strain even if this involves the rate going outside the band.”

– Williamson (2000), p.292.

Williamson has also elaborated that the system is different from, and has obvious advantages over, a floating regime¹⁷:

“having a monitoring band may make a difference even if the authorities choose not to intervene, so long the market knows that they can employ policy weapons which they might wield at some future date in seeking to push the rate back within the band, and they know where the band is. This knowledge should **make the market fearful to pushing the rate so far as to set up the conditions for a bear squeeze (or a “bull squeeze”)**. Another possible reason is that the market may believe that the authorities have chosen a correct estimate of the long-run equilibrium rate in their positioning of the band, and this again may discourage the market from pushing the rate as far as it would otherwise go.”

– Williamson (2000), p.292.

In the next section, I will explain that a “psychological anchor” provided by a monitoring band system could help limit the amount of over-adjustment of the exchange rate at the initial stage of the unpeg and hence the possibility of huge cycles of the exchange value of Hong Kong dollar in the subsequent stages. In other words, the choice of a monitoring band system as an alternative to the CBS could help reducing the exit costs of the peg.

¹⁶ Even the government of the adjustable band system makes a wrong judgment (and pays the costs for the mistake), it is much easier for her to correct the mistake before it is too late.

¹⁷ In fact, Williamson even remarked that “the debate on exchange rate policy ought not to concern fixed versus floating rates, but rather currency boards versus crawling (monitoring) bands”.

Although Williamson's discussion is related to India, Rajan and Siregar (2002) and Corrado et al (2002) noted that Singapore's exchange rate system is in fact a more ideal example of the monitoring band system. Tse and Yip (2005) also provided empirical evidence that :

(a) Despite a high capital mobility similar to that of Hong Kong, the greater flexibility of exchange rate in Singapore's monitoring system has endowed it a greater independence of interest rate (monetary) policy. On the other hand, the peg and the high capital mobility in Hong Kong imply that there is virtually no independence in Hong Kong's interest rate policy. That is, Hong Kong has to follow the US interest rate, even though the latter could be at levels that are not desirable to the concurrent economic condition in Hong Kong. They also explained that in case of economic overheating (recession), Singapore can choose a stronger (weaker) exchange rate which would in turn cause a lower (higher) money supply and hence higher (lower) interest rate. Thus, there are in fact two variables (exchange rate and interest rate), instead of one, that could help the economic adjustment in Singapore. On the other hand, neither the exchange rate nor the interest rate could be used in Hong Kong for similar purposes. While the empirical work by them is technical, one can still visualize the difference in the relative independence of interest rate policy from Figure 4. As we can see, throughout the whole sample period in the figure, there is a wide range of interest rate differentials Singapore can choose from, reflecting that Singapore can choose an interest rate substantially different from that of the US. On the other hand, except for the crisis period¹⁸, Hong Kong's interest differential was

¹⁸ HK's greater interest differential during the crisis was due to worry of a collapse of the peg, not greater autonomy in its interest rate policy.

fairly close to zero, reflecting that Hong Kong cannot choose an interest rate too far away from the US.

<Inset Figure 4 about here>

- (b) The normal practice of not intervening within the band implies that the Singapore exchange rate could move to mitigate the impact of exogenous shocks, thus leading to lower volatility of its interest rate¹⁹. This would in turn implies less disruption on the domestic economy; and
- (c) Because of the difference in the exchange rate systems, there was over-reaction response in Hong Kong's interbank market but no such over-reaction in Singapore during the crisis period²⁰.

5. The exit costs of the peg

In sections 2 and 3, we have seen the enormous costs Hong Kong has paid for the maintenance of the peg during the crisis and post-crisis periods. It is by now clear that if Hong Kong were given a choice again, an adoption of exchange rate system similar to that of Singapore would definitely be better than the current CBS. Unfortunately, Hong Kong's current decision is more complicated simply because its current starting point is a long-existed CBS. If one ever considers abandoning the peg, one has to carefully assess the exit costs (from the peg), which could be substantial and highly uncertain. Thus, the debate is not just on whether the CBS is appropriate for Hong Kong, but also on whether

¹⁹ According to their estimate, the unconditional standard deviation (a measure of the volatility) in Singapore's 3-month interbank rate during the non-crisis period was 14 basis points, far much smaller than the 25 basis points in HK.

²⁰ During the crisis period, 1 percentage point rise in the HK-US differential today would cause a bigger differential tomorrow, although the panic would disappear in subsequent days. On the other hand, there was no such panic response in Singapore.

the maintenance costs are higher than the exit costs. As future exogenous shocks could still imply substantial maintenance costs for Hong Kong during the adjustment period, a healthy debate on the size of the exit costs is important. Unfortunately, so far not much discussion has occurred. Seeing that a lack of such discussion is extremely unhealthy, this section would like to pioneer a rudimentary conceptual discussion on the exit costs and hopes to stimulate more research in this area.

In particular, I would like to point out that the size of the exit costs will depend on (a) the timing of the unpeg; (b) whether there are supplementary package to mitigate the costs; and (c) the new exchange rate system to be adopted. For example, if the US dollar ever enters a period of substantial depreciation, as it was the case in 1985/86, then the first few phases of the US\$ depreciation would help eliminate the over-valuation of Hong Kong dollar and hence mitigate Hong Kong's unemployment problem. If the depreciation of the US dollar is really **substantial**, Hong Kong dollar might become moderately undervalued at the later phase. If Hong Kong dollar is unpegged at this phase, then the exit costs will be very small (or even negative) with Hong Kong dollar up against US\$-related currencies and relatively stable against other currencies. As this would require a substantial depreciation of the US\$, we might or might not get such a chance in the foreseeable future, even though current US dollar might fall further after the latest correction and herding behavior in the foreign exchange market could cause huge cycles and over-depreciation in the US dollar in the future. While luck is something beyond our control, the important point is that the appropriate authority should get itself prepared for such a possibility.

The second point is whether there could be a supplementary package that could mitigate the exit costs. In section 6, I will propose a wage system reform that will benefit Hong Kong no matter if the policy maker eventually chooses to maintain or abandon the peg. As I will explain, for those who prefer the continuation of the peg, the reform could reduce the adjustment costs and at the same time strengthen the credibility of the peg by convincing the market that the government has a powerful tool to limit the adjustment costs. For those who prefer the abandonment, the reform will limit the exit costs by convincing the market that the government has a powerful tool to influence the long-term change in exchange rate. Thus, whatever the government inclination is, such a reform proposal deserves consideration for more immediate implementation. The above discussion suggests that, in general, any supplementary package that could strengthen the government's ability in influencing the equilibrium exchange rate will reduce the exit costs. For example, an effort to ensure a budget surplus will reduce the exit costs by making the peg less prone to speculative attack. On the other hand, continued budget deficit will not only increase the exit costs, but also make the peg more prone (and vulnerable) to speculative attack.

Finally, the exit costs will be much lower if market participants know that the new system is "defendable" or viable. In section 4, I have explained that there could be over-depreciation (over-appreciation) of the exchange rate if Hong Kong abandoned its peg when the currency was over-valued (under-valued). We have also noted that the exit costs may (or may not) be less than the maintenance costs. Here, I would like to explain that, if the band announced is sensible, the system will help to limit the exit costs further. We have noted that the monitoring band system have the advantages of (a) making market

participants fearful of pushing the exchange rate too far; and (b) help crystallizing market expectation towards the band. Thus, the exit costs to a monitoring band system are likely to be less than the exit costs to a floating regime. Besides, compared with the crawling band system, the monitoring band system does not involve an obligation to defend the currency. Thus, even if unexpected pressure are overwhelming and the authority has chosen to let the rate going outside the band, it does not involve any failure of the government in meeting its commitment. On the contrary, the market participants will fear a rebound anytime if they push the rate too far.

Having explained that there could be ways to reduce the exit costs, it should be noted that there were also developments that have increased or decreased the exit costs. For example, it is getting very popular for Hong Kong citizens to purchase flats in China nowadays. As years of pegging and monetary officials' comments could have sent the wrong signal, making most of these people believing that the peg could stay forever (at least within their mortgage period), a significant portion of these people have financed their flat investment by renminbi mortgage. Neither do these people appear to have done appropriate hedging. With these renminbi mortgage loans rising over time, the exit costs of the peg are also rising with time. On the other hand, since the financial crisis, Hong Kong's price has declined by about 15.4%. Although it is still questionable whether the adjustment is completed or not, the decline in price and wage has undoubtedly reduced the required depreciation of exchange rate for a full employment equilibrium. This would in turn imply a lower exit costs. Since the longer we wait, the higher (the discounted sum of) the maintenance costs, better assessment of the direction (and size) of the exit costs will provide valuable information on the appropriate timing (and decision) of the exit. For

example, such as when the exit costs are not prohibitively high. If the exit costs decline sufficiently fast with time, then there will be an optimal time to exit that could minimize the (discounted) sum of these two costs Hong Kong has to pay for. On the other hand, if the exit costs are declining slower than the accumulation of the (discounted) maintenance costs or even rising, then Hong Kong has probably missed the optimal time of the exit.

6. A reform proposal to reduce both the exit and maintenance costs

Having noted that Hong Kong's price and wage are not as flexible as earlier presumed, section 3 has briefly discussed the huge adjustment cost during the post-crisis period. Our next question is: if the peg could not be abandoned because of the uncertainty of the exit costs (at least in the near future), is there anything we could do to mitigate the maintenance costs in case similar shocks or crisis are to happen in the future? Here, I would like to suggest an increase in the flexibility of our wage system through the creation of a substantial variable wage component similar to that in Singapore.

6.1 The reform in Singapore

Having learned from the painful experience of the 1985/86 recession, Singapore has since recognized the importance of wage flexibility by restructuring the wage system to contain a substantial variable wage component in the total wage bill. As explained in Yip (2002), Singapore was able to mitigate the adverse impacts of the Asian Financial Crisis not only by accepting a depreciation of the Singapore dollar, but also by reducing the wage costs through a reduction in the variable wage component and the Central

Provident Fund contribution rate²¹. Thus, despite the fact that Singapore's economic relationship with the crisis-affected economies was much stronger than that of Hong Kong, surge in the unemployment rate in Singapore during the crisis and post-crisis periods was much smaller than that of Hong Kong.

6.2 The proposed reform

So, Singapore has paid for, and learned from, its 1985/86 recession. The learning helped Singapore to better cope with the Asian Financial Crisis. What about Hong Kong? Hong Kong has definitely paid enormous costs for the 1997 financial crisis. Unfortunately, it is not yet clear whether Hong Kong has at least learned about wage system reform. Therefore, this paper would like to propose that:

Hong Kong should plan for²² a variable wage component that constitutes about 30% of the total wage bill. The employees should be informed that, under the guided cut by the government, this variable component could be varied in case of adverse economic situations.

²¹ During the adjustment process, many companies in Hong Kong had also cut their bonus – a form of variable wage component. Unfortunately, the share of this bonus in the total wage bill was in many instances insufficient to convince the companies that retrenchment was unnecessary.

²² Given that Hong Kong's wage level is likely to be above the full employment equilibrium level, the introduction of the proposed system could be complicated by the more immediate need of engineering a general wage cut in the economy. One of the alternatives is to (a) achieve a general wage cut first; and then (b) put all the subsequent increment of wage in the future to the variable wage component until it forms 30% of the total wage bill. Even so, the political hurdle with respect to measure (a) could make the reform difficult to realize. Another alternative is to pass the bill of variable wage component straight ahead, and let the government decide whether the variable wage component could be cut in the near future. The political and legal hurdle of this alternative could be even higher than the first alternative. Nevertheless, it should be pointed out that Hong Kong has this implementation problem because she did not introduce this variable wage component in the normal or good years. The implementation problem in fact reflects that it is important for Hong Kong and other economies to work hard enough on the proposed system during the normal or good years. It should also be noted that Singapore did not have that much implementation problem in 1985/86 because the substantial depreciation of Singapore's nominal effective exchange rate had removed the required wage adjustment burden at that time.

The 30% is necessary because, unlike Singapore, Hong Kong's peg has prevented the use of exchange rate depreciation to mitigate economic adversity. The Hong Kong government should lead the wage reform by restructuring its payment scheme to the civil servant and semi-government employees as well as convincing the large companies to adopt similar practices. In case of extreme economic adversity, the government could then announce a cut in the variable wage component so that private companies can make similar wage cut with little (bargaining and reputation) cost. If necessary, the Hong Kong government could also supplement a wage cost adjustment by announcing a temporary reduction in the contribution rate of the Mandatory Provident Fund²³. With these set-ups, the government could then guide an economy-wide wage adjustment when deemed necessary. In other words, the government is now equipped with a powerful tool to engineer a fast adjustment of wages and prices to counteract extreme adversity and minimize the associated adjustment costs. Besides, such additional tools will substantially strengthen the credibility of the linked exchange rate system, as the market will know that the Hong Kong government will be well equipped to engineer an economy-wide wage and price correction. Even for those who prefer the eventual abandonment of the peg, the reform will limit the exit costs because the market now knows that the government has a powerful tool to reduce wage and hence the required reduction in the long-run exchange rate. That is, it knows the government can now influence the equilibrium exchange rate through varying the variable wage component.

²³ In the Mandatory Provident Fund (MPF) system recently adopted by in HK, employers and employees are each required to contribute 5% of their income to the MPF for retirement purposes.

6.3 Why the reform is necessary?

Why go through all this trouble to make the above reform? The answer is simple. Hong Kong's exchange rate is fixed by the peg. If the exchange rate can be adjusted downward, this would definitely be the best solution: After the depreciation, Hong Kong does not need a wage or price cut to re-establish competitiveness. Neither does Hong Kong need to absorb a substantial plunge in property price, which is still creating a lot of financial and social distress. Nor does Hong Kong need to accept such a high unemployment rate, which is not only frustrating the unemployed but also causing substantial worry to the much larger number of the still-employed. Unfortunately, worry about the magnitude of the exit costs and other political considerations could prevent the abandonment of the peg, at least in the near future. So, if the exchange rate is not adjustable, everyone in the economy has to adjust his or her wage or price. That is, we can only choose a second-best solution. Within this second-best solution, we can still have two choices. The first is to let the market do the job through the automatic adjustment mechanism. The second is a guided wage cut (our proposed reform). Unfortunately, Hong Kong has unintentionally, but collectively, chosen the first one while prices and wages are in fact not as flexible as proponents of the peg presumed. Putting the argument in layman terms, it is difficult to convince

- (a) a supplier to reduce his price until he experiences difficulties in selling his products;
- (b) a worker to accept a lower wage until many are unemployed; and
- (c) a property owner to reduce his rental until the vacancies in the market are substantial.

Thus, to achieve a deflation (correction in price and wage), the market needs a recession to convince its participants. This is no doubt costly: Hong Kong has been experiencing

more than five years of deflation, recession and high unemployment rate with enormous financial and social distress. If Hong Kong ever had a wage system with a substantial variable wage component and people are aware that the variable wage component could be changed in extreme adversity, most of these costs could have been avoided.

7. Conclusions

Hong Kong's financial market was under severe attack during the 1997 financial crisis. While speculators had earned substantial profit from their repeated attacks in October 1997 as well as January, April, June and August 1998, Yip (1999) noted that the harm they have done to the Hong Kong economy far exceeded profits. In view of the economic adversity created by the interest rate hike, quite a few academics had made their own proposals in late 1997 or early 1998 to bring the domestic interest rate down. Unfortunately, there was a delay on the monetary authority side to incorporate these proposals into a viable anti-crisis reform. Besides, a stock market intervention, instead of the proposed reform, was made in mid August 1998. This had in turn invited traditional funds to dump more than HK\$100 billion Hong Kong shares on 31 August 1998, and the HKMA was forced to purchase all these shares. To avoid the stock market from further deteriorating into a deeper crisis, the HKMA finally adopted and modified the proposals of these researchers and came up with a reform package on 5 September 1998. As a result, uncovered interest arbitrage was revitalized which in turn brought the Hong Kong interest rate back towards the US level. Without this subsequent reform, it is quite doubtful whether the stock market intervention could have ended as a success.

However, the ending of the financial crisis did not imply the end of Hong Kong's economic adversity. With the bursting of the asset bubble, permanent re-alignment of most currency values vis-à-vis the US dollar, global economic slowdown, accelerated relocation of Hong Kong firms' operation and production lines to China, and continuous inflows of unskilled labors from China during the crisis and post-crisis periods, Hong Kong had experienced a severe post-crisis recession. Unlike that presumed by the original proponents of Hong Kong's CBS, price and wage were too sluggish to play the supposed role in re-establishing a full employment equilibrium. Meanwhile, Hong Kong's exchange rate, being constrained by the peg, could not depreciate to restore competitiveness, as was the case in Singapore. Instead, it followed the US dollar appreciation for more than four years, which had in turn deepened and lengthened the recession in Hong Kong.

After outlining the various types of costs Hong Kong has absorbed for maintaining the peg during the crisis and post-crisis periods, it is now clear that the peg is not an optimal choice for Hong Kong in the long-run. This paper has also discussed various alternatives and suggested that Singapore's monitoring band system could be a good option. Unlike the peg or other fixed exchange rate system, it could allow the exchange rate to adjust in relatively small steps in line with changes in fundamentals. Neither does it involve any obligation for the government to intervene when the exchange rate strains beyond the band. Instead, the obligation is a **normal** avoidance of intervention within the band. Thus, even if the exchange rate strains beyond the band, the market could not, and would not, interpret it as a failure of the system. On the contrary, the market will feel fearful of a rebound if they push the rate too far. Thus, compared

with a floating regime, it has the advantage of crystallizing market expectations of the exchange rate around the band, increasing the risk of pushing the exchange rate too far and discouraging herding behavior from making big cycles in the exchange rate. The experience in Hong Kong and Singapore have provided an excellent chance to compare the relative merit of the peg vis-à-vis the monitoring band system. Tse and Yip (2005) had provided empirical evidence that

(a) The greater flexibility of exchange rate in the monitoring system has allowed a greater degree of independence in Singapore's interest rate policy. Thus, Singapore can use both a lower (higher) exchange rate and interest rate to mitigate a domestic recession (overheating). On the other hand, the peg would imply virtually no independence in Hong Kong's interest rate policy (i.e. Hong Kong interest rate has to follow the US rate closely). Thus, Hong Kong can neither use the exchange rate nor the interest rate to fine tune domestic economic cycles; and

(b) When compared with Hong Kong, the possibility for Singapore's exchange rate to move either within the band or along with a revision of band has caused a lower volatility of interest rate in Singapore during both the crisis and non-crisis periods;

In addition, we have also seen that Hong Kong's interest rate was on average much higher than that of Singapore during the crisis. This difference in interest rate levels has also contributed to the poorer economic performance of Hong Kong.

Nevertheless, the inferiority of the peg relative to the monitoring band system does not necessarily mean that Hong Kong should abandon the peg now. To justify such an action, one has to show that the exit costs are lower than the maintenance costs. Unfortunately, there is insufficient research on this issue. This paper therefore attempts to

provide a rudimentary but systematic discussion of the two costs, with the hope to invite further research in this area. For example, it points out that it is still debatable whether Hong Kong's price and wage adjustments are close to being completed. In case of the latter, it will still take a long time for Hong Kong's unemployment rate to fall to the natural, or more acceptable level (say, 5%) of, unemployment rate. Besides, hysteresis effect theory suggests that things destroyed during the adjustment period could be irrecoverable even if the adjustment would be completed in the future. On the exit costs, this paper also points out that its actual size will depend on (a) the timing of the exit; (b) whether there are supplementary packages to mitigate the costs; and (c) the new exchange rate system to be adopted. In addition, this paper has proposed a wage reform that could reduce the exit costs substantially. Even if the policy maker prefers to maintain the peg, the reform could still reduce the adjustment costs (and hence the maintenance costs of the peg) in the future. The paper has also pointed out that, in general, any reform that could increase the government's ability to influence the equilibrium exchange rate will reduce exit costs.

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Figure 1: Hong Kong Price Indices

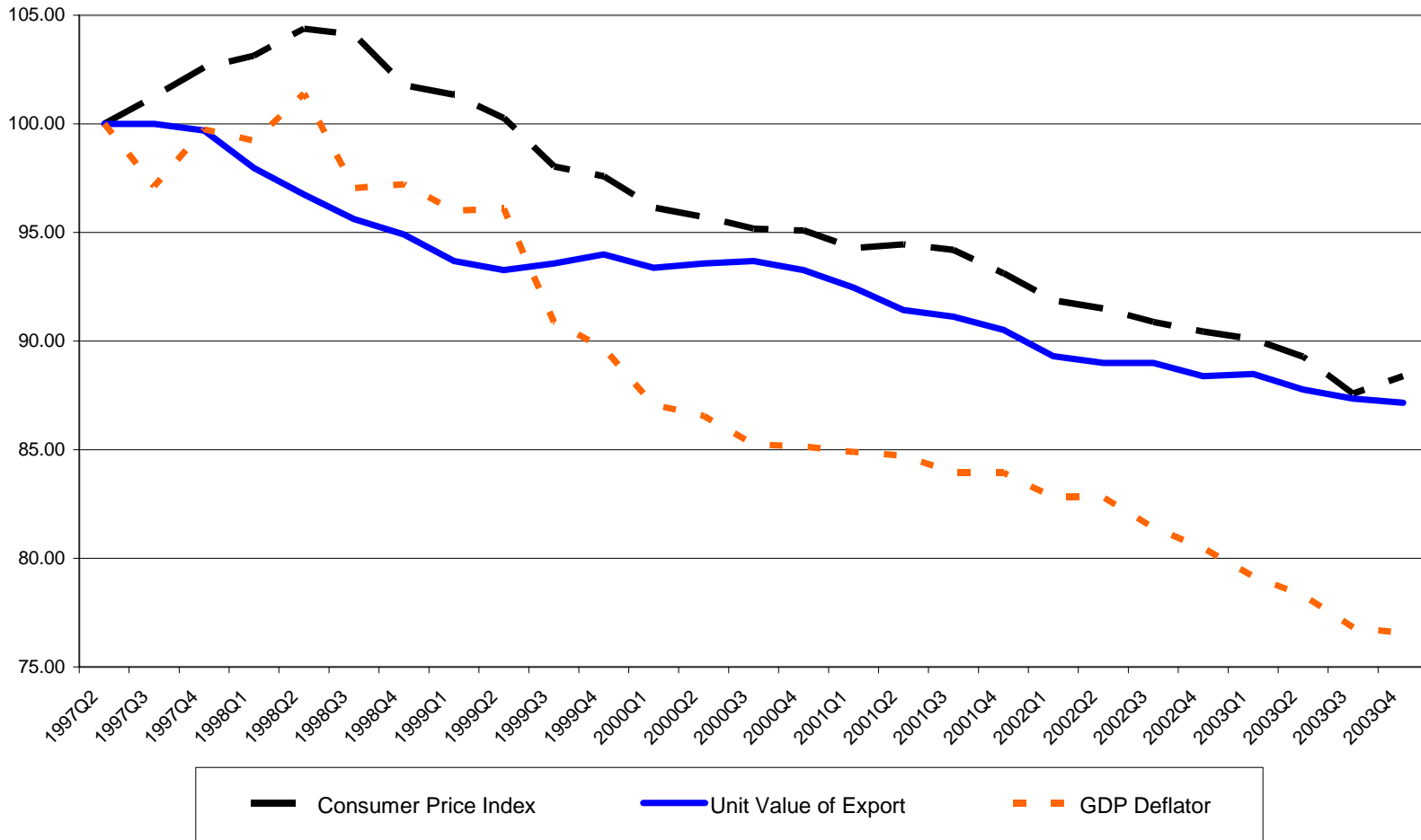


Figure 2: Singapore's and Hong Kong's Exchange Rates

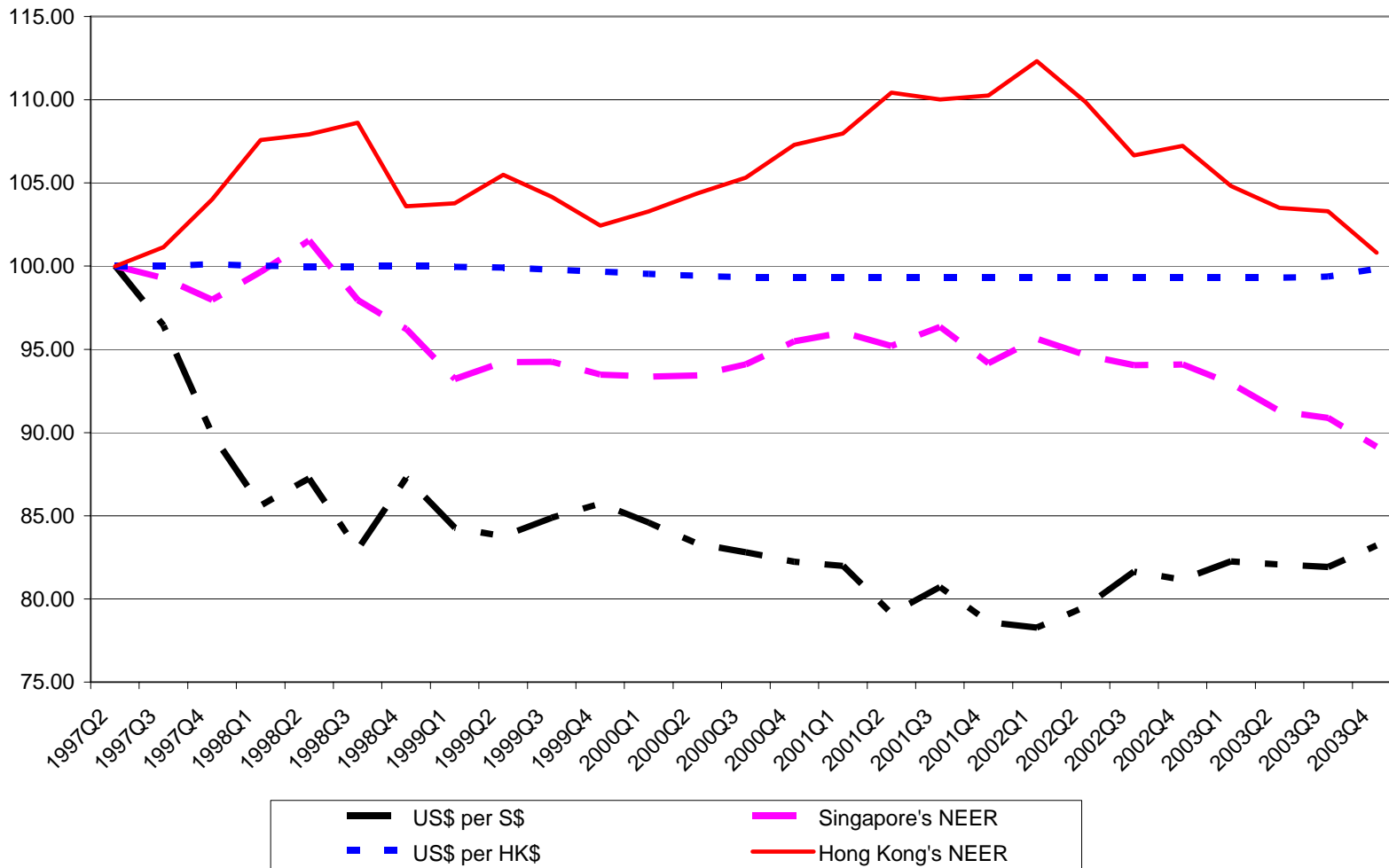


Figure 3: Hong Kong's and Singapore's Property Price Indices (Domestic Premises)

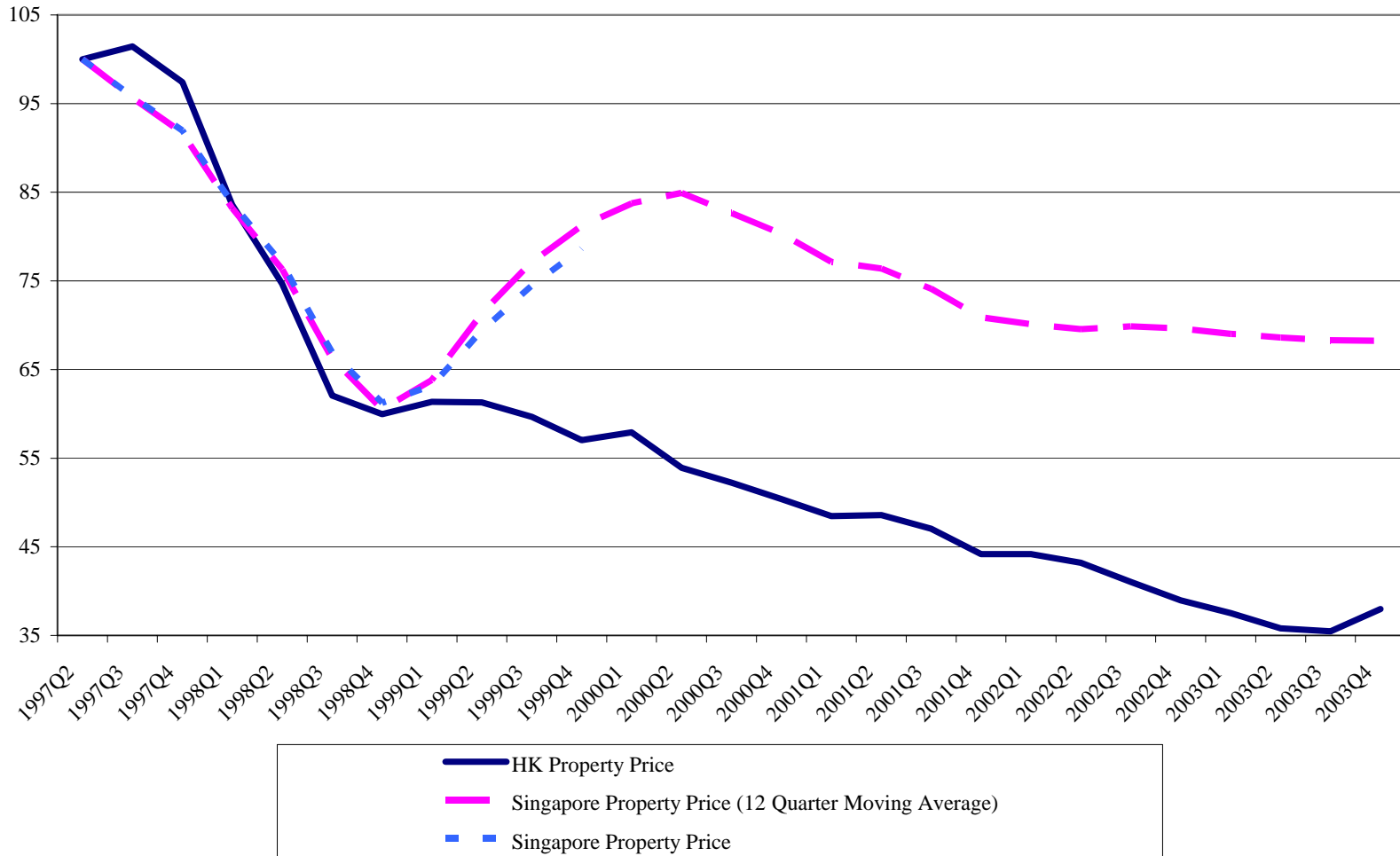


Figure 4: HK-US and Singapore-US 3-month Interbank Rate Differentials (%)

