

Currency Boards on the Way to Monetary Unions: the Doubly Unplanned Case of Hong Kong

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1. Introduction

In terms of exchange rate regimes, Hong Kong shares a common characteristic with several EU accession countries, such as Estonia, Lithuania, and Bulgaria, in that they all practise the currency board system in one way or the other. Differences nevertheless exist in details (Tsang, 1999b).

Some modern currency boards were initially designed to command monetary credibility, eg Estonia, or as an implicit or explicit transition step to a monetary union, eg Bulgaria. That was not the case in Hong Kong in 1983: it was an *impromptu* move to solve a currency crisis, like Argentina. Eventually, the system settled down and became a 'permanent' feature as stability for the political transition of 1997 turned top priority. In response to the East Asian financial crisis, the aftermath of which Hong Kong has still been suffering from, efforts were made to turn the rather idiosyncratic system into a more rule-based and transparent arrangement. Some would argue that only then Hong Kong could be properly regarded as a currency board arrangement (CBA). What existed before was either anomaly (in the 1980s) or 'central banking in disguise' (with the establishment of the Hong Kong Monetary Authority (HKMA) in the 1990s).

While the Hong Kong CBA was set up with no long-term 'end state' in mind, the rapid economic integration between Mainland China and Hong Kong has raised concerns about the eventual optimality of the peg to the US dollar. Officially, the Hong Kong Special Administrative Region (SAR) is to operate under the framework of 'one country, two systems' and 'one country, two currencies'. Hence, monetary integration was never in the pipeline. However, is the separat-

ist norm consistent with the fast changing economic reality? Would a re-peg with the renminbi, the Chinese currency, or even a monetary union with the Mainland, be possible options, particularly if the renminbi becomes fully convertible some time in the future? If so, what are the preconditions for those options? What needs to be done to prepare for those options? Can any lessons be learnt from the experience that the East European CBAs such as Estonia and Lithuania aspiring to join the eurozone are going through?

Hong Kong's case is however different from that of the East European CBAs in one crucial aspect. Hong Kong is at a much higher level of economic development compared with Mainland China. Nevertheless, the relative growth potentials seem reverse. Therefore the convergence process, whether in nominal or in real terms, will be rather peculiar for a possible future monetary union. Other than the Balassa-Samuelson effect or the Dutch disease effect, the force of the 'equalisation of factor prices' across an increasingly permeable economic border has important implications for the two sides of the potential monetary marriage. There are also the countervailing questions of factor mobility and risk sharing within a monetary union.

This paper is organised as follows. In section 2, the technicalities and the peculiar history of Hong Kong's CBA are reviewed. It is compared with the so-called AEL (Argentina, Estonia and Lithuania model) of modern set-up. Section 3 discusses the developments of Hong Kong's CBA and the economic linkages with Mainland China and addresses the interesting questions of monetary integration and union from the angles of the factors mentioned in the preceding paragraph. Section 4 concludes.

2. Technicalities and History

2.1. The Paradox of Hong Kong as a Currency Board Regime

The currency board system adopted in October 1983 in Hong Kong was not planned. It was forced upon the territory by history in the midst of a political crisis. As to the future, no one with authority seems to be seriously contemplating to change the official framework of 'one country, two monetary systems' and move towards monetary integration or even union, despite the very rapid process of economic integration between Hong Kong and Mainland China.

Nevertheless, history changes so fast everywhere in the world, not least in East Asia and Europe. Even an engagement in speculative forward-looking thoughts might be useful.

Unlike some modern currency boards that were intended to generate credibility in a testing time or as an implicit or explicit transition towards a monetary union, Hong Kong resorted to the system as a desperate move to solve a crisis (Tsang, 1984, 1996, 1999a). It was more akin to the situation in Argentina in the early 1990s.

Hong Kong is the only international financial centre that hosts a currency board arrangement (CBA). The territory also has the fourth largest amount of foreign exchange reserves in the world, after Japan, Mainland China and Taiwan. In contrast to the CBA, arguably the most disciplined fixed exchange rate system in the world, other major international financial centers, eg New York in the USA, London in the U.K., Tokyo in Japan, Frankfurt in Germany, and Singapore, are all operating under floating exchange rates.

As a fixed exchange rate regime, CBAs were a colonial product, imposed on economies with a very low degree of financial development, where currency notes (and coins) dominated in everyday transactions (hence the name currency board). Despite this infamous historical root, CBAs became a revived hope for monetary and economic discipline in the 1980s and 1990s, in a world where finance ministers and central bankers have turned much more subdued. For this we think that Hong Kong has benefited from the experiments of the modern CBAs of Argentina, Estonia and Lithuania, listed alphabetically and time-wise. The author of the article has coined the term, rightly or wrongly but with full respect, *the 'AEL model'* to characterise these three CBAs (Tsang, 1996, 1999a). The author of this article proposed the AEL model to the Hong Kong government in the financial crisis of 1998, and it was partially adopted.

The key features of the AEL model is the incorporation of convertibility into the balances of commercial banks with the monetary authority, instead of restricting it to currency in circulation (banknotes), as in the case of classical currency boards and Hong Kong before September 1998. The extended convertibility allows exchange rate arbitrage among commercial banks through settlement with the monetary authority, thus greatly reducing transaction cost and enhancing arbitrage efficiency. The market spot exchange rate will closely converge to the official rate (Tsang, 1998, 1999c).

Although Argentina was forced to abandon its CBA in early 2002 and Estonia and Lithuania will exit to the eurozone sometime in the future, and hence spelling the end of the model, a monetary historian might still find many useful lessons from it.

If Hong Kong's adoption of a CBA in 1983 was an 'accident' of historical crisis, a future monetary union with Mainland China also would not seem to be in anyone's plans. So this article is essentially a discourse about doubly unintended shifts on the part of Hong Kong.

2.2. The Evolving 'Tripods' of CBAs

The idea behind the classical currency board is surprisingly simple. The board issues cash (currency notes and coins) with 100 per cent foreign reserve backing at a fixed exchange rate. This represents a firm commitment to economic discipline. Any holder of the domestic currency can therefore rest assured that he will be able to exchange it into foreign currency at the fixed rate.

Tsang (1998, 1999c) summed up three anchors for a classical CBA: (1) economic discipline because of the 100% foreign reserve for the issuance of currency; (2) specie flow in the form of interest arbitrage that helps to stabilise capital flows and indirectly the exchange rate; and (3) currency (cash) arbitrage that technically binds the spot exchange rate.

Because of all sorts of historical and institutional peculiarities, as well as the complexities of an economy with a high degree of financial development, Hong Kong's CBA has been unorthodox and has not worked along the principles of the classical version.

As a former British colony, Hong Kong actually adopted a CBA between 1935 and 1972, tying the local currency to the British pound. After re-pegging to the US dollar in 1972–1974, the Hong Kong dollar was floated between 1975 and 1983. That turned out to be a period of instability, which was widely regarded as unsatisfactory from the perspective of macro-monetary management.

On 17 October 1983, as a rescue response to a currency crisis that arose because of the Sino-British political dispute over the future of Hong Kong after 1997, the Hong Kong dollar was pegged to the US dollar at the rate of 7.80. It was officially called the 'linked exchange rate system' (or simply the 'link'), but was supposed to be a

variety of the CBA, which the authorities did not emphasise (Tsang, 1984). By then, though, Hong Kong was a far cry from the old days of 1935–1972. The territory was quickly becoming an international financial centre.

While the Hong Kong CBA was set up as a rescue measure with no long-term ‘end state’ in mind, the system settled down and became a ‘permanent’ feature as stability for the political transition of 1997 assumed top priority.

Between 1984 and April 1998, the Hong Kong currency board system did not behave according to the classical theory. The key problem was that there was no effective currency arbitrage mechanism. Cash-based arbitrage was a non-starter in Hong Kong, because cash represented a very small, and increasingly small, percentage of total money supply. There was simply very little cash to use for arbitrage. As a result, the monetary authority had to depend on the manipulation of interbank liquidity and interest rates, as well as outright intervention in the foreign exchange market to defend the Hong Kong dollar (Nugée, 1995).

At that time, the monetary authority could not even define the monetary base, as banks did not settle transactions through it. Instead, they settled through the Hong Kong and Shanghai Banking Corporation (HSBC), the largest commercial bank and the ultimate clearing bank in the territory. The situation was widely regarded as an anomaly: a peg under which the monetary authority had no direct influence on the monetary base! To redress the problems, the ‘Accounting Arrangements’ were imposed in 1988 by the Hong Kong government, which required the HSBC to keep a balance with the government that was equal to the net clearing balance of the whole banking system. The two-tier system gave the government an indirect handle on the monetary base (notes in circulation plus the clearing balance of the banking system).

In the early 1990s, the launching of the Exchange Fund Bills and Notes, as well as the setting up of the ‘Liquidity Adjustment Facility’ (LAF) as a kind of ‘discount window’ (but with penalties against frequent users), strengthened the ability of the authority in affecting interbank liquidity in the two-tier system (Nugée, 1995; Tsang, 1996).

In any case, the market exchange rate was not locked firmly around the level of 7.80 in the 1980s. From mid-1991 onwards, however, it stayed persistently on the strong side of the linked rate. A shift in the ‘mean’ rate apparently occurred,

probably because of the benign effect of the China factor on Hong Kong. Somehow, the Hong Kong government showed little intention of forcing the market exchange rate back to any level near 7.80. Indeed, a view emerged from the official circle that 7.75 might be a good 'first line of defence' against any speculative attack on the Hong Kong dollar.

On 1 April 1993, a central bank, the Hong Kong Monetary Authority (HKMA) was formally established by putting all the pieces of reforms under one roof and managed by one powerful institution.

Since the 1980s the government had also been successful in accumulating huge fiscal and foreign exchange reserves. These developments and evolving mechanisms enabled the HKMA to modify its stance. Officials and advisors were no longer hesitant in presenting the link as a currency board system (HKMA, 1994; Latter, 1993). Adequate reserves and economic discipline, but not arbitrage, were emphasised.

Nevertheless, the HKMA made it known that it would defend the Hong Kong dollar by having flexible ways to manipulate the monetary base and to influence interest rates (Sheng, 1995, pp. 60–61). It was a far cry from the supposedly automatic adjustment mechanisms of a CBA. Some would regard Hong Kong's system as 'central banking in disguise'.

2.3. The Crisis

In October 1997, the Hong Kong dollar suffered a strong speculative attack. Doubts were cast on the nature and the robustness of Hong Kong's CBA. A controversy arose concerning whether and to what extent the HKMA did intervene in the markets on 23 October 1997, and was therefore responsible for the unprecedented high interest rates – with overnight interbank rates going up to 280% at one point.

The whole community and the academia were involved in a debate of what went wrong and what should be done to improve the system. The AEL model was put forward as a possible solution (Tsang, 1996, 1998; FSB, 1998).

In reaction, the Hong Kong government took a major step in defining the link as an automatic CBA. On 23 April 1998, the Hong Kong government published its

report on the October 1997 financial storm: *Report on Financial Market Review* (FSB, 1998). However, the AEL model and all the other academic proposals were rejected.

The only key change was that the HKMA announced a commitment not to actively manage the clearing balance of the banking system to defend the exchange rate (FSB, 1998, Annex 3.5.). The HKMA maintained discretionary intervention in the foreign exchange market at an unspecified level near 7.80, though.

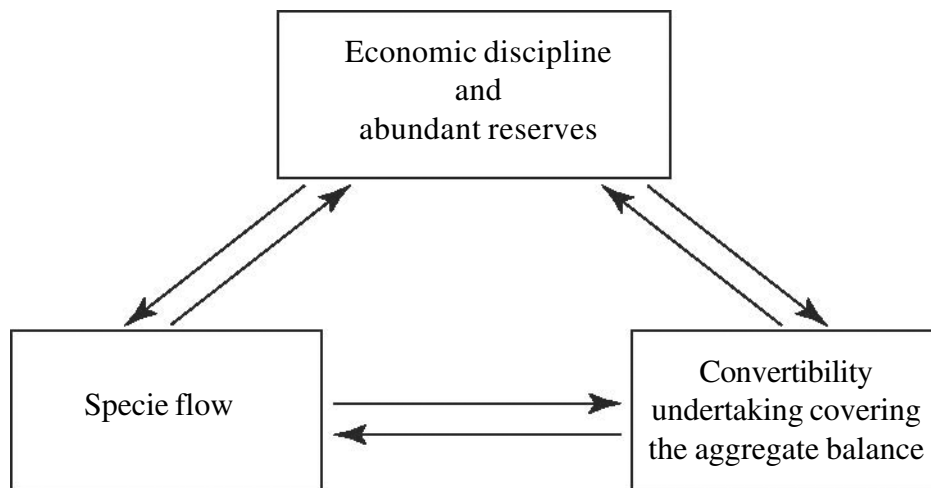
In terms of the ‘tripod’ on which a classical CBA relies in fixing its exchange rate, the HKMA arrived at a situation where two of three anchors could be effectively used: (1) economic discipline on the basis of adequate reserves; and (2) automatic specie flow. The problem then lied with the third anchor, or the lack of it – exchange rate arbitrage.

2.4. Partial Conversion to the AEL Model

The intervention in the stock and futures markets by the Hong Kong government in August 1998 touched off a huge controversy. On 5 September 1998, the HKMA finally announced **seven technical measures** to strengthen the link (for the details, see HKMA, 1998). These measures can actually be grouped into two categories: (1) the one-way convertibility undertaking that banks could exchange their Hong Kong dollar balances with the HKMA into US dollars at the fixed exchange rate of 7.75; and (2) the replacement of the Liquidity Adjustment Facility (LAF) by a formal Discount Window (with no penalties against frequent users).

The first move means that the coverage of convertibility was effectively extended from bank notes to the whole monetary base. The Discount Window, on the other hand, enlarged the monetary base. As said above, a system of convertible reserves is the core mechanism in the AEL model of modernised currency board arrangements. The new tripod of CBA that the HKMA instituted in September 1998 could be depicted as in Figure 1.

Figure 1.
The tripod for Hong Kong's CBA after September 1998



Argentina, Estonia and Lithuania adopted the currency board system in 1991, 1992 and 1994, respectively. They have been dubbed as the *AEL model*. Though latecomers, all three AEL countries use an improved version of the system. It overcomes the problem of cash movements for arbitrage with which Hong Kong is struggling.

They have instituted a reserves system whereby each bank has an account with the central bank in which the reserves for notes as well as the monetary reserves are kept. The central bank guarantees the full, two-way, convertibility of all the reserves of each bank, *at the fixed exchange rate*. This ingenious set-up bypasses the problem of moving cash around for arbitrage. With this improved currency board system, Argentina, Estonia and Lithuania have been able to ensure 100 per cent stability in their spot exchange rates despite economic difficulties or even turbulence.

3. Optimality and the Future

3.1. Monetary Union for Mainland China – Hong Kong?

So far the article has discussed only the technical viability of the CBA. Hong Kong re-adopted it in 1983 in the midst of a political crisis without forward planning. What about the overall optimality of the 7.80 peg? Now we all know that technical viability and economic optimality are two different issues, which the author refers to using the twin concepts of efficiency risk and systemic risk (Tsang, 1999c). Argentina exited its CBA not because it could not fix the spot rate, but because the peg was inconsistent with the deteriorating economic fundamentals, ie it was misaligned. Hence the CBA was abandoned for systemic reasons, not efficiency reasons. Likewise, Estonia and Lithuania have decided that joining the EMU is a better systemic choice than keeping with their CBAs, although they can fix through them their exchange rates firmly. The balance between commitment to the CBA and the cost of exit is a delicate issue (Tsang, 2000).

Should Hong Kong exit from its CBA to join a monetary union as Estonia and Lithuania plan to do? There is certainly no plan now. Barandiaran and Tsang (1997) warn against any rapid change and argue that the *status quo*, ie spontaneous competition between the Hong Kong dollar and the renminbi in Southern China is the optimal choice for the foreseeable future.

Nevertheless, the following scenario is not technically impossible. Imagine a freely convertible Chinese currency, the renminbi, say, ten years from now. As the economic integration between China and Hong Kong continues (that has already been taking place at a phenomenal speed), a monetary union may be justified further down the road, although it poses a big question of how it fits with the framework of ‘one country, two systems’.

3.2. One Country, Two Monetary Systems: The Facts

Under the framework of ‘one country, two systems’, the Hong Kong special administrative region (SAR) is to decide its own monetary policies in accordance with Articles 110 to 113 of the Basic Law, the SAR’s mini-constitution. Post-1997 monetary relations between Mainland China and Hong Kong have come to be officially defined as, in the words of Joseph Yam, Chief Executive of

the Hong Kong Monetary Authority (HKMA), the territory's central bank, 'one country, two currencies, two monetary systems and two monetary authorities which are mutually independent' (Yam, 1996).

It has been endorsed by Chen Yuan, a Deputy Governor of the People's Bank of China (PBOC), the country's central bank. Chen (1996) emphasised that 'the Hong Kong dollar and the renminbi will circulate as legal tender in Hong Kong and the mainland respectively. The HK dollar will be treated as a foreign currency in the mainland. Likewise, the renminbi will be treated as a foreign currency in Hong Kong'.

Anyway, reality has certainly been driven by more practical factors. Before launching of the Chinese economic reform in 1978, the existence of the Hong Kong dollar as a convertible currency served China well. As much as one quarter to one third of Chinese foreign exchange earnings were estimated to have been derived from Hong Kong. Of course, at that time Hong Kong was a British colony, therefore, nothing could have been done by China on the Hong Kong dollar.

After 1978, Hong Kong took on a new role. It rapidly became an important trading partner and 'foreign investor' for the Mainland, as well as a stepping-stone for other foreign traders and investors. After more than two decades, Hong Kong is still the largest trading partner with China if outward processing is not netted out, and the busiest port re-exporting Mainland's goods. The SAR has been the country's biggest 'foreign' investor, accounting for over 50% of the total investment, which is already down from the early shares of 60% to 70%.

China has been benefiting from the continued existence of the Hong Kong dollar, given the fact that the renminbi is not yet a fully convertible currency. Other than using Hong Kong as a source of foreign exchange earnings, citizens and enterprises, especially those in southern China, have been hoarding Hong Kong dollars for transactions as well as store-of-value purposes.

While in the earlier years of reforms, hoarding might have been driven by a fear of devaluation of the renminbi, hence a form of 'currency substitution', the situation has been rather different in recent years. Given the closer economic relations, and the growing confidence in the Mainland, such 'hoarding' is mainly for the

purpose of ‘transaction convenience’ (Tsang, 2001). As the credibility of the renminbi has been on the increase all the time, the higher degree of economic integration means that it would reduce transaction costs for Chinese parties to accept and to store Hong Kong dollars. The other side of the story must also be told: renminbi is also increasingly accepted for transaction purposes in Hong Kong. Unlike China, of course, Hong Kong allows the circulation of foreign currencies, although the Hong Kong dollar is the only legal tender.

3.3. Forms of Monetary Integration

In any case, one should not exaggerate the extent of economic integration between Mainland China and Hong Kong up to now.

Tsang (2002) extends the techniques of Ma and Tsang (1997) to perform some formal tests on whether Hong Kong and Mainland Chinese regions constituted an ‘optimum currency area’ (OCA) (Mundell, 1961) between 1979 and 1999. The methods of variance analysis and principal decomposition are applied to more updated and higher frequency data, the latter including monthly consumer price and daily stock price data from 1994 onwards. Variance analysis looks at the deviations of regional data with each other and from the national norm, while disturbances are decomposed in the latter method into symmetric and asymmetric shocks. Regions within an OCA should exhibit more symmetric than asymmetric responses (Mundell, 1961).

In a nutshell, Tsang (2002) obtains a negative answer. The findings show closer integration with Eastern China in a few aspects, but Mainland China and Hong Kong clearly did not constitute an OCA even up to the very recent past.

What about the future, when the renminbi becomes fully convertible, is a monetary union justifiable then? It very much depends on the degree of economic integration and the required conditions for convergence and smoothing. At the same time, one must address the fact that Hong Kong-Mainland China monetary integration would provide a framework for an eventual Greater China monetary union. So it has to be broad enough. Potentially, four forms of monetary integration can take place in the future:

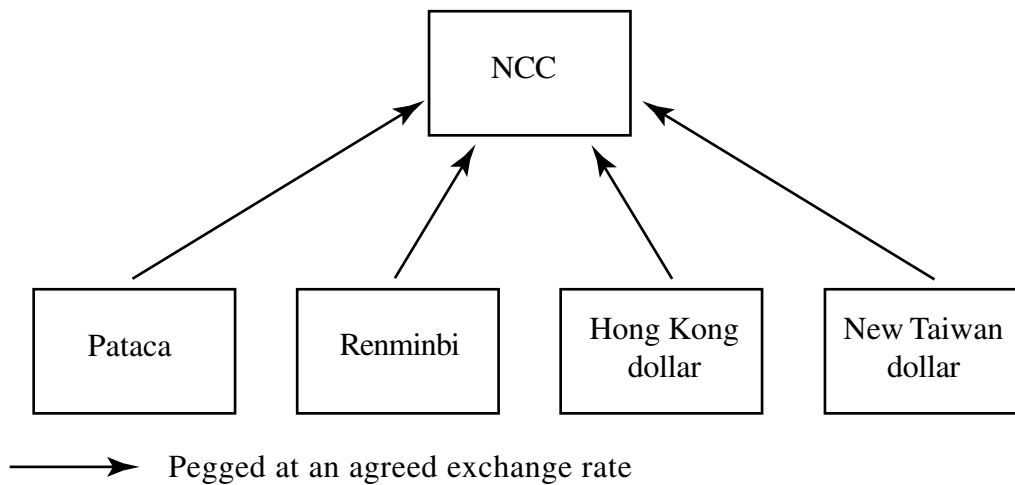
I. The *status quo*;

II. The pegging of the Hong Kong dollar (or Macau's pataca and the New Taiwan dollar) to the renminbi instead of the US dollar (or Hong Kong dollar and floating);

III. A 'NCC' (New Chinese Currency) can be launched, and the currencies of the four members, Mainland China, Hong Kong, Macau and Taiwan, can be pegged to it at agreed fixed rates (see Figure 2);

IV. Abolition of the Hong Kong dollar and other currencies, ie renminbisation or NCC-isation for Hong Kong and the others.

Figure 2.
Pegging to the New Chinese Currency (NCC)



Options I, II and III would face no legal problems in Hong Kong and Macau as their respective Basic Laws stipulate the continuous existence of the SAR currencies, without any specific provisions about the exchange rate regime except that of adequate reserves. The loose legal framework for Hong Kong's exchange rate regime is described in Tsang (1999b), in contrast to more stringent regimes like Bosnia-Herzegovina and Estonia. The terms 'US dollar', '7.80', and 'currency board' appear in no ordinances or regulations, nor in Hong Kong's Basic

Law. The latter only states in Article 111, ‘The issue of Hong Kong currency must be backed by a 100 percent reserve fund.’ Such a requirement has been over-fulfilled by multiples. Legally, therefore, Hong Kong’s exchange rate regime can be fixed or floating, or a peg to any currency at whatever exchange rate, as long as there is full reserve backing for the issuance of the currency.

For Taiwan, the situation is of course much more complicated. The major constraint is political as well as economic in nature. Option III would probably meet less resistance than option IV. For option IV, both legal and political problems are involved for Hong Kong and Macau. The Basic Laws for the two SARs have to be amended.

3.4. A Common Market? Trade and the Matter of Invoicing

Since option I is the *status quo*, we can leave it to the end by looking at the innovative options first. Let us start with option II, ie the minimum deviation from the *status quo*. Should the Hong Kong dollar be re-pegged to the renminbi, particularly in the light of the recent discussions of establishing a Hong Kong-Mainland China Free Trade Agreement?

Table 1.
The shares of China and the US in Hong Kong’s external trade (%)

	1981		2000		2000 (adjusted)	
	China	US	China	US	China	US
Domestic exports	3.6	36.3	29.9	30.1	10.5	38.4
Re-exports (origin)	19.3	11.5	61.4	4.7	27.2	8.8
Re-exports (destination)	30.7	9.7	35.1	22.3	21.4	27.1
Imports	21.3	10.4	43.1	6.8	13.6	10.3

Notes: The adjustments for year 2000 are to net out the portions, as estimated by the Hong Kong Census and Statistics Department, of outward processing that Hong Kong performed in the Mainland from China’s figures and the total of the exports and imports in calculating the relative shares of the market by China and the US.

Source: Hong Kong Monthly Digest of Statistics, Census and Statistics Department.

From the perspective of Hong Kong, Table 1 shows some dramatic features. If one neglects the phenomenon of outward processing, under which Hong Kong manufacturers take advantage of the cheap production costs in southern China, one would conclude that China has replaced the US as Hong Kong's number one trading partner. However, adjusted for outward processing, Hong Kong's dependence on the US as the largest market for end products has actually increased since the reform, not decreased.

Similarly, from the angle of the Mainland, Hong Kong is only its third largest trading partner, led by Japan and the US, as shown in Table 2.

Table 2.
Destinations and sources of China's exports and imports in 2000 (%)

	Exports	Imports	Total trade
Japan	16.7	18.4	17.5
US	20.9	9.9	15.7
Hong Kong	17.9	4.2	11.4
South Korea	4.5	10.3	7.3
Germany	3.7	4.6	4.2

Notes: Chinese statistics have apparently netted out outward processing.

Source: China Foreign Economic Statistical Yearbook 2001, China Statistics Press.

Moreover, trade between Hong Kong and Mainland China is mostly denominated either in US dollars or Hong Kong dollars, as the renminbi is not fully convertible. With current account convertibility, the trading counter party in the Mainland would not have difficulties in converting his renminbi into Hong Kong dollars (or US dollars or Japanese yen) and pay his supplier in the SAR in the latter. Of course, since the renminbi has been under a soft peg, there is an exchange rate risk in accepting offers invoiced in any of the currencies, on top of the transaction cost of converting. In the national foreign exchange centre in Shanghai, three currencies (the US dollar, the Japanese yen and the Hong Kong dollar) are being traded by designated foreign exchange banks and financial institutions.

In other words, from the perspective of Mainland China, since its external trade, even including that with Hong Kong, is largely denominated in US dollars and the Japanese yen, a monetary union with the Hong Kong dollar would not bring significant benefits in reducing transaction cost and exchange rate risk.

So far, intra-trade and invoicing do not justify any further strengthening of monetary integration. However, a recent proposal is to have a Hong Kong-Mainland China Free Trade Agreement. That proposal, if effectively implemented, would have the end result of promoting intra-trade, and hence enhancing the net benefit of monetary integration.

In sum, from the perspective of trade, deepening of monetary integration is not an urgent issue. Over the long term, what need to be monitored include the patterns and proportions of external and internal trade, and the invoicing structure, even after the renminbi has become fully convertible.

3.5. Issues of Real Convergence and Nominal Convergence

Looking beyond a common market, will options III and IV become attractive or desirable in the very long run?

A monetary union requires as a precondition economic convergence (Mundell, 1961). However, there is a controversy on what 'convergence' means. The key contention is that between the so-called 'traditional view' (De Grauwe, 1996) which stresses *real* convergence against the 'new view' (Melitz, 1988) that emphasises *nominal* convergence for the monetary union. The Maastricht Treaty of 1992, for example, laid down five criteria of nominal convergence for EU members concerning government deficit, exchange rate stability, inflation, interest rates and national debt. Some would reason that real convergence and nominal convergence should be achieved in parallel, while others even argue that real convergence is the prerequisite to nominal convergence, hence also a precondition to a monetary union.

A more balanced view is that real convergence and nominal convergence are related and they interact with each other. In its Annual Report 2000, Eesti Pank (Bank of Estonia) states,

'The combined effect of real and nominal convergence is a serious monetary policy issue for the candidate countries: in order to

reach the EU level in real income, Estonia's economy should grow faster than EU member economies whereas this would bring higher inflation level. Therefore it is not appropriate for the candidate countries to focus their monetary policy strategy solely on bringing down the inflation, ignoring requirements for real convergence or to use a floating exchange rate policy for slowing inflation through nominal appreciation of the currency. Monetary policy should support macroeconomic stability, so that economy grows fast and maintains competitiveness. Countries with fixed exchange rate policy should avoid wage-price spiral that will threaten competitiveness.' (Eesti Pank, 2001, p. 37)

For the case of Hong Kong and Mainland China, the question is whether both sides can achieve real and nominal convergence in the future, and what the sequential implications would be.

As to real convergence, it is essentially Mainland China converging towards Hong Kong, at least in the medium run. Mainland China is like Estonia, and it needs to continue its reforms, so that it would maintain and further develop an increasingly efficient market economy and could stand competitive pressures within any future monetary union. The EU resolved on the so-called 'Copenhagen economic criteria' in anticipation of the enlargement process.

In this regard, the prospects look good, particularly with China's WTO accession. Market reforms are most likely to persist, albeit perhaps with occasional hiccups. China is expected to grow at an average of 6%–7% in the coming decade, while potential GDP for Hong Kong is estimated to be around 3%–4%.

However, as De Grauwe (1996) points out, real convergence involves also 'the need for real wage flexibility, mobility of labour, and fiscal integration as preconditions for a successful monetary union.' There are political as well as economic problems in those issues, which will be discussed later in the paper.

Regarding nominal convergence, the key is the convergence in inflation rates, or even price levels. Both Hong Kong and Mainland China have experienced bouts of strong inflationary pressure in the past two decades.

One phenomenon observed in Hong Kong is that despite the peg of 7.80 with

the US dollar, Hong Kong's inflation rate had been persistently above the US counterpart, up to the East Asian financial crisis. Since then, Hong Kong has plunged into a deflationary process. In the literature, two standard explanations exist to explain inflation in open economies from the demand side: (1) the Balassa-Samuelson effect and (2) the Dutch disease. While the Balassa-Samuelson effect can be a result of supply-side productivity enhancement, both may arise from a significant hike in the demand for the tradables of the economy, which raises their prices. The price and income effects spill over to the nontradable sector, where growth in total factor productivity (TFP) is slower. Hence export-led economies tend to suffer from an inflation bias. The basic difference between the Balassa-Samuelson effect and the Dutch disease is that in the latter case, the demand is for 'new' tradables, which crowds out the traditional tradables. The inflationary pressures also tend to be stronger under the Dutch disease.

Imai (1999) performs an empirical analysis on the average Hong Kong – US annual inflation gap of 4.3% in 1985–96, and confirms the Dutch disease as the major cause. His findings show that an 'overwhelming part (3.8%) of the gap in the rate of inflation originates from the growth rate gap in the price of tradables, which is largely attributable to the fast rise of Hong Kong's tradable services prices.' (Imai, 1999, p.14)

Guillaumont Jeanneney and Hua (2001), on the other hand, study Chinese provincial inflation differentials in 1992–1999 and find that the Balassa-Samuelson effect cannot be rejected as a hypothesis. Although this is not a study of China as a whole vis-à-vis the rest of the world, it does not seem too far-fetched to speculate that the Balassa-Samuelson effect is also working in that context.

Imai predicts that the Dutch disease in Hong Kong would subside in the future as Hong Kong's tradable services would no longer be 'new', implying a decline in its demand. 'The Hong Kong services sector's TFP growth, whether tradable or not, has not been high. In the light of the Balassa-Samuelson effect hypothesis, Hong Kong's long-term rate of inflation under the U.S. dollar peg should, therefore, settle at a level close to the U.S. in the future.' (Imai, 1999, p.14) As to Mainland China, it seems likely that the Balassa-Samuelson effect may continue to operate, if not indeed strengthen, after its WTO accession.

Moreover, the border between Hong Kong and SAR and the Pearl River Delta in the Guangdong Province of Southern China has become increasingly permeable.

More and more Hong Kong citizens spend their holidays in the Delta, some even have bought residential units there. Economists have been talking about the equalisation of factor prices between the two places. Some of the claims seem exaggerated, as there are transaction costs (transport, time) involved and quality differences still matter. The last thing that the SAR needs is a rapid process of nominal convergence, implying serious deflation here with all its economic and social consequences. A controlled or slow process of nominal convergence, with some positive inflation in Hong Kong would be the best outcome.

Nevertheless, given the real growth potentials on the two sides, it appears that approximate nominal convergence (in terms of inflation rates or even prices, adjusted for transaction costs and quality differences) between Hong Kong and Mainland China is possible in the long run. Hence, convergence should not be a serious hindrance to monetary union.

3.6. Labour Mobility and Monetary Union

Another key issue concerning monetary integration via comprehensive real convergence is that of labour mobility. Europe has very low labour mobility despite the EMU. What about the case of the 'caged' Hong Kong?

The reality is 150 southbound immigrants to Hong Kong per day, as part of the agreement between the SAR and Mainland authorities, while northward transfer of labour from Hong Kong is not under any clear rule. Unlike the quota of 150, it is not automatic. Any person wanting a job in the Mainland has to go through a series of applications and procedures. Although cultural and linguistic homogeneity is very much higher between Hong Kong and Mainland China than within Europe, it is not so easy under the present arrangements for Hong Kong residents to seek jobs in the Mainland, unlike the situation in the US, where people move around with no legal and relatively little economic barriers. Hence, the major constraint is mainly political, and to a certain significant extent, economic in nature.

The issue can be analysed using the theories of endogenous growth, which emphasise imperfect competition, multiple equilibria and the role of history in determining industrial location in a path-dependent sense. Krugman (1991) tackles endogenous growth from the angle of increasing returns to scale as well as the 'labour pooling effect'. In the localisation process, the pooling effect is cru-

cial for firms in the same sector, if they could hire more labour force in good times and less in bad times. And the employees are also in a better position because firms cannot exercise monopsony power, as labour is mobile. Therefore, labour mobility is crucial in determining the location of cluster industries, on top of local-specific endowments and historical cumulative advantages.

That is why high-tech industries tend to be localised, eg the Silicon Valley and Route 68 in US. In a nutshell, real convergence is a necessary condition for an efficient distribution of localised industrial specialisation. And labour mobility is a key.

This will be a crucial topic to tackle for any further monetary integration between the Hong Kong SAR and Mainland China, under the framework of ‘one country, two systems’.

3.7. Monetary Union and Risk Sharing

The conventional wisdom (based on Mundell, 1961) that monetary union first requires sufficient convergence may be subject to challenge, none other than by Mundell himself later (1973a, b). As McKinnon (2001) explains, the monetary union might induce the convergence, rather than the other way around. The key is how even non-convergent economies could share the risks from asymmetric shocks within an OCA.

As Helpman and Razin (1982) and Neumeyer (1998) argue, a flexible exchange rate regime may be beneficial if insurance markets are incomplete in the absence of an effective tax-transfers system. Since the real returns to nominal assets in different regions would diverge as a result of shocks, exchange rate variability provides the missing insurance against those shocks. This is a strong argument rebutting monetary union for heterogeneous economies.

Most economists would agree that the giving up of monetary and exchange rate policy in a monetary union needs to be compensated by smoothing and risk sharing mechanisms among members. They include:

- (1) Market-based mechanisms: eg financial and credit markets, which share risk among different constituent regions through cross equity holdings and borrowing and lending (Athanasoulis and vanWincoop, 1998).

- (2) Fiscal smoothing mechanism such as (a) independent fiscal policies among members or (b) fiscal federalism by a central authority using taxation policies and fiscal transfers.

Is fiscal federalism necessarily a good thing for a monetary union? Two contrasting views have been put forth: Bayoumi and Masson (1997) versus Beetsma and Bovenberg (1997).

Bayoumi and Masson (1997) argue that fiscal stabilisers operate most effectively at a national, rather than local, level. As differing cycles across regions tend to offset each other, national fiscal stabilisers are not associated with the same increase in future tax liabilities for the region as local ones. Hence, the negative impact from the Ricardian equivalence effects associated with these tax liabilities is smaller. Empirical work on data across Canadian provinces indicates that local stabilisers are only one-third to one-half as effective as national stabilisers, which create no future tax liability.

Beetsma and Bovenberg (1997), on the other hand, explore the case for monetary and fiscal unification. Monetary policy suffers from an inflation bias if the monetary authorities are not able to commit, eg in the absence of a monetary union. However, with risk sharing in a fiscal union, fiscal discipline suffers from moral hazard. In a monetary union, this adverse effect on fiscal discipline is weaker. The advantage of monetary unification may outweigh the disadvantage of not being able to employ monetary policy to stabilise country-specific shocks. While monetary unification may thus be optimal, risk sharing through fiscal federalism may be undesirable because it weakens fiscal discipline.

To cast all these theoretical considerations in the context of a possible Hong Kong-Mainland China monetary union, we can identify a number of issues:

- (1) Independent fiscal policies are the norm under the Basic Law, which rules out tax-transfers mechanisms under fiscal federalism. However, the fiscal policies of Mainland China and Hong Kong are very different. In a monetary union, Hong Kong might be affected by the lack of fiscal discipline in China, if the present trends continue. Then Hong Kong has to practise a more pro-active fiscal policy to offset asymmetric shocks, which is however constrained by Article 107 of the Basic Law, which states, ‘The Hong Kong Special Administra-

tive Region shall follow the principle of keeping expenditure within the limits of revenues in drawing up its budget, and strive to achieve a fiscal balance, avoid deficits and keep the budget commensurate with the growth rate of its gross domestic product.’

- (2) Hong Kong may have to rely on market-based risk sharing through capital and credit markets. The efficacy depends on the degree of integration between the markets in the two economies. The integration now is one-sided: Chinese enterprises get listed in Hong Kong, absorbing SAR capital; while Hong Kong banks lend to the Chinese side, much more than the other way around. A more balanced two-way flow is required for smoothing in a monetary union.

Hence, the question for Hong Kong and Mainland China, in pondering a possible monetary integration is how ‘complete’ the insurance through capital and credit markets is between the two economies, in the absence of a fiscal mechanism.

4. Conclusions

The experiment of ‘one country, two monetary systems’ as practised in Hong Kong under Chinese sovereignty is a rather unique one, given the institutional differences and the developmental asymmetry. However, China is catching up fast, indeed very fast. Therefore, although there are still scant arguments for a monetary union between Hong Kong and China any time soon, one may be tempted to be forward looking.

Empirical tests return the finding that Hong Kong and Mainland Chinese regions have yet to constitute an OCA. Various forms of possible monetary integration are set out for the future in the eventuality of the full convertibility of the renminbi. Even for the re-pegging of the HK dollar to the renminbi (option II), there does not seem to be any pressing need, unless intra-trade surges and other conditions prevail.

Further considerations (options III and IV) throw in a number of testing questions to answer for the case of a monetary union, involving real and nominal convergence, factor mobility, as well as public and private risk sharing. Without an effective risk sharing mechanism, the reverse argument that monetary inte-

gration would bring about convergence is not very convincing, particularly given the framework of 'one country, two systems'.

The overall conclusion, albeit tentative, is that there is no pressing case for any hasty deepening of monetary integration between Hong Kong and Mainland China. Option I, the *status quo*, seems optimal at least in the near term.

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