Hong Kong’s exchange rate regime: Lessons from Singapore

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Abstract

Singapore’s managed floating exchange rate regime contrasts with Hong Kong’s currency board system featured by the Hong Kong–United States dollars peg. This paper appraises the two different exchange rate regimes by comparing their track records in maintaining macroeconomic stability and trade competitiveness in the 1990s. A review of the two regimes’ institutional characteristics and macroeconomic performance reveals the systemic inadequacy of Hong Kong’s exchange rate regime under a changing global financial environment. As East Asia emerges from the recent financial crisis, Singapore’s experience of successfully moving away from a currency board system to a credible managed floating regime offers a lesson worthy of attention from Hong Kong. © 1999 Elsevier Science Inc. All rights reserved.

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1. Introduction

The Hong Kong (HK) dollar’s peg to the United States (US) dollar has so far survived the turbulent 1997–1998 Asian currency turmoil despite repeated speculative attacks on the HK dollar by international hedge funds. It is, however, questionable whether it is optimal for Hong Kong to adhere to its currency board-type exchange rate regime in the intermediate future when the turmoil is over or another wave of speculative attacks resumes.

In this regard, Singapore’s experience of a currency regime that has evolved from a classical currency board system is illuminating. Singapore and Hong Kong are dubbed “twin cities” and share many similar economic features in the East Asian area. For example, both emerged under British governance, and both inherited a British common law system. Both are small and open metropolitan economies with a well-functioning domestic private sector

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and highly rated public service. Their domestic wage and prices are relatively flexible with little rigidity. The governments in the two economies both had enjoyed a healthy budget surplus before the recent Asian economic crisis and have accumulated large official foreign reserves. The two economies both successfully pursued an export-oriented strategy and upgraded their industrial structures toward higher value-added activities. Both have become regional financial centers and the operational headquarters of many multinational corporations in the Pacific Asia region. Because of limited natural resources, exports in both economies depend heavily on imported parts and raw materials.

Remarkable contrasts, however, exist between the two economies’ monetary systems and exchange rate regimes. Hong Kong has had a currency board regime since 1983, with the HK dollar pegged to the US dollar at a fixed rate. For more than a half century up to the 1970s, Singapore had a classical sterling-based currency board system. Since then, the regime has evolved into a managed floating system that maintains the value of the Singapore dollar against a trade-weighted basket of currencies within an undisclosed band.

This paper appraises the appropriateness of a Singapore-type exchange rate regime as an alternative currency framework for Hong Kong in the intermediate future. For this purpose, we compared the performance records of the two exchange rate regimes in Hong Kong and Singapore. The paper is organized as follows. Section 2 discusses the vulnerability of a rigid, pegged exchange rate regime and its implications for the Hong Kong economy. Section 3 examines the features of Singapore’s managed floating system. Section 4 provides empirical evidence to evaluate their respective monetary stability and macroeconomic performance. Section 5 concludes the paper.

2. The currency peg and Hong Kong

After the collapse of the Bretton Woods fixed exchange rate system in the early 1970s, the major industrial countries adopted a managed floating exchange rate system. Although the European Monetary System attempted to restore currency pegs on a smaller scale from 1991 through 1992, it had to give up this endeavor in the face of strong market volatility. By contrast, most developing countries maintained fixed exchange rates throughout the 1970s. Since 1980, however, thanks to galloping domestic prices, an accelerating external debt burden and the lifting of capital controls, many of them have switched to various versions of floating rate regimes (International Monetary Fund, 1997).

Today, only a handful of small economies adhere to the fixed exchange rate system. The relatively influential ones include Luxembourg (since 1945), Austria (since 1979), the Netherlands (since 1983), Hong Kong (since 1983), Saudi Arabia (since 1985), Argentina (since 1991), Estonia (since 1992), Lithuania (since 1994), and Bulgaria (since 1997). The rest are tourism-dominated small economies. Some of these economies, including Hong Kong, have adopted the even more rigid currency board principle in maintaining a fixed exchange regime.

The origin of the currency board system can be traced back to the colonial days of the British Empire. In the 19th century, Great Britain introduced the currency board system as the prevailing note-issuing authority among its colonies in Asia, Africa, and the Caribbean. Under this system, the local monetary authority guaranteed the complete and free convert-
ibility of the local currency against the pound sterling at a fixed exchange rate. The local note issue had 100% backing by sterling deposits in London.

In a time when the pound sterling was the preeminent world currency, such a sterling-standard system provided an automatic mechanism for maintaining the British colonies’ price stability and balance-of-payments (BOP) equilibrium. Free convertibility at fixed exchange rates anchored the price increase in the colonies to the level in the suzerain state. When a BOP deficit arose, the fall in the sterling reserves held by the local currency board would automatically lead to a contraction of money supply. This would, in turn, depress the domestic price level and reduce domestic demand for imports. Cheaper domestic products would boost exports and, together with the reduced imports, bring the deficit back to balance.

The inherent rigidity of a conventional currency board system, however, may in practice lead to excessive macroeconomic adjustment costs. If a BOP deficit shakes public confidence in the domestic currency, a currency board with 100% backing rule may suffer a hemorrhage in its reserves as it seeks to meet the sudden surge in demand for the reserve currency by redeeming the local currency at the preannounced exchange rate. The consequent sharp contraction of the domestic money base may cause the interest rate to soar and trigger a recession too painful to bear. In particular, confronted with an imminent economic slump, a conventional currency board system would be too rigid or too slow to allow an exchange rate adjustment that could help the economy avoid recession.

Because of the significant progress of financial liberalization and globalization over the past decade, the flow of international portfolio capital or short-term “hot money” has become easier and swifter, creating more opportunities for speculative currency attacks. As international experience in recent years suggests, pegged currencies are the most likely targets of such attacks. Continuous speculative attacks would smash market confidence, resulting in a breakdown of the peg. For instance, the Bank of England failed to defend the pegged pound, with an estimated $5 billion loss, and dropped out of the European Monetary System in September 1992. The Mexican government had to let the peso float after unsuccessfully spending approximately $25 billion in foreign reserves and a similar amount of borrowings in 1994. The Thai government, after confronting speculators for months by spending over $22 billion in foreign reserves, admitted that the policy had failed in July 1997.

Although the internal and external circumstances of currency crises differ from one country to the next, some commonalities of pegged-currency crises can be identified. For example, Blackburn and Sola (1993) pointed out that overexpansionary monetary policy may weaken public confidence in the currency peg’s sustainability. At some point immediately before crisis, a heavy forward discount and, consequently, a high interest rate will emerge. A currency peg in crisis can thus have real effects on economic activity, through real exchange rate appreciation and a rising interest rate. Obstfeld and Rogoff (1995) emphasized that real appreciation of the domestic currency is likely to expose vulnerability of the peg to speculators. The conflicting policy objectives of maintaining macroeconomic stability and fulfilling currency peg obligations will eventually cause severe problems for the fixed-rate regime.

Based on ex post examination, Yu (1998) summarized some necessary and sufficient conditions for the collapse of a currency peg. The necessary conditions include:
1. Substantial removal of capital controls in domestic financial markets
2. Sustained real appreciation of the domestic currency
3. Deep conflict between domestic policy targets and the fixed exchange rate commitment.

These necessary conditions will not automatically lead to a currency crisis unless some sufficient conditions are met. They include:

1. Public herd behavior leads to dumping of domestic currency amidst a market panic
2. The monetary authorities fail to resist political pressures to sacrifice the currency-peg obligation in the face of a looming recession.

Because the Asian financial crisis started in 1997, Hong Kong’s economic situation has gradually fulfilled these conditions. First, Hong Kong’s inflation has been much higher than in the major industrial countries for decades, while its currency was pegged to the US dollar. Consequently, real exchange rates of the HK dollar against major international currencies are severely appreciated (ref. Section 4). Second, with no restrictions on capital flows, individuals and firms can easily exit domestic financial markets by transferring assets to foreign countries and increasing their assets denominated by foreign currencies. Third, since the beginning of 1998, Hong Kong has been plagued by a severe economic recession, with the highest unemployment in two decades. The HK dollar’s peg directly conflicts with the domestic macroeconomic policies necessary to tackle the recession.

Hypothetically, under strong speculative attacks, the Hong Kong Monetary Authority (HKMA) can maintain the fixed exchange rate system if it has enough foreign reserves to redeem the monetary base or narrow money (M1) and is determined to cancel out (or “dollar-ize”) local liquidity through providing US dollars. In reality, however, the situation is much more complicated. When the authorities redeem local currency to discourage speculative attacks, the banking system would immediately be caught in a credit crunch, causing instant liquidity problems for those banks with poor balance sheets. Meanwhile, defense of the peg usually causes short-term interest rate volatility, which would then lead to high interest rate risks for banks. Furthermore, short-borrowing/long-lending commercial banks would incur huge losses because of high volatility of short-term interest rates. The troubled banking system would then transfer the difficulties to the real economic sectors via credit contraction and fluctuation of interest rates. In the resulting economic recession, investment falls, unemployment increases, and budgetary deficit soars. This nexus between banking problems and economic depression occurred in Argentina in 1995 and in Hong Kong in 1998.

Hong Kong’s experience of defending the HK dollar’s peg has been dramatic and painful. One of the most dramatic attacks came in the week of 20 October 1997, when speculators mounted a furious onslaught, forcing the HKMA to make huge US dollar sales. The contraction of domestic liquidity sent Hong Kong’s interbank rates to 280%, making speculators pay heavily to fund their short HK dollar positions. Meanwhile, defense of the peg usually causes short-term interest rate volatility, which would then lead to high interest rate risks for banks. Furthermore, short-borrowing/long-lending commercial banks would incur huge losses because of high volatility of short-term interest rates. The troubled banking system would then transfer the difficulties to the real economic sectors via credit contraction and fluctuation of interest rates. In the resulting economic recession, investment falls, unemployment increases, and budgetary deficit soars. This nexus between banking problems and economic depression occurred in Argentina in 1995 and in Hong Kong in 1998.

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maintaining liquidity in the money market. Then the government proceeded to spend a massive HK$118 billion (equivalent to US$15 billion) to buy selected shares in the stock market, preventing the Hang Seng Index from falling. The heavy-handed intervention was tactically successful: speculators experienced large losses, the pressure on the peg was relieved, and the Hang Seng Index soared in late September, producing large paper profits for the HKMA.1

In retrospect, however, this tactic was costly and risky. The money spent on intervention was equivalent to 15% of Hong Kong’s total foreign reserves. Had the international hedge fund speculators not been caught in the September meltdown of the Russian market, they could have launched more attacks in the following months. If that had happened, no one can be sure how long the HKMA could have afforded to play the game. Luckily for the HKMA, the financial crisis in Russia broke out in time and inflicted heavy wounds on some hedge funds. A number of external factors (including a rebound of the Japanese yen against the greenback) in the following months also helped Asian stock markets to stabilize and thus eased the pressure on the HK dollar and the stock market.

The fundamental vulnerability of the HK dollar’s peg did not disappear, however. A currency’s exchange rate is the most important price in an open economy. If the exchange rate fails to adjust downward in line with cost reductions in Hong Kong’s competitive peers, the burden of adjustment must fall on domestic wages and asset prices. Perceptions that the real exchange rate of the HK dollar is overvalued aggravate the problem. This issue will be empirically analyzed in section 4.

Hong Kong’s fixed rate arrangement also had a strong income distribution effect in the 1997–1998 crisis. When the authorities passively defended the HK–US dollar peg by canceling the monetary base, the high volatility of market interest rates distorted the debt–credit relationship. In general, creditors were losers, whereas debtors were winners. When the government actively injected billions of dollars to prop up the stock market, income redistribution followed. In essence, big shareholders were bailed out by budgetary revenue, with a heavy fiscal burden transferred to the government. Not surprisingly, this action engendered a moral hazard problem: investors reaped their returns while the government bore the risks. The intervention also leaves the HKMA with the dilemma of what to do with the shares it has bought. The government now owns large stakes in many of the major Hong Kong companies that make up the Hang Seng Index, such as Cheung Kong, Swire Pacific, and New World Developments. The authorities dare not sell in the open market, lest this provoke another selling spree. But private divestiture of the shares could lead to substantial equity stakes being redistributed by the government. This would endanger the government’s reputation for fairness.

Finally, the HK dollar’s peg also implicitly depends on emergency backing by the Chinese central government. This “free insurance” could again create moral hazard and lead to reckless free riding on the Hong Kong side. Hong Kong’s economic development level is far higher than that of the mainland. This fact leaves little rationale for the central government to provide an umbrella for Hong Kong. In the long term, such paternalist backing would not be politically or economically sustainable.

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3. Singapore’s currency regime

In the nineteenth century, Singapore was part of the Straits Settlements under British control. The currency board system was introduced to the area in 1897. After World War I, Malaya and Singapore remained on the sterling-exchange standard for more than half a century except for the period of Japanese occupation (1942–1945). After the independence of Malaya in 1957 and self-government of Singapore in 1959, a regional currency union operating on a currency board arrangement continued during Singapore’s period of merger with Malaya, Sabah, and Sarawak (1963–1965). Singapore was separated from Malaysia and became an independent city–state in 1965. Two years later, the currency split occurred, when Malaysia and Singapore could not agree on terms for issuing a common currency. Singapore set up its own currency board, the Board of Commissioners of Currency of Singapore (BCCS), in 1967 as its sole currency issuing authority. The par value of the Singapore dollar was pegged at 0.290299 grams of fine gold and convertible to pound sterling at 2 shillings and 4 pence (Lee, 1974).

When the pound sterling devalued in 1967, the Singapore dollar moved away from the sterling standard and maintained its gold parity and was for a while pegged to US dollar at US$1 = S$2.8196 in 1972. Amid the international monetary uncertainty in 1973, the Singapore government adopted a managed floating system. Meanwhile, the authorities continued to relax their foreign exchange controls gradually and finally liberalized controls by 1978 (Lu & Lee, 1999).

Parallel to the evolution of the exchange rate regime, there was an institutional revamp of the banking structure in Singapore. In 1971, the Monetary Authority of Singapore (MAS) was established to consolidate all but one of the central banking functions scattered among the various government departments. The function of issue and redemption of currency remained with the BCCS. In 1981, the Government of Singapore Investment Corporation was established to take over from the MAS the management and investment of long-term government reserve assets.

The missions and objectives of the BCCS and the MAS are complementary (Tan, 1992). The BCCS ensures the integrity of currency issue. The issue and redemption of currency occur through a currency fund, the assets of which are highly diversified. The requirement of 100% backing in overseas assets under the currency board design provides a solid reserve base for note issue and an anchor for high-power money (currency) supply.

In comparison, the MAS plays the roles of a monetary policy maker and a financial market regulator. It supervises the financial system and conducts monetary and exchange rate policies. As a de facto central bank, the MAS has all the conventional monetary tools available to it. These include open market operations, discount policy, reserve requirements, foreign exchange swaps, and moral persuasion. The MAS, however, operates with distinctive local features. Its tasks include developing and encouraging new financial instruments, markets, and activities. It acts as an important player in attracting foreign financial institutions to promote Singapore as an international finance center. Aware of the Singapore economy’s smallness and openness, the MAS does not manipulate interest rates or money aggregates to target its primary policy goal—stabilization of the general price level. Rather, it uses exchange rate management as a major external monetary policy instrument (Yip, 1996).
Under the managed floating exchange rate system, the MAS manages the Singapore dollar against a basket of currencies of Singapore’s main trading partners and competitors. The basket is composed of the currencies of those countries that are the main sources of imported consumer price index (CPI) inflation and competition in export markets. The objective of exchange rate policy is to promote sustained and noninflationary growth for the Singapore economy. The trade-weighted Singapore dollar is allowed to float within an undisclosed target band. The level and width of the band are reviewed periodically to ensure that they are consistent with economic fundamentals and market conditions. The MAS discretionarily intervenes in the foreign exchange market over time to ensure that movements of the Singapore dollar exchange rate are orderly and consistent with the exchange rate policy.\(^2\)

Peebles and Wilson (1996) observed that a currency board system in a conventional sense is no longer operative in Singapore because of the following:

1. Since 1972, Singapore no longer has only one standard reserve currency
2. Since 1973, the Singapore dollar has never been pegged to any reserve currency
3. Since 1973, the MAS has managed the floating of exchange rates, and the BCCS no longer predetermines an exchange rate at which it backs the Singapore dollar with its reserve currency.

In the above three aspects, Singapore’s prevailing managed floating exchange rate system differs significantly from the original currency board system that existed early in its history. The BCCS also functions differently from some existing currency board arrangements, such as those in Hong Kong and Argentina.

The Singapore system nevertheless has maintained a basic element of the currency board system: the requirement of 100% backing in external (overseas) assets for currency issuing. The BCCS issues and redeems currency notes and coins as demanded, in accordance with the prevailing spot exchange rates, which are managed by the MAS within the limits that market forces allow. The structure of the BCCS’ fund management ensures that the currency in circulation is 100% backed by the board’s external assets. Should the currency fund have a deficiency larger than its own income account surplus could make up, further revenue can be transferred from the Government’s consolidated fund (Lu & Lee, 1999).

Although there are no preannounced exchange rates for the BCCS to issue and redeem Singapore dollars on demand, the MAS does have a commitment to keep a long-term stable and comparatively strong Singapore dollar. Since 1981, it has been an official stand to prevent imported inflation and to contain domestic cost pressures by maintaining the strength of Singapore dollar.\(^3\) The trend of the Singapore dollar’s continuous appreciation from 1981 to mid-1997 was partially the result of policy. For the MAS, public confidence in its capability to manage the Singapore dollar’s floating exchange rates within the target band is essential to its policy effectiveness. As such, a major source of currency confidence comes from the BCCS’ 100% backing commitment in accordance with the prevailing spot exchange rates.\(^4\)

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\(^4\) Osband and Villanueva (1993) describe the “crawling-peg currency board” system: Even when the monetary authority allows the pre-announced exchange rate to crawl in a variety of ways, the fundamental operations of the currency board need not change as long as the 100-percent backing rule is maintained.
This feature of maintaining public confidence in exchange rate stability spells out a potential advantage of Singapore’s system over a free (clean) floating exchange rate system or a managed floating exchange rate system without a 100% backing rule for currency issuing. In theory, without serious speculative attacks, exchange rate adjustments in a floating exchange rate scenario should provide the right price signals for international traders to rectify any BOP problems. In reality, particularly for small open economies, such exchange rate adjustments often overshoot. If the exchange rate fluctuates too often and too violently, especially when hit by speculative attacks, this provides confusing price signals and impedes international trade and investment, which are vitally important for these economies. This would in turn further aggravate BOP problems. The monetary authority’s intervention to reduce exchange rate fluctuation is therefore a desirable counterweight to market failure. Without a strong reserve backing, however, the monetary authority’s commitment to maintain the floating band may not be credible, especially at a time of exchange rate turbulence. Among other factors, the 100% backing rule can serve as a shield against currency attacks that ride on market panics. With such backing in place, the Singapore dollar is less likely to fluctuate violently and hurt the city–state’s external economic ties.

Compared with a conventional central banking system, a potential benefit of Singapore’s currency board design lies in its independent currency issuing power solely backed by foreign assets. Osband and Villanueva (1993) compared the accounts of a central banking system and a banking system under an independent currency authority (or a currency board). In an independent currency authority system, an increase in money stock is typically a market-driven adjustment, because it requires an equivalent increase in foreign reserves through a trade surplus or foreign loans. By contrast, under a central banking arrangement, domestic financial instruments, particularly government bonds, could be used to expand the reserve money. Administrative fundraising by issuing new liabilities thus could increase the central bank’s net domestic assets and lead to money supply increase. This discretionary authority to expand reserves has inflationary potential. Table 1 reconstructs the simplified accounts of Singapore’s banking system in comparison with the accounts of a central banking system, along the same vein of Osband and Villanueva’s analysis. In this arrangement, the monetary authorities cannot expand domestic credit simply by easing domestic monetary base, nor can they finance fiscal deficits through currency issuing. This is an important safeguard against inflationary monetary policy.

In contrast with a currency board-type monetary regime, Singapore’s managed floating system has several unique characteristics. First, it may avoid the inherent rigidity of a conventional currency board system that leads to excessive costs of macroeconomic adjustment. As discussed in Section 2, a conventional currency board system can be too rigid and too slow to allow exchange rate adjustment that could help the economy veer away from recession. The Singapore system, which promises currency strength without committing the monetary authority to a preannounced exchange rate spread, can provide a more flexible mechanism of gradual exchange rate adjustment.

Second, a conventional currency board’s rigid dependence on the level of official foreign reserves may automatically destabilize the domestic monetary base, because foreign reserves fluctuate with the balance of payments. This constraint, however, does not apply to Singapore’s monetary system, under which the MAS still has some control over the domestic
money supply. Through years of BOP surpluses, the city–state has built up ample foreign reserves. As shown in Fig. 1 and Table 2, the backing rate of currency issue has always been more than 100%, whereas the BCCS’ external assets have accounted for only a small fraction of the official reserves over the years. This phenomenon reflects a functional feature of the system. In Table 1, total liabilities of the BCCS and the MAS are the summation of government deposits and the monetary base, which consists of currency in circulation and commercial banks’ net reserve deposits. Therefore the monetary base should be equal to the total assets minus government deposits. However, international reserves of the two institutions account for most of the monetary authorities’ total assets, because their holdings of Singapore government securities and other assets are trivial. The Singapore government’s deposits at the MAS arise from public sector surpluses and compulsory savings of Singapore residents in the Central Provident Fund. Therefore Singapore’s international reserves should exceed the monetary base by the amount of the government deposits minus monetary authorities’ other assets, which can be viewed as the domestic liabilities. The excess of the two institutions’ international reserves over the monetary base serves as secondary reserves or excess reserves. These secondary reserves can be used to finance public expenditure or allow the MAS to act as a lender of last resort (see Chan & Ngiam, 1997). Given its huge second-

### Table 1
Accounts comparison: Singapore banking system and a central banking system

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The Singapore Banking System</strong></td>
<td></td>
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<tr>
<td>BCCS</td>
<td></td>
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<tr>
<td>External assets (international reserves)</td>
<td>Currency in circulation</td>
</tr>
<tr>
<td></td>
<td>= currency held by MAS</td>
</tr>
<tr>
<td></td>
<td>+ currency held by banks</td>
</tr>
<tr>
<td></td>
<td>+ currency held by public</td>
</tr>
<tr>
<td>MAS</td>
<td></td>
</tr>
<tr>
<td>Currency held by MAS</td>
<td>Reserves deposited by banks</td>
</tr>
<tr>
<td>Net foreign assets (international reserves)</td>
<td>Government deposits</td>
</tr>
<tr>
<td>Other assets (bank loans, government stocks, etc.)</td>
<td></td>
</tr>
<tr>
<td><strong>Commercial Banks</strong></td>
<td></td>
</tr>
<tr>
<td>Currency held by banks</td>
<td>Deposits</td>
</tr>
<tr>
<td>Reserves deposited at MAS</td>
<td>Borrowing from MAS</td>
</tr>
<tr>
<td>Net foreign assets</td>
<td></td>
</tr>
<tr>
<td>Loans and investments</td>
<td></td>
</tr>
<tr>
<td><strong>The Central Banking System</strong></td>
<td></td>
</tr>
<tr>
<td>Central Bank</td>
<td></td>
</tr>
<tr>
<td>Foreign reserves + Net foreign assets</td>
<td>Currency in circulation</td>
</tr>
<tr>
<td>Net domestic assets</td>
<td>Reserves deposited by banks</td>
</tr>
<tr>
<td>(=domestic government and nonbank firms’ debt)</td>
<td></td>
</tr>
<tr>
<td>Loans borrowed by banks</td>
<td></td>
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<tr>
<td>Commercial Banks</td>
<td></td>
</tr>
<tr>
<td>Currency held by banks</td>
<td>Deposits</td>
</tr>
<tr>
<td>Reserves deposited at Central Bank</td>
<td>Borrowing from Central Bank</td>
</tr>
<tr>
<td>Net foreign assets</td>
<td></td>
</tr>
<tr>
<td>Loans and investments</td>
<td></td>
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</tbody>
</table>
ary reserves, Singapore’s monetary authority does not need to give up its independent monetary policy entirely, as a conventional currency board would. Nevertheless, Singapore’s monetary policy has centered on exchange rate management rather than on money supply and interest rates. This is because, thanks to Singapore’s smallness and openness, a domestic interest rate unduly deviating from the international level would lead to large movement of capital in or out, neutralizing the effects of monetary expansion or contraction. A volatile capital supply is obviously not desirable for Singapore.

Compared with a currency peg like that of Hong Kong, Singapore’s more flexible exchange rate regime has the advantage of greater price and money market stability. For a small open economy such as Hong Kong or Singapore, the domestic price level is largely influenced by the price of imports. In such a case, rigid pegging to only one foreign currency (such as the US dollar) would cause greater domestic price fluctuation. Meanwhile, the single-currency pegging anchors the domestic interest rate to the nominal interest rate of the pegged foreign currency. This works together with price fluctuation to result in greater volatility of real interest.

Table 2
Singapore’s official reserves and the BCCS’ external assets ($M)

<table>
<thead>
<tr>
<th>Years</th>
<th>Official reserves (1)</th>
<th>BCCS external assets (2)</th>
<th>Column (2) as a percentage of Column (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>3097.9</td>
<td>753.1</td>
<td>24.3%</td>
</tr>
<tr>
<td>1980</td>
<td>13757.7</td>
<td>3498.8</td>
<td>25.4%</td>
</tr>
<tr>
<td>1980</td>
<td>48521.3</td>
<td>7993.2</td>
<td>16.5%</td>
</tr>
<tr>
<td>1995</td>
<td>97336.6</td>
<td>13239.5</td>
<td>13.6%</td>
</tr>
<tr>
<td>1997</td>
<td>119616.8</td>
<td>15739.1</td>
<td>13.2%</td>
</tr>
</tbody>
</table>

rates in the money market. As shown in the next section, while the Singapore dollar’s interest rate deviates more from the US interest rate than does the HK dollar rate, Singapore enjoys greater stability both in domestic price changes and in real interest rate movement.

Finally, in the case of a speculative attack on the local currency, the Singapore regime allows the monetary authority to fight off speculators with a powerful weapon. This weapon, the immediate appreciation of local currency, is not available to a conventional currency board committed to a preannounced exchange rate peg. When the Singapore dollar was attacked in September 1985, the speculators sold the local currency short and pushed it down by 5.3% in a few weeks. The MAS intervened by spending some S$218.6 million of its reserves (accounting for approximately 1.6% of its holdings of gold and foreign exchange) in September, and the overnight interbank rate shot up, at one point to 120%. This resulted in a sharp appreciation of the Singapore dollar by 2.8% against the preattack level on 25 September 1985, inflicting heavy losses on many speculators. After successfully fending off the attack, the MAS advised speculators to “leave the Singapore dollar alone” and promised to repeat the exercise if speculation against the currency reemerged (Chan & Ngiam, 1997).

A factor that contributed to Singapore’s success in fending off speculative attacks on its currency in 1985 was the MAS’ long-standing policy of discouraging the internationalization of Singapore dollar, that is, the use of the Singapore dollar outside Singapore for activities unrelated to Singapore’s real economy. Under this policy, the MAS stipulated in 1983 that Singapore banks must consult it before considering Singapore dollar credit facilities exceeding S$5 million to nonresidents or to residents where the money is to be used outside Singapore. These restrictions may have limited the resources available to international currency speculators with which to bet against the Singapore dollar in 1985, and thus work as a deterrent to attacks on the local currency.

Notwithstanding the role of such restrictions, the MAS intervention would not have been so successful if it had been constrained by a fixed-peg commitment. Besides, although these restrictions have been significantly eased in recent years, the Singapore dollar remained relatively impervious to currency attacks through the 1997–1998 Asian currency crisis. Therefore the MAS’ credible exchange rate policy and its firm promise to inflict losses on speculators who attack its currency continue to be the best defense for keeping speculators at bay.

4. Empirical evidence

In this section, we assess the performance record of the two currency regimes in Hong Kong and Singapore by examining some empirical evidence. We will evaluate the two economies’ track records regarding consumer price changes, interest spreads from the US prime

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5 The policy of discouraging the internationalization of Singapore dollar was implemented through MAS’ Notice to Banks 621, which spells out the specific do’s and don’ts which banks have to follow. For a fuller discussion on nature and impact of these restrictions, see Chan and Ngiam (1996).

6 The Notice to Banks, MAS 621, was last revised in July 1992. Since then, banks are no longer required to consult the MAS if the credit facilities in Singapore dollar, for whatever amount, are to finance some preapproved activities, such as Singapore’s foreign trade and hedging export earnings. In August 1998, the MAS issue a new notice, MAS 757, to replace MAS 621. The new notice lifted the restrictions on Singapore dollar credit facilities for use outside Singapore by residents. It also made it easier for foreign entities to list Singapore dollar denominated shares and issue Singapore dollar bonds, where the proceeds will be used outside Singapore.
4.1. Consumer price index

Because both economies are small and open, their domestic price indices are vulnerable to imported inflation, which is transferred through the exchange rate links. A lower and more stable inflation rate is a sign of a successful exchange rate regime. Fig. 2 and Table 3 show that the annual increase of Singapore’s consumer price index has been consistently lower.

<table>
<thead>
<tr>
<th>Time series</th>
<th>Hong Kong</th>
<th></th>
<th>Singapore</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Standard deviation</td>
<td>Mean</td>
<td>Standard deviation</td>
</tr>
<tr>
<td>Changes in consumer price</td>
<td>8.0535</td>
<td>2.2769</td>
<td>2.1864</td>
<td>1.0226</td>
</tr>
<tr>
<td>Difference between domestic interest rate and the US interest rate</td>
<td>0.5818</td>
<td>0.5844</td>
<td>−1.3578</td>
<td>0.8250</td>
</tr>
<tr>
<td>Real lending interest rate</td>
<td>0.3572</td>
<td>2.6606</td>
<td>4.2847</td>
<td>1.3097</td>
</tr>
<tr>
<td>Money market rate</td>
<td>5.3313</td>
<td>1.9961</td>
<td>5.2600</td>
<td>1.2372</td>
</tr>
</tbody>
</table>

Changes in consumer price are year on year.
Domestic interest rate is minimum bank lending rate for Singapore and Hong Kong. The US interest rate is the bank prime loan rate.
Real interest rate is the difference between minimum lending rate and the consumer price change.
Money market rate is interbank overnight rate.
than that of Hong Kong from August 1990 through September 1998. The consumer price index in Singapore also appears to be more stable, reflected in the lower standard deviation in Singapore’s price index.

4.2. Interest rate spread from the US prime rate

Given the HK dollar’s peg to the US dollar, one would expect little difference between interest rates in the US and Hong Kong. If the HK dollar rates move higher, borrowers can simply switch to borrowing in US dollars, which should bring the Hong Kong interest rates back in line. As shown in Fig. 3 and Table 3, however, the HK dollar minimum lending rate has remained significantly higher than the US prime rate in recent years. This partly reflects a perception that the HK dollar might have been overvalued and that any exposure to it warrants a risk premium. In comparison, the Singapore dollar’s minimum lending rate has remained lower than the US rate. The smaller standard deviation of the interest rate spread for Hong Kong displayed in Table 3 is in line with the HK dollar’s peg to the US dollar.

4.3. Real interest rate levels and stability

Although the HK dollar lending rate is higher than the US prime rate, its real interest rate has been much lower than Singapore’s in recent years, mainly because of Hong Kong’s higher inflation rate (see Fig. 4). On average, Hong Kong’s real lending rate was less than one tenth of Singapore’s. It is more interesting to see in Fig. 4 that Hong Kong’s real rate has been more volatile: its standard deviation, 2.66, is twice as high as Singapore’s 1.31 (see Table 3). From fall 1990 through fall 1995, Hong Kong’s real interest rate was negative in most months, contributing to the overheating of the economy during the period. It became a positive 2% to 3% afterward until moving sharply higher with the unfolding of the Asian finan-
cial crisis. The procycle movement of the real interest rate in Hong Kong reflects the rigidity of a conventional currency board system in adjusting to external shocks.

4.4. Trade-weighted effective exchange rates

In Table 4 we compare the two economies’ nominal exchange rates against the US dollar, export-weighted effective exchange rates, and import-weighted effective exchange rates. The impact of exchange rate changes on an economy’s export competitiveness largely depends

![Real Lending Rate](image)


**Fig. 4. Source: IMF, International Financial Statistics.**

Table 4
Nominal effective exchange rates of Hong Kong dollar and Singapore dollar (weighted by export trade and import trade)

<table>
<thead>
<tr>
<th>Period</th>
<th>Hong Kong</th>
<th></th>
<th>Singapore</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nominal rate (US$)</td>
<td>Weighted by export</td>
<td>Weighted by import</td>
<td>Nominal rate (US$)</td>
</tr>
<tr>
<td>June 1985:</td>
<td>−0.22%</td>
<td>2.29%</td>
<td>−8.41%</td>
<td>20.62%</td>
</tr>
<tr>
<td>June 1990:</td>
<td>0.65%</td>
<td>13.63%</td>
<td>12.08%</td>
<td>32.36%</td>
</tr>
<tr>
<td>June 1995:</td>
<td>−0.10%</td>
<td>4.76%</td>
<td>7.68%</td>
<td>−2.26%</td>
</tr>
<tr>
<td>June 1997:</td>
<td>−0.05%</td>
<td>6.21%</td>
<td>14.02%</td>
<td>−15.82%</td>
</tr>
</tbody>
</table>

Compiled from IMF, *International Financial Statistics* and *Direction of Trade Statistics.* Included in the calculation of weights are 29 trade partners for Singapore and 28 trade partners for Hong Kong, which account for more than 90% of Singapore and Hong Kong’s trade volume.
on the import content of its exports and the economy’s trade structure. Other things being equal, $P_{xt}$, an economy’s average export-price index at time $t$, would be affected by its exchange rate movement:

$$P_{xt} = \frac{1}{\Psi_{mt}} + (1 - \omega)\Psi_{xt}$$

(1)

where $\omega$ is the import content ratio for exports, $\Psi_{mt}$ the import-weighted effective exchange rate index at time $t$, and $\Psi_{xt}$ the export-weighted effective exchange rate index at time $t$.

Following Eq. (1), we calculated the impact of exchange rate changes on the two economies’ export price by assuming that $\omega = 50\%$ in Table 5.7 According to the results, from June 1985 through June 1990, both economies saw their exchange rate-determined export price increase approximately 6%. From June 1990 through June 1995, Singapore’s exchange rate-determined export price index increased faster than Hong Kong’s by 3.2 to 3.8 percentage points. From June 1995 on, both economies’ indices fell. It is interesting to note that Singapore’s index fell faster than Hong Kong’s and led the fall during the 1997–1998 Asian financial crisis. These results suggest that Singapore has gained export competitiveness over Hong Kong more recently.

### 4.5. Real exchange rates against the US dollar

With the HK dollar pegged to the US dollar, the monetary authority in Hong Kong, unlike its counterpart in Singapore, could not manage the exchange rate to achieve the goal of domestic price stability. The consequent higher domestic inflation accompanied by the nominal exchange rate peg led to continuous appreciation in the HK dollar’s real exchange rate, as shown in Fig. 5. This has made the HK dollar even more vulnerable to currency attacks. In contrast, Singapore’s managed floating regime has allowed the Singapore dollar’s real exchange rate to be adjusted effectively and flexibly overtime. After East Asia was caught in the currency turmoil that started in July 1997, the Singapore dollar depreciated quickly down to its historical level in 1990 measured by real exchange rate (Fig. 5).

### 5. Conclusions

In this paper we have compared the different exchange rate regimes in Hong Kong and Singapore by looking at their institutional features and empirical evidence. The conclusion is clear: the HK dollar’s peg to the US dollar is a costly and inefficient regime.

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7 This assumption of import content ratio is reasonable. According to the MAS, data from the 1990 input-output tables show that imports actually comprised 55% of total expenditure and 60% of exports.
In the recent Asian economic crisis, the vulnerability of Hong Kong’s currency regime became more apparent. Although remaining among the soundest economies in Asia, neither Singapore nor Hong Kong escaped the crisis (see Fig. 6). The two economies have, however, been affected for different reasons.

Singapore was affected mainly because of its close economic links with Southeast Asia. Close to half of Singapore’s external trade is accounted for by six economies in East Asia: Thailand, Malaysia, Indonesia, Japan, South Korea, and Hong Kong. All of the six saw varying degrees of distress after July 1997. In contrast, Hong Kong’s major trading partners, China, Taiwan, Europe, and the United States, were not in distress. Nevertheless, the territory experienced a high HK dollar exchange rate brought about by the peg to the US dollar. As currencies tumbled all over Asia, the HK dollar’s strength came increasingly to be viewed as unsustainable by currency market players. This has already invited several waves of speculative attacks on the currency since fall 1997. In the 1997–1998 Asian crisis, the Hong Kong economy suffered painfully because of its currency peg to the US dollar. As shown in Fig. 6, it sank into a recession a half-year earlier than Singapore and has so far experienced a much sharper slump in output than the latter.

Despite the pain, the Hong Kong government remains firmly committed to the peg and is supported by much of Hong Kong’s business community. Two myths may explain this strange persistence.

The first myth is the belief in the long-term benefits of keeping a currency board system. In economically good times, it is hard to argue for exiting from the peg; after all, it seems to
be working well. But in bad times, it is equally hard, because it is believed that depegging would create panic and instability. In this paper, we present evidence that, contrary to this myth, the inherent rigidity of the system has already cost Hong Kong heavily, by causing procyclical volatility of real interest rates and prices. In good times it is one of the factors that overheats the economy to a dangerous height. In bad times, it makes the adjustment to external shocks more painful than necessary.

This myth views the peg as central to public confidence in Hong Kong’s economic prospect. Although recognizing the pain that the peg could inflict, many were afraid that depegging the HK dollar would be another blow to market confidence in the 1997–98 economic crisis. A typical statement of fear was a quote from James Tien, a businessman and member of Hong Kong’s Legislation Council: “We should not de-peg now when the US dollar is weakening. We shouldn’t even say we’ll think about it, because that would give speculators ammunition. When the currency market stabilizes, we could look at it again.”8 “It’s not just a matter of banking confidence or business confidence,” said Ian Perkin, chief economist of the Hong Kong Chamber of Commerce, “It’s also a big issue for people on the street: if the peg goes, it will be widely perceived as a big blow to Hong Kong.”9

A second, related myth is the worry that depegging the HK dollar would undermine Hong Kong’s position as an international financial center in East Asia. The hypothesis is that if the HK dollar were not pegged to a hard currency like the US dollar, the perception of a weak and unstable HK dollar would deter investors. Given Hong Kong’s highly open financial market, capital flight would occur immediately after the depeg move.

To demystify these claims, the experience of Taiwan and Singapore in the recent Asian currency turmoil is illustrative. After Taiwan allowed its currency to depreciate in October

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8 Business Times (Singapore), December 2, 1998.
9 Business Times (Singapore), December 2, 1998.
1997, business confidence in the economy did not collapse, capital flight did not prevail, and the Taiwan economy turned out to be the most resilient in the region during the crisis. The Singapore dollar’s more than 15% slide against US dollar during the turmoil did not undermine its image of being a strong and stable currency in the region. Singapore continues to promote itself confidently as a regional financial center with a promising future. These cases show that the best defense against speculative currency attacks and capital flight is sound economic fundamentals and a credible exchange rate policy.

In terms of economic fundamentals, both Hong Kong and Singapore were among the healthiest in Asia when the region was first hit by the crisis. Neither economy had sovereign debt. Governments in both economies had accumulated huge fiscal reserves. Both economies boasted sound banking sectors with the region’s lowest nonperforming loan ratios, highest capital adequacy ratios, and largest reserve funds. During the 1997–1998 Asian financial crisis, both economies displayed great downward flexibility of their domestic wages and prices: labor markets adjusted quickly and property prices plunged.10

As of April 1998, Hong Kong’s money in circulation (M1) was HK$163.63 billion, whereas its foreign reserves stood at US$96.2 billion, 4.5 times M1. Meanwhile, Singapore’s reserves amounted to US$76.1 billion, also approximately 4.5 times its M1 of S$26.417 billion.11 Given the similar strength in economic fundamentals, Hong Kong’s monetary authority would be as capable as its Singapore counterpart of committing to a strong currency and fending off speculative attacks, if it were not constrained by the straight jacket of a pegged exchange rate. As discussed in section 3, were a Singapore-style exchange rate regime adopted, it would be much riskier for any speculator to attack the HK dollar. Because there is no preannounced exchange rate, the target (or the “striking price”) for the attack is uncertain. Because neither the managed floating band nor the weights of the basket of currencies for the float are disclosed, the attacker never knows when, where, or how much the monetary authority will intervene. With strong reserves, the monetary authority possesses the power to inflict losses on the speculators, as shown in the case of Singapore in September 1985.

All this should significantly enhance business confidence in the Hong Kong economy and its currency. Singapore’s successful experience of moving away from a classical currency board at a time of global currency turmoil (1973) should be convincing enough for Hong Kong. Because the Singapore dollar was depegged from the pound Sterling and the US dollar two and half a decades ago, Singapore has developed into a regional financial center that increasingly vies with Hong Kong for a leading position in finance. Although its stock market capitalization is still less than one third of Hong Kong’s, Singapore boasts a daily foreign exchange trading volume almost twice of that in Hong Kong and a daily volume of futures trading more than three times as large. On top of that, Singapore is aggressively developing its fund management business and bond market and is rapidly catching up with Hong Kong on these two fronts. For Singapore, a currency peg was never a precondition for developing into an international financial center.

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11 International Monetary Fund, *International Financial Statistics*. 
The Singapore example shows that, given strong economic fundamentals, all a government needs to maintain public confidence in a currency is an official commitment to the currency’s strength and its full convertibility, as long as this is backed by sufficient reserves and the political resolve to adopt a credible exchange rate regime. Today’s Hong Kong has much stronger reserves and fundamentals than Singapore had in the early 1970s. Now the question is whether its leadership has the necessary resolve.

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References


