Monetary operations under the Currency Board system: the experience of Hong Kong

Hong Kong Monetary Authority

Abstract

This paper documents the major policy reforms to Hong Kong's Linked Exchange Rate System (LERS) that have enabled it to evolve into the highly credible, efficient, and transparent system it is today. It discusses the operating mechanism of the system in adjusting capital flows, and the role the Hong Kong Monetary Authority plays in maintaining the smooth functioning of the LERS. It shows that the LERS has stood the test of two major financial crises, large cross-border capital flows, and occasional scepticism over its sustainability and suitability for the Hong Kong economy over the past three decades.

Keywords: linked exchange rate system, HKD currency zone, convertibility undertaking, exchange rate system credibility

JEL classification: E58, E52, N1

I. Introduction

Hong Kong adopted the Currency Board system in October 1983. Over the past three decades, the system has undergone a number of reforms and modifications, allowing it to adapt to the changing macro environment. Through these changes, the system has evolved into a simple and rule-based Linked Exchange Rate System (LERS) governed by Currency Board principles, with a high degree of credibility and transparency. This note provides some background information about the LERS, in particular how it fared during the global financial crisis in 2007-2008. It first discusses the evolution of the system in recent history, outlining the major reforms and the rationale behind them. It goes on to describe how the system works in its current form, with a particular focus on how it operated during the market turbulence of the global financial crisis. The note finishes by discussing why the system is viewed as highly credible, and how this credibility is reflected in financial markets.

II. A brief history of Hong Kong's Currency Board system

Amid considerable financial turbulence stemming from the Sino-British negotiations over the future of Hong Kong, the LERS system was established in October 1983, with the Hong Kong dollar (HKD) pegged to the US dollar (USD) at a fixed rate of HK$7.8 to US$1. The past three decades saw the system refined several times as the market environment changed and economic needs evolved.

The first five years were a period of simple "fixed-rule" operation, with the Hong Kong government directly intervening in the foreign exchange market to maintain the stability of the exchange rate. In July 1988, the then Hong Kong Government introduced a number of new "Accounting Arrangements", which ushered in a new phase of the regime with more discretionary management (Greenwood, 2008). The arrangements enabled the Government to regain some control over money market interest rates through buying and selling the newly issued Exchange Fund Bills and Notes and guide the exchange rate to a level that it deemed acceptable.

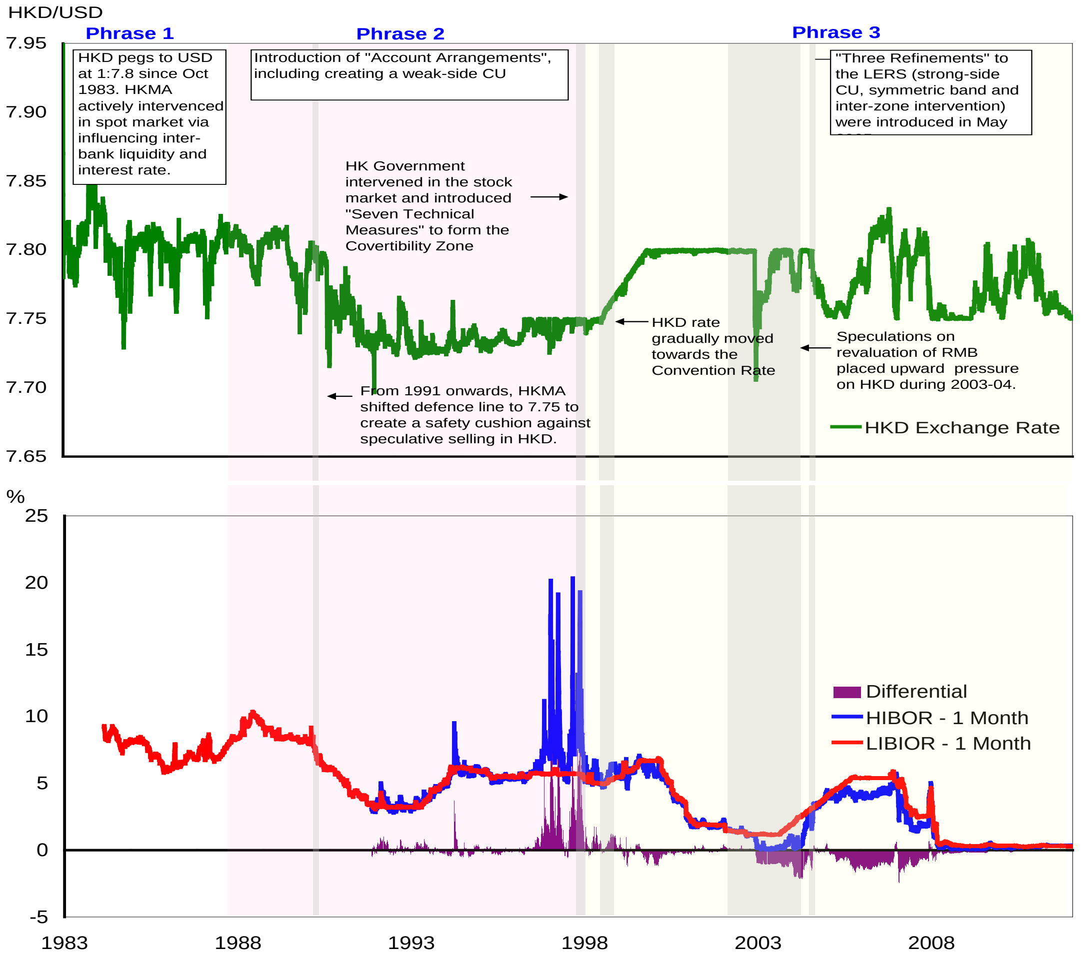
The system was put to test by the Asian financial crisis between mid-1997 and late-1998, when the Hong Kong dollar suffered a series of attacks from speculators.[1] In a bid to refine the exchange rate system, the Hong Kong Monetary Authority (HKMA) introduced "Seven Technical Measures" to the LERS, including the establishment of a clear Convertibility Undertaking (CU) for the HKD at a rate of HK$7.75 to US$1.[2] This was a weak-side commitment, in that the HKMA was ready to purchase unlimited amounts of HKD for USD to prevent a weakening of the

[1] The speculators adopted a "double-market play" strategy, in which they slowly pre-funded themselves with Hong Kong dollars over a period of time, and then suddenly shorted the cash and future stock markets and at the same time sold the currency in large quantities to drive up interest rates. To restore market confidence and the integrity of the LERS, the Hong Kong Monetary Authority intervened in the local stock market to counter the speculative attacks.

[2] The HKMA was established in 1993 by combining the Office of the Exchange Fund and the Office of the Banking Commissioner.

currency beyond that rate. In practice, the weak-side commitment was gradually moved from HK$7.75 to HK$7.8 between April 1999 and July 2000 (Genberg and Hui, 2011). This new fixed CU effectively removed the discretion of the HKMA to intervene on the weak side, returning the system to a more rule-based operation (Kwan et al, 1999).

History of major reforms of the LERS | Figure 1

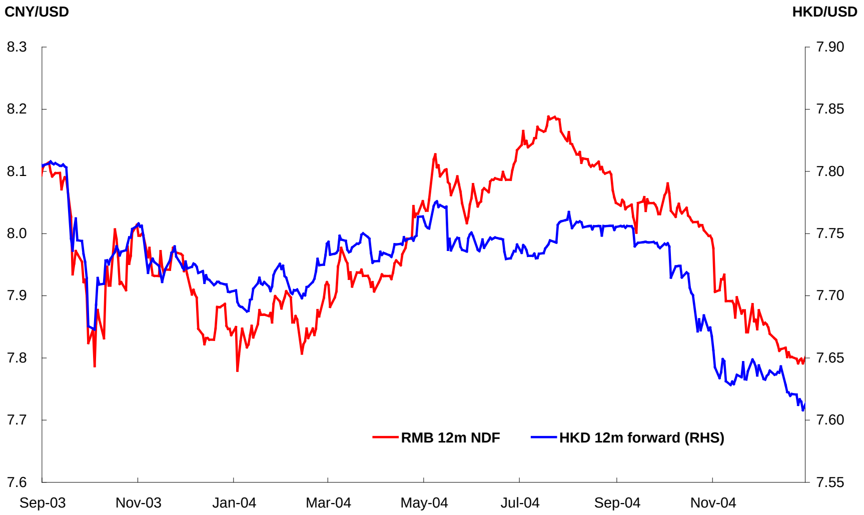


Source: Bloomberg; HKMA estimation

However, the reforms did not stop there. Following the 1998 reform, there were debates about whether there should be a mirroring strong-side CU, and if so, at what level the CU should be set (Yam, 2005a). The argument for the change was later aided by market speculation on a revaluation of the HKD along with that of the renminbi (RMB) (Figure 2). Market participants were unable to buy the RMB due to capital controls, and hence they reportedly traded the HKD as a proxy. The resulting capital inflows put downward pressure on Hong Kong's interbank interest rates. To protect the integrity of the LERS, the HKMA introduced "Three Refinements" in May 2005 (1) establishing a strong-side CU at HK$7.75: US$1; (2) shifting the weak-side CU from HK$7.8 to HK$7.85; and (3) creating a Convertibility Zone around the central parity at HK$7.8, within which the HKMA could conduct market operations consistent with Currency Board principles (Yam, 2005b). These refinements made the LERS much more transparent and rule-based, and made the interest rate adjustment mechanism function more smoothly in aligning Hong Kong interest rates with those of the US. The modified system stood the test of the global financial crisis in 2008-2009 and has continued to operate smoothly to date.

12-month forward of HKD and RMB

Figure 2



Source: Bloomberg

III. An overview of the current system and principles governing market operation

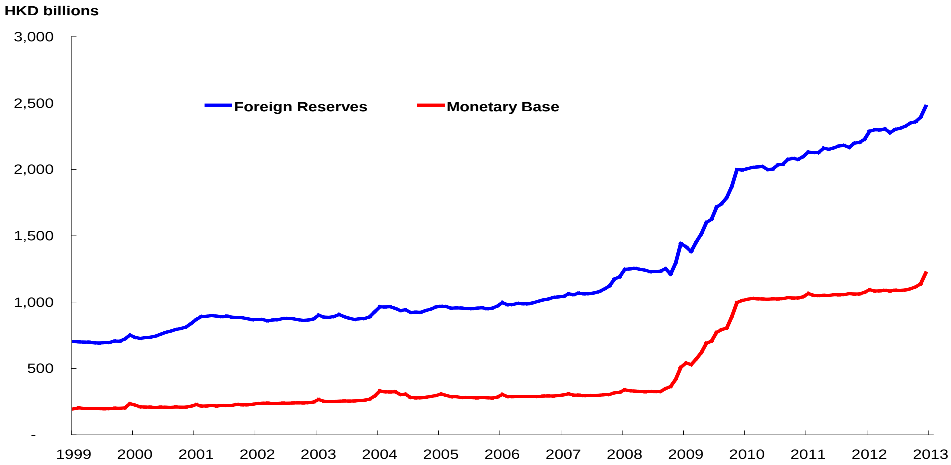
Overview of the system

The Currency Board in Hong Kong requires the Monetary Base (MB) to be fully backed by foreign currency reserves held at the Exchange Fund. This means that any changes in the MB (which includes Certificates of Indebtedness, government-issued notes and coins, and Aggregate Balance and Exchange Fund Bills and Notes) are fully matched by corresponding changes in foreign reserves at a fixed exchange rate. In fact, the MB has historically been more than fully covered by the reserve assets (Figure 3). This greater than 100% reserve backing represents a powerful insurance for the HKMA's ability to defend the currency peg, significantly enhancing the system's credibility.

Under the LERS, interventions in the currency market are a mechanical and passive process of the HKMA. When there are capital inflows (or outflows) in Hong Kong, causing the exchange rate to rise (or fall) to the extent that it touches the boundaries of the Convertibility Zone, the CUs are triggered, allowing the HKMA to step in to sell (or buy) the HKD against the USD. These interventions will cause the MB to expand (or contract), putting downward (or upward) pressure on interbank interest rates, which in turn counteract the original capital flows to ensure that the exchange rate remains stable. In other words, it is interest rates, rather than the exchange rate, that adjust to capital inflows and outflows in Hong Kong under the LERS.

Foreign Reserve Assets of the HKMA, and Monetary Base

Figure 3



Source: HKMA

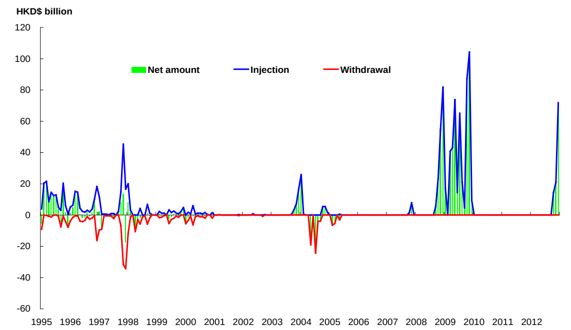
While interventions at the boundaries of the Convertibility Zone are automatic and mechanical, the HKMA retains some discretion to intervene within the zone. These operations are governed by the Currency Board rules, with their implementation taking account of financial market conditions. Officially, there are four broad operational principles set by the Exchange Fund Advisory Committee: (1) all operations should be carried out in strict accordance with Currency Board rules; (2) the primary objective of any operation should be to preserve the exchange rate stability implied by the LERS and to maintain confidence in the system; (3) operations may be undertaken to support such interest rate adjustments as would maintain exchange rate stability under the LERS and that would avoid destabilising behaviour in interest rates; and (4), operations may also be undertaken in order to remove market anomalies (HKMA, 2011).

Recent history of market operation

Since the introduction of two-sided CU, the frequency and scale of market operation by the HKMA have been markedly reduced (Figure 4). In fact, between 2005 and the onset of the global financial crisis, the HKMA only conducted one intra-zone intervention to reduce the short-term interest rate spreads with the US. After an extended period of interest rate discount without the market triggering the CU, the HKMA decided to step in to buy a net HK$2.6 billion of HKD in May 2005. The operation resulted in an immediate contraction in total bank reserves (known as the Aggregate Balance in Hong Kong) and a prompt rise in local interest rates that narrowed the spread with the US (Figure 5).

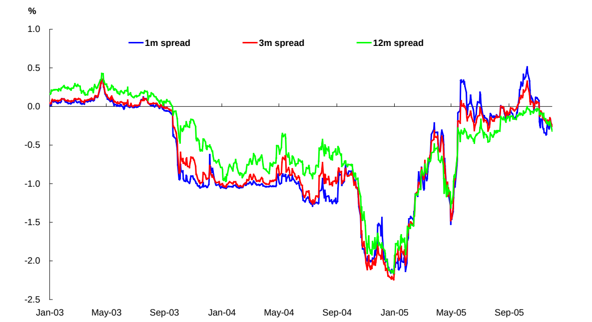
Thereafter, there were no active or passive market interventions until the emergence of the US subprime crisis. In late 2007, the HKD exchange rate appreciated rapidly, moving towards the strong-side CU. A number of factors may have contributed to the phenomenon: (1) jitters about the fallout of the US subprime housing market increasing risk aversion, prompting traders to buy back HKD to unwind carry trade; (2) increased equity-related demand for HKD in anticipation of large-scale Chinese bank IPOs; and (3) potential strong capital inflows from the Mainland due to rumours that Mainland investors were about to be given access to the Hong Kong stock market. In response, the HKMA first conducted a market operation to inject liquidity in order to ease the anticipated IPO-related liquidity tightening. The operation was later scaled up, after the strong-side CU was triggered by banks, prompting the HKMA to inject about HK$7.8 billion into the system. The impacts of these operations were that interest rate spreads quickly narrowed, and that the spot exchange rate moved towards the central parity.

HKMA market operations — Figure 4



Source: HKMA

HK-US interest rate spread — Figure 5



Source: Bloomberg

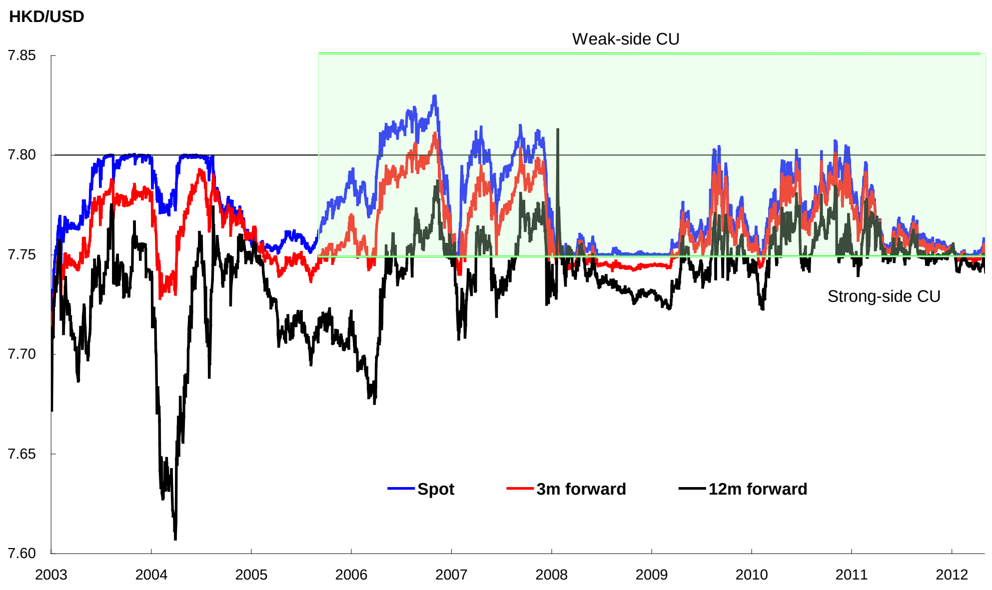
As the crisis deepened, fuelled by the collapse of US investment bank Lehman Brothers in Q3 2008, risk aversion reaccelerated, triggering another round of unwinding of carry trade. In addition, market intelligence suggested that domestic corporates and investors rushed to liquidate their offshore investments, and repatriated funds to Hong Kong in a drive to reduce their business and investment leverage (Chan, 2010). These inflows put tremendous upward pressure on the HKD, quickly pushing it towards the strong-side CU. In November 2008 alone, the strong-side CU was triggered 27 times, inducing the HKMA to sell over $104 billion HKD into the system. The Aggregate Balance expanded sharply as a result, easily surpassing the previous high of early 2004, as the market speculated that the HKD would strengthen in line with the RMB.

Even after the peak of the crisis passed, capital inflows into Hong Kong continued throughout 2009. Corporate repatriation of offshore investment was again a driving force, but more important was the fact that investors' efforts to reposition for a rebound in the oversold equity market led to significant inflows. Later in the year, speculation regarding HKD revaluation re-emerged, driven by optimism about a fast recovery of the local economy. The Aggregate Balance quickly exceeded its previous high, as the CU was triggered repeatedly. Despite these inflows, the auto-pilot intervention mechanism was effective in anchoring the exchange rate and maintaining a stable interest rate differential with the US. Forward markets also remained calm, with near-term forwards trading closely with the spot, largely within the Convertibility Zone (Figure 6). Longer-term forwards were more volatile, but the extent of swings outside the strong-side CU was considerably more limited than before the Refinements.

As conditions gradually normalised going into 2010, pressure on the exchange rate started to ease, leading the spot rate to drift back towards the centre of the Convertibility Zone. Expectations of currency appreciation in the forward and options market also moderated gradually. The HKMA did not conduct any intervention until late 2012, when inflows into the HKD resumed, prompting the currency to retest the strong-side CU. In the last quarter of 2012, the HKMA sold around $100 billion HKD to meet increased demand in the foreign exchange market. The scale of the inflow was smaller than that experienced in 2008-2009 and the nature of it was consistent with the normal asset allocation decisions of foreign investors in an environment of strong risk appetite and loose monetary policy (Chan, 2012). Factors driving these inflows included: (1) increased allocation to the HKD assets by foreign investors due to improved market sentiment and abundant liquidity provided by developed-country central banks; (2) optimism about the Chinese economy, given that the end of an economic slowdown was in view; and (3) a pickup in foreign-currency corporate bond issuance by Hong Kong firms, resulting in subsequent repatriation into the HKD.

Spot and forward prices of HKD

Figure 6



Source: Bloomberg; HKMA estimation

IV. Credibility of the currency board and evidence from the market

Over the past 29 years, the LERS in Hong Kong has stood the test of two major financial crises, speculative attacks, sudden and abrupt capital flows, and occasional scepticism over its sustainability and its suitability for the Hong Kong economy. The system has proven resilient, and adaptive to the changing macro environment, and it continues to function smoothly today. This resilience cannot be separated from the high degree of credibility the system has accrued over time, and the confidence of the market in the HKMA's commitment to the currency peg (Genberg and Hui, 2011).

Many factors have contributed to the credibility of the LERS. Some of them come with the design of the system (e.g., 100% reserve backing and non-sterilised intervention); others are due to the HKMA's on-going efforts to ensure that its operation is transparent, and to make the system flexible to the changing environment.

- ***100% reserve backing:*** As mentioned above, under the LERS the MB is more than fully backed by foreign reserves at the HKMA. Any changes in the MB are matched by changes in the reserve balance and the US dollar assets. This full reserve-backing of the MB ensures that when the HKD touches on the weak side of the CU, the HKMA has more than enough foreign reserves to defend the peg by buying the HKD in the open market. It gives the HKMA the confidence and ability to fight against currency speculation and manage large cross-border capital flows.
- ***Non-sterilisation intervention:*** In contrast to currency interventions of other central banks, market operations undertaken by the HKMA do not involve sterilisation in the inter-bank interest rate market. This reflects the single objective of the LERS, which is to ensure the stability of the exchange rate within the Convertibility Zone. When the HKMA intervenes, the MB is allowed to expand or contract freely, allowing the resultant interest rate movement to automatically counter the original capital flows. The HKMA is strictly committed to this adjustment mechanism, even at times when interest rate levels are temporarily incompatible with prevailing economic and asset market conditions. These occasionally undesirable consequences of the interventions are managed by macro-prudential tools such as loan-to-value ratios for mortgages, and measures such as stamp duties on property transactions.
- ***High transparency:*** Monetary operations under the LERS are carried out with a high degree of transparency. The HKMA makes constant efforts to educate the public about the system, and provides market participants with relevant information about the rules governing its operation. Market operations conducted by the HKMA are announced immediately, with relevant data published daily. Prior to major reforms in the system, senior HKMA officials take action to inform market participants about the changes, and research papers are published to provide background information and explain the rationales behind the changes. The HKMA also releases the minutes of the meetings of the Currency Board Governing Committee, and Currency Board accounts data and other relevant statistics are published every month. This high degree of transparency gives the market confidence in the HKMA's operation and enhances the credibility of the system.

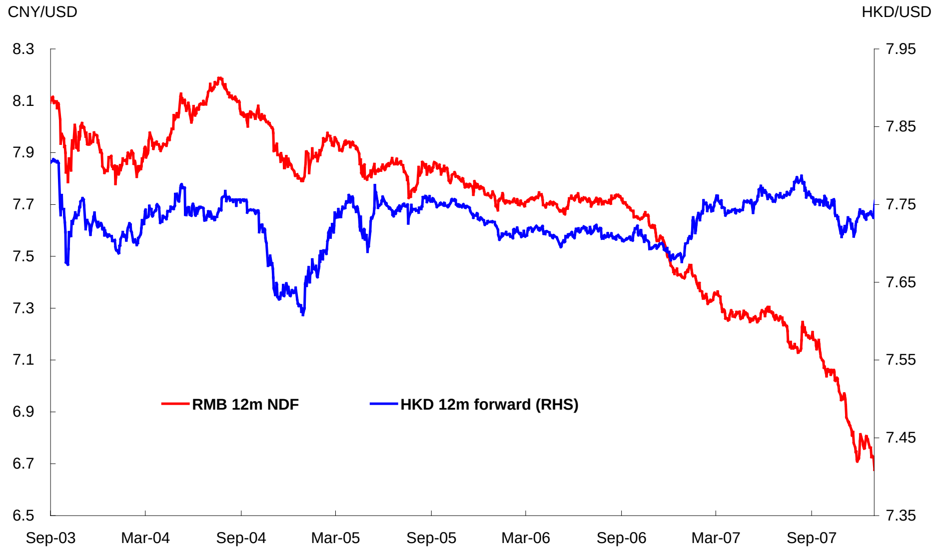
"Market evidence"

In addition to the theoretical arguments presented above, there is also plenty of market evidence to suggest the LERS' high degree of credibility among investors. The currency movement after the introduction of the "Three Refinements" is an example. One of the key reasons for establishing the strong-side CU was that the "implicit ambiguity" (i.e. that the HKMA could conduct "surprise" intervention, creating a degree of uncertainty to discourage speculators) had become less effective in curbing market speculation on a revaluation of the HKD (Yam, 2005a). This speculation had caused the HKMA to intervene repeatedly in the currency market between 2003 and 2004. The establishment of the strong-side CU effectively removed the ambiguity by creating an explicit ceiling for the spot rate. After the reform, the exchange rate stayed close to the upper bound of the zone, but had not triggered the CU. In addition, the interest rate spread quickly narrowed and the

Aggregate Balance remained stable throughout the period—this despite the fact that expectations of a RMB revaluation continued to escalate, and that other Asian economies experienced strong capital inflows. The fact that the HKD had decoupled from the RMB (Figure 7), and that the strong-side CU was not triggered, suggests that the market firmly believed the HKMA's commitment to defend the currency peg (Genberg et al., 2007).

Forward prices of HKD and RMB

Figure 7



Source: Bloomberg

Similarly, during the recent global financial crisis, the HKD exchange rate had stayed largely within the Convertibility Zone, and interest rate spreads were stable throughout the period. Interestingly, the HKD did not suffer from the risk-aversion-induced capital outflows that had hit other Asian economies. Instead, it experienced significant capital inflows, partly because of the HKD's peg to the USD, making it a safe-haven choice in times of market turbulence. The fact that the HKD continued to be seen as a surrogate of the US dollar suggests that market participants believed that the currency peg was highly credible even under market stress.

V. Conclusion

Hong Kong's LERS has undergone three major reforms over the past three decades, evolving into a rule-based currency system with a high degree of transparency and credibility. Market operations of the HKMA are triggered by market participants, and are conducted in strict conformity with the Currency Board principles. The MB is more than fully backed by the reserve assets held at the Exchange Fund, and any changes to the MB caused by official interventions are automatically matched by changes in the reserve assets. The HKMA strives to keep the system highly transparent and adaptive to the changing economic environment, but ensures that any reforms are strictly consistent with the Currency Board governing principles. These characteristics have made Hong Kong's LERS highly credible and effective, enabling it to stand the test of two major financial crises, numerous speculative attacks and occasional scepticism over its suitability to Hong Kong's economy.

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