The recent appreciation of the Hong Kong dollar

Research Department
Hong Kong Monetary Authority[1]

1. Introduction

In late September 2003 the Hong Kong dollar (HKD) appreciated unexpectedly from close to HKD 7.80 per US dollar (USD) to HKD 7.70/USD in overnight trading in New York. By way of comparison, since the Convertibility Undertaking (CU) - the rate at which the Hong Kong Monetary Authority (HKMA) sells US dollars - was set at HKD 7.80/USD in August 2000, the strongest level the exchange rate had ever reached was HKD 7.7920/USD, using end-of-day data. While the exchange rate has since fallen back to around 7.75-7.76, it remains about 0.5 percentage points stronger than in the past. This recent episode illustrates how the process of ever growing international financial integration has led to a situation where shifts in market sentiment can result in large changes in financial asset prices over a short period of time, which in turn raises important issues for the authorities. In the present case, the most important of these concerns the design of the authorities' commitment to exchange Hong Kong dollars and US dollars that underlies the currency board arrangement. Currently, the CU is one-sided in the sense that the HKMA stands ready to *sell* US dollars at 7.80, but it is not obligated to purchase them at a preannounced rate.

This paper reviews these recent exchange rate developments, in particular why they happened and the issues they raise regarding the currency board mechanism, and examines how the information contained in foreign currency option prices can be used to assess market sentiment regarding the Hong Kong dollar.

2. Recent developments

On 22 September 2003 the Hong Kong dollar appreciated abruptly to 7.70 against the US dollar in overnight trading in New York, before falling back to around 7.75. The one-year forward rate also appreciated, reaching a low of 7.67 against the US dollar in early October (Graph 1). For the most part of the fourth quarter of 2003, the spot rate remained at the strong side of the CU, trading within the range of HKD 7.75-7.76/USD in late November, while the one-year forward exchange rate was somewhat stronger. Although the appreciation was relatively small, this unusual episode of currency strengthening renewed market concerns about the authorities' commitment to, and the effectiveness of, the currency board arrangements.

The strengthening of the Hong Kong dollar appears to have been mainly due to a rebound in market sentiment, in turn driven by a sharp improvement in economic prospects. Several factors appear to have played a role here:

- First, the ending of the SARS outbreak in June 2003, which led to a bounce-back in economic activity.
- Second, a marked improvement in the economic outlook owing to a number of positive economic policy developments related to mainland China. These include the signing of the mainland and Hong Kong SAR Closer Economic Partnership Agreement (CEPA) in June 2003 and the decision by the mainland authorities to relax restrictions on mainland residents' travel to Hong Kong, which led to a sharp increase in inbound tourism. Other developments

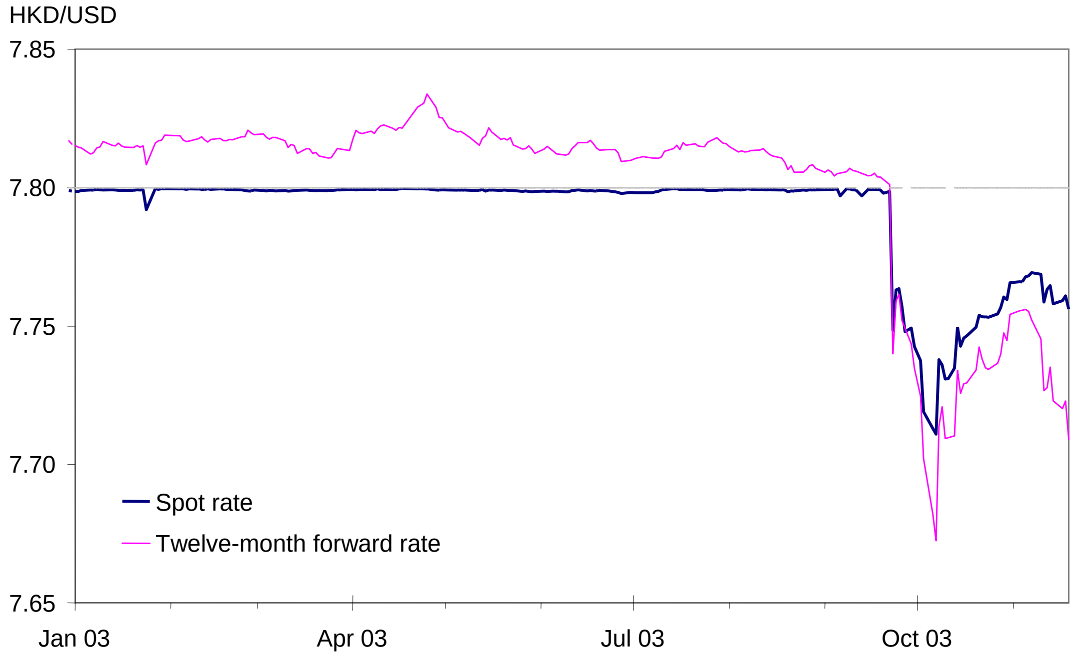
[1] Prepared by Michael Chui, Stefan Gerlach and Ip-wing Yu.

included measures allowing foreigners to immigrate to Hong Kong by investing in property and other permissible assets, and the upgrade of Hong Kong's credit rating by Moody's.

- Third, the very strong trade performance by mainland China in 2003 led to a rapid increase in Hong Kong's trade and in the demand for trade-related services.[2]
- Fourth, the global economic upswing, particularly in the United States and in the Asia-Pacific region, which, together with the low level of US (and therefore Hong Kong) interest rates and the depreciation of the US dollar, gave added stimulus to the Hong Kong economy.

Graph 1

HKD/USD spot and forward rates



Source: HKMA.

Against this background of strengthening economic fundamentals, the appreciation of the Hong Kong dollar was triggered by rising international pressure for a revaluation of the renminbi (CNY). In late 2003, officials from the G3 economies repeatedly called for the Chinese authorities to adopt a more flexible exchange rate regime to facilitate the adjustment of global imbalances. As a result, the discount of the renminbi in the non-deliverable forward (NDF) market widened markedly (Graph 2).

Given Hong Kong's growing economic integration with the mainland, some market participants apparently took the view that any appreciation of the renminbi against the US dollar could also lead to an appreciation of the Hong Kong dollar.

While these considerations may explain why the Hong Kong dollar strengthened, they do not explain the size of the initial jump. Market anecdotes attach importance to the unwinding of short positions. Over the previous two years, the Hong Kong banking sector's aggregate net US dollar open position in spot and forward markets had increased by more than 50%, to about HKD 91 billion (USD 11.7 billion) at end-August 2003 (Graph 3). As perceptions of economic prospects improved significantly, market participants hastened to unwind the large short positions accumulated previously, exacerbating the movement of the Hong Kong dollar. In sum, market sentiment and dynamics played major roles in triggering and reinforcing the recent movements in the currency.

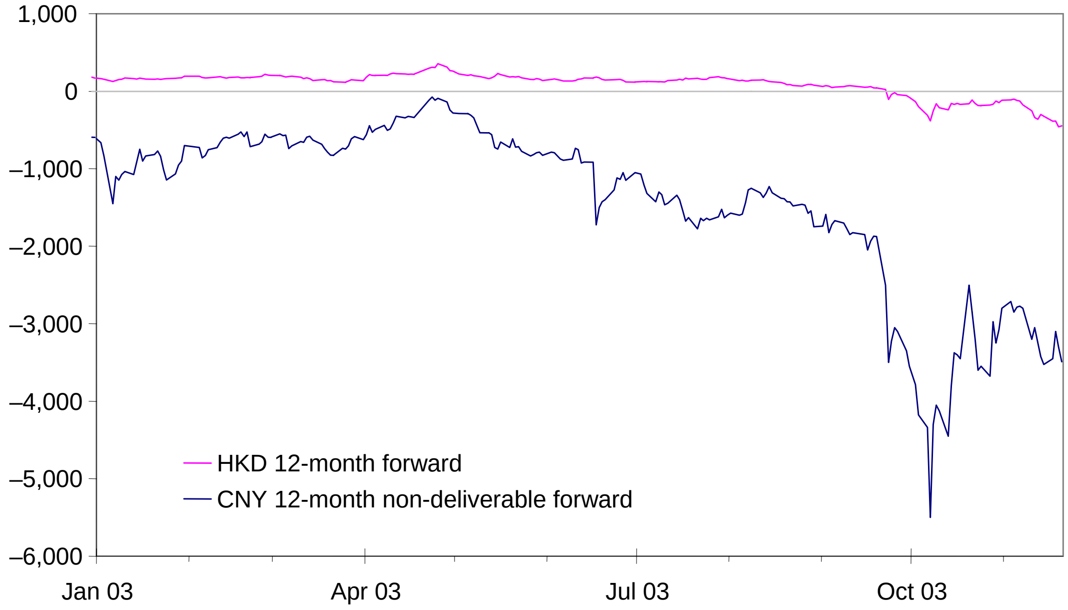
---

2 Mainland China was Hong Kong's largest trading partner in 2002, accounting for more than 40% of total trade.

Graph 2

HKD/USD and CNY/USD forward points

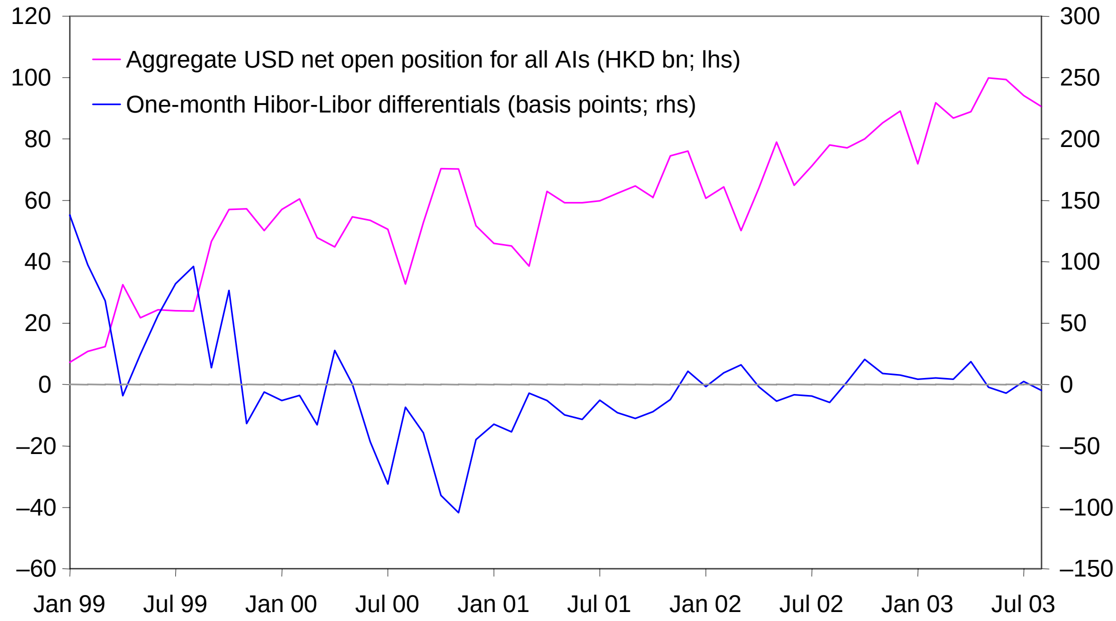
In pips



Source: HKMA.

Graph 3

Aggregate USD net open position of authorised institutions (AIs)



Source: HKMA.

3. Policy issues

Policy issues relating to this episode arise from the absence of a formal CU on the strong side of the currency board. Under the present arrangement, the HKMA sells US dollars to licensed banks when the interbank rate reaches HKD 7.80 per US dollar. By contrast, in the event that the Hong Kong dollar is under pressure to appreciate, the HKMA has no obligation to buy US dollars from the banking system at any given rate. Of course, it does so when this is considered appropriate given market conditions. For example, from 23 September to 19 November 2003 the HKMA bought some HKD 11 billion of US dollars on 11 days to dampen market volatility.

The Currency Board Subcommittee of the Exchange Fund Advisory Committee, the de facto board of the HKMA, reviewed the potential need for a CU on the strong side in 1999 and 2000. However, the arrangements had been functioning well and the Committee therefore felt that there was no need to introduce a two-sided arrangement. That said, the absence of a CU on the strong side raises the possibility that the exchange rate might appreciate sharply away from the 7.80 level as it in fact did on 22 September 2003. If this was to happen repeatedly, it could serve to undermine confidence in the currency board arrangement. The recent episode therefore brought up the issue of what would constitute the appropriate response(s).

Two options appear possible. First, the HKMA could carry out strong-side purchases of Hong Kong dollars with the goal of either preventing the exchange rate from becoming too strong, or moving it closer to 7.80. Second, a formal two-sided CU could be introduced. While a symmetric arrangement is more transparent and predictable, one aspect of the one-way CU is that it can potentially signal to those shorting the Hong Kong dollar that this is not so much of a one-sided bet. Moreover, allowing for some movement in the spot exchange rate may also be helpful for promoting the Hong Kong dollar/US dollar market.

4. Gauging market expectations using option prices

Under a currency board regime it is essential to assess market sentiment regarding the exchange rate. This has, if anything, become even more crucial as a consequence of the appreciation of the Hong Kong dollar and the fact that because of market action the exchange rate is no longer closely tied to the HKD 7.80/USD benchmark. The HKMA employs various means to gauge market expectations. Apart from monitoring the developments in the more liquid Hong Kong dollar forward and interest rate swap markets, Hong Kong dollar option prices are also used to help measure market sentiment.

A relatively straightforward way to extract information on market expectations is to examine the pricing of two option strategies: the **risk reversal** and the **strangle**. In the US dollar/Hong Kong dollar option market, a risk reversal strategy involves *buying* an “out of the money” call option and *selling* an “out of the money” put option on the US dollar. The price of the strategy, measured as the difference between the volatility of these two options, can be a useful indicator of market expectations. For example, if the market has a “balanced” view on the future of the US dollar/Hong Kong dollar exchange rate, the value of a risk reversal will be zero as the prices of both the call and put options should be the same. On the other hand, if the market holds the view that the US dollar is likely to strengthen, the call option will be more valuable than the put counterpart, resulting in a positive risk reversal value. Similarly, the price of a risk reversal will be negative if market participants are expecting a stronger Hong Kong dollar in the future. Graph 4a shows that market sentiment shifted abruptly towards a stronger Hong Kong dollar on 23 September 2003, as reflected in the negative prices of both three-month and 12-month risk reversals. The prices subsequently fell further, but recovered somewhat in mid-November.

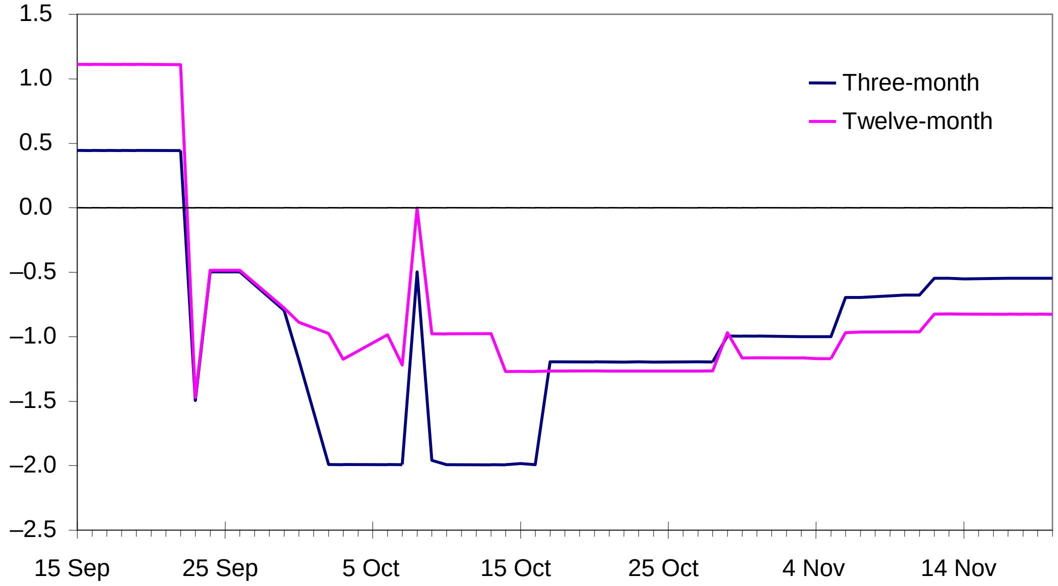
A strangle is an option strategy which involves the purchase of an “out of the money” put option and an “out of the money” call option. The return of a strangle is determined by the likelihood of an unusually large shift in the exchange rate in either direction. Therefore, an investor will use this option strategy if (s)he expects a large shift in the US dollar/Hong Kong dollar exchange rate in either direction. Graph 4b shows that prices for the three-month and 12-month strangle rose abruptly on 23 September 2003, signalling that the markets had priced in an increasing chance of an extreme movement in the Hong Kong dollar exchange rate. But since mid-November, the expectations of sharp exchange rate fluctuations have subsided somewhat, as indicated by the retreat of the strangle prices to their pre-22 September levels.

Graph 4:

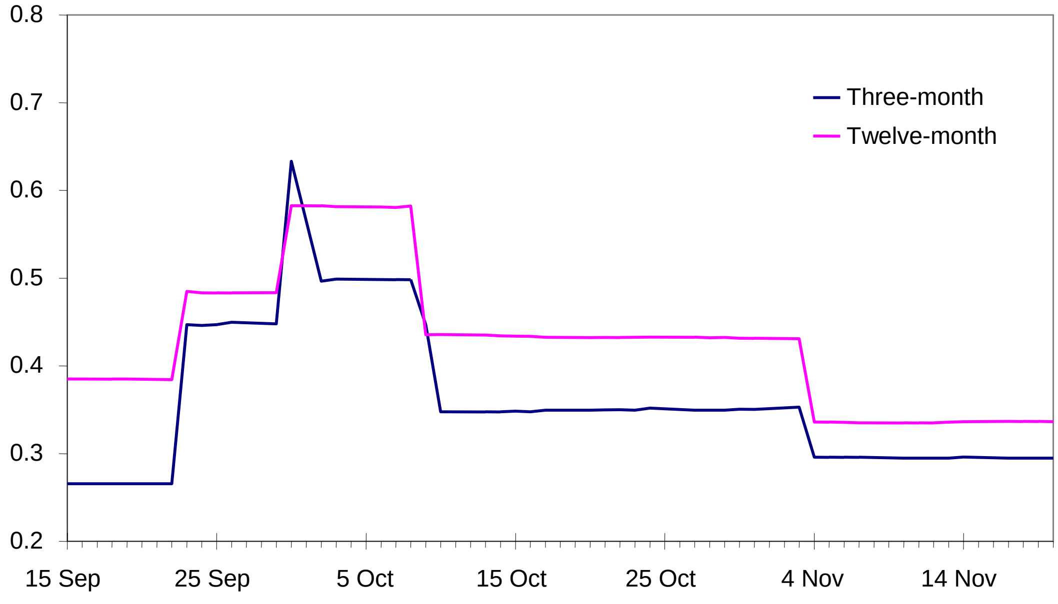
Price of HKD/USD risk reversal and strangle (2003)

In per cent

(a) Risk reversal (25-delta)



(b) Strangle (25-delta)



Source: JPMorgan Chase.

5. Conclusions

In late September 2003, the Hong Kong dollar rose abruptly against the US dollar, reflecting a sharp improvement in the outlook for the Hong Kong economy and the resulting change in market sentiment. While the appreciation remained very modest, it raised important issues regarding the operation of the currency board mechanism. This event also underscored the importance of gauging market expectations in maintaining monetary and exchange rate stability. In this paper, using US dollar/Hong Kong dollar currency option prices, we show that market participants initially became increasingly concerned about the risk of a further depreciation of the US dollar vis-à-vis the Hong Kong dollar, but this perceived risk subsided somewhat after mid-November. At the same time, the likelihood of unusually large changes in the US dollar/Hong Kong dollar exchange rate in the near future also appears to have decreased. Although the US dollar/Hong Kong dollar option market is less deep and liquid than the currency forward market, option prices offer an additional perspective in monitoring market sentiment towards the Hong Kong dollar exchange rate.