

Liquidity management, two-way CU and deposit reserves with averaging provisions: A technical note

[Tsang Shu-ki](#)

Department of Economics

Hong Kong Baptist University

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Few now seem to care much about the technicalities of Hong Kong's reformed currency board regime (CBR). I wonder how many economists and commentators regularly read the records of meetings of the EFAC Sub-Committee on Currency Board Operations, of which I am a member. Well, with so many pressing problems unfolding in the region and the world, this shift of attention is at least understandable.

I must say that I also feel a bit rusty about a technical analysis of the detailed operational mechanisms of currency boards, having been pre-occupied with the issues of competition policies and monetary integration for a good part of the past year.

A recent trip to Bulgaria and Estonia to update myself about their currency board systems has somehow revived my interest about technical matters, which the reader may not share. Nevertheless, the fun of having a personal web page is that one does not have to worry about readership (particularly now that I've eliminated the counter of visitors on it) or political correctness (but intellectual correctness is a prime concern for me). Need I stress that what follows is only my personal view? And that it is fallible?

Hong Kong's present CBR

First let us look at the present salient features of Hong Kong's currency board system with regard to the interactions among the exchange rate, the aggregate balance, interbank liquidity, and the interest rates.

The one-way convertibility undertaking (CU) on the weak side since September 1998, i.e. at 7.80 the HKMA would buy HK dollars and sell US dollars to banks, is the status quo. Any bank quotes weaker than 7.80 would immediately be liable to currency arbitrage and hence suffer losses in the RTGS system. There is no CU on the

strong side.

What about a CU on the strong side, with a spread of say twenty or thirty basis points? I was a subscriber to that view. It has the beauty of being symmetric, transparent, and totally rule-based. However, given the special characteristics of the setup in Hong Kong's reformed CBR, I have come to the stance that a number of problems need to be solved before a two-way CU can prove to be a superior arrangement to the status quo. Mind you, I think those problems should be resolved sooner or later.

The main concern about a two-way CU under the existing institutional framework is that there may be too many foreign exchange transactions between banks and the HKMA. These transactions would immediately impact on the Aggregate Balance (AB), hence on interbank liquidity and interest rates. The narrower the band of the two-way CU, the stronger the effect would be. A two-way CU at 7.80 with no spread would mean that banks would find it so convenient to do foreign exchange deals with the HKMA for much of their liquidity management. The consequence could be instability in liquidity and interest rates.

That is why I think that it may be beneficial to have a rigorous investigation into the issue of liquidity management by banks and its relationship with foreign exchange transactions with the HKMA, especially in the light of the experience of Bulgaria and Estonia (with their deposit reserve requirements plus averaging provisions that reduce the need of doing foreign exchange transactions with the central bank and diffuse the impact on interbank liquidity).

In other words, if banks' liquidity management could be "decoupled" to a marked extent from their foreign exchange transactions with the HKMA, it may generate a stabilising force on the system. How the existing institutional setup (near zero AB plus a relatively "expensive" Discount Window) should be modified or improved, if at all, is the key issue.

The problems in more details

Under the present setup, banks have direct access to the HKMA through the RTGS system, whose balances are essentially used for settlement purposes. The AB is the net sum of all those bank balances (before Discount Window activities). With prudent liquidity management, and the help of intraday repos (backed by Exchange Fund paper) to solve temporary "illiquidity", there is no need to keep much money, if at all,

in a bank's balance there. So from the liquidity viewpoint, the AB should be "near zero". Recently it has been in the order of less than HK\$1 billion, which is peanut considering the volume of interbank traffic of funds.

In any case, there is the portfolio dimension. There may be strong capital inflows and outflows, which may be commercial or speculative in nature. Here the reality of Hong Kong's financial system needs to be borne in mind; because it could lead to "perverse" results that are against the conventional wisdom in textbooks.

Strong side speculation

In case of a speculative inflow betting on a revaluation, market exchange rate will strengthen as banks bid for Hong Kong dollars among each other. Some would find it necessary to sell US dollars they have been offered to the HKMA, at the strengthened exchange rate for HK dollars, to get liquidity instead of borrowing expensively in the O/N interbank market or the discount window. So the AB will turn positive.

In theory, the system should be more or less self-adjusting. A positive AB will relieve the tightening in interbank liquidity, leading to a fall in interest rates and the market exchange rate. In reality, if the institutions initiating the "speculative revaluation attack" at the same time hold substantial market power in the interbank deposit market, it might result in a delay or even blockade of the self-adjustment mechanism. The HK dollar could strengthen sharply if the HKMA did not intervene.

But at which level should the HKMA intervene? Is it necessary to have explicit strong side CU; or should some discretion be reserved? One worry about an explicit CU of say 7.7950, i.e. a spread of 50 pips, is that it is susceptible to "market play". Suppose given that spread, and the initial market rate is exactly 7.80, the same as the weak side CU rate, then a powerful speculator could start aggressively bid up HK dollars in the market but refuse to sell the US dollars to the HKMA. Other banks holding US dollars may also be reluctant to do so. At the same time, the speculator may use its market power to keep HIBOR rising, leading to a self-reinforcing surge until the market exchange reaches 7.7950, the strong side CU rate. Then the speculator will unwind its position. Most probably he would have hedged forward at or near 7.7950.

You can imagine how the other side of the game can be played. A powerful bank can sell a lot of HK dollars in the interbank market, and buy back some from the HKMA. The latter action increases the AB and loosens liquidity, helping to depress the market

exchange rate and providing an opportunity for the bank to take profit. In the extreme case, it could enjoy life by pushing the exchange rate up and down in the corridor of 7.7950 to 7.8000.

From this perspective, a two-way CU with no spread would kill its fun.

In lieu of such a firm anchor, there seems to be a case for “constructive ambiguity”. Suppose the HKMA does not specify any strong side CU, i.e., keeping the status quo of the one-way CU. As the speculator tries to unwind at 7.7950, his own predicted limit, the HKMA could intervene and push the market exchange rate to say 7.7900, so as to inflict wounds on the speculator, reducing his future incentives to do so. In other words, an absence of an explicit strong side CU may be beneficial in constraining speculative behaviour.

However, a totally hands-off policy may backfire, as there could be a strange case of indeterminacy. Suppose each bank has a perfectly balanced portfolio, with assets fully matching liabilities. Then no banks would have any incentive to buy HK dollars from the HKMA, because the extra liquidity would imply a depreciation of the exchange rate, and thus a portfolio loss. Indeed, if the exchange rate strengthens because of exogenous factors, the potential loss of buying HK dollars would magnify because of “regressive expectations”: the market exchange rate cannot strengthen out of bounds under a currency board system. So the system might become inherently unstable. Of course, such a scenario is not too likely in reality.

Speculative outflows

Ironically, the same phenomenon of rising interest rates and strengthening exchange rate would also occur in the case of speculative outflows. If as a result of negative economic factors, funds flow out of Hong Kong. Interbank liquidity could easily dry up, and consequently affecting the AB. Both the interest rates and the exchange rate could surge because the shrinkage in the AB and interbank liquidity, as banks scramble to balance their receipts and transfers. One could regard this as a perverse phenomenon!

A benign explanation

Even if there are no players with market power that make use of the width of the band between the CU rates to gain profits, the close relationships between liquidity

management by the banks and transactions with the HKMA may also bring problems.

Suppose the spread is 10 pips. A liquidity or portfolio shock would result in a tightening in the interbank market, and O/N HIBOR surging. It would then become relatively expensive for a bank with insufficient balance in the RTGS system to borrow in the interbank market. Instead, it would pay for it to borrow US dollars at the lower LIBOR and sell the US dollars to the HKMA. Next day, it could reverse the transactions by buying the US dollars back from the HKMA and repay the loan at LIBOR. Given the sure spread of 10 pips that the market exchange rate of HK\$/US\$ can fluctuate, the bank would have an incentive to do so if O/N HIBOR is 4.62% or more above O/N LIBOR, which outweighs the possible maximum loss of 10 pips in foreign exchange.

Summary of the Hong Kong situation

Overall, under the present CB system in Hong Kong, the behaviour of the exchange rate, interbank liquidity and interest rates is quite complicated. There does not seem to be any smooth trade-off between exchange rate stability (fixity) and liquidity (thereby interest rates), nor between interest rates and liquidity.

In other words, stable correlations (positive or negative) between the three variables have yet to be established, in the form of, say, an upward-sloping or downward curve. Therefore there is no steadfast “rule” to smooth out any trade-off. We call this kind of difficulties the “assignment problem” in the economics profession. In the context of Hong Kong’s CBR, an explicit strong side CU is one tool, but it has to deal with two or three possibly conflicting objectives. So it really depends. Again, this goes back to our institutional setup that I mentioned earlier, which I think should be reviewed.

Bulgaria and Estonia

In a recent trip to visit the Bulgarian National Bank and the Bank of Estonia, I was very interested to know that the two central banks regularly conduct foreign exchange transactions with banks on T+0 basis to help them solve their liquidity management problems. Of course, both currency board regimes have a two-way CU without spread! So how could they avoid problems that Hong Kong may be facing if we go their way? Why are they not afraid of the sort of instability that I have explained above?

First it needs to be pointed out that they are at a much lower level of economic and

monetary development compared with Hong Kong. Bulgaria has 35 banks and Estonia only 7. Sofia and Tallinn are not international financial centers and speculators regard them as too small for any worthwhile profits. Moreover, there is a lack of collaterals that are backed by foreign exchange reserves (like Hong Kong's exchange fund bills and notes) that can be used for borrowing from the central bank. Both don't have a discount window. Nonetheless, they are in the process of establishing a RTGS system.

In any case, their settlement systems are rather different from ours, and that may be the key. First, a deposit reserves system with averaging provision is in place: each bank must keep a rolling monthly average balance with the central bank that equates to a certain percentage of their total deposits, but on any single day, the ratio can fall to a minimum (e.g. 4% in Estonia). But even that 4% can be breached, the consequence is simply interest penalty.

Under such a situation, the "aggregate balance" of the banking system with the central bank on any single day has much less significance than that in Hong Kong. The reason is simple: different banks are having different averaging liquidity plans, some may be trying to over-fulfill the requirement to make up for past deficits, others may be doing just the opposite. With the stipulated period rolling all the time, it is different for any interbank market player, even one with substantial power, to manipulate liquidity and interest rates.

It is under such a setup that the Bulgarian Central Bank (BNB) and the Bank of Estonia find it useful to engage in foreign exchange transactions with banks on T+0 basis. While it is a result of the lack of collaterals for borrowing, it is also due to the fact that such transactions will not generate the kind of problems that Hong Kong may face.

Having said all these, though, the shift from the end-of-the-day settlement arrangement to the RTGS system may make life a bit complicated for them. Intra-day repos, for example, require suitable collaterals that are backed by foreign exchange reserves in order to be consistent with currency board principles. In this regard, both the BNB and the Bank of Estonia have been encouraging their commercial banks to build up foreign currency bonds and assets.

A final remark

Is there any lesson that Hong Kong can learn? Well, it depends on how we assess the efficiency and stability of our present settlement and liquidity management systems, and the extent to which they could be manipulated by speculators with market power. A more diffused system is less susceptible to manipulation. Undoubtedly, the shift to a new system will bring additional costs, before benefits may, if at all, become apparent. A deposit reserves requirement is commonly regarded as a financial tax. My standard response is that we can turn a small part of the present liquidity requirement into balances with the HKMA and pay interests on them. It would then just be an accounting swap between EFBNs and reserve balances. No big deal, right?