FEATURE ARTICLE

Factors Influencing the Share of Hong Kong Dollar Deposits in Total Deposits

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A decline in the ratio between Hong Kong dollar deposits and total deposits since 1997 does not reflect reduced confidence by investors in Hong Kong's currency. Nor is it driven by expectations of a change in the linked exchange rate. This article shows that the movements in the ratio of Hong Kong dollar deposits to total deposits are mainly explained by structural and cyclical developments in the economy. Weak domestic demand and the increased importance of external trade as a source of growth have contributed to the decline in recent years. Although the ratio is now lower than at its peak in 1997, its level is similar to that of other major international financial centres.

I. INTRODUCTION

The ratio of Hong Kong dollar deposits to total deposits (hereafter the Hong Kong dollar deposit ratio) declined following the Asian financial crisis, after increasing steadily from 1990 to 1997. This article examines factors that help to explain changes in the ratio over time and considers, in particular, if the decline since 1997 reflects reduced confidence in the currency.

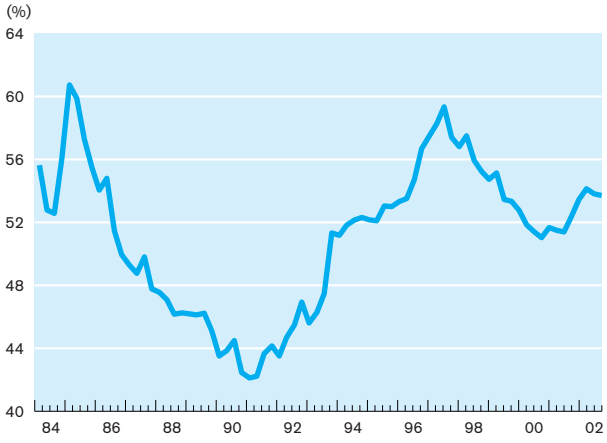
The article is organised as follows. Section II discusses changes in the Hong Kong dollar deposit ratio over the past two decades and looks at international evidence to see how these changes might be explained. Section III presents some empirical findings on the relationship between the Hong Kong dollar deposit ratio and Hong Kong dollar-US dollar interest rate differentials. Section IV looks in more detail at macroeconomic and financial factors determining the deposit ratio. The conclusions are in Section V.

II. RECENT DEVELOPMENTS AND INTERNATIONAL COMPARISONS

Movements in the ratio of Hong Kong dollar deposits to total deposits have shown three distinct phases in the past two decades (Chart 1). Between 1985 and 1991, the ratio declined steadily, from a high of 61% to just above 40%, reflecting strong growth in (mainly non-US dollar) foreign currency deposits. This can be explained by a combination of factors. First, the expansion of Japanese banks in Hong Kong led to an increase in foreign currency deposits. Some of these deposits were placed by Japanese banks' non-bank affiliates. Secondly, Hong Kong dollar interest rates during the period were consistently lower than US dollar and other foreign currency deposit rates, leading to a switch from Hong Kong dollar deposits to foreign currency deposits. This was probably

CHART 1

The Ratio of Hong Kong Dollar Deposits to Total Deposits



Source: HKMA.

helped further by the weakness of the US dollar, to which the Hong Kong dollar is linked, and expectations of further depreciation against non-US dollar currencies.

The Hong Kong dollar deposit ratio rose from a low of 42% in mid-1991 and peaked at 59% in the third quarter of 1997. Robust economic activity and buoyant asset markets supported rapid credit expansion, with Hong Kong dollar deposits growing faster than foreign currency deposits. This increase came to an abrupt halt following the Asian financial crisis in 1997. Since then, the ratio has declined to around 55% in March 2003. This has raised an important issue of whether the decline is related to reduced confidence in the currency.

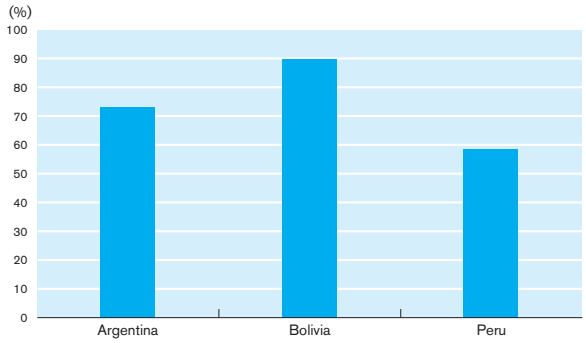
International evidence suggests that the ratio of foreign (domestic) currency deposits to total deposits tends to be high (low) in two situations. First, where dollarisation of the domestic currency has occurred. This is common in developing countries that have experienced hyperinflation and persistent currency depreciation thereby eroding confidence in the domestic currency (Chart 2A).[1] For example, in Argentina the share of foreign currency deposits in total deposits of the private sector increased sharply, from around 55% in mid-1997 to a high of over 70% at the end of 2001, before the peso-dollar peg collapsed in early 2002. A number of studies on currency substitution support the view that the ratio of foreign currency balances to total money balances in many emerging economies is heavily influenced by devaluation expectations and other factors related to foreign exchange risk (see Giovannini and Turtelboom (1992), Ize and Levy-Yeyati (1995)).

Secondly, where the economy is a major international financial centre, e.g. in the case of the UK, Switzerland, Singapore and Hong Kong (Chart 2B). A high ratio of foreign currency deposits to total deposits in these economies, in part, reflects large holdings of foreign currency deposits by non-residents. In the UK, for example, foreign currency deposits at the end of March 2003 accounted for over half the total deposits in the banking system. But the share drops to just 10% if non-resident

CHART 2

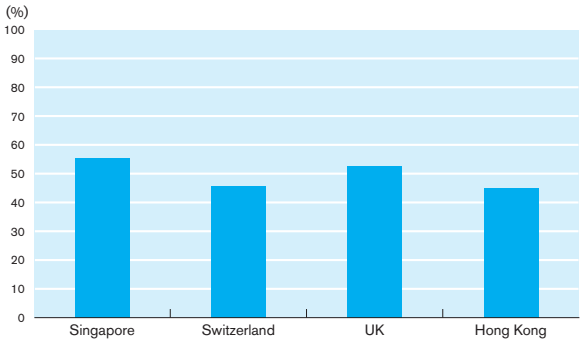
The Ratio of Foreign Currency Deposits to Total Deposits

*A: Latin American Countries**



** End-2001 figure for Argentina, 2000 for Bolivia and 1999 for Peru.*

*B: Financial Centres**



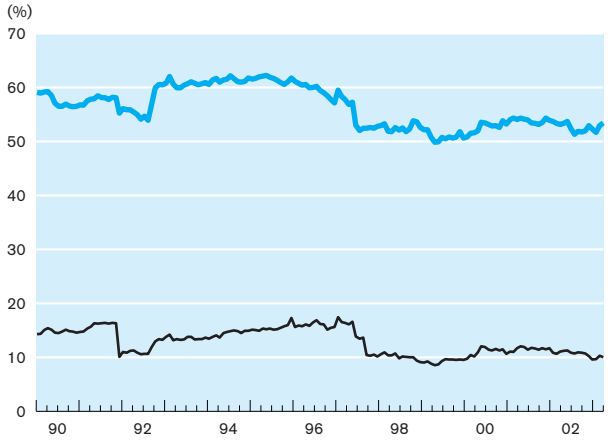
** End-2002 figures.*

Note: Foreign currency deposits in Singapore include deposits denominated in Asia Currency Units.

[1] In Latin America, the dollarisation ratio (defined as the ratio of foreign currency deposits to some measures of broad money supply) reached 80-90% in Bolivia, Peru, and Uruguay in 1990-95 (see Ize and Yeyati (1995)). Dollarisation was also pervasive in Eastern Europe, such as Poland and the former Yugoslavia.

CHART 3

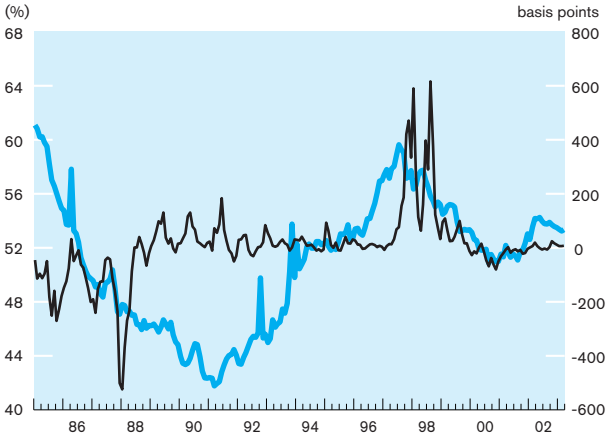
UK: The Ratio of Foreign Currency Deposits to Total Deposits



Source: Bank of England.

CHART 4

The Deposit Ratio and Interest Rate Differentials



Source: HKMA.

deposit holdings are excluded (Chart 3). While a comparable classification between resident and non-resident deposits is not available in Hong Kong, it is quite likely that a substantial amount of foreign currency deposits are held by non-residents.

III. THE RELATIONSHIP BETWEEN THE HONG KONG DOLLAR DEPOSIT RATIO AND HONG KONG DOLLAR-US DOLLAR INTEREST RATE DIFFERENTIALS

The difference between Hong Kong dollar and US dollar short-term interest rates, as measured by HIBOR and LIBOR respectively, is a gauge of pressure on the Hong Kong dollar, which is linked to the US dollar through the currency board arrangements. To the extent that the decline in the share of Hong Kong dollar deposits since 1997 reflects concerns about devaluation risk, the Hong Kong dollar deposit ratio should show a negative relationship with HIBOR-LIBOR interest rate differentials. However, such a negative relationship is not discernible in the data (Chart 4).

This is supported by the results of more formal statistical tests on the relationship using monthly data over the period 1985.1 to 2003.3.

First, cross correlation tests reveal a changing relationship between the ratio and interest rate differentials (Table 1). The two variables are positively correlated over the whole of the sample period, 1985-2003. But this masks a negative correlation in both the pre-crisis, 1985-1997, and crisis period, in 1997-98, and a high positive correlation in the post-crisis period. Cross correlograms using up to 12 leads and lags of the variables show a similar pattern.

TABLE 1

Cross Correlation Tests between the Ratio and HIBOR-LIBOR Spreads

Sample periods		Correlation
Full sample period	1985.1 2003.3	0.13
Full sample period excluding crisis period	1985.1 1997.5 & 1999.1 2003.3	-0.16
Pre-crisis period	1985.1 1997.5	-0.24
Asian financial crisis period	1997.6 1998.12	-0.26
Post-crisis period	1999.1 2003.3	0.70

TABLE 2
Granger Causality Tests

Null hypothesis: 3-month HIBOR-LIBOR differential does not Granger Cause the Ratio					
Sample periods		**Observations**	**Lags***	**F-statistics**	**P-values**
Full sample period	1985.1 2003.3	253	6	0.6	0.76
Full sample period excluding crisis period	1985.1 1997.5 & 1999.1 2003.3	200	6	0.9	0.53
Pre-crisis period	1985.1 1997.5	149	6	0.7	0.66
Asian financial crisis period	1997.6 1998.12	19	6	0.1	0.98
Post-crisis period	1999.1 2003.3	51	6	1.4	0.24

* Up to 6 lags were tested but in no case the null hypothesis was rejected.

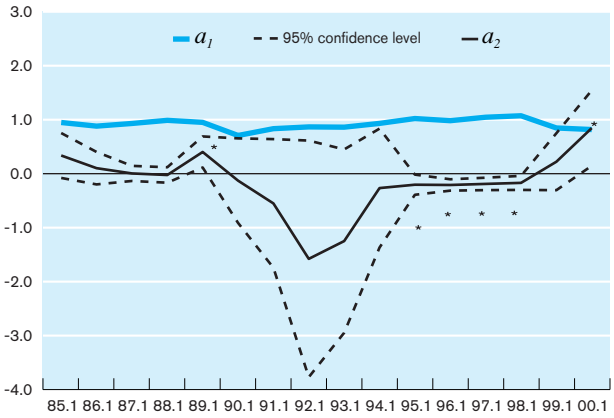
Secondly, Granger Causality results indicate that HIBOR-LIBOR differentials are not useful for predicting changes in the Hong Kong dollar deposit ratio over both the whole of the sample period and selected sub-samples (Table 2).[2] A similar exercise was conducted to test the opposite, i.e. whether the ratio does not Granger cause the interest rate spreads. The results are also negative.[3]

Thirdly, the Hong Kong dollar deposit ratio (r) is regressed on its own one-period lag and Hong Kong dollar-US dollar interest rate differentials (i-i^*) as shown in equation (1) using a two-year rolling window and monthly data over the period 1985.1 to 2002.12. The first estimation period is from 1985.1 to 1987.12, the second is from 1986.1 to 1988.12, and so on, and the procedure is repeated until the last estimation covering the period 2000.1-2002.12.

$$(1) \qquad r_t = a_0 + a_1 r_{t-1} + a_2 (i_t - i_t^*) + \varepsilon_t$$

The estimation results are shown in Chart 5. A significant (and negative) relationship between the Hong Kong dollar deposit ratio and Hong Kong dollar-US dollar interest rate differentials is found in only four of the estimation periods (between 1994 and 1998). The timing suggests that the decline in the Hong Kong dollar deposit ratio during the Asian financial crisis in 1997-98 could well be explained by an increased perception of currency risk as captured by wider Hong Kong dollar-US dollar interest rate differentials.

CHART 5
Coefficients of Rolling Window Estimations
$r_t = a_0 + a_1 r_{t-1} + a_2 (i_t - i_t^*) + \varepsilon_t$



Note: * indicates that the coefficient for the interest rate spread is significant at the 5% level.

Overall, the above empirical results do not support the existence of a stable and predictable relationship between the Hong Kong dollar deposit ratio and Hong Kong dollar-US dollar interest rate differentials. This is not too surprising for the following reasons. First, the interest rate spread captures risk premium effects, as well as expectations about changes in the value of the currency, which reflect uncertainties in predicting the exchange rate together with liquidity

[2] A variable, x, is said to Granger-cause y if lagged x's help to explain the current value of y in the presence of lagged y's.

[3] Correlation and Granger causality tests were also applied to test the relationship between the ratio (or quarter-on-quarter change in the ratio) and the quarter-on-quarter change in the interest rate spread. The results did not suggest a stable relationship.

and credit risks.[4] If Hong Kong dollar-US dollar interest rate differentials widen to more than compensate for an expected depreciation, the expected return on the Hong Kong dollar assets will increase and the demand for these will rise. However, it will be difficult to disentangle the effect on Hong Kong dollar deposits arising from expectations about the exchange rate versus those arising from changes in the risk premium. Secondly, the deposit ratio is affected by other factors, which are not necessarily related to the pressures on the domestic currency. These are considered in turn below.

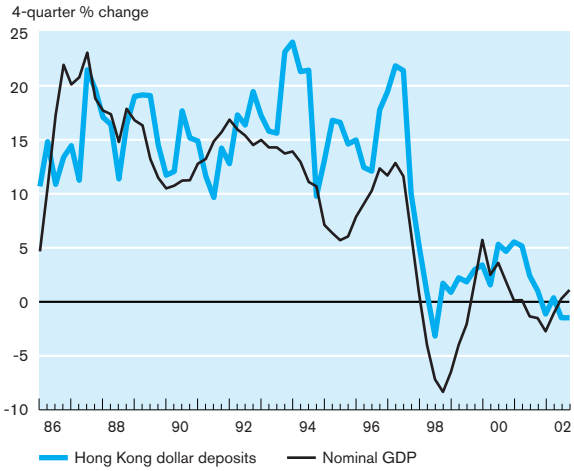
IV. FACTORS AFFECTING THE HONG KONG DOLLAR DEPOSIT RATIO

The share of Hong Kong dollar deposits in total deposits is influenced by a number of factors in addition to currency risk. First, changes in economic conditions can affect the demand for Hong Kong dollars. Chart 6 shows that the growth of Hong Kong dollar deposits has tracked closely that of nominal GDP and that, after the Asian financial crisis, the demand for Hong Kong dollar deposits has declined as economic growth has slowed.

Secondly, the composition of growth and, specifically, the importance of domestic demand relative to external demand can be expected to influence the demand for Hong Kong dollar versus foreign currency deposits. In the past few years, the importance of domestic demand as a source of economic growth has declined which is likely to have reduced the demand for Hong Kong dollar for transaction purposes.

CHART 6

Growth of Hong Kong Dollar Deposits and Nominal GDP



Sources: HKMA and Census and Statistics Department.

Thirdly, increasing financial integration between Hong Kong and the rest of the world has probably reduced the Hong Kong dollar deposit ratio. This probably reflects an increase in residents' demand for foreign currencies for international transaction purposes as well as an increase in non-residents' holdings of foreign currency deposits in Hong Kong.[5]

Fourthly, rapid economic development on the Mainland has probably contributed to an increase in capital inflows into Hong Kong, given the non-

[4] This reasoning is based on the Uncovered Interest Parity (UIP). A key assumption of the UIP is free capital mobility, which allows investors to exploit arbitrage opportunities. The UIP states that –

$$\frac{1 + i_t}{1 + i_t^*} = \frac{S^e_{t+1}}{S_t}$$

As an approximation,

(1) $i_t - i_t^* = \frac{S^e_{t+1} - S_t}{S_t}$ i.e. $i_t - i_t^* = \Delta s^e_{t+1}$

where i_t and i_t^* are domestic and foreign interest rates respectively, s_t the current exchange rate per unit of foreign currency, and s^e_{t+1} the expected exchange rate at the end of the tenor.

However, in the face of uncertainty in predicting currency movements, credit and liquidity risks, investors are likely to demand a premium to compensate for the risk. Equation (1) becomes:

(2) $i_t - i_t^* = \Delta s^e_{t+1} + risk\ premium$

[5] Luca (2002) shows that a high degree of financial dollarisation is a natural consequence of international economic and financial integration. He defined financial dollarisation as holdings of a significant share of bank deposits and loans denominated in foreign currencies by residents.

convertibility of the renminbi and underdeveloped financial instruments on the Mainland. A significant part of these will be denominated in foreign currencies, reflecting the role of Hong Kong in intermediating the foreign currency liquidity for Mainland companies. This is supported by an increase in net external claims by non-bank Mainland residents on banks in Hong Kong in recent years. [6]

To examine the importance of the above factors in more detail, we model the ratio of Hong Kong dollar deposits to total deposits (r) as a function of growth in Hong Kong relative to its main trading partners (y-y^*), trade dependence (td), and a proxy to capture Hong Kong's role as an international financial centre (f) (see below). The model is estimated in error correction form using quarterly data over the period 1985Q1 to 2002Q4. All variables are in logarithms. Chart 7 plots the Hong Kong dollar deposit ratio and its main determinants.

$$(2) \qquad r = \int (y\text{-}y^*,\ td,\ f)$$

The explanatory variables are constructed as follows:

- y-y^* is computed as the log ratio of real GDP in Hong Kong relative to its major trading partners, the Mainland and the US.[7] Higher economic growth in Hong Kong is expected to increase the demand for Hong Kong dollars relative to foreign currencies thereby raising the Hong Kong dollar deposit ratio.

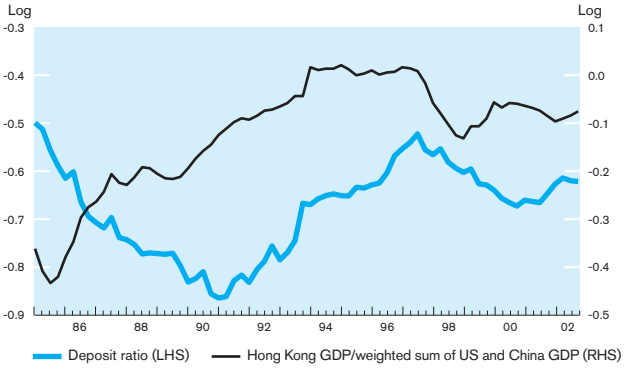
- td, a measure of trade dependence, is proxied by the ratio of domestic demand to aggregate demand for goods and services produced in Hong Kong.[8] A larger domestic sector is expected to lead to higher demand for Hong Kong dollar for transaction purposes and a higher Hong Kong dollar deposit ratio.

- f is a structural variable capturing Hong Kong's role as an international financial centre, and is proxied by the ratio of Hong Kong banks' total external claims vis-à-vis Asia to total claims of BIS reporting banks on Asia (including Japan). This variable is expected to have a negative relationship with the Hong Kong dollar deposit ratio for the reasons discussed earlier.

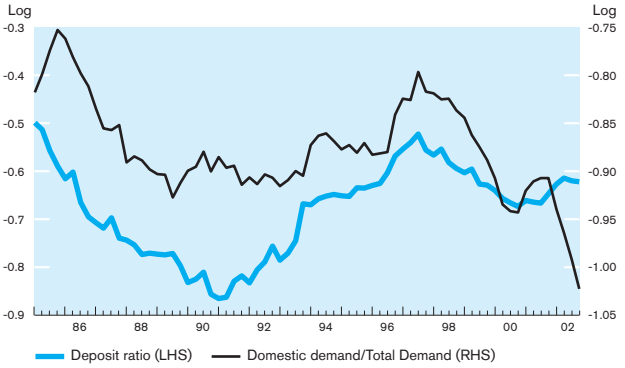
CHART 7

The Deposit Ratio and Possible Driving Forces

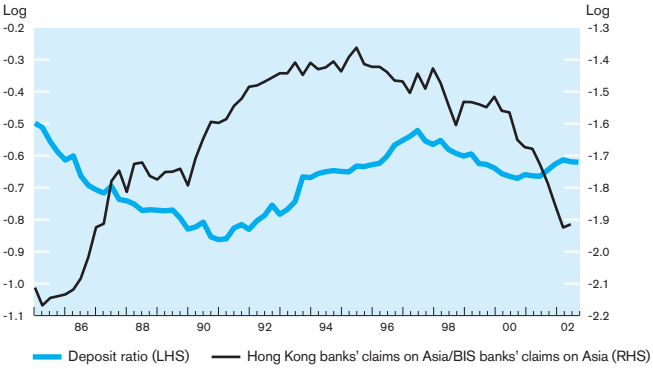
A: Relative GDP



B: Domestic demand-to-total demand ratio



C: Hong Kong banks' external claims on Asia to BIS reporting banks' total claims on Asia



Sources: HKMA and BIS.

[6] See "Hong Kong's External Claims and Liabilities vis-à-vis Mainland China", *HKMA Quarterly Bulletin*, February 2002.

[7] This is computed as a weighted sum of GDP of the Mainland and the US, with the weights being their respective share in Hong Kong's total trade.

[8] Aggregate demand includes exports of goods and services, in addition to domestic demand.

Johansen co-integration results indicate a long-run relationship between the Hong Kong dollar deposit ratio and the three explanatory variables described above (Table 3). The coefficients on the economic and structural variables are correctly signed and significant.

TABLE 3
Long-run Relationship
(1985:1 2002:4)

	CI Vector	t-ratios
r	1.00	
$y\text{-}y^*$	-1.70	-5.4
td	-1.44	-4.7
f	0.36	2.4

To examine the dynamic relationship, a general-to-specific approach is adopted to derive a parsimonious equation starting with four lags and then testing down by dropping insignificant lags one by one. We include the quarter-on-quarter change in the Hang Seng index relative to the Dow Jones — a proxy for net capital inflows — in the dynamics of the equation (Δs).[9] The final equation is given as follows:

(3) $$\Delta r_t = \underset{(4.1)}{0.018} + \underset{(2.1)}{0.054}\Delta s_t - \underset{(-5.2)}{0.109} ci_{t-1}$$

Adjusted R^2=0.31 DW=1.9 t-ratios in parentheses
where ci_{t-1}=co-integration vector and Δ= difference operator.

All variables have the expected signs and are significant. Diagnostic test results show that the residuals are well behaved. The findings suggest that the Hong Kong dollar deposit ratio is determined by relative growth between Hong Kong and its main trading partners, the weight of domestic demand in total demand, and Hong Kong's importance as an international financial centre in the long run.

V. CONCLUSION

In conclusion, we find that movements in the ratio of Hong Kong dollar deposits to total deposits in the banking sector do not necessarily signal changes in investors' confidence about the value of the Hong Kong dollar. These are mainly driven by structural and cyclical developments in the economy, which are not directly related to expectations about the future value of the Hong Kong dollar. Since the Asian financial crisis, weak domestic demand growth and a robust external trade performance appear to have contributed to a decline in the Hong Kong dollar deposit ratio. Although the ratio is now lower than at its peak in 1997, its level is similar to that observed in other major international financial centres.

[9] The coefficient for quarter-on-quarter change in the Hong Kong dollar-US dollar interest rate spread was insignificant even if it was included in the short-run equation.

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