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Analysing the growth of Taiwanese deposits in foreign currency

Demand for bank accounts denominated in foreign currency often arises from the experience of very high inflation. For example, in Argentina, Russia and Turkey, dollar and Deutsche mark notes and deposits represent a significant share of the money stock because of a history of very high inflation. Likewise, generally low inflation in East Asia in recent decades has gone hand in hand with a typically modest share of foreign currency deposits in the region, with the average share no higher than in industrial economies (Table 1). Leaving aside the financial centres of Hong Kong and Singapore, foreign currency deposits bulk largest in Indonesia and the Philippines, where inflation has tended to be exceptionally high by regional standards.

Even so, some recent developments in East Asia are at odds with this generally positive relationship between inflation and the scale of foreign currency deposits. One case is Taiwan, China (hereinafter referred to as Taiwan), where foreign currency deposits have shown very fast growth in recent years, notwithstanding low inflation.[1] This special feature analyses the growth of Taiwanese deposits in foreign currency and considers several explanations for their surge, such as country risk, credit risk, interest rate differentials and exchange rate expectations.

The growth of Taiwanese deposits in foreign currency

Taiwanese deposits in foreign currency have been rising since 1995 ...

The stock of foreign currency bank deposits has shown several phases of growth in recent years. After remaining fairly constant at about 1% of M2 or NT$ 150 billion (about US$ 5 billion) until mid-1995, it started to trend

[1] Another case is mainland China, where a practically fixed exchange rate sustained through the East Asian crisis led to deflation and low interest rates. See Robert N McCauley and Y K Mo, "Foreign currency deposits of firms and individuals with banks in China", *BIS Quarterly Review*, August 2000, pp 35-9. Within the limits set by capital controls, demand for higher-yielding foreign currency deposits has in fact grown substantially faster than that for local currency deposits. In 2000, foreign currency deposits reportedly rose by 24.3% to US$ 128.3 billion, almost double the rate of growth of M2. A subsequent liberalisation of purchases of B shares, formerly restricted in principle to foreign residents, may dampen the growth of foreign currency deposits in banks in China.

Foreign currency deposits and broad money in selected economies At end-December 2000, in billions of US dollars					
Residents of	Foreign currency deposits of domestic non-banks			Memorandum items	
	With domestic banks	With banks abroad	Total	Broad money[1]	Foreign currency deposits as a % of broad money
Euro area	112.1	400.9	513.0	4,725.6	10.9
Belgium	8.4	34.9	43.3	237.3	18.3
France	18.3	38.0	56.3	983.9	5.7
Germany	14.0	91.1	105.1	1,447.5	7.3
Italy	5.6	22.8	28.5	556.8	5.1
Netherlands	16.5	119.1	135.6	319.9	42.4
Australia	3.8	8.5[2]	12.3	744.0	1.7
Canada	28.1	15.1[2]	43.3	472.4	9.2
Japan	93.4[3]	14.6	107.9	5,581.5	1.9
New Zealand	1.4	2.8[2]	4.2	238.7	1.8
Sweden	6.1	5.5[2]	11.5	99.7	11.5
Switzerland	73.3	54.2	127.4	289.2	44.1
United Kingdom	175.5	147.0	322.6	1,309.9	24.6
United States[4]	...	139.4	139.4	7,143.5	2.0
Total euro area and other industrial countries	**493.7**	**787.9**	**1,281.6**	**20,604.5**	**6.2**
Hong Kong[5]	209.5	39.2[2]	248.7	462.5	53.8
China	128.3	10.4[2]	138.7	1,642.6	8.4
India	–	5.2[2]	5.2	243.6	2.1
Indonesia	14.9	3.2[2]	18.1	77.3	23.4
Korea	16.8	2.0[2]	18.8	326.7	5.7
Macau[6]	7.8	1.1[2]	8.9	10.7	83.4
Malaysia	2.5	2.7[2]	5.2	91.6	5.7
Philippines	12.3	3.6[2]	15.9	41.3	38.5
Singapore	–	18.9[2]	18.9	98.7	19.1
Taiwan, China	34.1	18.6[2]	52.7	571.2	9.2
Thailand	1.5	2.8[2]	4.3	119.0	3.7

[1] Not seasonally adjusted. For Belgium, France, Germany, Italy and the Netherlands, end-December 1998. [2] Estimated as deposits with identified currency denomination; estimate should be viewed as a minimum. [3] BIS estimate. [4] The United States does not report foreign currency deposits with domestic banks; they are thought to be small in amount. [5] Holdings of foreign currency deposits by both resident and non-resident non-banks. [6] Data for end-June 2000.

Sources: National data; BIS. Table 1

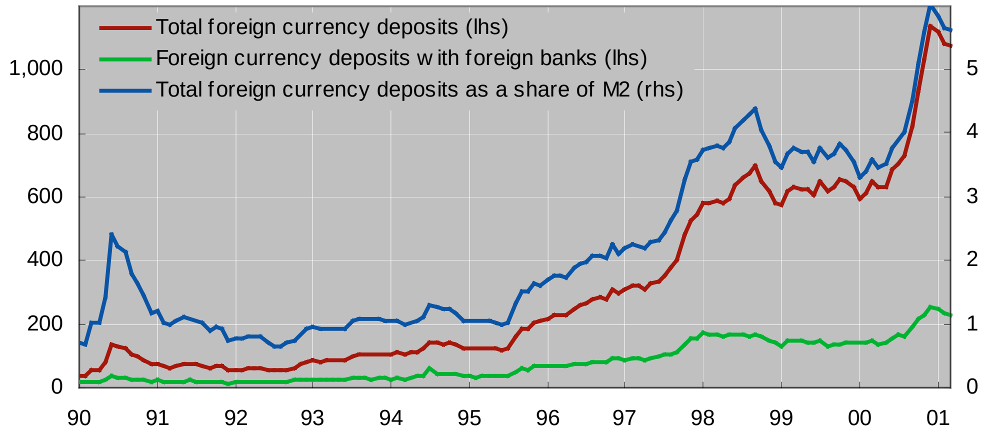
upwards. Its growth accelerated during the Asian crisis, with its share of M2 quadrupling by September 1998 (Graph 1). After falling for four months, the stock remained quite stable until mid-2000. Then it rose sharply again, almost doubling by the year-end to reach 6% of M2 or NT$ 1.1 trillion (about US$ 34 billion). These deposits fell again in early 2001.

... almost doubling in the second half of 2000

The breakdown of foreign currency deposits with domestic banks between demand and time deposits shows that the latter have been the main source of

Foreign currency deposits

In billions of New Taiwan dollars (lhs) and percentages (rhs)



Source: CEIC. Graph 1

growth. This observation suggests that most of the increase in these deposits is for investment rather than transactions purposes.

The policy response

Reserve requirements were imposed ...

In response to the increase in holdings of foreign currency deposits, the Taiwanese authorities shifted policy last year from in effect favouring them to penalising them. Prior to early December 2000, no reserves had been required against foreign currency accounts while reserve ratios on New Taiwan dollar deposits had ranged from 5 to 13.5%. Then the authorities raised reserve requirements on newly added foreign currency deposits in two steps to 5% and then 10% in the course of December. As a result, time deposits in US dollars came to attract a higher reserve requirement than the 6.25% applied to New Taiwan dollar time deposits.

... resulting in lower interest rates on foreign currency deposits

The costs of the new reserve requirements on foreign currency deposits could be expected to be passed through to depositors to some extent in the form of lower yields. At US dollar interest rates above 5%, full pass-through of the costs would have entailed lower yields to new depositors of about 50 basis points (0.5%).[2] In the event, the interest rates on one- and three-month US dollar deposits with domestic banks dropped around 60 basis points in the wake of the increase in reserve requirements (after controlling for movements in Libor rates).

As a result, the introduction of reserve requirements reduced the interest rate advantage of foreign currency over New Taiwan dollar deposits. In addition, the policy also increased the incentive to place foreign currency with banks in centres where such reserve requirements do not apply, including Hong Kong and the United States.

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[2] No interest is paid on reserves against foreign currency deposits.

Explanations

Four possible explanations for the growth of foreign currency deposits

The available evidence permits us to reject two possible explanations for the surge in foreign currency deposits in Taiwan in recent years, to accept another in part and to embrace a fourth. If Taiwanese depositors were acquiring dollars to avoid country risk, one would expect to see them placing foreign currency offshore. However, they did not favour offshore over onshore deposits. If Taiwanese depositors were acquiring foreign currency to avoid credit risk, one would expect them to place their deposits with more highly rated banks. However, they did not favour the more highly rated foreign banks over their local competitors. If Taiwanese depositors were acquiring foreign currencies for higher yield, one would expect to see the growth in deposits parallel the interest rate differential in favour of the US dollar.[3] Broadly, it did so. Finally, if Taiwanese depositors were acquiring dollars in anticipation of an appreciation of the US dollar against the New Taiwan dollar, then one would expect their deposits to rise and fall in line with the US dollar's strength (at least on the hypothesis of adaptive expectations). They did.

Country risk

Country risk is rejected because most of the deposits remain onshore

It is not implausible that Taiwanese depositors might have reacted to the political uncertainties that arose after the presidential election in early 2000 by trying to move funds out of Taiwan. But available data show that, in fact, Taiwanese residents overwhelmingly favoured foreign currency deposits *in Taiwan*. While foreign currency deposits with banks in Taiwan grew by about US$ 15 billion in 2000, foreign currency deposits by non-bank residents of Taiwan with BIS area banks rose by only US$ 3.7 billion in 2000, from US$ 14.9 billion at end-1999 to US$ 18.6 billion at end-2000.

More generally, the evidence seems to suggest that foreign currency deposits are not particularly sensitive to political uncertainty. Offshore deposits had actually grown slightly more rapidly in 1999, a period in which political tensions were lower. Looking back to the previous major episode of strained cross-Strait relations at the time of the 1996 presidential elections, there was only a moderate rise in deposits by Taiwanese (non-bank) residents with BIS reporting banks.

Credit risk

Credit risk is rejected since domestic banks received most of the new deposits

It is also not implausible that Taiwanese depositors might have reacted to heightened perceptions of credit risk in the banking system by shifting deposits into foreign currency deposits with foreign banks. Certainly, the year 2000 featured more active public discussion of the implications of the decade-long downward trend of asset prices and the decline of traditional industries like textiles and footwear for the health of Taiwanese banks. It is possible that the shift in the currency of denomination was a by-product of the shift of deposits

[3] Over 90% of foreign currency deposits are in US dollars.

towards foreign banks in Taiwan, rated a full grade higher than their Taiwanese counterparts.

Again, however, the facts do not support the notion that foreign currency deposits surged to avoid credit risk. In fact, households and firms placed the bulk of new foreign currency bank deposits in Taiwan with domestic banks (Graph 1). Domestic banks claimed about a two thirds market share in foreign currency deposits in Taiwan between 1990 and mid-1998, but in 2000 their share rose to more than three quarters. Far from minimising credit risk, depositors were attracted by a yield premium of at least 50 basis points to place foreign currency deposits disproportionately with domestic banks.

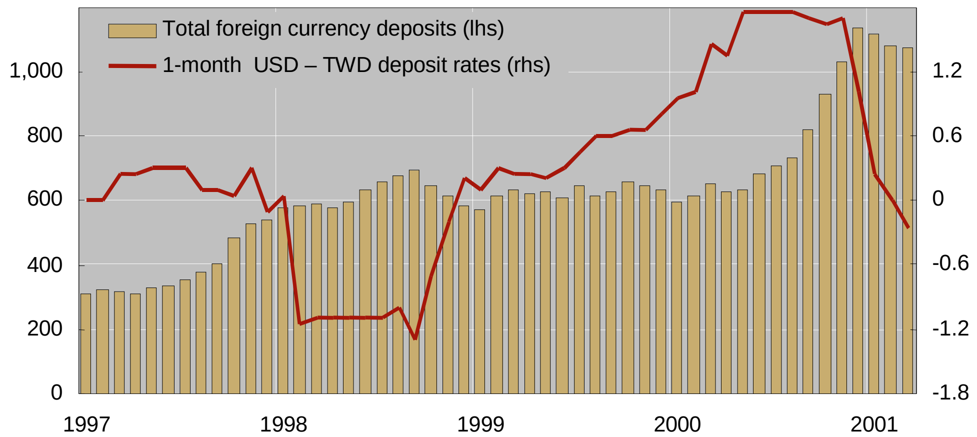
Interest rate differentials

Interest rate differentials can explain only the recent sharp increase

Until quite recently, the growth of foreign currency deposits could not be ascribed to an interest rate differential favouring the US dollar (Graph 2). During the Asian crisis, foreign currency deposits grew notwithstanding the interest rate differential moving against the US dollar (as measured by one-month US dollar rates less one-month New Taiwan dollar yields).[4] Then, beginning in 1999, the rate differential rose from around 0.25% to over 0.75% in favour of the US dollar, yet foreign currency deposits remained fairly constant. It was only after this yield premium reached 175 basis points in May 2000 that these deposits started to rise sharply. Early this year, the interest rate differential evaporated, and they fell.

Foreign currency deposits and interest rate differentials

In billions of New Taiwan dollars (lhs) and percentages (rhs)



Sources: Central Bank of China; CEIC. Graph 2

[4] One-month deposit rates at First Commercial Bank.

Exchange rate expectations

Exchange rate movements have been closely correlated with the growth of foreign exchange deposits since 1997 (Graph 3). When the New Taiwan dollar depreciated against the US dollar from mid-1997 until autumn 1998, foreign currency deposits rose markedly from about NT$ 300 billion (US$ 12 billion) to almost NT$ 700 billion (US$ 20 billion). The subsequent strengthening trend of the local currency into the first half of 2000 saw foreign currency deposits remaining fairly stable. However, when depreciation set in again in mid-2000, these deposits rose sharply. With the recovery of the New Taiwan dollar in early 2001, they fell again.

Expected depreciation explains well the growth of foreign currency deposits …

Comparing the two episodes of depreciation, that around the time of the Asian crisis and that in 2000, the responsiveness of Taiwanese households and firms to the exchange rate seems to have increased. In particular, the shift into foreign currency deposits, seen in relation to the scale of the exchange rate depreciation, seems much more pronounced in the latter episode. This may reflect an interaction between exchange rate expectations (based on recent realisations) and interest rate differentials. That is, in an environment of higher US dollar than New Taiwan dollar rates, depositors may respond more strongly to given expectations of exchange rate gains. Another way of making the same point is to note that during the Asian crisis extrapolative expectations of an exchange rate gain on foreign currency holdings had to be held firmly to overcome the certain loss on the interest rate differential. More recently, these same expectations offered possible gains on top of the sure premium on interest rates on US dollar accounts.

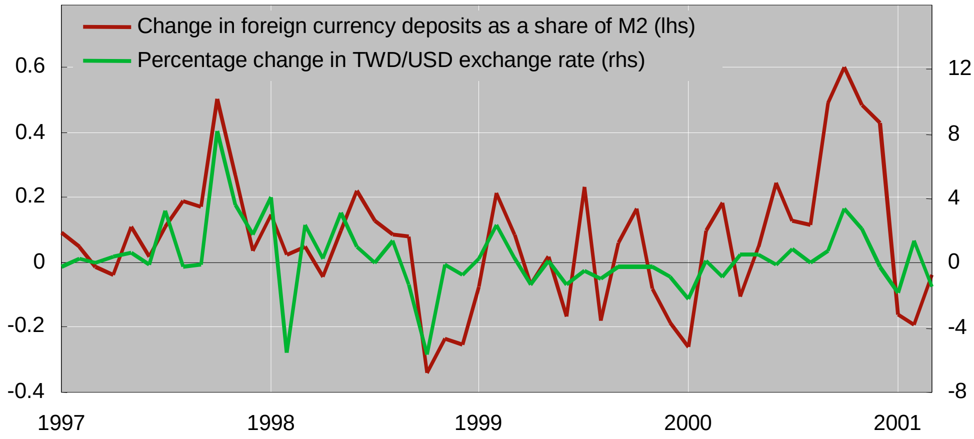
… especially when yields favour foreign currency

An alternative interpretation is that the shift into foreign currency deposits reflects the performance of the Taiwanese stock market (Graph 4). On this view, foreign currency deposits can produce capital gains and losses in local currency and thus may appear as a fairly risky asset class, less volatile but

The stock market slump may also have played a role

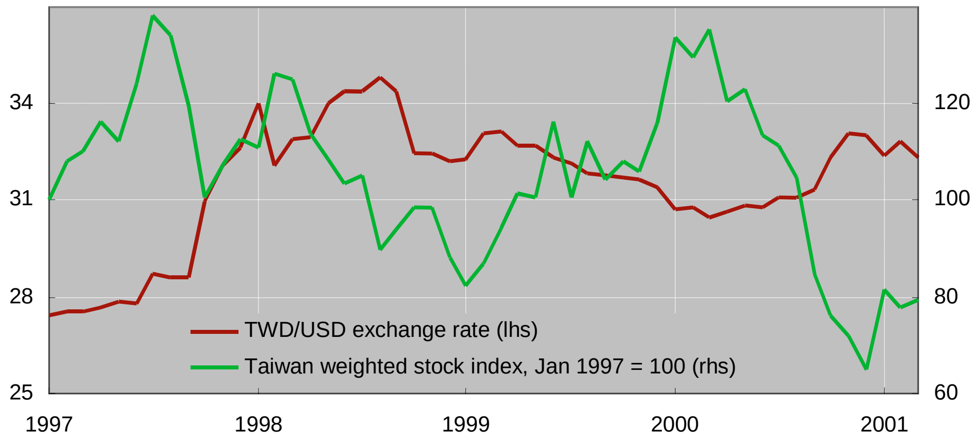
Change in foreign currency deposits and the exchange rate

In percentages



Source: CEIC. Graph 3

The exchange rate and stock market index



Source: CEIC.

Graph 4

somewhat akin to an investment in equities. Thus, the shift into foreign currency deposits during the Asian crisis occurred against the backdrop of weak share prices and their growth in 2000 took place as share prices tracked the Nasdaq's sharp decline. Likewise, the bounce in the Nasdaq, the Taiwanese stock market, the New Taiwan dollar and capital inflows into Taiwan were all consistent with the decline of foreign currency deposits in early 2001. However, given the tendency of the currency to fall when non-resident investors withdrew money from a declining Taiwanese equity market, whether in 1997-98 or in 2000, this alternative is hard to distinguish in practice from the pure exchange rate view.

Conclusion

Without the yield premium on US dollars, deposits may respond less to the exchange rate

Foreign currency deposits in Taiwan rose during the Asian crisis and again in 2000. There is no evidence that country or credit risk played a significant role in the recent rapid increase. The observed behaviour appears primarily to reflect exchange rate expectations interacting with interest rate differentials between foreign and domestic currency deposits. On this view, the sharp decline in US dollar interest rates, reinforced by the effect of reserve requirements on yields on foreign currency deposits in Taiwan, may make foreign currency deposits less attractive. In particular, the shift into foreign currency deposits in response to a given expectation of exchange rate depreciation may be less pronounced in the near future than in 2000. At the same time, however, these exchange rate expectations are likely to reflect global stock market performance and associated capital flows.

What determines the growth of Taiwanese foreign currency deposits: some empirical evidence

We ran regressions to see whether the data supported our analysis that Taiwanese foreign currency deposits rose when the New Taiwan dollar was expected to depreciate, when the US dollar deposit rate was higher than the local currency deposit rate, and when the equity market declined. The regression coefficients reported below are of the right sign and significant, providing empirical support to the analysis.

Sample 1991:01-2001:03

$$F_t = \underset{(3.7)}{0.041} + \underset{(5.6)}{0.034}\, e_{t-1} + \underset{(2.4)}{0.212} RD_t - \underset{(-3.4)}{0.004} S_t$$

$R^2 = 0.29$ DW = 1.65

where

F_t = Exchange rate adjusted change in foreign currency deposits as a share of M2
e_{t-1} = Lagged percentage change in the TWD/USD exchange rate
RD_t = Differential in interest rates (USD minus TWD one-month rates)
S_t = Percentage change in the Taiwan weighted stock index

Note: t-statistics in parentheses

We also tested the hypothesis that the growth of foreign currency deposits was more responsive to a given exchange rate depreciation when the interest rate differential was in favour of US dollar deposits. We added a dummy variable d_t, which was equal to 1 when the US dollar rate was higher than the New Taiwan dollar rate and 0 otherwise, and considered regressions with the following additional terms one at a time: d_t , $d_t(e_{t-1})$ and $d_t(e_{t-1}RD_t)$.

$$F_t = \underset{(3.3)}{0.036} + \underset{(4.0)}{0.026}\, e_{t-1} + \underset{(1.9)}{0.169} RD_t - \underset{(-3.3)}{0.003} S_t + \underset{(2.6)}{0.49}\, d_t(e_{t-1}RD_t)$$

$R^2 = 0.33$ DW = 1.83

Point estimates suggest that an interest rate advantage for foreign currency deposits accelerates the shift into them or makes them more responsive to recent exchange rate movements. These estimates, however, are significant only in the case of $d_t(e_{t-1}RD_t)$.