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Trading Asian currencies[1]

Foreign exchange turnover in Asian currencies grew faster than the global total between 2001 and 2004. Renminbi trading rose particularly strongly. Evolving expectations about the renminbi seem to be joining the dollar/yen spot rate in exerting an influence on Asian foreign exchange markets. Asian currencies with more flexible exchange rates appear to be trading with an effective exchange rate orientation.

JEL classification: F31, F36.

The April 2004 Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity confirmed that trading in several Asian currencies is growing very rapidly. Whereas global turnover expanded by 57% and 36% at current and constant exchange rates, respectively, activity in most major Asian currencies grew even faster. Renminbi turnover rose particularly strongly.

Three questions follow. First, what drove the rise in Asian currency trading in the three years following the 2001 survey? In particular, what explains the strong growth in some Asian currencies and the weaker growth in others? Second, could the exceptionally rapid expansion of renminbi turnover foreshadow a stronger influence of the Chinese currency in regional foreign exchange markets? Third, what might the renminbi's influence mean for the trading pattern of Asian currencies?

This special feature first shows that turnover in Asian currencies increased rapidly between 2001 and 2004. Both global factors such as the search for yield and a secular deepening in Asian financial markets contributed to the strong growth. The article then considers the apparently rising influence of the renminbi on the trading patterns of Asian currencies. Evolving expectations of the dollar/renminbi rate appear to be joining the dollar/yen spot rate in exhibiting significant co-movement with other regional currencies against the dollar. This evidence does not support the conventional wisdom that Asian currencies all trade in a dollar bloc. Instead, this may indicate that Asian currencies are increasingly trading with an effective exchange rate orientation.

[1] The views expressed in this article are those of the authors and do not necessarily reflect those of the BIS. We thank Claudio Borio, Gabriele Galati and Frank Packer for their comments. San Sau Fung, Paola Gallardo, Carlos Mallo, Les Skoczylas and Jhuvesh Sobrun provided research assistance.

Growing turnover in Asian currencies

Turnover in Asian currencies grew strongly ...

Traditional foreign exchange trading in Asian currencies generally recorded much faster growth than the global total between 2001 and 2004 (Table 1). Growth rates exceeding 100% were common. Renminbi and rupiah turnover increased particularly strongly.[2] The main exceptions in this broad picture were the Hong Kong dollar, the Singapore dollar and the Malaysian ringgit, activity in which expanded more slowly than the global total. Trading in the Japanese yen also grew relatively slowly over the same period, even by the standards of the major currencies.

... owing to global and cyclical factors ...

Galati and Melvin (2004) cite the global search for yield as a driving force behind the surge in traditional foreign exchange trading between 2001 and 2004. The strong growth in turnover recorded for some Asian currencies over the same period was arguably a part of this global trend. The carry trade strategy benefited high-yielding currencies such as the Indonesian rupiah,

Traditional foreign exchange market turnover in Asia-Pacific, April 2004[1]

Daily averages, in millions of US dollars

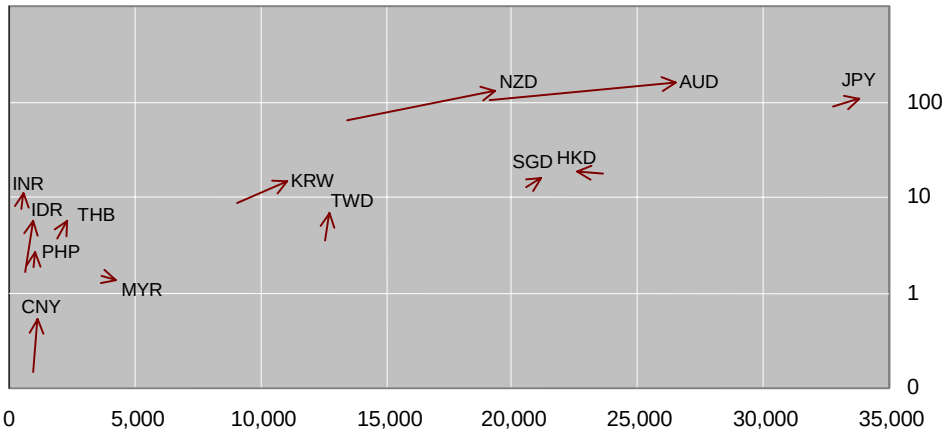
	Spot	Forward[2]	Swap	Total	Growth since 2001 (in %)
Australian dollar	28,539	9,788	58,796	97,123	96
Chinese renminbi	992	811	9	1,812	530[3]
Hong Kong dollar	6,827	2,221	24,133	33,181	21
Indian rupee	2,877	1,531	1,658	6,066	114
Indonesian rupiah	760	267	1,025	2,051	283
Japanese yen	130,382	47,135	181,715	359,231	35
Korean won	10,510	6,048	4,592	21,151	117
Malaysian ringgit	351	237	399	987	7
New Zealand dollar	4,018	1,462	12,181	17,661	163
Philippine peso	345	232	188	765	52
Singapore dollar	5,177	1,242	10,591	17,010	32
New Taiwan dollar	3,607	2,798	856	7,261	129
Thai baht	1,333	490	1,669	3,492	88
Memo:					
US dollar	*528,639*	*170,357*	*874,083*	*1,573,080*	*48*
Euro	*272,887*	*88,243*	*298,231*	*659,361*	*49*
Pound sterling	*82,839*	*31,338*	*185,241*	*299,417*	*93*
Canadian dollar	*23,696*	*8,947*	*41,930*	*74,573*	*43*

[1] Provisional figures; final results forthcoming. [2] This category also includes transactions where only the difference between the contracted forward outright rate and the prevailing spot rate is settled at maturity, such as those involving non-deliverable forwards (ie forwards settled in dollars) and other contracts for differences. [3] Based on a 2001 figure adjusted upwards to render it more comparable with the 2004 figure.

Source: BIS, *Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity*, 2004. Table 1

[2] Greater efforts to collect data on non-deliverable forwards in the 2004 survey may have played a role in boosting the recorded turnover in Asian currencies with non-deliverable forward trading, such as the Chinese renminbi, the Indian rupee, the Indonesian rupiah, the Korean won, the Philippine peso and the New Taiwan dollar.

Foreign exchange turnover in relation to international trade[1]



[1] GDP per capita in US dollars (x-axis); logarithmic scale for ratio of annualised foreign exchange turnover to international trade (y-axis). The arrows trace the shift from the 2001 observation to the 2004 observation.

Sources: BIS, *Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity*, 2004; CEIC; United Nations; national data; authors' own estimates. Graph 1

just as it did the Australian and New Zealand dollars. Nonetheless, interest rates are only part of the story – after all, most capital flows into Asia target equities rather than bonds. More broadly, the revival of Asian economies in late 2003 stoked investors' interest in increasing their exposure to the region. The appreciating trend since 2002 among Asian currencies with flexible exchange rates also made them more attractive as an asset class.

... and financial catching-up

Beyond the global and cyclical factors, however, the rapid expansion in the trading of Asian currencies also reflects a secular deepening of financial markets in the region. Foreign exchange turnover and related capital account transactions are catching up with these economies' underlying role in international trade, perhaps tracing a logistic "S" curve (Graph 1). Currencies of the lower-income economies tend to turn over at a lower multiple of international trade. At the same time, currencies such as the renminbi and the rupiah can grow rapidly from their low bases, notwithstanding the inhibiting force of controls that separate the offshore and onshore markets.[3] An exception is the ringgit, which did not exhibit such catching-up. Policy has not only banned the currency's offshore deliverability but also until recently managed to prevent offshore trading in non-deliverable forwards.

This theme of catching-up is perhaps even more evident when it comes to currency derivatives markets. Cross-currency swaps and options have not been extensively traded in a number of Asian currencies (Table 2). However, where such markets have been established, they can show stronger turnover growth from their low bases than do more developed derivatives markets.

[3] In the case of the rupiah, even the rapid turnover growth between 2001 and 2004 has not yet restored activity to the pre-crisis levels seen in 1995 and 1996 (BIS (1997), Galati (2000)). The rupiah's status as the most actively traded emerging market currency at the time owed much to the carry trade.

Turnover of foreign exchange derivatives in Asia-Pacific, April 2004[1]				
	Daily averages, in millions of US dollars		Growth since 2001 (in %)[2]	
	Cross-currency swaps	Options	Cross-currency swaps	Options
Australian dollar	1,573	8,543	208	150
Chinese renminbi	4	136	…	272,355
Hong Kong dollar	293	365	3	385
Indian rupee	97	100	10,162	…
Indonesian rupiah	24	7	93	…
Japanese yen	3,354	37,430	70	58
Korean won	342	579	645	265
Malaysian ringgit	11	1	…	…
New Zealand dollar	80	811	–21	1,397
Philippine peso	4	5	77	…
Singapore dollar	54	272	199	69
New Taiwan dollar	102	718	369	398
Thai baht	246	125	2,121	2,858
Memo:				
US dollar	*17,605*	*92,276*	*196*	*94*
Euro	*9,732*	*51,085*	*344*	*95*
Pound sterling	*4,835*	*11,645*	*301*	*126*
Canadian dollar	*521*	*5,884*	*44*	*98*

[1] Provisional figures; final results forthcoming. [2] Growth rates are not available in some cases due to negligible or unavailable turnover figures in 2001.

Source: BIS, *Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity*, 2004. Table 2

Rising influence of the renminbi?

The rapid expansion of renminbi turnover coincided with a period of heightened expectations of further currency regime reform, which was often presumed to imply a prospective appreciation of the Chinese currency. Although the spot renminbi is still de facto fixed to the dollar – with trading mainly confined to a mostly onshore market – an increasingly active offshore market in non-deliverable forwards (NDFs) registers the strength of expectations of future spot rate movements. Formerly, this NDF market was thin, with trading of only a couple of hundred million dollars' worth of contracts (ultimately settled in dollars, hence non-deliverable) per day. But daily turnover can now hit a billion dollars or more (Ma et al (2004)). Accordingly, the renminbi NDF rates may bear more economic and market weight now than before.

Renminbi speculation shows influence …

Speculation over renminbi appreciation is seen to have increasingly influenced the trading pattern of Asian currencies. A recent study finds that large, China-specific event-driven moves of the one-year renminbi NDF have shown a significant spillover effect on the yen, the Australian dollar, Northeast Asian currencies plus the Singapore dollar and the Thai baht (Malcolm (2005)).

The renminbi NDF and Asian currencies track each other more generally, even after controlling for yen and euro movements. Table 3 shows the elasticities estimated from daily exchange rates. An elasticity of *x* indicates that

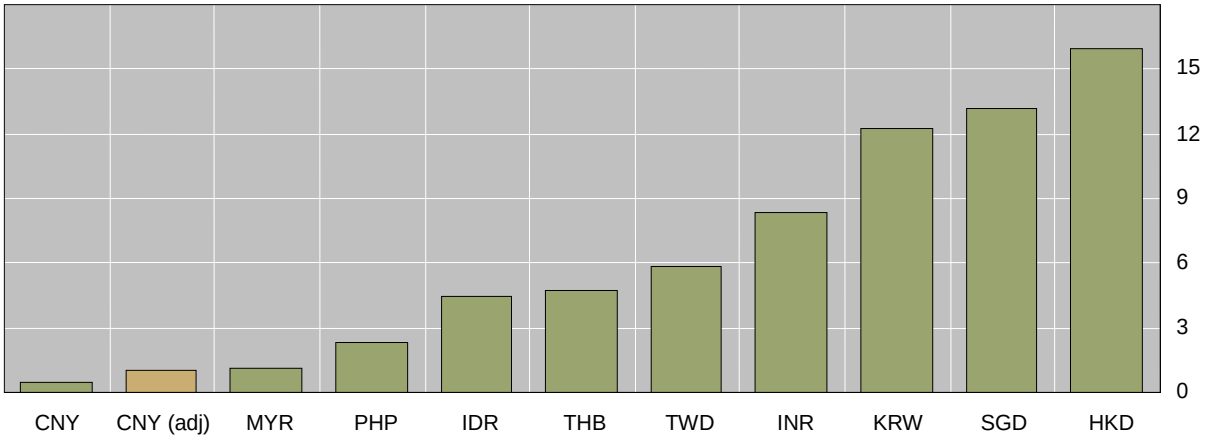
Renminbi trading: underestimated and underweighted?

Are the turnover data for the renminbi really comparable to those for other currencies? To approach this question, it helps to recall that the Triennial Survey data are a compound of data compiled by the home central bank and by the rest of the world's central banks. In the case of the renminbi, the former data set has a sizeable gap that the latter only partially fills. Chinese data reported to the BIS on domestic renminbi turnover do not fully capture bank transactions with non-bank financial and non-financial counterparties. Reported domestic renminbi turnover data cover only spot trades among members of the Shanghai-based China Foreign Exchange Trade System (CFETS). CFETS members include most domestic and foreign-owned banks as well as a few non-bank financial institutions. Thus, spot and forward transactions between banks, on the one hand, and most other non-bank financial counterparties plus all non-financial counterparties, on the other, are not captured in reported domestic turnover. However, the data collected by the rest of the world's central banks capture some renminbi spot transactions between some onshore non-bank financial and non-financial counterparties and onshore banks.[①] Judging from the scale of these offshore customer deals relative to that of China's international transactions, however, a large portion of the onshore bank-customer trades is not captured in either onshore- or offshore-reported data.

It is not difficult to produce an estimate that would double the total reported renminbi turnover. Unreported bank-customer spot transactions within China could be large – owing in part to the practice of mandatory sales and purchases of foreign exchange and in part to the country's rapidly growing two-way cross-border flows. Assuming conservatively that these unreported bank-customer transactions might amount to half of China's 2003 gross trade flows of goods and commercial services, spot and total renminbi turnover would triple and double to $2,900 million and $3,600 million, respectively, compared with the $992 million and $1,812 million reported in Table 1.

However, a substantially larger estimate of domestic turnover, along with the offshore transactions in NDFs, does not alter the conclusion that turnover in the renminbi is still relatively low. Graph A suggests that, as a ratio to trade flows, turnover in the renminbi, adjusted or unadjusted, ranks at the bottom among the ratios for emerging Asian currencies.

Ratio of foreign exchange turnover to gross trade flows[1]



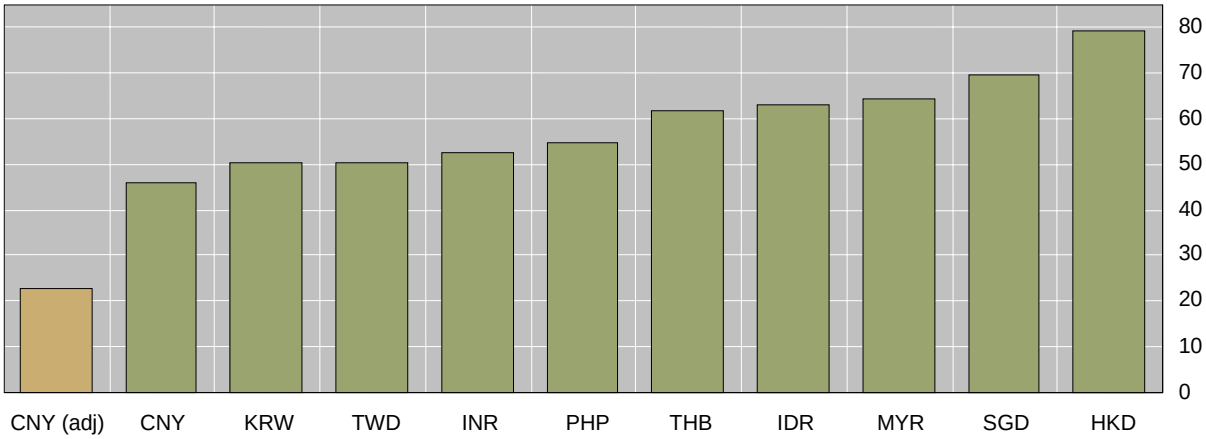
[1] Annual turnover is obtained by multiplying the average daily turnover in April 2004 by 256. Annual gross trade flows are the sum of exports and imports of goods and commercial services. Both turnover and trade flows are in current US dollars.

Sources: BIS, *Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity*, 2004; CEIC; WTO; authors' own estimates. Graph A

[①] The basis for the "location" of transactions was shifted in the 2004 survey from the legal entity ("legal booking centre") in the 2001 survey to the location of the sales desk ("telephone number").

Why has the renminbi market remained shallow by any measure? Four hypotheses can be advanced. The first is the absence of high-frequency cross-border flows, due to China's still tight control on portfolio flows. Ma and McCauley (2004) present evidence that, owing to these binding restrictions, onshore and offshore interest rates in the renminbi differ markedly. A second possibility is the absence of interbank forward/swap and option trading in China, despite a nascent bank-customer forward market onshore. Even including offshore NDFs, the ratio of forwards and swaps to total turnover for the renminbi remains the lowest among Asian currencies (Graph B).[②] Third, the high concentration in renminbi transactions among the big Chinese banks and their ability to net out trades before trading in the CFETS also reduces turnover. Finally, private renminbi transactions in China often have the character of one-way rather than two-way trade.

Forwards and swaps as a percentage of total foreign exchange turnover



Sources: BIS, *Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity*, 2004; authors' own estimates. Graph B

[②] Adjusted for unreported bank-customer transactions, which should be mostly spot, this ratio would be even lower.

a 1% move in the yen (or euro or renminbi) against the US dollar is on average associated with an *x*% move in an Asian currency against the dollar. At the limit, an Asian currency that is fixed to the dollar would show no co-movement with the dollar values of the yen, the euro or the renminbi NDF (ie zero elasticity). The larger the value of *x*, the more the Asian currency co-moves with the relevant exchange rate (ie the less it is "pegged" to the dollar).

… even after controlling for the yen and the euro

The estimates suggest that while movements in the dollar/yen spot rate remain the main influence on Asian currencies, the role of the renminbi NDF seems to be increasing.[4] The renminbi's co-movement with Northeast Asian currencies strengthened in 2004 compared to 2003. In particular, the elasticity of the Korean won spot rate with respect to the renminbi NDF in 2004 was comparable in magnitude to that with respect to the yen. For the Hong Kong dollar forward and New Taiwan dollar spot, the influence of a given change in the renminbi NDF was in fact stronger than that of the same change in the

[4] Movements in the dollar/yen spot rate have been a leading influence on Asian foreign exchange markets since a number of formal or informal dollar pegs came undone during the Asian crisis. Galati and McCauley (1998) documented early evidence of higher post-crisis sensitivity of Asia-Pacific currencies to dollar/yen movements.

Co-movement of Asian currencies with the yen, euro and renminbi NDFs, 2003–04[1]

	2003				2004			
	JPY	EUR	CNY NDF	*Memo: R-squared*	JPY	EUR	CNY NDF	*Memo: R-squared*
KRW spot	0.33***	0.04	0.17*	*0.203*	0.32***	0.12***	0.30***	*0.411*
IDR spot	0.15***	0.09**	0.12	*0.070*	0.28***	0.12***	0.30**	*0.210*
SGD spot	0.21***	0.08***	0.15***	*0.319*	0.22***	0.11***	0.11*	*0.392*
THB spot	0.24***	0.04*	0.14**	*0.304*	0.22***	0.08***	0.13**	*0.402*
TWD spot	0.09***	0.03**	0.12***	*0.218*	0.20***	0.00	0.28***	*0.217*
CNY 1-year NDF	0.11***	0.00	–	*0.041*	0.12***	0.02	–	*0.115*
PHP spot	0.09**	0.01	0.02	*0.023*	0.08***	0.02	0.00	*0.093*
HKD 1-year forward	0.03***	0.01	0.08***	*0.103*	0.02***	0.03***	0.11***	*0.246*

[1] Elasticity coefficients are estimated by regressing the daily changes, in per cent, in Asian currency X (expressed in X per US dollar) on a constant and the daily changes, in per cent, in the yen, the euro and the one-year renminbi NDF (all in US dollar terms). Significance: *** = probability less than 0.001, ** = probability less than 0.01, * = probability less than 0.1.

Sources: Bloomberg; Datastream; national data; BIS calculations. Table 3

yen.[5] Nevertheless, it is notable that any increase in the Chinese currency's role in Asian foreign exchange markets has not diminished the measured influence of the yen.

Asian currencies: a dollar bloc no more

Dollar bloc view not supported

The above results do not support the conventional wisdom that Asian currencies have gravitated back towards a US dollar bloc since the Asian crisis. Certainly, both the renminbi and the Malaysian ringgit adopted hard links to the dollar during the crisis, prompting some observers to argue that these would drag other regional currencies back towards dollar pegs (Ogawa and Ito (2002)). Academics and others discerned an "East Asian dollar standard" and a "neo-Bretton Woods".[6] However, the significantly positive elasticities estimated above do not lend support to such views, which would predict a negligible systematic relationship between Asian currencies and the yen or the euro.

Signs of effective exchange rate orientation …

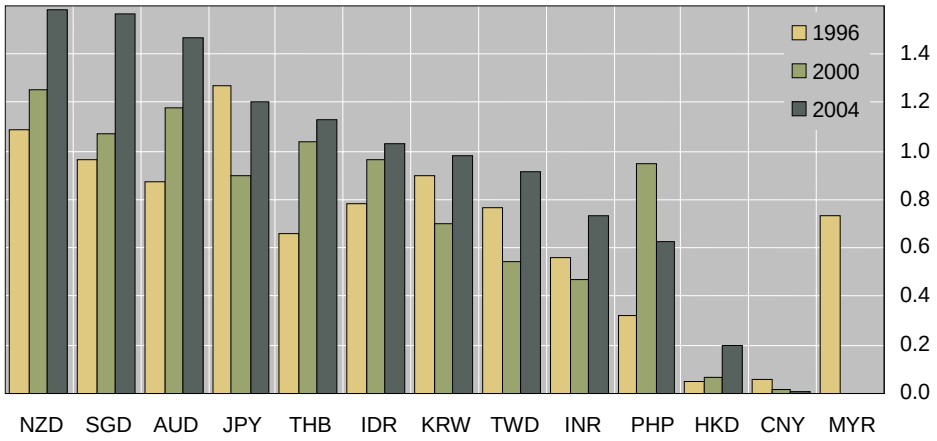
If Asian currencies are not trading as a dollar bloc, how then should their current trading patterns be characterised? While some observers have envisioned gravitation towards the yen (Kwan (2001), Kim et al (2004)), a more plausible conjecture is that Asian currencies have moved in the direction of an effective exchange rate orientation, somewhat like that of the Singapore dollar (Kawai (2002)). This conjecture is consistent with the observed increase in the volatility of bilateral exchange rates relative to effective exchange rates in 2004 compared to 1996 among the Asian currencies with more flexible exchange rates (Graph 2).[7] The Singapore dollar has long seen higher volatility against

[5] However, given that the renminbi NDFs are only about a third as volatile as the dollar/yen, the overall effect of the yen on the New Taiwan dollar still measures larger.

[6] Among such proponents are McKinnon and Schnabl (2003) and Dooley et al (2003).

[7] It was easier to argue in 2000 than more recently that the dollar standard was being restored in East Asia. In any case, the contrast is clear between the sizeable ratios of the more flexible

Ratio of dollar exchange rate volatility to effective rate volatility



Sources: JPMorgan Chase; national data; BIS calculations. Graph 2

the US dollar than against a basket of its trading partners' currencies.[8] It has more recently been joined by the Thai baht. The Indonesian rupiah and the Korean won show nearly equal bilateral and effective volatilities.

The conjecture that Asian currencies are becoming less dollar-oriented and more effectively oriented also gains support from the regression analysis above. Elasticity coefficients on the yen in 2003 and 2004, even after controlling for the renminbi NDF, are considerably higher than those observed before the crisis (Tables 3 and 4). The importance of the yen is consistent with the widely appreciated third-market competition between Asian exporters and Japan. The euro also seems to have gained a significance that was not prefigured by that of the Deutsche mark. The renminbi's recent influence could reflect the growing trade ties between China and its Asian neighbours. For instance, China now serves as Korea's largest market, so it makes sense that the won moves as strongly with the renminbi as with the yen.

… though different from Singapore's case

Two related observations are in order. First, there is a difference between the Singapore dollar's effective exchange rate orientation and that of other Asian currencies. The Singapore dollar's effective rate serves as the explicit focus of Singapore's monetary policy regime.[9] For the other currencies, any such orientation seems to have emerged as a by-product of the interaction between more policy flexibility against the US dollar and fundamental factors such as the substantial trade links with non-dollar areas. These fundamental factors have in turn been reinforced by the behaviour of the authorities – be it

currencies and the near zero ratios of the pegged Hong Kong dollar, renminbi and ringgit. The rise in the ratio for the Australian and New Zealand dollars reflects a shift from their trading with the US dollar to their trading with the euro.

[8] The Singapore dollar's increasingly non-dollar orientation over time (as suggested by the regression estimates or strongly rising volatility ratio) illustrates the interaction between the authorities' broad-basket approach (comprising about a dozen currencies according to market estimates) and the increasing non-dollar orientation of a number of Singapore's Asian trading partners. As the Thai baht and the New Taiwan dollar respond more to the yen or the euro, the Singapore dollar in turn becomes more responsive as well, given the effective orientation.

[9] See Monetary Authority of Singapore (2001) for an overview of Singapore's policy framework.

Co-movement of Asian currencies with the yen and Deutsche mark, 1995–96[1]

	1995			1996		
	JPY	DEM	*R-squared*	JPY	DEM	*R-squared*
KRW spot	0.11***	–0.05*	*0.059*	0.13***	0.01	*0.083*
IDR spot	–0.01	0.03*	*0.003*	–0.01	–0.04	*0.006*
SGD spot	0.16***	–0.04	*0.119*	0.11***	0.02	*0.150*
THB spot	0.08***	–0.01	*0.281*	0.09***	0.01	*0.249*
TWD spot	0.17***	–0.10***	*0.116*	0.04***	0.02	*0.070*
CNY spot	0.00	–0.01	*0.001*	0.00	0.00*	*0.004*
PHP spot	–0.01	–0.03	*–0.002*	0.00	0.00	*–0.008*
HKD 1-year forward	–0.01	0.01	*–0.006*	0.00	–0.01	*–0.004*
MYR spot	0.11***	–0.02	*0.127*	0.06***	0.01	*0.058*

[1] Elasticity coefficients and significance as in Table 3 except that the Deutsche mark is used instead of the euro.

Sources: Bloomberg; Datastream; national data; BIS calculations. Table 4

"open mouth" policy of public references to the yen or other cross-rates, or actual market intervention at extreme effective valuations.

Market logic of increased renminbi influence

Second, the detected co-movement with the renminbi NDF should not be taken to imply that the Asian authorities have actually placed the renminbi NDF in their implicit or explicit exchange rate basket. Such co-movement could result simply from market participants' appreciation for the fundamental and/or policy reasons for an effective orientation. In particular, market participants might expect that, were the renminbi allowed to appreciate against the dollar, other Asian currencies would be allowed to strengthen as well without necessarily appreciating their respective effective exchange rates. This logic may underpin increased proxy trading in the Singapore dollar as market participants position for renminbi appreciation, as well as a possible review of the ringgit peg.[10] If one dares to push the logic further, it is not inconceivable that a more liberalised and flexible renminbi spot rate in the future may play an anchor role for regional currencies, in addition to, if not instead of, the yen.[11]

Conclusion

Turnover in Asian currencies has grown significantly in recent years. Less-traded currencies such as the renminbi have been catching up particularly rapidly. Trading patterns among regional currencies as well as their relationship with the major currencies have also evolved. Recent evidence suggests that the broad-basket effective exchange rate orientation that has long characterised the Singapore dollar may be gaining prominence in the market for other East Asian currencies. Market participants seem to be

[10] Malaysia is Singapore's top trading partner. Any renminbi appreciation has also been regarded by some observers as a possible trigger for a review of the ringgit peg.

[11] The vision of emerging Asia's currencies eventually forming a regional bloc that floats against the dollar, the euro and also the yen has been put forth by Suttle and Fernandez (2005).

anticipating a world in which movements in the renminbi, in addition to those in the yen and the euro, matter to the trading of regional currencies.

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