The euro and the yen as anchor currencies: before and during the financial crisis – comments on Moss's paper "The euro: internationalised at birth" and Takagi's paper "Internationalising the yen, 1984–2003: unfinished agenda or mission impossible?"

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1. Introduction

Frank Moss and Shinji Takagi have both made important contributions to the understanding of the role played by the second and third currencies in the G3 triumvirate, respectively. Moss describes a euro that gained traction after its creation ten years ago, but may have lost some ground in the turmoil of 2008 in the capital markets. Takagi describes an official promotion of the yen that seems to have lost impetus in the face of disappointing results.

Both papers miss shifts in the tectonic plates of international finance. Policy and market trading align currencies into zones of shared movement. By not considering the role of the euro and the yen as anchor currencies in their respective zones in the lead-up to the current crisis, each paper understates the extent of its currency's internationalisation. In particular, the edge of the euro zone had moved east and even some American currencies co-moved to a significant extent with the euro against the US dollar. At the same time, several East Asian currencies co-moved with the yen against the dollar while commodity and high-yield currencies moved inversely with the yen against the dollar. For instance, from mid-2006 to mid-2008, the Brazilian real rose against the dollar in periods when the yen fell against the dollar and fell against the dollar when the yen rose against the dollar. Such regularities point to so-called carry trades in which investors in effect financed long positions in high-yielding currencies with yen. The upshot of these observations is that the dollar was serving as anchor for a shrinking share of the world economy as the world approached its most serious financial crisis in two generations.

This waxing role for the euro and, in a very different manner, for the yen before the crisis contrasts with the dollar's sharp rise at the height of the crisis. Even as the dollar zone shrank, the dollar still stood head and shoulders above the other major currencies as the medium of exchange against the other currencies. In the financial crisis, this dimension of the dollar's role became very important. This importance is key to an understanding of both the sharp recovery of the exchange value of dollar in the second half of 2008 and the scramble for dollars in the foreign exchange swap market (McCauley and McGuire (2009)). This might be called the "revenge of the medium of exchange".

2. The gains of the euro and yen as anchor currencies

Both the euro and the yen were gaining as currency anchors in the years before the financial crisis. A dozen years ago, before the euro's inception, its predecessor currencies' zone of currency co-movement extended to western and central Europe and West Africa (McCauley (1997, 2000)). In the years before the Asian financial crisis in 1997–98, only the Singapore dollar showed any regular co-movement with the yen, sharing something like 20% of yen/dollar fluctuations.

Since the euro's inception, two sets of developments have enlarged the de facto euro zone. The first is policy-based and well understood, but the second is market-based and ill understood. As a result of stated policy, the line between the euro and the dollar has moved eastward in Europe (Figure 1).[1] It is not simply that Greece, Slovenia and Slovakia joined the euro area in 2001, 2007 and 2009, respectively. Currencies like the Czech koruna and the Polish zloty were managed in relation to a basket containing the dollar as well as the Deutsche mark in the mid- to late 1990s but now float with lowest variance against the euro (Genberg et al (2005)). As noted by the ECB (2008, p 45), the de facto boundary between the euro and the dollar shifted east in a major way with the Russian authorities' decision to focus on a 50/50 euro-dollar basket in their intervention policy and public communication.

Less clear but no less significant are shifts in Asia, especially the behaviour of the Chinese currency (Figure 2). What is certain is that by the first half of 2008, both the People's Bank of China (2008) and the State Administration of Foreign Exchange (2008) were comfortable in citing the behaviour of the renminbi's effective exchange rate. Hu (2010b) makes the case for paying attention to the renminbi's trade-weighted basket rather than the bilateral dollar exchange rate. Frankel (2009) detects an echo of the euro/dollar exchange rate in monthly changes of the renminbi against the dollar. Ma and McCauley (2010) go further and find a tendency of the renminbi's effective exchange rate to revert to an appreciating mean in the period mid-2006 to mid-2008, albeit slowly (Figure 3). This would imply a weight on the euro and the yen of one sixth each (Figure 4).

All of these are cases of announced or imputed policy. In addition, markets can trade currencies in a more or less consistent manner with respect to the major currencies. Until the crisis, sterling tended to trade in an intermediate fashion between the euro and the dollar, and as a result its effective exchange rate remained quite stable. Oddly enough, the Australian and New Zealand dollars began in the late 1990s to trade more in line with the euro than with the US dollar (despite their continuing to be labelled "dollar bloc" currencies). This development remains a bit puzzling even though it has persisted now for ten years.

The euro also began to resonate in the trading of western hemisphere currencies. The Brazilian real, the Canadian dollar and the Chilean peso all tended from mid-2006 to mid-2008 to strengthen against the dollar when the euro did. To some extent, this may reflect the joint tendency of these currencies to move with commodity prices and these prices to move with the euro/dollar rate. To a lesser extent, the Mexican peso showed the same tendency then. In sum, by mid-2008, the euro zone defined in policy and market terms had moved east, while in market terms it had moved west as well.

The yen zone in East Asia has extended beyond Singapore to Taiwan, China. On the interpretation of Ma and McCauley, the yen also played a role parallel to the euro in the management of the renminbi between mid-2006 and mid-2008.

A striking observation in this sample period is the yen's *negative* association with the dollar exchange rates of commodity and high-yield currencies. It is worth emphasising that this relationship had not shown up in an immediately preceding sample period (McCauley (2008, p 33)). Much effort has been expended in measuring the quantity of so-called yen carry trades, that is, investment in higher-yielding currencies funded in some sense with Japanese yen (Hattori and Shin (2007); Galati et al (2007)). But much of the yen funding may be presumed to have taken the form of unmeasured forward sales of yen against the dollar,

[1] Figure 1 displays results of regressions of the weekly percentage change in a given currency's dollar exchange rate on the weekly percentage change in the euro/dollar rate, the yen/dollar rate and the weekly change in equity market volatility as measured by the VIX. See Haldane and Hall (1991), Kawai (2002) and Cairns et al (2007).

leaving no measurable quantitative trace for much of such positioning.[2] Movements in foreign exchange rates from mid-2006 to mid-2008, however, showed the regular association of yen weakness against the dollar, on the one hand, and the strength against the dollar of the Korean won,[3] the Indonesian rupiah, the Antipodian dollars, the Turkish lira, the South African rand, the pound, the Brazilian real and the Canadian dollar, on the other. The interpretation that the yen was a funding currency is supported by the positive co-movement between the yen/dollar and the Swiss franc/dollar, another so-called funding currency.

The suggestion of these findings is that the yen became internationalised in this period in a negative fashion. That is, the yen figured in international finance more as a currency of denomination of liabilities than as a currency of denomination of assets. The fears expressed by Sakakibara and Kondoh (1984) of an asymmetric internationalisation of the yen came true – though with the opposite sign on the asymmetry to the one they anticipated. Because the yen liabilities that fund carry trade positions would be mostly secured through the unobserved over-the-counter forward and option markets, they would not register in conventional measures of the yen's internationalisation, as cited by Takagi (or the ECB (2008)). Nevertheless, regularities in the trading of high-yield and commodity currencies leave the strong suggestion of wide international use of the yen.

3. 2008 financial crisis – revenge of the medium of exchange?

Even if the dollar was losing ground as a currency anchor in the run-up to the crisis, it remained predominant as a means of exchange. In the foreign exchange market, more than half of the currencies included in the central bank survey in April 2007 traded against the dollar in over 90% of all transactions by value (Table 1). Only in the Baltic countries and in Bulgaria and Romania did the euro serve as the means of exchange to a greater extent than the dollar. In Asia, the dollar was used almost to the exclusion of the euro or the yen.

Indeed, if one were a bank trying to *swap* foreign currency into the local currency, as opposed to trying to make a spot purchase of the local currency, the dollar was even more the key currency. The Danish krone, the Czech koruna, the Hungarian forint, the Norwegian krone, the Polish zloty, the Slovak koruna and the Swedish krona all traded more against the euro than against the dollar in the spot market (Table 2). However, the swap market traded more against the dollar. Thus, outside a narrow fringe of currencies in central Europe, the action in the foreign exchange swap market remains swapping the local currency against the dollar (BIS (2010, pp 57–8)).

This lingering dominance of the dollar in the foreign exchange swap market normally makes little difference. The efforts of the ministries of finance of Japan and Korea to encourage direct trading in the yen/won rate, which amounted to $0.7 billion per day equivalent in April 2007 (Tsuyuguchi and Wooldridge (2007, p 9)), appeared quixotic to many observers. However, in the financial crisis of 2008, strains spread from the dollar interbank market to the euro/dollar foreign exchange swap markets and from there to foreign exchange swap markets more generally. The lingering dominance of the dollar as the vehicle currency in

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[2] Such speculative forward positions could form a substantial, albeit variable, counterpart to the estimated gap between Japanese banks' balance sheet assets in dollars and their balance sheet liabilities in dollars. McGuire and von Peter (2009, p 52) estimate this gap at over $600 billion. Most of the gap between balance sheet assets in other foreign currencies and liabilities in other foreign currencies, some $1.2 trillion, would also be hedged with yen/dollar forwards.

[3] Several years ago, the Korean won shared much of the yen's movement against the dollar, but this positive relationship turned negative in the period from mid-2006 to mid-2008.

currency swaps turned a crisis of dollar funding for non-US banks into a crisis of cross-currency funding almost everywhere.

The global dollar shortage (McGuire and von Peter (2009)) arose from an asymmetry in the internationalisation of the dollar and the euro. US banks have relatively small international balance sheets, and as a result do not need to fund a very large sum of assets in European currencies (Figure 5). By contrast, European banks have large international operations, including dollar claims. These comprise not only claims on the United States but also those on third countries, including Asian countries like Korea, where European banks have a larger share of international claims than their US and Japanese competitors. Without commensurate retail deposit bases in dollars, European banks depended on US dollar money market funds, the interbank market and placements of central bank reserves to fund their dollar books.

When interbank markets began to dry up in the summer of 2007 as evidence accumulated of bank credit losses, European banks turned to the euro/dollar swap market to secure dollars (Baba et al (2008)). In effect, they used the swap market to replace uncollateralised borrowing with collateralised borrowing. But the offer of euros for dollars by European banks found no matching offer of dollars for euros by US banks. As a result, the cost of swapping euros for dollar escalated (Baba and Packer (2008)).

The failure of Lehman Brothers led to a run by investors on certain US dollar money market funds that had placed half their funds with European banks (Baba et al (2009)). This intensified the strains in dollar interbank and swap markets. European banks responded with operations in third markets that tended to generalise the strains in the swap market. In Tokyo, for instance, they borrowed yen and swapped them for dollars. In Korea, they recalled loans to local banks and repatriated dollars that they had swapped for won.

Under these circumstances, it mattered a great deal that the European banks needed dollars (rather than euros or yen) to fund their won operations in Korea. Had not the dollar served as the means of exchange, the pressure to withdraw from Korea would have been far weaker. A dollar that had been on the back foot going into the crisis drew strength from its predominance as a go-between in international currency trading. This was the revenge of the means of payment.

Amid the US dollar's sudden salience as a means of exchange, it regained importance, for a time at least, as a currency anchor. In particular, as the crisis approached its climax in the summer of 2008, the Chinese authorities suspended their experiment in managing the renminbi against a basket in favour of a reversion to a familiar peg against the US dollar. The dollar zone accordingly temporarily grew larger even as the US dollar experienced its sharpest appreciation of the post-1973 era. In mid-2010, the Chinese authorities resumed the managed float "with reference to a basket of currencies" (Hu (2010a)).

4. Conclusions

In their different ways, the roles of both the euro and yen in world currency trading were growing before the crisis. The boundary between the euro and dollar had moved east, and commodity currencies, including those in the western hemisphere, tended to co-move with the euro against the dollar to varying extents. For its part, the yen had gained influence not only on the positive but also on the negative side, supporting the notion of a pervasive carry trade funded in some sense with yen.

In general, the role of the dollar as a medium of exchange may not be decisive, but in a crisis it may make a difference whether the domestic currency trades against the dollar or the euro. Would the global financial crisis have differed in Asia and the Pacific if domestic currencies

had traded in the foreign exchange market against the euro or the yen instead of against the dollar?

In sum, the euro has gained a higher profile as a key currency than the evidence reviewed by Frank Moss would suggest. The currencies of neither oil exporters nor big exporters of manufactures no longer seem inevitably linked to the dollar to the exclusion of other major currencies. Meanwhile the yen, although its international role defies precise measurement, has left unmistakable footprints in the markets for high-yielding and commodity currencies. The yen may not have become internationalised in the manner desired or anticipated by Japanese officials, as reviewed by Shinji Takagi, but it can figure importantly in leveraged international finance.

Tables

Table 1

The dollar and the euro as media of exchange in the foreign exchange market

In millions of US dollars and per cent, April 2007

Currency	Turnover vs USD	Turnover vs EUR	Total	US dollar %	Euro %	*Memo: euro beta*
Argentine peso	1,052	31	1,087	97	3	*.11**
Australian dollar	76,674	2,166	84,576	91	3	*1.11****
Bahraini dinar	66	1	75	89	1	*.05****
Brazilian real	4,300	59	4,374	98	1	*.89****
Bulgarian lev	29	201	231	13	87	*1.00****
Canadian dollar	38,364	834	40,440	95	2	*.76****
Chilean peso	3,714	28	3,745	99	1	*.49****
Chinese renminbi	9,030	6	9,056	100	0	*.10****
Colombian peso	1,731	10	1,744	99	1	*1.09****
Czech koruna	2,406	1,070	3,567	67	30	*.98****
Danish krone	13,020	9,335	23,804	55	39	*.88****
Estonian kroon	22	749	773	3	97	*1.00****
Hong Kong dollar	72,521	…	73,407	99	…	*.01*
Hungarian forint	2,906	775	3,806	76	20	*1.50****
Indian rupee	16,029	160	16,418	98	1	*.28****
Indonesian rupiah	1,689	51	1,829	92	3	*.37****
Israeli shekel	4,127	…	4,353	95	…	*.42****
Japanese yen	138,846	14,077	169,574	82	8	*na*
Korean won	26,099	351	27,105	96	1	*.33****
Latvian lats	72	186	262	28	71	*.98****
Lithuanian litas	35	538	585	6	92	*1.00****
Malaysian ringgit	2,651	31	2,719	97	1	*.37****
Mexican peso	14,827	230	15,068	98	2	*.29****
New Zealand dollar	6,654	92	7,255	92	1	*1.18****
Norwegian krone	15,831	2,696	19,617	81	14	*1.28****
Peruvian sol	737	0	737	100	0	*.20****
Polish zloty	4,589	1,831	6,510	71	28	*1.31****
Romanian leu	100	1,654	1,768	6	94	*1.32****
Russian rouble	23,598	1,125	24,740	95	5	*.56****
Saudi riyal	1,712	12	1,772	97	1	*.01*
Singapore dollar	22,937	315	24,249	95	1	*.39****
Slovak koruna	3,098	314	3,422	91	9	*1.22****
South African rand	10,063	274	10,589	95	3	*1.15****
Swedish krona	12,988	8,720	23,677	55	37	*1.25****
Swiss franc	52,676	13,680	69,299	76	20	*.82****
Taiwan dollar	6,234	108	6,551	95	2	*.20****
Thai baht	4,413	82	4,739	93	2	*.45****
Turkish lira	1,804	266	2,074	87	13	*.92****
Pound sterling	240,301	39,388	297,292	81	13	*.79****

Note: Covers trading in domestic market only. Spot, outright forward and foreign exchange swap transactions. Adjusted for local inter-dealer double-counting (ie “net-gross” basis).

Source: Triennial Survey, Table E-7.

Table 2

The dollar and the euro in the European foreign exchange markets

In millions of US dollars, April 2007

Currency	Total turnover vs USD	Total turnover vs EUR	Spot turnover vs USD	Spot turnover vs EUR	Swap turnover vs USD	Swap turnover vs EUR
Bulgarian lev	29	201	22	185	6	11
Czech koruna	2,406	1,070	239	554	1,648	299
Danish krone	13,020	9,335	1,054	2,509	10,849	5,794
Estonian kroon	22	749	3	72	18	677
Hungarian forint	2,906	775	55	587	2,827	113
Latvian lats	72	186	7	92	64	88
Lithuanian litas	35	538	19	398	15	136
Norwegian krone	15,831	2,696	259	1,220	14,850	1,174
Polish zloty	4,589	1,831	189	1,287	4,274	239
Romanian leu	100	1,654	77	735	12	830
Russian rouble	23,598	1,125	17,149	837	5,482	246
Slovak koruna	3,098	314	3	212	3,094	94
Swedish krona	12,988	8,720	451	2,270	12,233	5,835
Swiss franc	52,676	13,680	29,104	8,476	21,022	3,891
Turkish lira	1,804	266	430	55	915	185
Pound sterling	240,301	39,388	51,054	16,082	173,323	17,241

Note: Covers trading in domestic market only. Totals include spot, outright forward and foreign exchange swap transactions. Adjusted for local inter-dealer double-counting (ie “net-gross” basis).

Source: Triennial Survey, Tables E-5 and E-6.

Figures

Figure 1

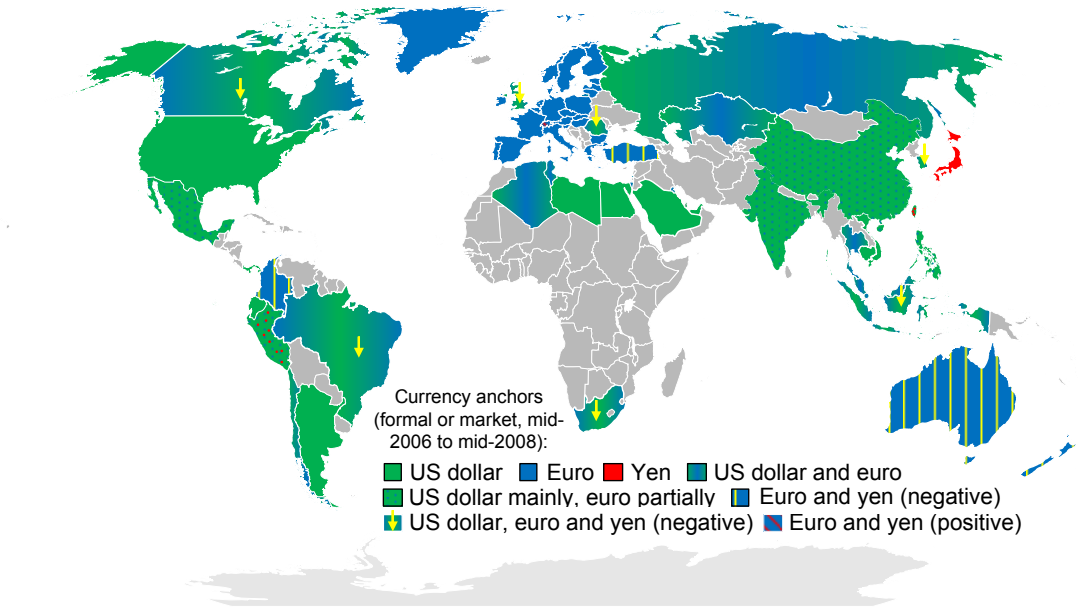


Figure 2

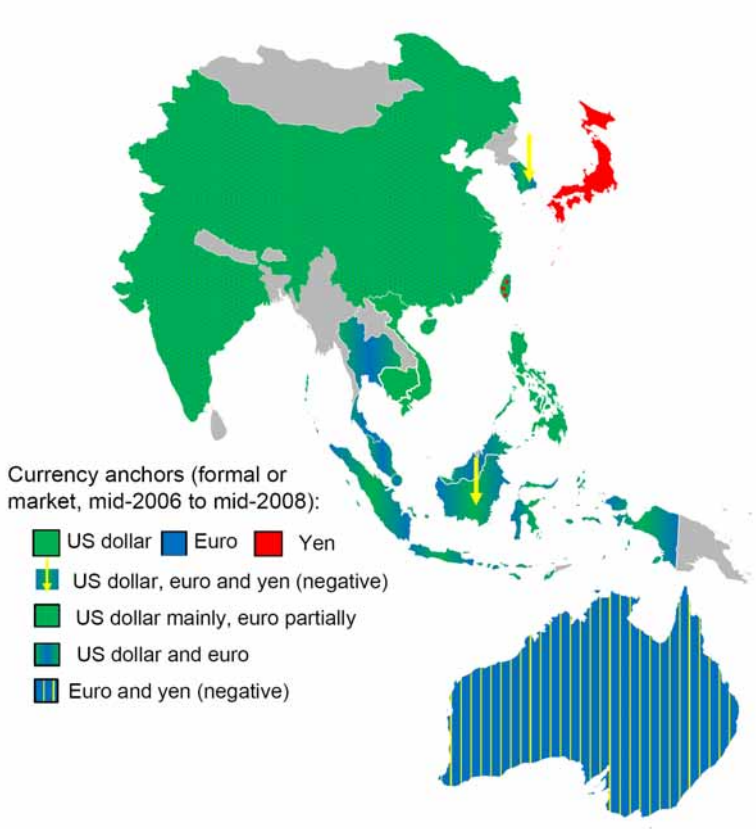
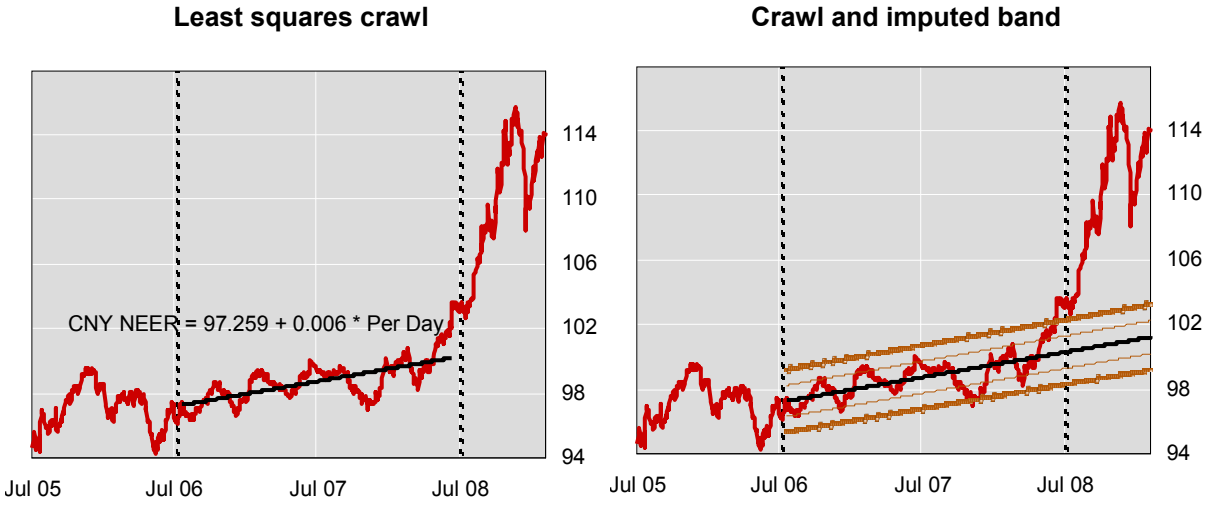


Figure 3

Nominal effective exchange rate for the Chinese renminbi

Index, 2000 = 100

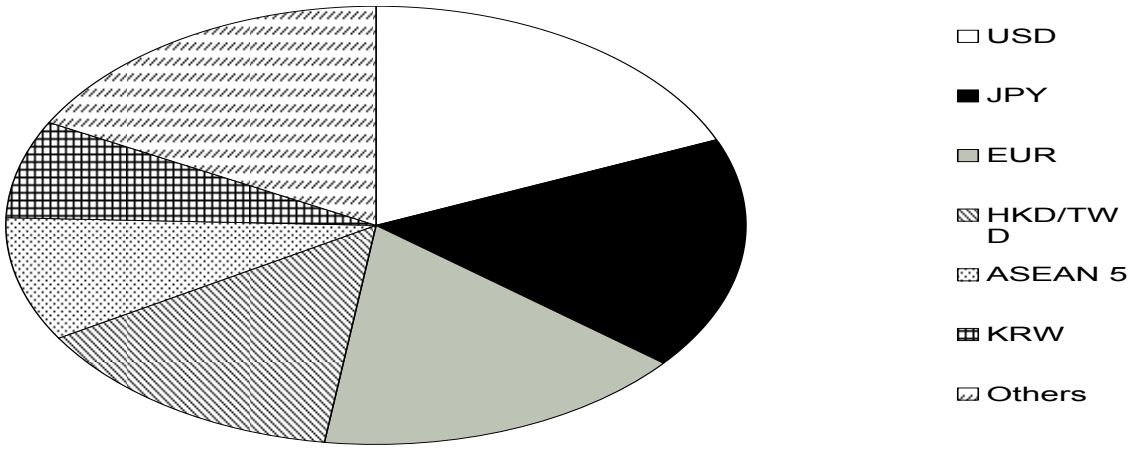


Note: Daily data. The trend line is estimated over the two-year period from mid-2006 to mid-2008, regressing the BIS NEER against the trading time trend. The thick dotted lines represent ±2% of the trend line, and the thin dotted lines ±1% of the trend line.

Sources: BIS; Ma and McCauley (2010).

Figure 4

Weights of the BIS effective exchange rate for the renminbi

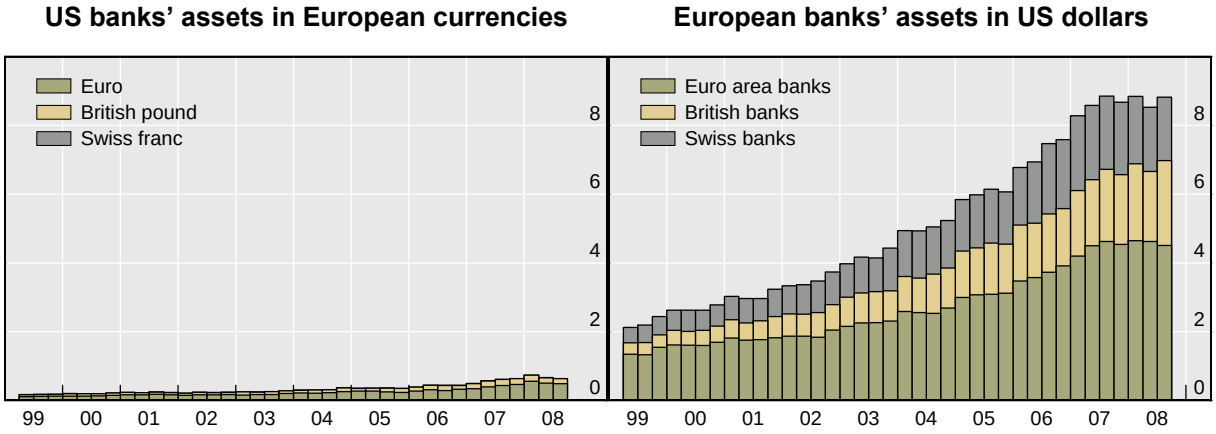


Source: BIS.

Figure 5

The transatlantic asymmetry in international banking

In trillions of US dollars



Source: BIS.

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