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The Currency Carry Trade and Emerging Markets – the Next Phase of the Global Crisis

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Summary

- The global currency carry trade is difficult to define as a precise quantity – although, again, I attempt it here – but it has been an integral part of the global credit bubble. It has not deflated during the credit crisis so far and has been crucial to the resilience of the global, particularly the emerging, economies.
- Data for banks’ net foreign assets for 32 major economies do not provide a measure of the size of the global carry trade but do provide a guide to direction and to some of the major economies/currencies involved. They confirm that the carry trade began to rise during the period of low interest rates at the beginning of the decade, but really took off following the Japanese foreign exchange market intervention of 2003-4.
- The data also confirm that the carry trade has become substantially larger since the credit crisis began, but may have peaked at the end of 2007, possibly in the range US\$2-3 trillion in size. In terms of absolute size, the major recipient economies include Australia, New Zealand, Turkey, Russia, Korea, Mexico, Romania, Ukraine and Brazil. The major funding country is, of course, Japan.
- Carry trades, and not lax Fed policy, explain inflationary pressures in those emerging economies that have overvalued currencies. Once high domestic interest rates start to bite on these economies – which becomes more likely as the global economy weakens – they are at risk of a ‘death spiral’ of currency collapse, huge foreign exchange losses, recession and declining interest rates.
- Korea and Latvia have recently appeared most threatened by this ‘death spiral’ (and of course Iceland, not discussed in this ‘monthly’). But ultimately countries such as Turkey, Brazil and the major Eastern European economies will be hit harder.
- A key danger point will occur when US interest rates are cut below Japanese rates. This will be a tectonic shift in global financial markets and capital flows, creating huge dislocation. Notwithstanding very different expectations held in the markets, such an eventuality could be only a matter of weeks away.

Statistics: Jamie Lee

The Carry Trade has been Vital to Emerging Economies' Buoyancy

I had intended in this summer 'monthly' to focus on Asian emerging economies but given global developments I decided to broaden out the topic a little. Also I present here some new work on the global currency carry trade, work that is too involved for a 'short note' and therefore needed to be covered in the 'monthly'. This research on the carry trade is very relevant to understanding the role that emerging economies are playing in the global economy and financial markets.

For those of us who saw the credit crisis coming, the resilience of the global economy has been as baffling as it has been heartening to the stock market bulls. In the May 'monthly' ('The Credit Crisis is Not Over – it has Barely Begun') I attributed this resilience, and the corresponding comparative resilience of stock markets, to the government and central bank interventions that had, in effect, allowed the mis-pricing of risk in markets to extend even as the original vehicles for the mis-pricing, the credit derivatives markets, had collapsed. The global currency carry trade has been a critical element in this mis-pricing. As I noted in the May 'monthly', it has not contracted (at least until recently) as the credit crisis has deepened. In other words, although the credit bubble was the result of a very complex interaction between credit derivatives markets, carry trades and monetary policy, the deflating of the bubble so far has been very partial, concentrated in mortgage-related securities. This is why, I believe, the impact on the global economy of the credit crisis has so far been more limited than could have been imagined beforehand.

In the May 'monthly' I also touched on the popular notion that the strength of the emerging economies, which have supposedly 'decoupled' from the US, has kept the world economy going, while at the same time being responsible for surging commodity prices. I do not deny that there is a degree to which emerging economy demand has boosted oil and other commodity prices, although as I explained in May I do not believe that it has been the important factor. Even then, the key is to understand how emerging economies have continued to grow quite strongly even as the US and Europe have turned down. I believe the carry trade has played an important role, and the work here sheds light on this.

A little like other concepts in financial economics – money supply, for instance – the currency carry trade is difficult to define as one precise quantity. Whether or not a particular financial transaction is a currency carry trade rather depends on the motivation and circumstances of the person executing the trade. If an investor borrows yen to finance the purchase of a high yielding Turkish or Brazilian security then that is obviously a currency carry trade, and no one would dispute that. However, what about the Hungarian individual who finances the purchase of his own home with a Swiss franc mortgage? This is less clear-cut but I would say it is a carry trade because the house has an implicit yield (the rent which the owner-occupier would have to pay if he did not buy the house) and this implicit yield will have a relationship to domestic interest rates. The individual is borrowing in Swiss francs because the interest rate is lower than the domestic, forint, interest rate and therefore he is executing a carry trade.

I would exclude the case, however, of a Japanese housewife putting savings into a foreign bond fund. The housewife is taking a view that her savings will earn a better return in higher yielding foreign bonds than in Japanese bonds and therefore assuming that currency depreciation will not

offset the higher interest rate differential, which is the implicit assumption underlying all currency carry trades. But there is no liability and therefore it is difficult to see this as a carry trade as distinct from simple portfolio investment. In the case of a Japanese bank, with mostly yen liabilities, doing the same thing, there is a stronger case for viewing it as a carry trade (assuming the currency risk is un-hedged).

The Pattern of Carry Trade Flows

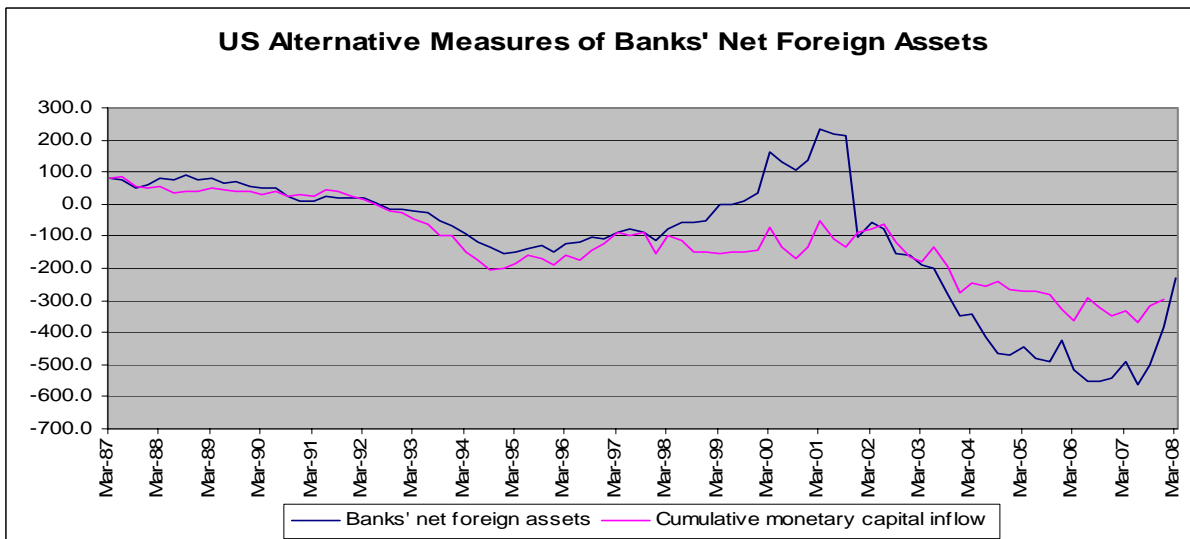
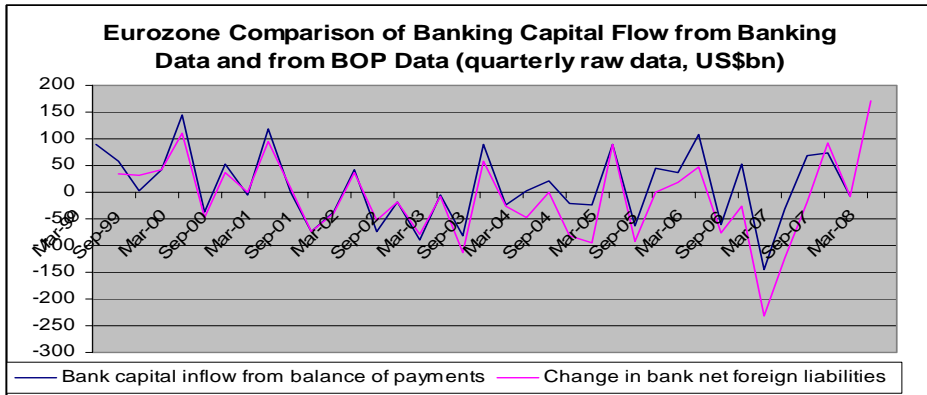
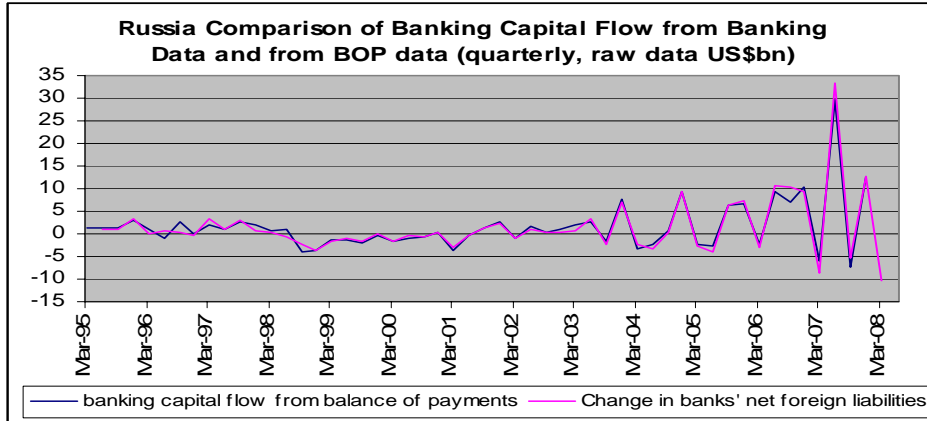
These considerations lead to the idea that the change in net foreign assets of the domestic banking system of any country is a proxy for developments in carry trade activity - albeit an imperfect one - and one that I have used for some time particularly for the Eastern European economies. Banks' net foreign assets/liabilities will capture carry trade activity in any one country when foreign currency borrowing takes place via the domestic banks (as, for instance, in Hungary, Romania and Latvia) or when the banks themselves are taking currency exposure (as in Japan, possibly). They will not, however, capture carry trades that take the form of domestic borrowing directly from overseas, except to the extent that this reflects in the foreign assets of a foreign bank. So, for instance, if a New Zealand company borrows from a Japanese bank then this will not be reflected in New Zealand's banking statistics but it should be in the Japanese data. If, on the other hand, it issues a Samurai bond that is bought by, say, a Japanese insurance company then this carry trade activity will not be captured in banking statistics at all and therefore will evade my simple measures.

In the past I have looked at banks' net foreign liabilities for the countries known to be major recipients of carry trade flows. What we have done here is to take a much more comprehensive view to arrive at some global aggregates, to attempt to see where flows are coming from as well as where they are going to. We have looked at every country in the global GDP ranking down to New Zealand, which means roughly the top 50 largest economies in the world, albeit dealing with the Eurozone as one economy. For reasons to do with the data, particularly data timeliness, in the charts and numbers given here I have excluded UK, Canada, India, Norway, Taiwan, Nigeria and Chile from the data.

In principle, the data for cross border banking flows could be taken either from the balance of payments or from the banking data (i.e. the change in banks' net foreign assets). But full balance of payments data are only available quarterly for many countries while banking data is generally monthly and timelier, and therefore preferable to use. This is certainly the case with the IMF data, which we have used here. Ideally, of course, the two sources of data should show the same thing. Banks' net foreign assets/liabilities are in local currency but the change in net foreign assets, once converted into dollars, should be roughly equal to the net banking flow in the balance of payments. For most countries this is the case and simply for interest I show the comparisons for the raw quarterly data for the capital flow for Russia and the Eurozone in charts over the page.

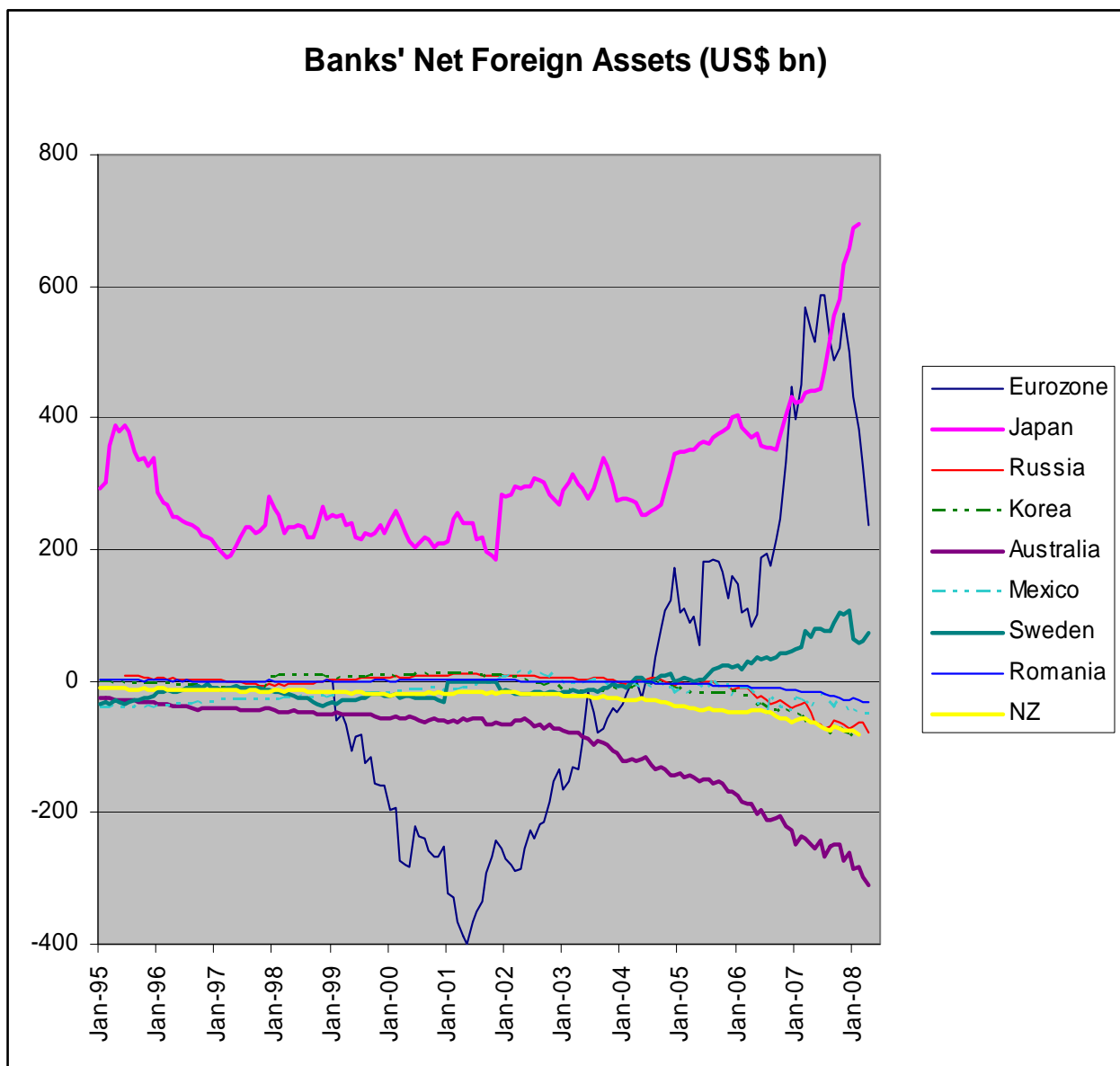
Needless to say, however, not all of the countries' data are so neat. Problems arise, I think, with foreign owned deposits in the domestic banking system. In the case of both US and Switzerland there are significant discrepancies between the balance of payments data and the banking-derived data. In the Swiss balance of payments data the gross flows are very large and volatile. I have

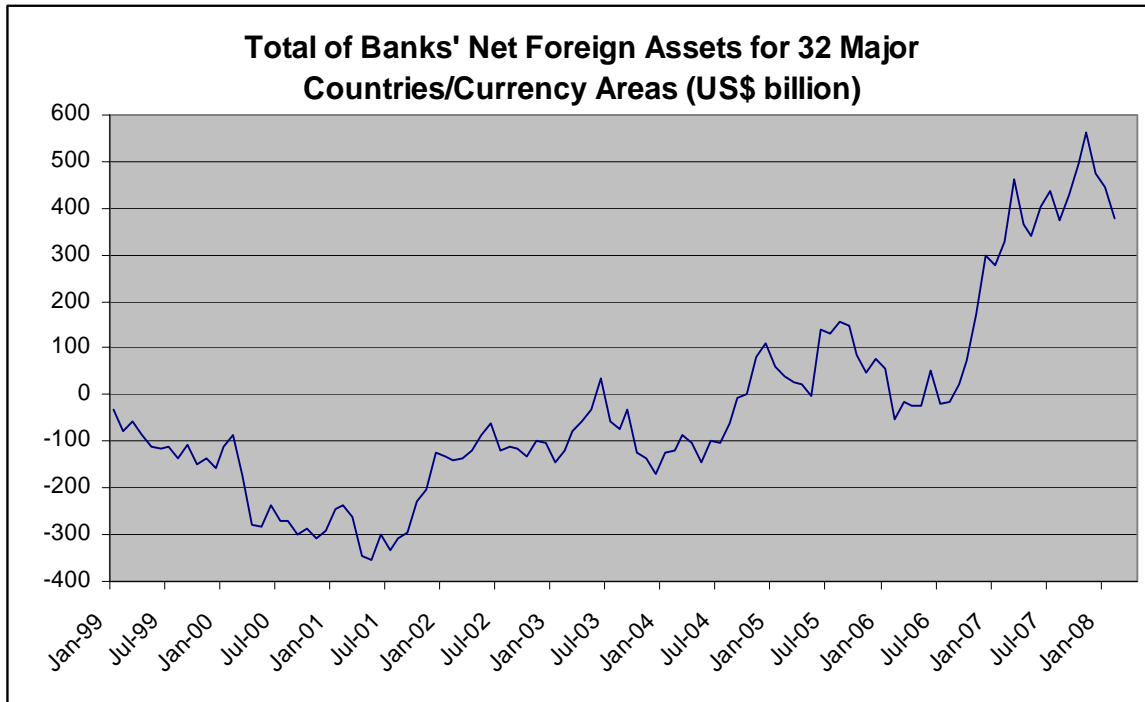
simply stuck with the banking data, even though I believe it must understate outflows from Switzerland related to Swiss franc carry trades. For the US I have calculated a proxy for banks' net foreign assets by cumulating the banking capital flow from the balance of payments. I show below the comparison between banks' net foreign assets from the banking data and the series I have used, derived from the balance of payments data.



The chart below shows the development of banks' net foreign assets (negative for net foreign liabilities) for the countries with the largest increases in bank net foreign assets or net foreign liabilities since the end of 2003, when the carry trade took off. I have excluded three countries from the chart. These are China, which I have excluded because there is a substantial build-up of net foreign assets that I believe should properly be considered official foreign reserves, Hong Kong because the data are so volatile, and United Arab Emirates because the big variation there has occurred only in recent months, I believe related to the oil price and better excluded in this exercise.

Notwithstanding the limitations of this exercise, which I return to again shortly, the chart does seem to confirm what every forex trader knows – that the ultimate carry trade and best market measure of the carry trade is the Yen/ Australian dollar.





It is interesting simply to add up the net foreign assets for all of the (commercial) banking systems, which we have done in the chart above for the 32 major economies that remain after taking into account the exclusions I have mentioned. Doing this has the merit of being an unbiased way of looking at the data, but it is actually rather meaningless as a measure of the carry trade. Carry trades taking place via domestic banking systems will net out and therefore disappear from this aggregate data. For instance, in the case of the Hungarian or Romanian mortgage borrower borrowing Swiss francs from his bank, the Hungarian or Romanian bank incurs a net foreign liability when it funds the mortgage from a Swiss bank and the Swiss bank will therefore have a net foreign asset – the claim on the Hungarian or Romanian bank. When we total up all the countries, the net foreign liability of the Hungarian/ Romanian bank and the net foreign asset of the Swiss bank will cancel out.

What the chart above actually shows is the total of banks' cross-border net claims on non-banks, capturing for instance foreign currency borrowing by Turkish companies, which have mostly been direct from foreign banks. This is not a good measure of the overall size of the carry trade but I believe it still captures the direction. It confirms that the global currency carry trade began to rise during the period of low interest rates at the beginning of the decade but took off following the Japanese intervention of 2003-4. It is interesting that it suggests a setback for the carry trade beginning from the autumn of 2005 and lasting through the spring of 2006 (when there was severe market turbulence) and another setback (the final unwinding?) that likely began in December.

Emerging Economies Have Been Major Beneficiaries of the Currency Carry Trade

The chart on page 5 makes clear that emerging economies have been major carry trade beneficiaries. The major funding countries have been Japan, the Eurozone and Sweden (although

not any longer for these two) and Switzerland, which does not make it on to the chart because the data understate the extent of Swiss carry trade-related outflows. Australia and New Zealand have been very important recipient countries but otherwise the recipient countries are mostly emerging market economies.

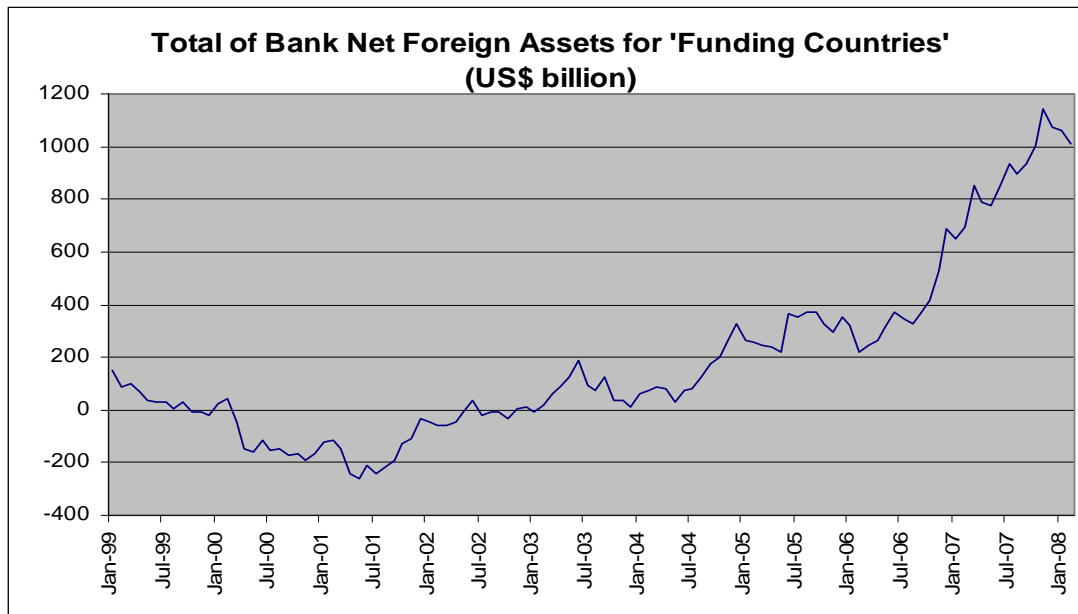
Looking only at carry trades that occur via domestic banking systems, that is those that are picked up on the chart, the major emerging market recipient economies, since the end of 2003, are in order: Russia (US\$77 billion), Korea (US\$72 billion), Mexico (US\$38 billion), Romania (US\$30 billion), Ukraine (US\$25 billion), Brazil (US\$20 billion), Hungary (US\$15 billion), Poland (US\$14 billion) and Turkey (US\$13 billion). The net inflow for all the emerging countries in my 'universe' here (i.e. all emerging economies in the 50 largest economies in the world with the exception of India, Taiwan, Nigeria, Chile, China, Hong Kong and the middle-eastern countries) comes to US\$255 billion since the end of 2003, with fully US\$125 billion of this net inflow – i.e. half – occurring just since the credit crisis began last summer.

This is a substantial underestimate of the total carry trade net inflow, however. As discussed, substantial carry trade inflows to emerging economies occur via direct foreign currency borrowing from abroad, bypassing the domestic banking system and hence not captured in this measure. Turkey is the best example of this, as I have discussed frequently before. I previously estimated the size of carry trade foreign currency borrowings by Turkish individuals and companies (mostly companies) to be about US\$80 billion (see, for instance, the 'monthly' of May 2007). Subsequently there have been official and unofficial estimates for outstanding corporate foreign currency borrowings ranging from US\$50 billion to US\$200 billion. Since my US\$80 billion estimate was made, foreign currency borrowings have increased sharply further, the data suggest by at least another US\$30 billion. This means that, conservatively, at least US\$100 billion of carry trade flows that are not captured in the data I have shown so far have gone into Turkey, likely making Turkey the biggest emerging economy recipient of overall carry trade flows.

As a high proportion of Turkish corporate borrowings are from foreign banks, these should be picked up in the series shown in the chart at the top of page 6. The recent peak of the series in the chart - total bank cross-border net claims on non-banks – was at roughly US\$500 billion. Therefore, a substantial chunk of this must comprise bank lending to Turkish companies (assuming the data is accurate). Given that there must also be cross-border bank lending to other emerging economies' companies, it seems reasonable to assume conservatively that total bank-financed carry trade flows to emerging economies since 2003 should be at least US\$500 billion. (The US\$255 billion from the total derived from domestic banking data earlier plus at least half of the US\$500 billion of bank net claims on non-banks). This is just an order of magnitude, requiring some heroic assumptions, but I believe it should be 'in the ball-park'.

Even this is not a total for all carry trade activity, however. If governments or companies in emerging economies issue low interest rate foreign currency debt, un-hedged, and this is bought by foreign non-banks, or if they issue domestic currency debt that is bought by foreigners in low interest rate countries using leverage in their own currencies, then this would be carry trade activity that is not picked up in my numbers at all. The upshot is that carry trade flows into the emerging economies have been very large, particularly so since the credit crisis began.

Another way to look at the carry trade issue is simply to total up the net foreign assets of banks in the 'funding countries', which is an approximate way around the problem of carry trades 'cancelling out' when all bank foreign assets and liabilities are totalled. This requires making a judgement about which countries' currencies are the genuine 'funding currencies'. However, it is not too difficult – the data suggest strongly, looking at the period since 2003 as a whole, that those countries are Japan, Switzerland, Eurozone, US (just), Sweden, Denmark and Czech (the latter two only very small and not since 2006). The total of banks' net foreign assets for these countries is shown in the chart below.



This chart would suggest that the total bank-financed carry trade was close to US\$1.2 trillion at the peak in November (if indeed that was the final peak). This is not too much out of line with my estimate, in the 'monthly' of May 2007, of a total global currency carry trade outstanding of US\$1.5 trillion (including non-bank financed as well). At the time this number came in for some criticism as being a wild overestimate. I always thought it was probably an underestimate, a view supported by the above series, which must be an underestimate of the total outstanding carry trade for the reasons already given. At a guess, it seems likely that the total global currency carry trade outstanding now probably falls in the range US\$2-3 trillion, but it could be even larger. It is easy to see then that the numbers I have estimated for emerging economies are conservative; it is easy to imagine that the carry trade flow to emerging economies over the past few years could have exceeded US\$1 trillion in total.

Carry Trade Bubble has been Creating Inflationary Pressures

The standard argument about the emerging economies is that they are now suffering serious inflation problems because they have maintained undervalued currencies, and managed their currencies against a weak dollar and therefore also inherited the Fed's lax monetary policy. I am not disputing that there is an element of truth in this, certainly for some emerging economies, notably for instance China, Malaysia and Argentina. But it is difficult to accept it as a complete

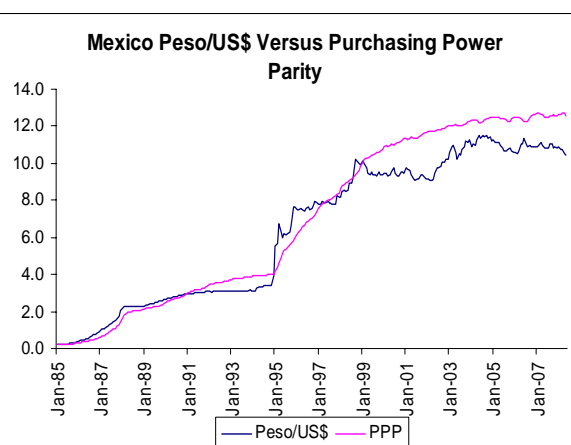
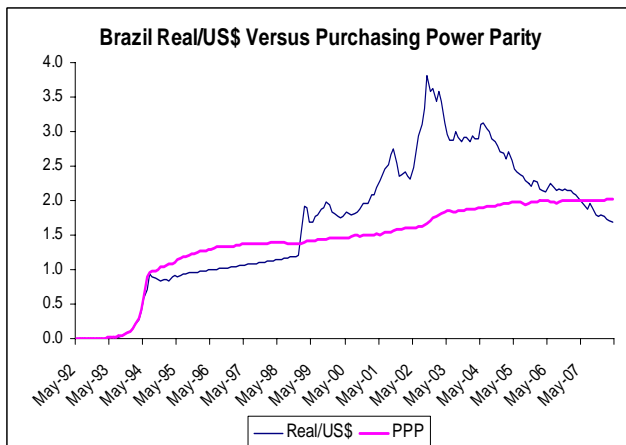
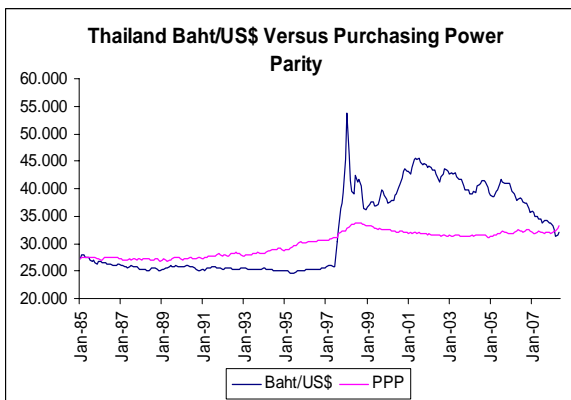
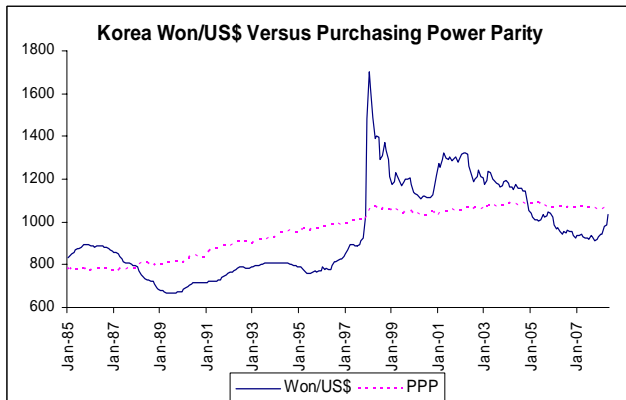
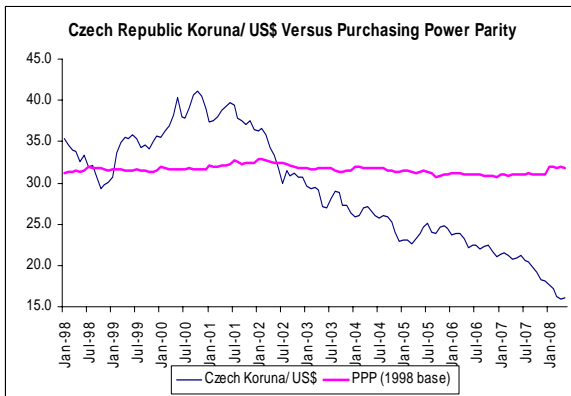
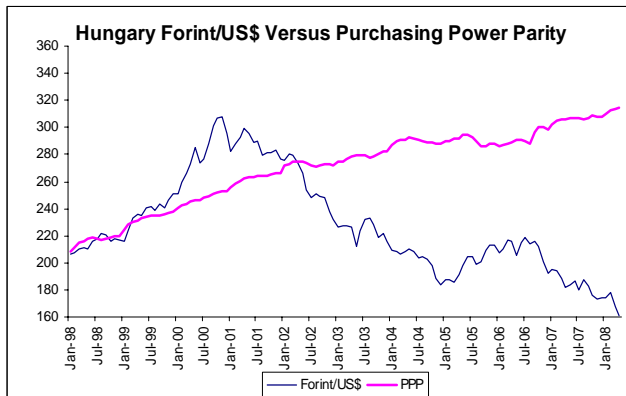
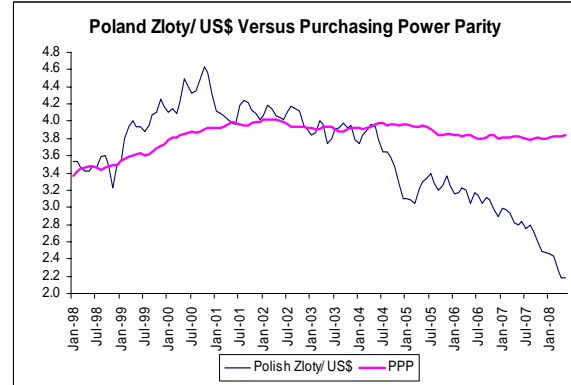
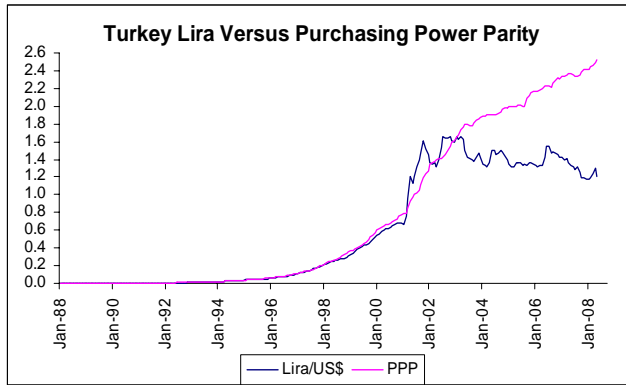
explanation for what has happened. First, as I have been pointing out for a long time, many emerging currencies are overvalued against the dollar, at least on simple purchasing power parity measures. The Eastern European currencies, in particular, have been surging in what now looks like a fully-fledged mania (very likely marking the terminal phase of the carry trade bubble) and are extremely overvalued. Second, although the Fed was loose up until 2004, as I have argued many times it is difficult to believe that it has been loose subsequently. Why have we been in a bear market in both equities and in real estate if the Fed has been very loose? Almost without exception, across-the-board declines in asset prices together with financial crises occur when money and credit conditions are tight.

Conventional wisdom implicitly assumes that a level of interest rates that has been associated with tight financial conditions in the US is creating loose conditions in countries that are managing their currencies against the dollar. To a degree this can be true for the commodity-producing economies because they are experiencing a sharp rise in their terms of trade due to the commodity price boom. Otherwise, it is hard to square with monetary theory. As noted, many emerging currencies are very heavily overvalued, not undervalued. Over the page I show simple purchasing power parity charts for key emerging currencies, all showing overvaluation – in some cases massive overvaluation – apart from the Thai Baht, and even that currency is no longer undervalued on my measure.

What actually seems to have been happening is that the capital inflows that have been driving up the real exchange rates for these economies, either causing their currencies to become stronger or ultimately creating inflation if the central bank resists the currency appreciation, have been mostly carry trade related flows. In other words, it has not been low US interest rates that have been responsible for inflationary pressures in these economies, at least recently, but low interest rates in the ‘funding countries’, particularly Japan and more importantly the Japanese government’s weak currency policy. The process is not a process of equilibrium economics but rather a self-reinforcing bubble. The greater are the carry trade flows, the relatively weaker are the funding currencies and therefore the more carry trades are encouraged.

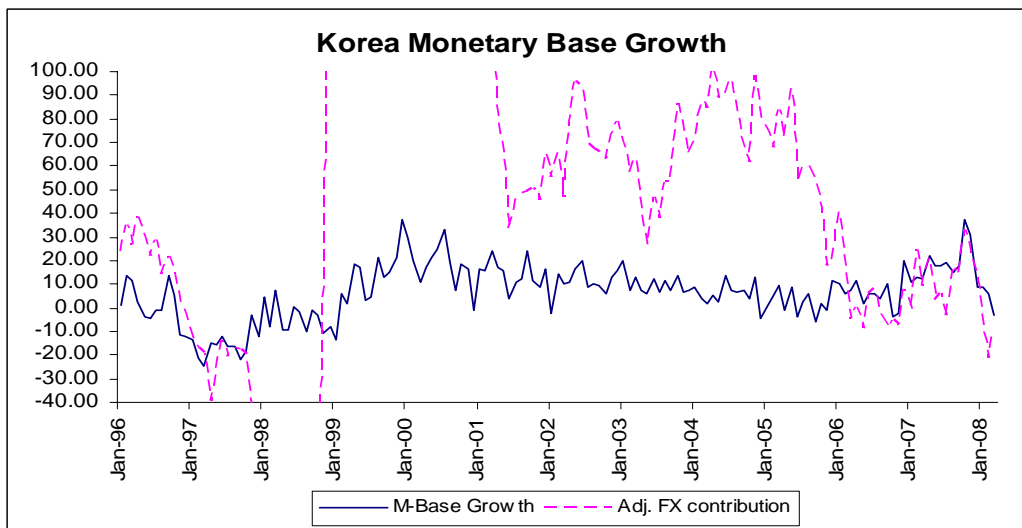
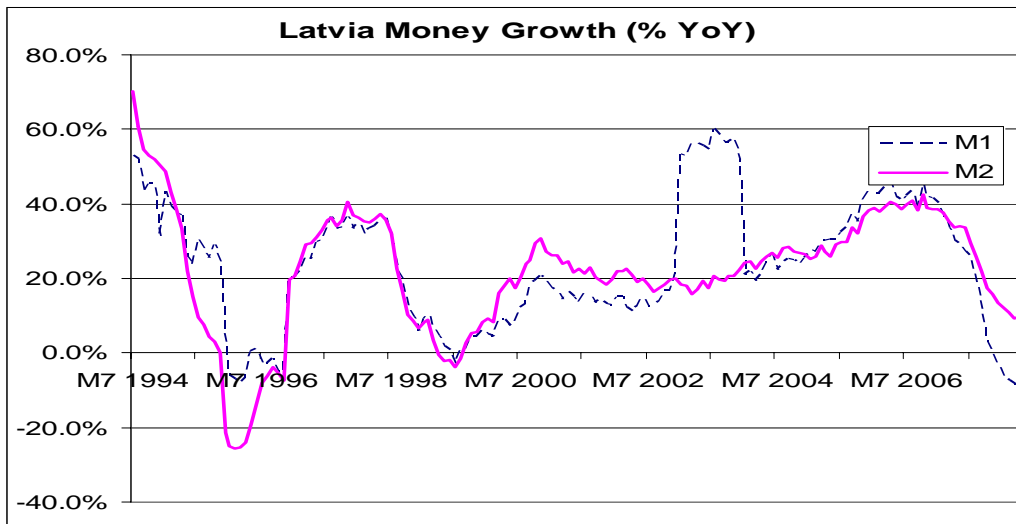
Carry trade flows put upward pressure on the recipient country currencies, making them progressively more overvalued. If the central bank resists the upward pressure (as in Brazil, for instance) then money growth is rapid and inflation results. Because the recipient country’s currency is becoming more and more overvalued, its current account will deteriorate and carry trade flows will have to keep getting larger if the currency is not to fall. Once the currency does start to depreciate the game is likely over because the carry trade will not look so attractive into a falling currency. It is possible that if the central bank then raises interest rates, this might renew carry trade flows again. However, progressively higher interest rates will have the effect of squeezing the domestic economy even though the impact might be dampened for a while by domestic borrowers’ resort to low interest rate foreign currencies. Turkey has been in this extended final stage for the past two years now.

A ‘death spiral’ will result once the carry trade recipient economy is so weak that raising interest rates to protect the currency is no longer viable. Then the falling currency will lead to carry trades being pulled, causing the currency to collapse further and bankrupting large foreign currency borrowers, exacerbating the consequent economic crisis.



Severe Financial Tightening Coming in Emerging Economies

Amongst the emerging market economies, the countries that have seemed the closest to this 'death spiral' recently have been Latvia and Korea. Both show clear signs of tightening liquidity, as illustrated in the charts below. However, both economies are still supported by the residual buoyancy of the global economy, and in the case of Korea the current account deficit is not overly large. Clearly, the risks rise sharply further as the global economy continues to weaken.



What, in my view, is not understood by the markets about this whole process is that it is the carry trade itself that has been propping up the global economy – along with the government interventions. An important reason that the US economy has not been much weaker has been the strength of exports to the emerging economies. But what has kept the emerging economies going? Commodity prices have been part of it, but the carry trade has been crucially important. The carry trade bubble represents the extension of the credit bubble and is a major reason why the impact of the financial crisis on the global economy has not already been much greater.

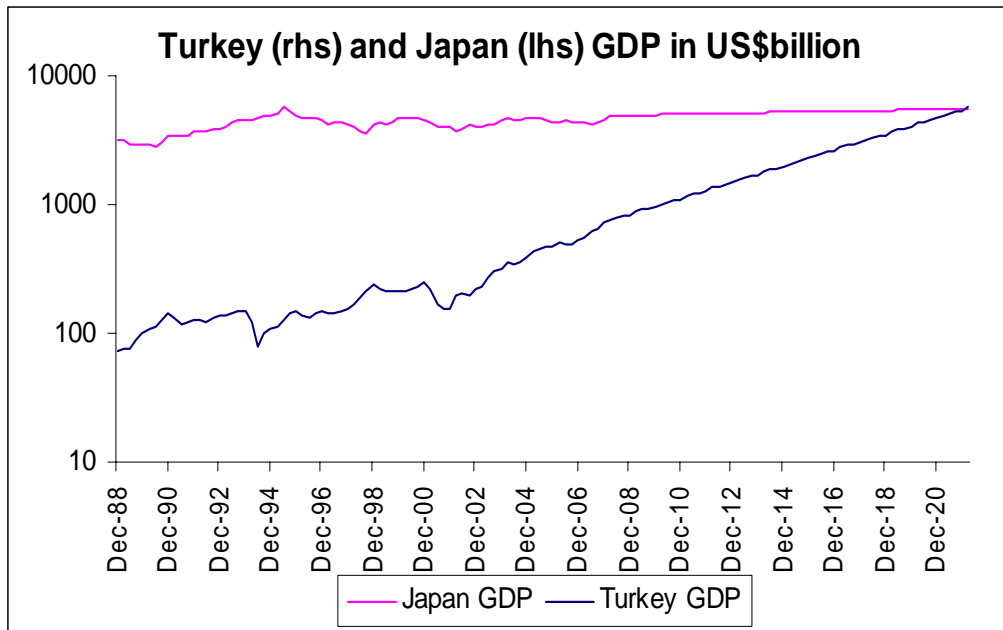
This means that when the carry trade bubble bursts it will represent a severe further tightening in global credit conditions, one that will hit emerging economies particularly hard. It is interesting to speculate whether we are now in a terminal phase of this bubble, that is echoing, in its behaviour, that of other great bubbles such as the late 1990s tech bubble. By that I mean that in the tech bubble, for instance, many of the most obviously grossly overvalued companies (the 'dot coms' or 'B2C' companies as they were then known) had already fallen heavily by the time the NASDAQ peaked, while 'B2B' companies rose vertically into the peak as more funds were channeled into them. Blue chip tech companies experienced their crash well after the peak. In other words, to put it in these terms, perhaps the Icelandic Krona and Korean Won are the Pets.com or Garden.com of the carry trade while the Turkish lira, Hungarian forint and Romanian Leu are the PSINet or Commerce One. In that case, perhaps the Polish Zloty and Brazilian Real are the Cisco Systems of carry trade currencies, and we will have to wait some time longer to see these currencies crash.

In the 'monthly' of February 2008 I highlighted Hungary and Turkey (along with Latvia) as two of the carry trade recipient emerging economies that were moving ahead of the others into the tightening cycle. Korea has now jumped ahead and along with Latvia is seeing a marked money and credit tightening. The reason for this may simply be that in both Korea and Latvia the authorities took strong regulatory action to try to control credit extension and foreign currency borrowing. To the extent that this may have helped damp the capital inflow, their current account deficits would then have had a constraining effect on liquidity. In Brazil, Turkey and the major Eastern European economies, in contrast, the renewed trend to higher domestic interest rates has given another – likely brief – lease of life to the carry trade and flows have been concentrated in these currencies. In a rapidly weakening global economy, their higher domestic interest rates will have more of a negative impact on overall growth than in the past and will soon prove unsustainable. Carry trade flows should then begin to reverse, beginning the 'death spiral' of currency collapse, large foreign exchange losses and recession. As with the late 1990s Asian crisis, it seems likely, therefore, that some of the most severe repercussions will be felt by economies that are hit later by the crisis.

Conclusion

I have been very wrong on the timing of all this for a long time. Could I therefore be wrong altogether? "No" is my answer. The trends that we have seen for so long now are obviously unsustainable and I cannot personally see a way out that will avoid a severe dislocation. The extent of overvaluation of the carry trade currencies is enormous. The impact on economies has been mitigated up to now by the resilience of the global economy which, as I have explained here, has been owed partly to the global carry trade itself.

The chart over the page shows a simple extrapolation of Turkish GDP and Japanese GDP in dollar terms, with a logarithmic scale. The chart shows that if we extrapolate the trend over the period since the carry trade took off, even relatively conservatively, then in less than 14 years the Turkish economy will be bigger than Japan's, even though Turkey has a substantially smaller population. If that happens, presumably by then Japan will be lucky to be in the G-anything, let alone the G-8. This is what happens if a country has zero inflation but its currency never appreciates while countries that have 8-10% inflation rates never see their currencies decline.



For some supportive anecdotal evidence, we can also turn to ‘The Economist’ magazine’s recently updated ‘Big Mac Index’. According to ‘The Economist’, in 2001 a Big Mac cost US\$2.31 in Japan and US\$2.04 in Turkey. By 2008 the price of a Big Mac has risen fairly modestly in Japan, to US\$2.62, but more than doubled in Turkey, to US\$4.32. In Hungary over the same period the dollar price rise has been even larger, from US\$1.68 to US\$4.64. In Brazil it has been larger still, from US\$1.51 to US\$4.73 – more than triple. No doubt that has not dissuaded Brazilian investors from taking a lunch break, however, because from its 2002 trough to its recent peak, in dollar terms the Brazilian stock market rose around 20 times.

‘The Economist’ concludes its article on the update to the Big Mac index (July 26th edition, page 88) by saying “Turkey’s central bank recently raised its benchmark rate to 16.75%; Brazil’s pushed its key rate up to 13% on July 23rd. These rates offer juicy returns for those willing to bear the risks. Those searching for a value meal should look elsewhere.” We know that markets will return to fair value eventually. We have simply moved far too far away for this to occur in any way other than via severe dislocation.

It now looks as though major dislocation will occur, if not before, when US interest rates are cut below Japanese rates. My view is that this event will occur much sooner than most market participants could dare imagine. The next move in US interest rates will be down, not up, and once it occurs market expectations may shift quite quickly to anticipating US rates below Japanese rates. This will be a tectonic shift in global financial markets and capital flows. The yen carry trade will be redundant; a dollar carry trade will look much more attractive. Although a falling US interest rate does not in itself change the interest rate differential between the carry trade currencies and the yen, the yen appreciating against the dollar will mean that the yen will appreciate against the carry trade currencies also. The carry trade is a bubble, not a ‘rational’ phenomenon, and therefore it simply requires something to burst the bubble and change the direction of momentum. I believe that this will be it.

In my view, the carry trade bubble may well prove to have been the greatest bubble of all time. It is so pervasive that a generation of fund managers and corporate treasurers is ‘growing up’ knowing little different than that the yen is ‘always weak’ and that high interest rate currencies will ‘always provide relatively high total returns’. The collapse of the carry trade bubble is bound to be marked by severe financial dislocation and, as explained here, must also bring to an end this most recent emerging market bubble. This will usher in the next phase of the global financial crisis, one that will be more severely negative for global equity markets and economic activity.

	Now (July 29, 08)	12 mths out	change
S&P 500	1263	710	-44%
10yr Treasury	4.0%	3.0%	-100bp
\$/Euro	1.56	1.40	-10%
Yen/\$	108	70	54%
\$/Pd	1.98	1.80	-9%
Gold	919	600	-35%

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