

# Brazil's high interest rate and appreciation of the BRL

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Since its peak in September, 2005, the Selic (basic) interest rate has been falling in every COPOM (Brazilian Central Bank Open Market Committee) meeting until its current 12.5% level. This is the lowest in many years, albeit very high for an inflation forecast below 4%. In the same period, the BRL appreciated from 2.30 to 1.95 BRL/USD. The fact that the currency appreciation occurred simultaneously to the fall in the Selic rate has been used by many pundits as evidence that the interest rate differential plays no significant role in the appreciation of the BRL. According to this line of reasoning, the great improvement in trade and current accounts balances explain entirely the appreciation, and further cuts in the Selic should not help to stop or reverse the appreciation trend.

Data of exchange rate transactions, compiled by the Brazilian Central Bank (BCB), are shown as additional evidence that the interest rate differential that attracts carry trade does not affect the exchange rate. According to those statistics, exchange rate transactions originated by trade are in surplus (i.e., bring USD on net); while those originated by finance, in deficit. In the first quarter of 2007, trade related exchange rate transactions brought 20.6 USD billion (net flow), while finance related exchange rate transactions were responsible for a net outflow of 3.2 USD billion.

These statistics, however, cannot be used as proof that the interest rate differential does not matter for the BRL exchange rate. First, because the way the CB compiles the data does not allow one to appropriately separate the trade related from the finance related exchange rate transactions. For example, an import transaction that is financed through a loan with maturity longer than one year, when settled, will enter the BCB statistics as a financial outflow.

Moreover, even if the BCB decides to compile the statistics accounting for cases as the aforementioned one, no statistics of exchange rate quantities may shed light on the question of whether or not the interest rate differential affects the exchange rate. Suppose an exporter that receives USD 10 million for exports and converts those in BRL (as required by Brazilian export surrender requirements). Furthermore, after paying the costs, he/she is left with the equivalent in BRL of USD 1 million. The decision to keep the profit in BRL or USD will depend, in great measure, on the interest rate differential; the higher the differential is, the higher the share of profits kept in BRL. There is no easy way that statistics of exchange rate quantities can capture this. They will always show that the inflow was trade related, although it stayed in the country due to the interest rate differential.

One additional complication has to do with derivatives trading. The traditional way to profit from the interest rate differential is to borrow in USD, convert the USD into BRL,

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and invest those BRL in fixed income. This is the plain vanilla carry trade. Foreign investors may replicate the aforesaid financial strategy by purchasing NDFs (non-deliverable forward contracts) of BRL. Those are sold by banks outside of Brazil. An equivalent way is to sell USD futures at BM&F (*Brazilian Mercantile and Futures Exchange*<sup>2</sup>). Any of these financial strategies will provide the investor with a return equal to the interest rate differential plus the BRL appreciation. The risk is a BRL depreciation greater than the interest rate differential. In such case, investors will lose money with the carry trade. So far, I have only been able to gather data on quantities traded at BM&F. Therefore, the empirical evidence I henceforth analyze has to do with strategies involving derivatives trading at BM&F.

Chart 1 shows two series. The first (gray area) is the foreign investors' open interest positions in USD futures at BM&F, in USD billion. (Keep in mind that to sell USD futures is akin to borrow in USD and invest in BRL, as previously mentioned.) The second series (blue line) is the exchange rate, quoted in BRL/USD. Chart 1 shows that both series are positively correlated (simple correlation coefficient of 0.60). When the open interest increases, the BRL appreciates; and vice-versa.

In spite of the fact that the foreign investors' open position in USD futures at BM&F is only part of the foreign investors' investments in BRL fixed income, it is reasonable to assume that the open interest is a good proxy of the total investment. If this is the case, one possible interpretation of the abovementioned positive correlation is that it represents movements of a "supply of foreign funds" curve over a stable demand for funds.

Chart 2 exemplifies what I have in mind. Suppose we start in point A, when a negative shock hits, increasing the uncertainty over the US economy future path, therefore increasing foreign investors' risk aversion. This happened in May, 2006. Chart 1 shows that the exchange rate depreciated (increased) abruptly as the open interest decreased (in absolute terms), even turning positive. Such movement corresponds to the movement of the supply curve from A to B (Chart 2). At B, the exchange rate is more depreciated, and the open interest smaller. The reverse situation occurs when good news make the Brazilian country risk fall, as it has been happening since March, 2007. In those instances, the supply of funds increases, and, assuming stable demand, the exchange rate falls (appreciates), as in the movement from A to C (Chart 2).

Therefore, the interest rate differential, albeit decreasing, seems to impact the exchange rate. Chart 1 shows that there are three periods when the open interest are strongly reduced: May-June, 2006, October-November, 2006, and February-March, 2007. In the first two periods, foreign investors completely offset their (short) open interest in USD futures. If we are willing to adopt the zero open interest as a "neutral" position (point D in Chart 2), we could have a first estimate of the exchange rate that would prevail if foreign investors were to undo their carry trades in BRL due to fall in Brazilian interest rates.

In May, 2006, the exchange rate that corresponds to point D in Chart 2 is 2.30 BRL/USD. Incidentally, 2.30 is also the linear coefficient of an OLS regression of the

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<sup>2</sup> [http://www.bmf.com.br/portal/portal\\_english.asp](http://www.bmf.com.br/portal/portal_english.asp).

exchange rate on the foreign investors' open interest. In November, 2006, the exchange rate climbed only up to 2.20 BRL/USD. In March, 2007, it stopped short of 2.15 BRL/USD.

Of course, these figures are preliminary estimates of how much the exchange rate could depreciate as the interest rate reduction process proceeds. A full-blown analysis must consider explicitly other factors, as the effect of sterilized interventions, foreign investors' risk aversion, current account performance, etc. Nevertheless, I think these are clear indications that: 1) the interest rate differential contributes to the current appreciation of the BRL; 2) if and when the BCB completes the current monetary policy easing, the BRL will not climb anywhere near its levels in 2002/2003.

**CHART 1**

**EXCHANGE RATE AND FOREIGN INVESTORS' OPEN INTEREST POSITION IN USD FUTURES AT BM&F**

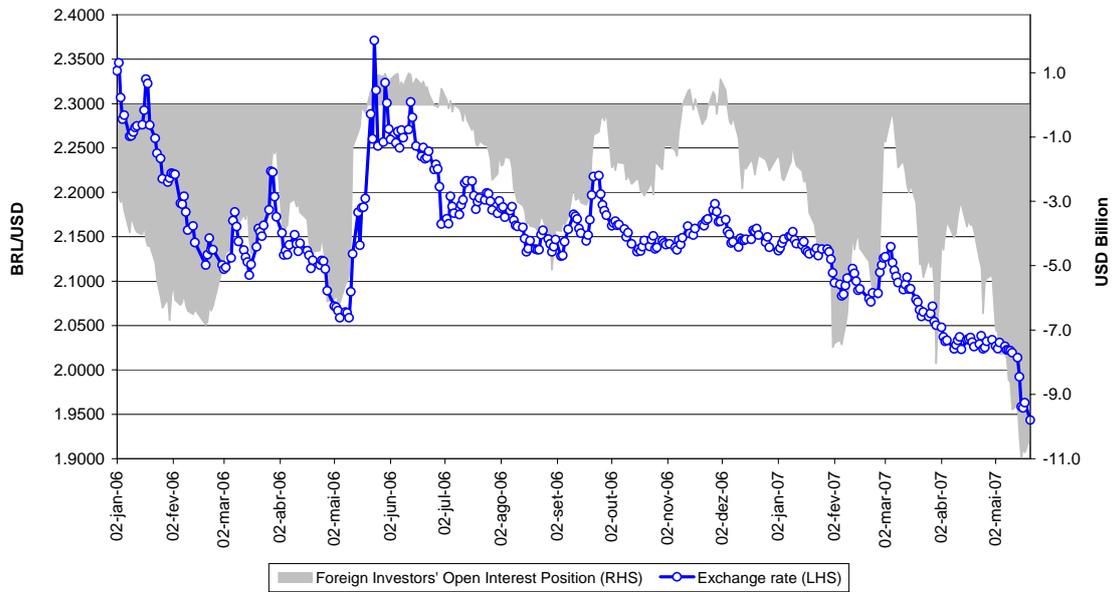


CHART 2

