

# POLICY BRIEF

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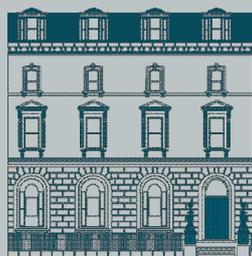
## CAPITAL FLOWS, THE CARRY TRADE AND 'SAND IN THE WHEELS'

### WHAT IS THE PROBLEM?

*The 'carry trade', in which capital shifts from countries with low interest rates to countries with significantly higher rates, has become an important element of international capital flows over the past decade. With low interest rates in the United States, Japan, the UK and much of the rest of Europe expected to persist for some time, these flows seem likely to become larger in the aftermath of the Global Financial Crisis. Particularly for the emerging countries with shallow financial markets, interest-sensitive inflows have the potential to be disruptive. Exchange rates will tend to be overvalued for sustained periods, punctuated by sharp depreciations. These distorted and varying price signals will be unhelpful for good policy-making and steady economic growth.*

### WHAT SHOULD BE DONE?

*For many countries a simple but powerful option is a tax on inflows. Countries should investigate whether foreign capital inflows are appropriately taxed by the receiving country, and if not, what constraints there are on altering this. Some countries, notably Brazil, are already pursuing their own policy measures. But the issue also needs to be addressed at a more global level. To support the policy measures of individual countries dealing with this issue, the International Monetary Fund's policy advice and public commentary should change so as to reflect the unhelpful characteristics of this type of capital flow.*



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Understanding the carry trade: the story so far

The carry trade is just one element of the bigger picture of international capital flows. The carry trade is described as 'the investment strategy of going long in high-yield target currencies and short in low-yield funding currencies'.<sup>1</sup> Narrowly interpreted, it involves *borrowing* in the low-interest currency, which would confine the concept to leveraged investment plays. But investors who shift their asset holdings from low-interest-rate currencies to higher-return currencies are responding to the same international interest differentials, so it seems sensible to include these non-borrowed flows too, in a broader concept which covers all flows driven predominantly by interest differentials. In policy terms, these flows warrant separate identification, as they raise a different set of issues from those generally associated with capital flows, such as foreign direct investment (FDI). Whereas foreign direct investment will be motivated by complex and sustained underlying factors relating to production possibilities and the comparative advantage of the specific recipient country (different production costs, regulations, consumer tastes and trading possibilities), the carry trade will be driven by simple sharp-pencil calculations of interest differentials and exchange-rate expectations, reassessed continuously and reversed quickly if expectations change. The carry trade's major characteristic is its volatility.<sup>2</sup>

Based on textbook economics, it's hard to see why the carry trade, as such, should be a serious policy issue. It should just be a component of the presumptively beneficial

flows of capital, seeking out the highest-return opportunities.

The carry trade should work as follows. If a financial portfolio is to be in equilibrium, the expected return on each asset should be the same, taking account of different risks associated with the different assets. If not, investors would sell the asset with the lower expected return and buy the asset with the higher return. How can equilibrium be reached if the interest rates on two different currencies differ significantly? Either the interest rates must converge, or the exchange rates between the two currencies must change to create the expectation of a *depreciation* for the country with the higher interest rate. Capital should flow from the low-interest-rate currency to the higher-interest-rate currency, forcing its exchange rate above the normal equilibrium value and creating an expectation of a subsequent reversionary depreciation. This expectation of depreciation is what equilibrates the return on the two assets: the currency offering the higher interest rate must be expected to depreciate annually by the difference between the two interest rates. The textbooks call this equality of the expected depreciation and the interest differential *uncovered interest parity (UIP)*.

All this sounds neat and logical, and indeed it was the received wisdom when generalised floating of exchange rates began in the early 1970s.<sup>3</sup> But by the 1990s the financial markets (and practical economists) had recognised that, not only did the exchange rate movement not offset the interest differential, but more often than not the exchange rate moved the wrong way for UIP, and most of the time the investor

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not only got the benefit of a higher interest rate, but an *appreciated* exchange rate as well.<sup>4</sup> Of course, there is ‘no free lunch’ in financial markets. Rather than the exchange rate in the high-interest-rate country depreciating steadily at the same rate as the interest differential, the exchange rate tends to move in the wrong direction for some time (while the financial markets are progressively recognising that there is a profit to be made by shifting the portfolio to hold more of the high-interest-rate asset). Then, triggered by some often minor random event, the market collectively realises that exchange rates are way out of kilter. Investors try *en masse* to get out of the high-interest-rate assets, causing that currency to depreciate very sharply.

The carry trade is a bet against UIP, and it has provided many winners. Historically, investors have made very good profits by borrowing in low-interest-rate currencies (typically, Japanese yen) and investing in high-interest-rate countries (typically, Australia, although also New Zealand and those emerging countries with some depth in their financial markets, such as Brazil and South Africa). The graph at the end of this paper shows the ex-post returns from the carry trade between the yen and two target currencies – the Australian and New Zealand dollars. An investor in the yen/AUD trade over this five-year period would have made a profit of 100 per cent.

The fact that investors are poised to unwind their position at the slightest sign of currency reversion leads the exchange rate to fall precipitately when the downward adjustment comes. A day’s depreciation can easily wipe out several years of interest differential. This is reflected in the skewed distribution of returns

reported by Jordà and Taylor.<sup>5</sup> The profits are even more exceptional for those savvy investors who unwind their position ahead of the periodic sudden falls on the exchange rate.

While exchange rates are, of course, subject to other influences, the carry trade goes some way to explain the exceptional volatility of the yen (the classic funding currency for the carry trade). The textbook example was in 1998. After a long period of appreciation leading up to August 1998, the yen depreciated in two sharp falls by over 20 per cent in September and October.<sup>6</sup> With this adjustment over, the opportunity of the carry trade reasserts itself and the exchange rate rises again, only to fall again precipitously some time later. The counterparty effect on the recipient or target country can be seen in the second half of 2008, with the Australian dollar falling by almost half against the yen. McCauley identifies a number of these turning-points, which he associates with high interest differentials.<sup>7</sup> Others associate the ‘crunch points’ with departures from fundamental equilibrium exchange rates or changes in volatility.<sup>8</sup>

Abnormal profits seem to defy the Efficient Markets Hypothesis (which says that markets will quickly remove any excess profits through arbitrage). A number of researchers have worked hard to establish that the abnormal profit is, in fact, just a reflection of extra risk. Jordà and Taylor have a useful discussion on this.<sup>9</sup> If naïve carry trade is sometimes overwhelmed by the sharp exchange-rate corrections, Jordà and Taylor make a convincing case that a variety of simple trading strategies greatly improve the risk calculus, restoring the clear and sustained abnormal profits. In any case, our concern here is not

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whether the investors make a profit or even whether the EMH is true. It is whether the behaviour of investors (profitable or not) is disruptive to the exchange rate.

The carry trade capital flow behaves somewhat differently compared with most other capital flows. It is obviously flighty and volatile, compared with FDI. As well, it is not responding to the intrinsic profit opportunities in the recipient country. Characteristically, it is responding more to the low profit opportunities and policy settings in the funding country and is relying for its profitability on an aberrant behaviour of financial markets, based on interest-rate and exchange-rate combinations which find no place in equilibrium analysis.

The downsides for the recipient country are:

- The carry trade inflows tend to be invested in areas where asset prices are already booming, fueling the asset bubble.
- These low-interest-rate funding opportunities undercut the intent of domestic monetary policy, which sees a need for sustaining higher interest rates to restrain economic activity to an appropriate level.
- The inflows are likely to reverse at an inconvenient moment in the business cycle.
- The profile of the exchange rate – generally overvalued, with occasional sharp overshooting depreciations – gives volatile and confusing price signals to the internationally traded sector, adding to investment uncertainty.
- Excessive inflows create ‘irrational exuberance’. The capital flows into the countries of East Asia in the mid-1990s (driven largely by interest differentials)

created the vulnerable environment in which the 1997-98 Asian Crisis played out.

**The future**

So much for the experience of the past decade or so. The GFC has created a far more expansive environment for the carry trade, because the resulting widespread low interest rates have created additional funding countries. The volume of carry trade in the past has been constrained by the risk that the interest-rate differential might change, so that only Japan, with its chronically low interest rate, was a major funding currency. But now we have not just Japan, but low interest rates in the USA, the UK and Europe. The broader view of interest-sensitive flows (i.e. not just confined to leveraged investment plays) becomes more relevant, because there is now a large group of investors whose assets are held in low-interest-rate countries, who will be looking for higher returns. They do not need to borrow: they have the funds already.

These interest rates are not just low now, but are likely to stay low for some years, with the prospect of a slow US recovery. The other thing that can go wrong for these investors is an inconvenient rise in the exchange rate of the funding currency. This seems less likely with the US dollar, at least on average over the next few years. The United States has a substantial current account deficit and is under pressure to reduce this and return to a more sustainable external position. This will require a competitive (i.e. depreciated) exchange rate. Meanwhile, Asia and Latin America are growing strongly, with interest rates which are likely to rise and exchange rates that will tend

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to strengthen as productivity rises. All this points to the combination of continuing interest differentials and sustained strong exchange rates in the high-interest countries – the environment to encourage an expansion of the carry trade.

Just as the number of potential funding countries has increased, so too has the number of potential recipient countries. As the emerging countries have deepened and developed their financial markets, the range of suitable recipient countries has widened. Thus Brazil and a range of Asian countries (India, Indonesia) are added to the traditional recipients – Australia, New Zealand, and South Africa.

The added complication is that these new recipients have financial markets which, while deeper than before, are still immature. There has not been enough history to anchor the exchange rates firmly. The carry trade inflows threaten to drive the rate well beyond the equilibrium level. When the break comes, the depreciation is likely to be sharper and overshoot in a downward direction, damaging those domestic companies which followed the logic of the carry trade, borrowing cheaply overseas in foreign currency.

**What policy response?**

The key element in devising a suitable policy response is to separate, at an analytical level, the effect of the carry trade from other components of capital flows and other influences on the exchange rate. The textbook view of these flows implies that they would be temporary and probably modest in volume.

Uncovered interest parity would operate to remove the abnormal profitability, so the flows would quickly cease. In practice these flows are likely to be sustained and disruptive. Do the recipient countries want to make use of this extra foreign capital, balancing its cheapness against the volatility that it will bring? If not, what could they do? While in practice the distinctions between carry trade flows and other flows will not be clear-cut, it seems legitimate to take measures which aim at inhibiting, restraining and slowing these carry trade flows. In Tobin’s memorable phrase in addressing the general issue of volatile capital flows more than three decades ago, there needs to be ‘some sand in the wheels’.<sup>10</sup>

The obvious policy instruments available are exchange rate intervention and/or taxation of inflows.

Building up foreign exchange reserves through market intervention during the phase of overvaluation may make sense, with the operational questions ‘how much’ and ‘over what time profile’? The resultant reserve build-up provides the wherewithal to reverse the intervention at those times when the exchange rate takes its periodic sharp dips. This might help to smooth out the exchange rate fluctuations. But the authorities are, in effect, taking a bet *in favour* of UIP and against the carry traders, and we know from experience that this is an unprofitable bet. This may not be a sensible large-scale foreign exchange strategy.

A tax on the inflow is another possibility. A once-off tax would impinge more strongly on short-term flows, which might be seen as an advantage if the objective is to inhibit short-term speculative flows while leaving longer-

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term portfolio flows and foreign direct investment largely unaffected.

There is a long history of countries imposing small taxes on capital inflows to discourage excessive inflows and inhibit the exchange rate appreciation that comes with them. The usual case discussed is the Chilean *unremunerated reserve requirement* (URR) imposed during the 1990s, but many countries had imposed similar measures, as early as the beginning of the 1970s. There have been strenuous efforts by the free-market proponents to show that the tax didn't affect the flows or the exchange rate or both, but over time some kind of consensus has developed that the taxes did work in the short or medium term to lengthen the maturity of the inflows, but didn't alter the long-term exchange rate.<sup>11</sup> This is exactly as it should be: it is the short-term volatility that is causing the disruption.

For many countries, there is a simple but powerful option which would be a step in the right direction. The income from foreign capital flows is often taxed in the country where the investor resides, not 'at source' (i.e. where the income is earned). International tax treaties often embody this idea. Thus income earned in the recipient country is not taxed there, and may indeed avoid taxation altogether if the wily investor uses tax havens. In any case there is a good equitable case for some taxation in the source country: after all, the investor should make some contribution to the upkeep of the institutional infrastructure (government services, defence, social security and so on) which helps makes the investment feasible and profitable. Thus the first policy option to investigate is whether the inflow is appropriately taxed by the receiving country,

and if not, what constraints there are (through international treaties) on altering this.

Our discussion here has focused on the emerging countries. The problems of volatile flows may be more serious for them, because their financial markets are smaller, shallower and there is not the longer time-horizon of market experience that would anchor the exchange rate. That said, countries like Australia are also clearly affected by these volatile flows, and the policy options explored here should be part of the tool-kit of policy-makers in all countries.

**Changing the mind-set**

Such measures, particularly an inflow tax, are unpopular with financial markets. This is unsurprising: taxes are never popular and in this case those who will pay have loud voices. The market's reaction when Thailand attempted to impose an URR in December 2006 was strong enough to make the authorities reverse their attempt. More recently, Brazil's two per cent tax on portfolio inflows has been less effective than it might have been, as markets are confident that this measure will not last long.

If such policies are a legitimate part of the emerging-country policy-makers' armoury, then they need the support (analytical and vocal) of the arbiter of these issues – the International Monetary Fund.

The attitude of the Fund on policy intervention with capital flows has shifted a little, to be less doctrinaire and overtly critical, but still has a strongly disparaging tone. The message is that

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countries which impose such controls or intervene in their foreign exchange markets are somehow wimps – just as real men don’t eat quiche, real countries don’t interfere with the free operation of financial markets. The problem is a deep-seated one at the Fund: too much textbook learning and not enough looking out the window to see how the real world operates.

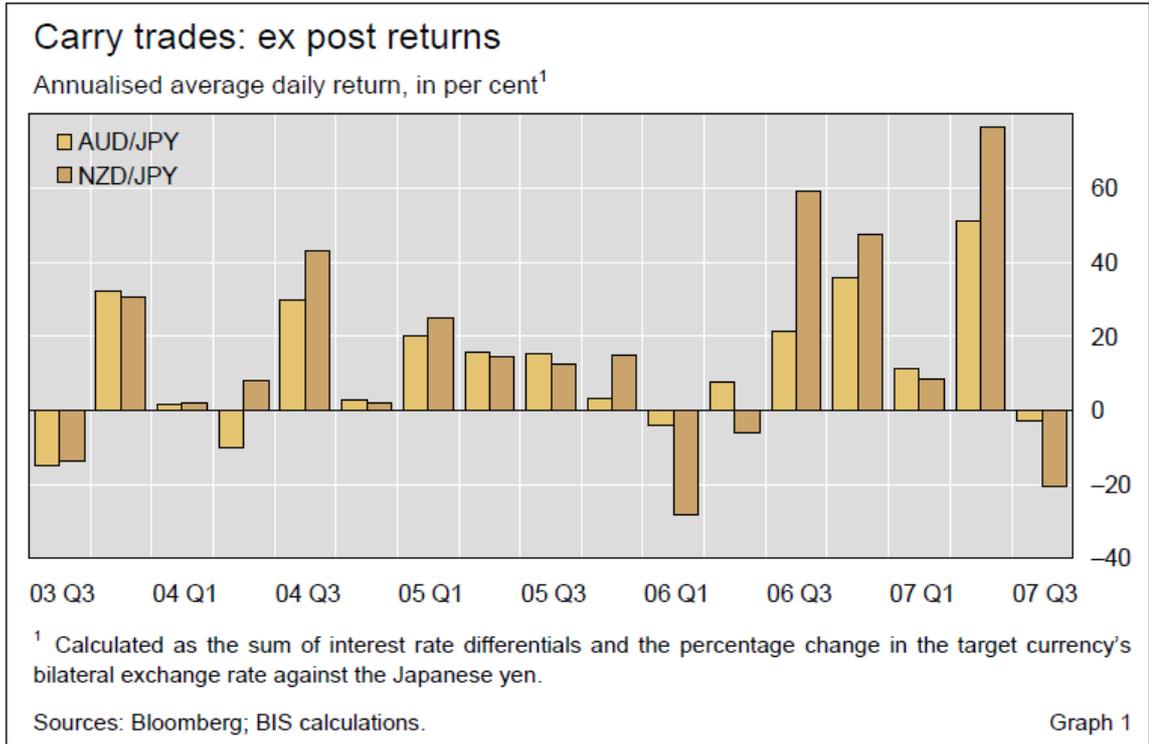
There has to be some hope that the GFC, with its demonstration that markets do a poor job at price discovery, saving/investment intermediation and risk mitigation, might provide the opportunity for some shift in the mind-set. It was, however, not much evident at the time of the Brazilian tax in October 2009. Here is the lukewarm support given by a senior IMF official:

‘These kinds of taxes provide some room for maneuver, but it’s not very much, so governments should not be tempted to postpone other more fundamental adjustments. Second, it is very complex to implement those kinds of taxes, because they have to be applied to every possible financial instrument’.<sup>12</sup>

For believers in the price-discovery ability of the free market, any interference will lead to a sub-optimal outcome. But if our starting-point is that the market is not producing an equilibrium profile for the exchange rate over time, the Fund should be ready to give the policy options discussed here some high-level backing.

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Source: Gyntelberg and Remolona<sup>13</sup>

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**NOTES**

<sup>1</sup> Òscar Jordà and Alan M. Taylor, The carry trade and fundamentals: nothing to fear but FEER itself. *NBER Working Paper* 15518 2009.

<sup>2</sup> Of course interest differentials also influence other types of capital flow, in particular banking flows whereby domestic borrowers in the high-interest-rate countries borrow in overseas currencies at lower interest rates. Much of what is said here applies to these flows as well, including the policy recommendations. The focus here is on the carry trade flows because these can be unwound more quickly, and there is no on-going commercial relationship between the parties which might provide some stability to the transaction.

<sup>3</sup> The classic reference is Rudiger Dornbusch, Expectations and exchange rate dynamics. *Journal of Political Economy* 84 (6) 1976.

<sup>4</sup> See, for example, the surveys of the literature in C. Engel, The forward discount anomaly and the risk premium: a survey of recent evidence. *Journal of Empirical Finance* 32 1996. See also R. McCauley and K. von Kleist, Carry trade strategies. *BIS Quarterly Review* February 1998.

<sup>5</sup> Jordà and Taylor, The carry trade and fundamentals: nothing to fear but FEER itself.

<sup>6</sup> See F. Béranger, G. Galati, K. Tsatsaronis and K. von Kleist, The yen carry trade and recent foreign exchange market volatility. *BIS Quarterly Review* March 1999.

<sup>7</sup> Robert N. McCauley, Managing recent hot money inflows in Asia. *ADB Discussion Paper* 99 2008.

<sup>8</sup> Jordà and Taylor, The carry trade and fundamentals: nothing to fear but FEER itself.

<sup>9</sup> Ibid.

<sup>10</sup> James Tobin, A proposal for international monetary reform. *Eastern Economic Journal* 4 1978.

<sup>11</sup> Independent Evaluation Office of the International Monetary Fund, *Report on the Evaluation of the IMF's Approach to Capital Account Liberalization*,

*April*. Box 2.3. Chile: The IMF's views on the use of market-based controls on inflows. Washington, IMF, 2005.

<sup>12</sup> IMF says Brazil capital tax not enough on its own. *Reuters*, 23 October 2009.

<sup>13</sup> Jacob Gyntelberg and Eli M. Remolona, Risk in carry trades: a look at target currencies in Asia and the Pacific. *BIS Quarterly Review* December 2007.

## ABOUT THE AUTHOR

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