

Box 10

CARRY TRADES AND EXCHANGE RATES

Carry trade strategies are often cited as being one of the factors behind some of the exchange rate fluctuations of recent years.¹ A “carry trade” is usually defined as an investment strategy in which an investor borrows funds at a low interest rate in one currency (the “funding currency”) and invests them in assets yielding a higher interest rate in another (the “target currency”), without hedging the exchange rate risk. Empirical evidence provides some support for the proposition that carry trades have been profitable in the long term. For example, carry trade returns over the past 30 years have been calculated as being of the same order of magnitude as those generated by investing in the S&P 500.² This box reviews the relevance of carry trades for exchange rate movements in recent years.

Two main factors determine the risk-adjusted profitability of carry trades: (1) the interest rate differential between the funding and the target currency, and (2) the exchange rate risk, as reflected in measures of foreign exchange market volatility. The former divided by the latter is the so called “carry-to-risk” ratio. Large exchange rate movements may have important repercussions

1 See, for instance, G. Galati, A. Heath, P. McGuire, “Evidence of carry trade activity”, Bank for International Settlements, Quarterly Review, September 2007.

2 See C. Burnside, M. Eichenbaum, I. Kleshchelski and S. Rebelo, “The returns to currency speculation”, NBER working paper No 12489, 2006.

on the profitability of carry trades. For this reason, carry trade activity tends to increase in periods of low foreign exchange market volatility and to unwind when volatility rises.

The profitability of this investment strategy, however, contradicts the uncovered interest parity (UIP) condition. This states that a high-yielding currency will depreciate vis-à-vis a low-yielding currency by an amount equal to the interest rate differential, hence predicting that carry-trade returns will be zero. Empirically, however, there is little support for the UIP condition. Currencies associated with higher yielding assets often appreciate vis-à-vis low-interest-rate currencies for prolonged periods of time (the so-called “forward premium puzzle”). As a result, the carry-trade return arising from the interest rate differential is often augmented, rather than offset, for a prolonged period by the appreciation of the target currency vis-à-vis the funding currency.

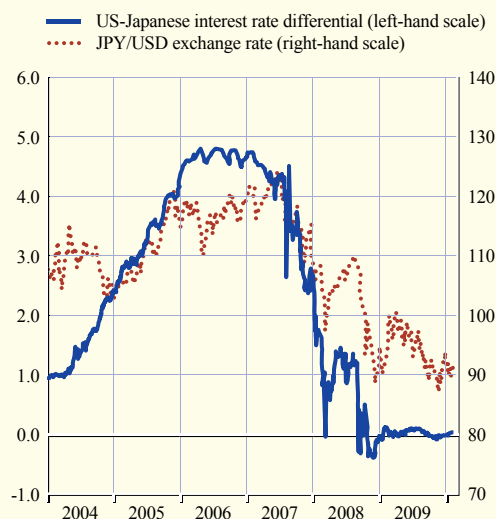
However, at some point the one-way movement of the exchange rate will come to an end, and then carry-trade investors often suffer large losses due to rapid exchange rate corrections. There is indeed empirical evidence that carry traders are subject to the risk of a sharp depreciation of the target currency due to the sudden unwinding of carry trades, which tends to occur in periods of decreasing risk appetite and funding liquidity.³

The evolution of the Japanese yen/US dollar exchange rate provides an example of the interplay of interest rate differentials and foreign exchange market volatility. The period prior to the global financial crisis was characterised by high interest-rate differentials worldwide as well as subdued exchange rate volatility, i.e. a favourable environment for carry trades. During this period, market observers regularly referred to the Japanese yen as a funding currency and to the US dollar as a target currency. Between early 2004 and mid-2007 the US-Japanese three-month interest rate differential stood on average at 3.5 percentage points, gradually increasing at first and remaining stable thereafter (see Chart A). At the same time implied exchange rate volatility for this currency pair was rather subdued, at 8.5%, well below the average level observed over the past ten years.

Carry trade activity is reflected in the evolution of net non-commercial positions, obtained from the Commitment of Traders data for the US futures market. These positions – the most commonly used indicator of the presence of carry trade operations – are calculated as the difference between long (buying) and short (selling) futures positions in a given currency, vis-à-vis the US dollar, and may be seen to be related to the evolution of the JPY/USD exchange rate (see Chart B). The accumulation of net short yen positions between the first few months of 2005 and the summer of 2007 occurred in parallel with a 20% appreciation of the US dollar

Chart A The US-Japanese three-month interest rate differential and JPY/USD exchange rate

(percentage points; Japanese yen per US dollar)



Source: Reuters and ECB calculations.
Note: Last observation refers to 03 March 2010.

³ See, for instance, M. K. Brunnermeier, S. Nagel, L. H. Pedersen, “Carry Trades and Currency Crashes”, NBER Working Paper No 14473, 2008.

vis-à-vis the Japanese yen. Over this period, other high-yielding currencies, such as the New Zealand dollar, the pound sterling, the Canadian dollar and the Australian dollar also appreciated sharply against the Japanese yen.

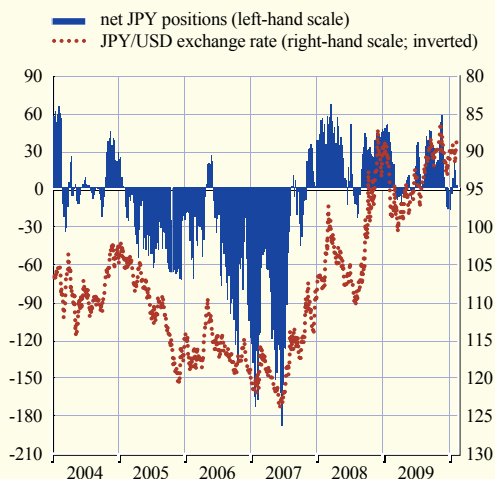
In late 2007 and in the first half of 2008, when interest rate differentials between the United States and Japan narrowed as a result of the US recession and the associated cuts in the federal funds rate, carry trades became less attractive for this currency pair. This led to some reversal of net speculative positions, while other currencies, such as the Australian dollar, continued to be supported by high yields.

Following the collapse of Lehman Brothers in September 2008, interest rates declined sharply worldwide and their dispersion decreased. At the same time, risk aversion mounted, as indicated by surging implied foreign exchange volatility. These developments led to a sharp drop in the carry-to-risk ratio, thereby reducing investors' incentives to pursue carry trade strategies. The sharp unwinding of carry trades over that period was also evident in the decline in net speculative positions on the foreign exchange futures market, from peak levels towards neutrality, for all major currency pairs. As a result, the Japanese yen, in the two-month period to the end of October 2008, appreciated sharply, rising by 28% against the euro and by 11% against the US dollar, in a period in which the demand for dollars was actually increasing owing to "safe haven" flows.

In 2009, as foreign exchange market volatility gradually subsided, market participants were reportedly looking again at carry trades. However, interest rate differentials were still very low, so that carry trades were probably of less importance for global exchange rate movements than in the low-volatility period that preceded the global financial turmoil.

Chart B Net JPY positions vis-à-vis the USD and the JPY/USD exchange rate

(thousands of contracts; Japanese yen per US dollar)



Sources: Bloomberg and ECB calculations.
 Notes: Last observation refers to 03 March 2010.