Canada On The Cross-Rates

Trading cross-rates is the currency market's equivalent of eating spinach: Everyone says it is a great idea for someone else but they never seem to find time to do it themselves. This is quite understandable on one level as traders naturally gravitate toward deep, liquid markets, especially as trading becomes increasingly algorithmic. However, the centripetal pull of activity into a small handful of very large markets leads to ever-smaller per-trade margins. The road less traveled often provides the greatest opportunities.

Let's take a look at two cross-rates between three different major currencies, all of which are highly liquid against the U.S. dollar. These will be the cross-rate between the Canadian dollar and Japanese yen, expressed here as CAD per JPY, and the cross-rate between the euro and Canadian dollar, expressed here as EUR per CAD. As an aside, the Chicago Mercantile Exchange has futures on both of these cross-rate pairs expressed in the exact opposite manner, JPY per CAD and CAD per EUR. At the early March 2010 time of this writing, the CAD/EUR cross-rate had an open interest of 16 contracts and the JPY/CAD cross-rate future had an open interest of 4 contracts. The Intercontinental Exchange has a little more success with the contracts on its FINEX division; their open interest figures were 1,056 and 379, respectively.

Are these low open interest figures in the futures markets trying to tell us something, that these two CAD cross-rates are best left to facilitation desks in the cash market and are essentially unsuitable for active currency traders? Let's run down a list of favorite tools and indicators for currencies and see whether any of them can be used for trading purposes for those of you who wish to trade in a thinner market with potentially greater inefficiency and wider margins.

Expected Interest Rate Differentials

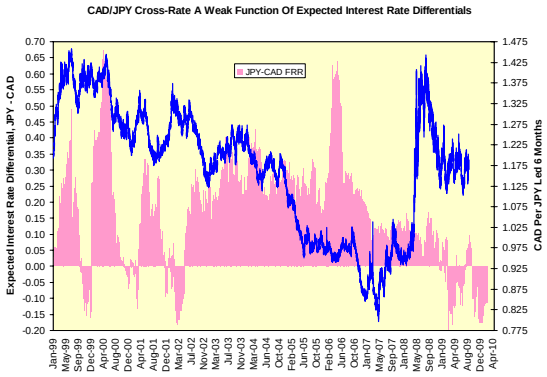
As always, a good place to start the analysis is with the expected interest rate differentials between two currencies. This we can do by taking the difference between the forward rate ratios ($FRR_{6,9}$) between six and nine months for each currency. This is the rate at which we can lock in borrowing for three months starting six months from now divided by the nine-month rate itself.

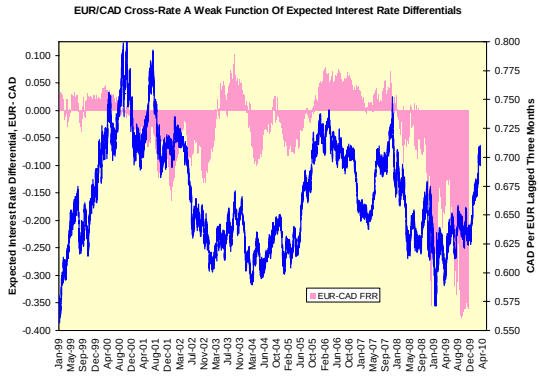
The more this ratio exceeds 1.00, the steeper the yield curve along this segment and thus the greater the expectations are for interest rates to increase along that segment of the yield curve. Our prior expectation should be for the currency with the higher $FRR_{6,9}$ to be stronger on the cross-rate, subject to all manner of special considerations such as relative prospective asset returns, current account imbalances and political risks.

What do we see when we map the $FRR_{6,9}$ differentials against the two cross-rates against the CAD? In the case of the JPY, the differential had been positive from mid-2002 into early 2009. More than anything else, this was an artifact of the near-constant and incorrect assumption short-term interest rates in Japan simply had to rise at some point. Once that assumption was abandoned with the re-adoption of quantitative easing in Japan in December 2008, the differential turned negative as the market expected Canadian rates to begin rising faster.

The long-term trend of 2000-2007 was for the CAD to gain on the JPY on this cross-rate; after 2007, no real trend existed at all in the cross-rate. The $FRR_{6,9}$ differential leads the CAD per JPY cross-rate by six months on average; this long lead time may reflect Japan's role as both a large portfolio investor in Canada and Canada's role as a large supplier of raw materials, lumber in particular, to Japan. A three-month lead time for expected interest rate differentials is observed more commonly.

Once we shift to the CAD per EUR cross-rate, an anomaly arises immediately. Here the $FRR_{6,9}$ differential between the EUR and CAD has oscillated about from positive to negative, with the largest negative differential occurring in the August-September 2009 period when U.S. short-term interest rates went under Japanese short-term interest rates and prompted the unwinding of various dollar carry trades. However, the differential does not lead the cross-rate but rather is led thereby, a phenomenon not observed by this author in any other currency pair. The currency cross-rate leads the $FRR_{6,9}$ differential by three months instead. Restated, the cross-rate establishes the expected interest rate differential between Canada and the Eurozone. European investors made decisions on Canadian assets at the margin based on currency-based prospective returns, and vice-versa.



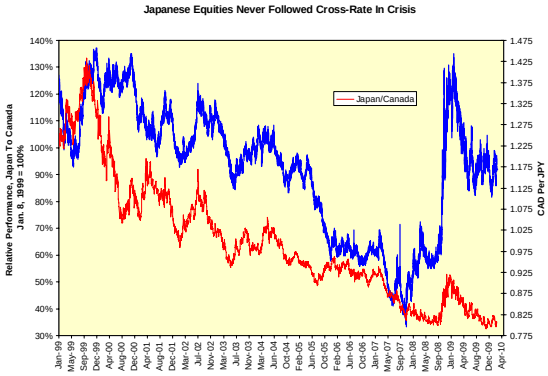


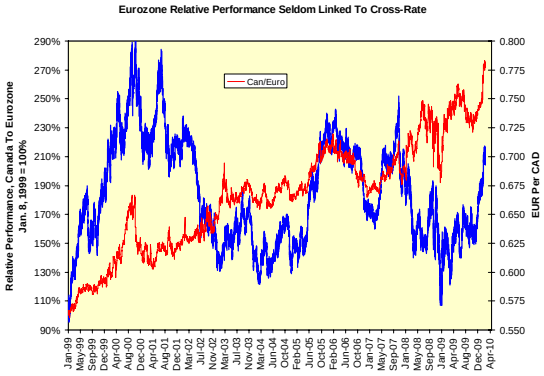
Prospective Asset Returns

Let's use the relative performance of Japanese and Eurozone stocks versus Canadian stocks as a proxy for prospective asset returns in each market. The MSCI total return indices measured in USD will be the raw material for the analysis.

The relative performance of Japanese stocks to Canadian stocks broadly tracked the CAD per JPY cross-rate from 1999 all the way through the bull market's peak in late 2007. The relationship resumed in 2009, but only after a huge divergence during the 2008 financial crisis. This leaves us with a problem faced often by trading system designers: You have an indicator or set of indicators that worked for everything but the largest move on record. It messes up your backtest something fierce. What do you do? If the huge loss was the result of an event or Act of God-type of consideration, the best course of action is to accept the long-term economic relationship if it is sound for the simple reason you cannot predict those sorts of events. So it is with the relative performance of Japanese stocks as a function of the CAD per JPY cross-rate: You could not have accommodated all of the events of 2008 in any regard; at best you could have reduced your exposure. We should accept this as the conclusion for this relationship.

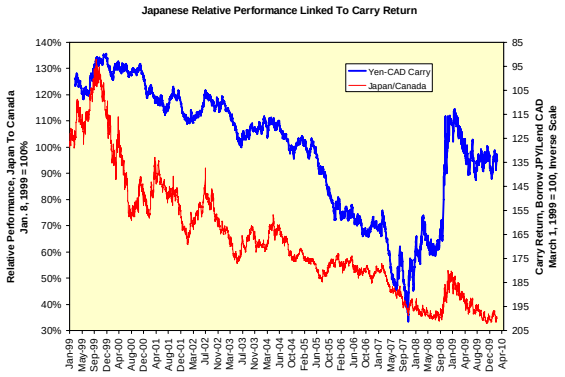
The relative performance of Eurozone stocks to Canadian stocks as a function of the EUR per CAD cross-rate is quite different. It is, in fact, virtually non-existent in the record with the exception of stretches in the 2005-2008 period. This, too, is quite the exception to the relative stock market performances seen elsewhere as a function of currency cross-rates. The most common pattern globally is for one to mirror the other, making international diversification in the stock market an expensive form of currency trading.

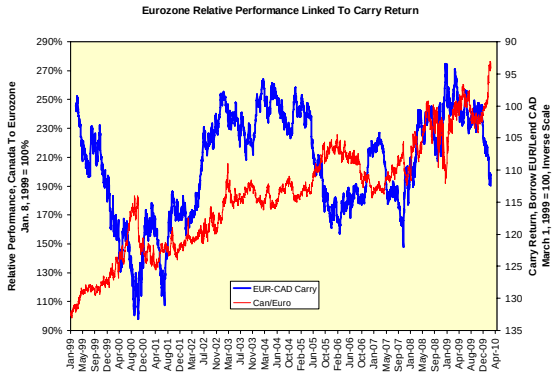




If we shift the currency variable from the spot rate to the cumulative carry return on the strategy of borrowing one currency and lending in the other, the relative performance measure matches more closely. The trade of borrowing the JPY to lend in the CAD matched the relative stock market performance of Japan relative to Canada, plotted inversely. Still, the enormous shock of the yen carry trade's closure during the 2008-2009 financial crisis distorted the basic relationship between these two asset return measures.

The trade of borrowing the EUR to lend in the CAD has an intermittent weak and strong relationship. It diverges most during bear markets for the EUR, such as in 1999-2000 and again in 2005. The carry return is unnaturally strong during those periods as the CAD tends to cleave to the USD while the EUR weakens. The relative stock performance tends to be unaffected during such episodes.





Volatility And The Insurance Trade

We mentioned the unwinding of the carry trade above. This is a constant problem with anything related to the JPY (see "Looking At The Carry Trade," June 2007) and increasingly with anything related to the USD. As the market anticipates any sort of appreciation in the JPY, its implied volatility jumps relative to its high-low-close (HLC) volatility.

HLC volatility is defined as:

$$\sum_{i=1}^{N}\left[\frac{\left[.5*\left(\ln\left(\frac{\max(H,C_{t-1})}{\min(L,C_{t-1})}\right)\right)^2-.39*\left(\ln\left(\frac{C}{C_{t-1}}\right)\right)^2\right]*260}{N}\right]^{1/2}$$

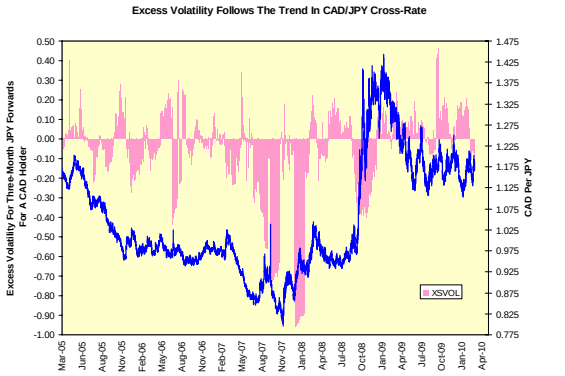
Where N is the number of days between 4 and 29 that minimizes the function:

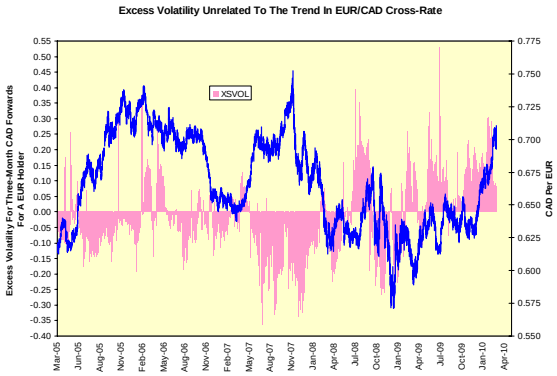
$$\frac{1}{N}*\sum_{i=1}^{N}\frac{N}{Vol^2}*|(P-MA)|*|\Delta MA|$$

If we create a measure of excess volatility, the ratio of implied volatility to HLC volatility, minus 1.00, and map it against the cross-rates, can we learn anything therefrom? As the implied volatility series used for three-month non-deliverable forwards starts in 2005, the charts here will have a shorter time span.

Our prior expectation should be for the excess volatility for JPY forwards for a CAD-domiciled holder to rise and fall with the cross-rate itself, and this does in fact appear to be the case. Interestingly, the excess volatility measure jumped prior to the huge spike in the JPY during the 2008 financial crisis and then fell during the peak of that crisis. A better leading indicator we might not be able to find.

Given everything we have seen above for the CAD per EUR cross-rate, we should not expect a similar move; EUR-domiciled investors to not seek option protection on the CAD prior to periods of CAD strength.





We are left with several strong conclusions. First, if given a choice between trading the CAD cross rate to the EUR and JPY, you always should choose the JPY cross-rate. It is linked to interest rate expectations, relative asset returns and volatility measures. Second, a reliable negative indicator is just as valuable as a reliable positive indicator. The EUR cross-rate lacks the consistent relationships seen for the JPY indicator. Finally, we have good fundamental reasons for expecting the CAD per JPY cross-rate to work; these include Japan's large portfolio investment in Canada and Canada's importance as a materials exporter to Japan.

Perhaps one reason cross-rate trading has taken a back seat to outrights against the USD over the years is traders' collective tendency to treat each one as the same. They are not. A little homework in this field often produces big payoffs.