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SPECIAL FX
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Euro and Yen: Surprising Developments

It looks so easy. Risk on and risk off. When risk trades are being put on, equity market and commodities prices, like gold and oil, rise. The euro appreciates and the yen sells off. When risk trades come off, just the opposite takes place.

This common narrative is based on numerous assumptions, including that correlations between the currencies and equities and commodities are fairly stable. We examined this hypothesis and present our results here. Contrary to our expectations, we found that recently there has been a sharp decline in the correlations between the euro and yen on one hand, and equities and gold and oil on the other hand.

A word about methodology is in order. We performed the correlations on percent change. This is more robust that running the correlations on the levels. We used a 60-day rolling correlation to capture the middle ground between the noisy short-term and the long-term, which may remove too much detail.

Euro and Equities

Chart I (all charts listed on page 4) depicts the 60-day rolling correlation between the euro and the S&P 500 and the Dow Jones Stoxx 600 since the start of 2008. On the most general level, observe that the correlations are not stable. During the period leading up to the Lehman crisis, the euro was inversely correlated with the S&P 500 and the DJ 600. Another general observation is that the euro tends to be more correlated with the S&P 500 than it is with the approximate European equivalent, the DJ 600.

The euro and the S&P 500 correlation was generally confined to roughly the 0.4-0.6 range for the past 2 years, with the exception of during the height of the European debt crisis in Q2 10, when it fell out of the range. Ironically, as more observers seem to talk about it, the correlation, as we have measured it here, has been trending lower this year. It now sits at a multi-year low, though it is not inverted.

An intensification of the European debt crisis may lead the correlation to break down further. Perhaps this might occur on disappointment after the March 24-25 summit if leaders cannot provide the markets with substantial closure, the outcome which seems to us most likely.

Chart II shows the 60-day rolling correlation over a longer period. As can be seen, the correlation been the euro and the S&P 500 was inverse for most of the 1994-2003 period. While it is tempting to think of correlation as a mean reverting process, this longer term chart of the euro and S&P correlation suggests that if this hypothesis is true, it might be that the mean is near zero.

Yen and Equities

As Chart III illustrates, the yen (not dollar-yen, but yen-dollar) has been inversely correlated with the S&P 500 since 2007. The correlation was positive in the prior three years, though has generally been inversely correlated. In recent years the correlation has been considerably more volatile that the euro's correlation with equities.

In the second half of last year, the inverse correlation become increasingly less so, and for a brief period of time at the end of 2010, the 60-day rolling correlation turned positive. Since the start of the year the correlation turned again and has been increasingly inversely correlated. Ironically, in early March it is as inversely correlated with the S&P as the euro is positively correlated (~0.2). If the MENA rolling "jasmine revolution" continues to extend and/or the European leaders disappoint, the yen's inverse correlation would appear likely to increase.

Unlike the euro, the yen tends to be more correlated with its local equity market (we use the Nikkei) than it is with the S&P 500. It has been fairly stable in a -0.1 to -0.3 range. It is currently at the upper end of that range, perhaps a reflection of the strong foreign buying of Japanese equities this year (~$18.7 bln thus far this year according to Ministry of Finance weekly data).

Euro and Gold and Oil

Correlation is not something that may be readily detected by eye-balling two time series. The rolling 60-day correlation of the euro and oil and gold has fallen toward zero from near 0.4 at the end of last year (Chart IV).

During the vast majority of the time, the euro was positively correlated with the price of gold. The notable recent exception was May-September last year. It then returned to where it was before the European debt crisis turned acute; around 0.5 by the middle of December. It has trended lower this year and is now flirting with inverse correlation territory. It could become more inversely correlated if the European debt crisis is not resolved shortly.

The euro's correlation with oil has been somewhat less volatile, but it too has been trending lower this year. It is nearing 0. With only brief exceptions the euro has been positively correlated with oil prices since 2003. However, as the longer term (Chart V) shows, the euro had been inversely correlated with oil prices in the preceding period of more than a decade (using a synthetic euro for prior to 1999).

One potential explanation for this shift is that it may reflect more active management and diversification of petrodollars. Another potential explanation may be divergences in policy responses, as we have seen in recent days. The ECB seems intent on preventing a second round impact of higher oil prices, which it acknowledges may be a temporary spike.

The ECB's headline inflation (it eschews core rate focus) is 2.3%. US headline CPI is near 1.6% (admittedly it measures a different basket of goods and services, but that is for another essay). The Federal Reserve is more likely to look past a suspected temporary rise in headline inflation as long as the core remains subdued and inflation expectations anchored. It remains committed to easing policy, even in unconventional ways, given that the overnight rate is close to zero.

Yen and Gold and Oil

The yen (not dollar-yen, but yen-dollar) has since mid-January swung from inversely to positively correlated with the price of oil (Chart VI). While the correlation appears volatile, it is at the high end of a long-term range of 0.25-0.30 for the 60-day rolling correlation. Since 1992, there have been only four periods in which the yen's correlation with oil was above 0.35.

One take away point here is that even though Japan imports nearly all of its oil, higher oil prices have not meant a weaker yen, as the positive correlation now and in mid-2008 illustrate. Nor has low oil prices meant a strong yen.

This also supports our earlier contention about the general instability of correlations. The yen has spent the bulk of the past twenty years positively correlated with gold. There has been on average one period a year in which the correlation became negative, but it has not lasted more than a couple of months. In July and August last year, the yen experienced one of those periods, and then spent most of Q4 and the early part of this year increasingly positively correlated.

It reached a high in late Jan near 0.60. There have only been 5 periods over the past two decades that the correlation was higher.   It has been falling, but near 0.4, it remains substantially higher than the euro's correlation (near 0), which seems to get more observer interest.   It is ironic that the yen, which is the currency of a country with gross debt near 200% of GDP and no longer enjoys triple-A credit rating, ienjoys even this degree of correlation with gold, as the yellow metal is often proposed as an alternative to debasement of paper money and the ultimate safe haven.

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Chart I: Euro-dollar 60-day Rolling Correlation to Equities

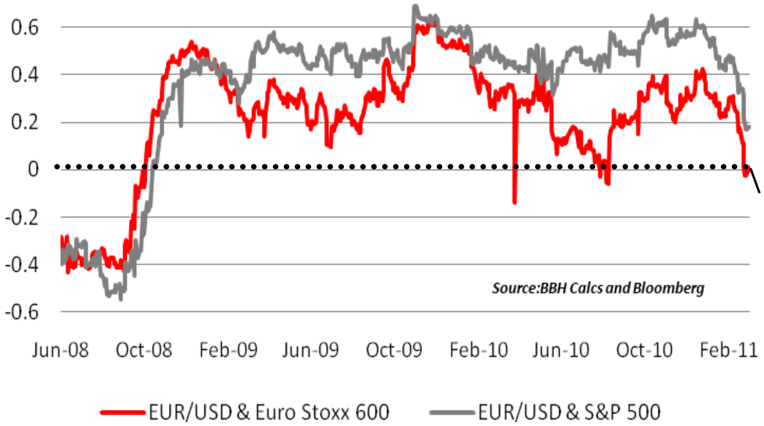

Chart IV: Euro-Dollar 60-day Rolling Correlation to Commodities

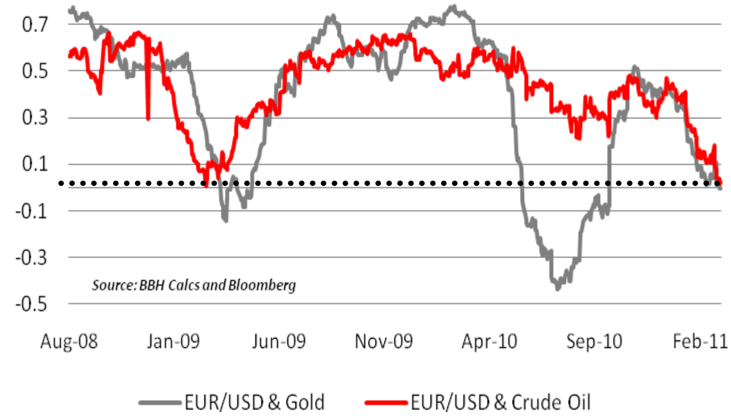

Chart II: Long-Term Euro-Dollar & S&P 500 60-day Rolling Correlation

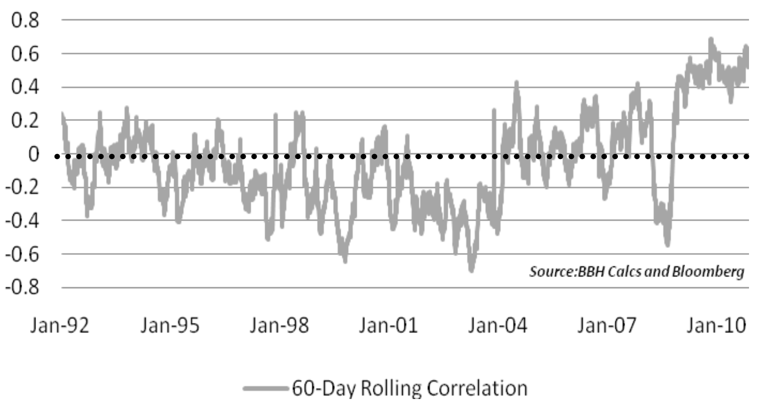

Chart V: Long-Term Euro-Dollar & Generic Crude Oil (CL1) 60-day Rolling Correlation

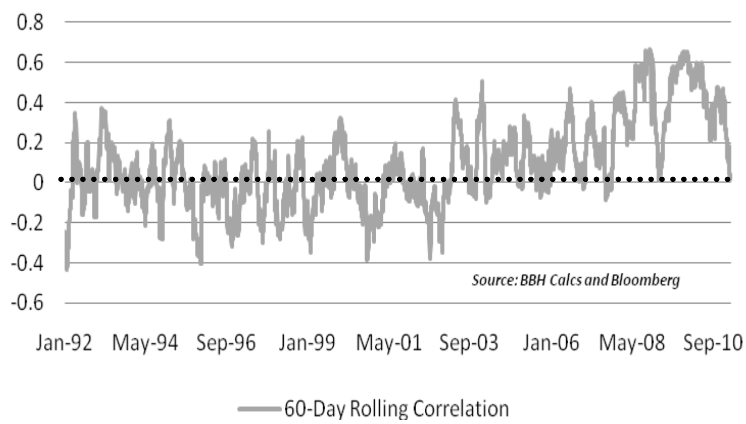

Chart III: Yen-dollar 60-day Rolling Correlation to Equities

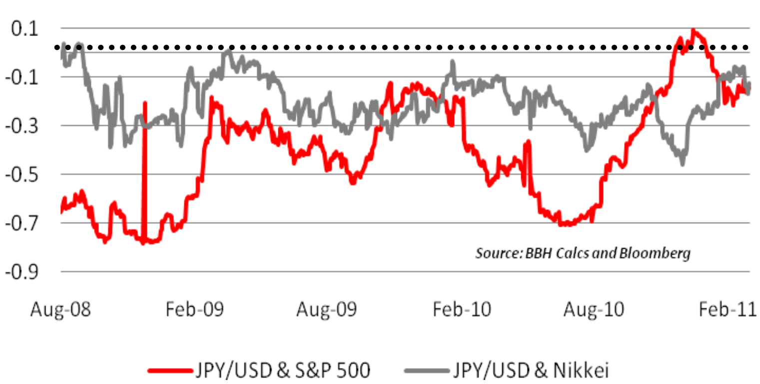

Chart VI: Yen-Dollar 60-day Rolling Correlation to Commodities