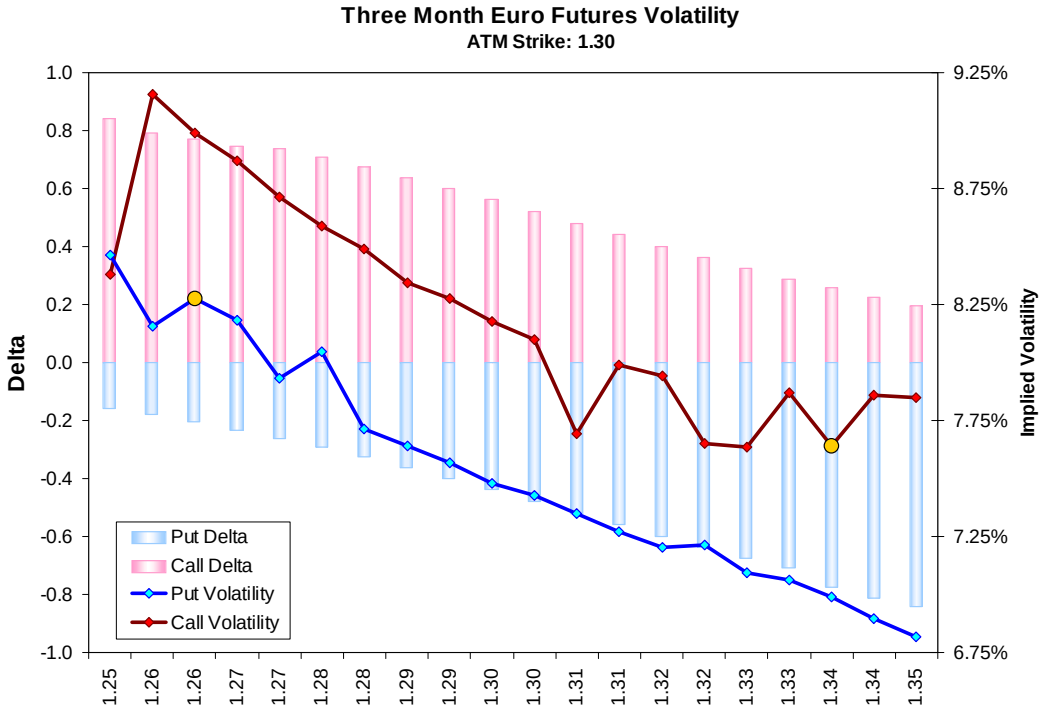
# Going Forward With Reversals: The Majors

Back in the days when trading was conducted over the phone and human conversation was involved, the question inevitably arose as to why a given market was going up or down so quickly. Whenever one party answered, "More buyers than sellers," or its opposite, the other party often stepped in to correct, "No, more anxious buyers than sellers."

This should not be a controversial observation. As all trades must have by definition a buyer/seller or borrower/lender pair, the quantities involved must be equal. The willingness of the marginal buyer or seller to pay more or receive less, respectively, defines the underlying shift in economic value and hence the ultimate direction of price trend.

Option markets allow us to take this thought process one step further by allowing traders to buy the right but not the obligation to buy or sell at a given strike price. The relative willingness of call and put option buyers to buy these rights can be measured in a risk reversal, defined as the difference in implied volatility between call and put options of the same delta. Delta is the expected movement in the option's price relative to the underlying asset's price; call option delta ranges from 0 to 1 and put option delta from -1 to 0. When the bounds of 1 and -1 are reached, the options are so deep in the money and have so little time premium remaining they behave like long and short futures or cash market positions, respectively.

The chart below depicts three month-ahead call and put option volatility for March 2013 euro futures. The deltas for the options decrease absolutely as price advances over the 1.30 at-the-money strike. The volatilities of options are mapped as well, with the 25-delta volatility highlighted for each. The difference between these two is a 25-delta risk reversal. The remainder of the discussion will focus on these 25-delta risk reversals as well as the more sedate 35-delta risk reversals.



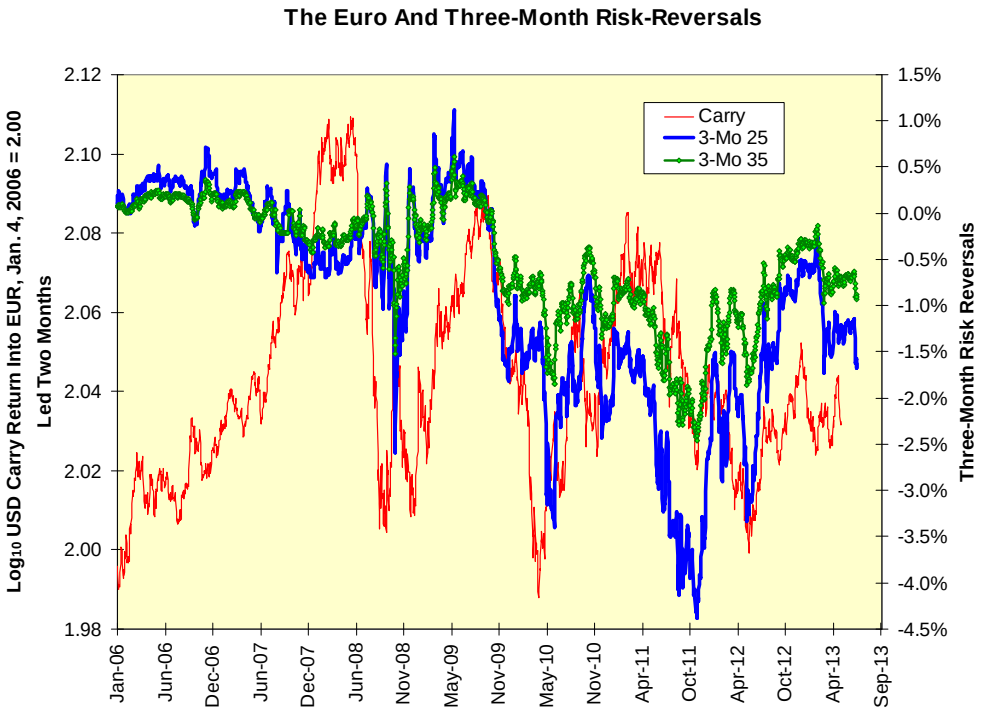

**Risk Reversals And The Majors**

The data in the first set of charts below are based on cash markets for a set of major currencies. The returns on the currencies are presented as the common logarithm of the total carry return from the U.S. dollar into those currencies reindexed to January 2006; this both approximates the return path of a continuous currency future and allows for the more intuitively appealing rising line depicting a stronger currency. The three-month 25- and 35-delta risk reversals are presented as well. The reversals for the euro, British pound and Australian dollar, which are quoted as "USD

per" are presented on a normal scale while those for the Japanese yen, Swiss franc, Canadian dollar and Swedish krona are presented on an inverse scale to maintain common visual reference.

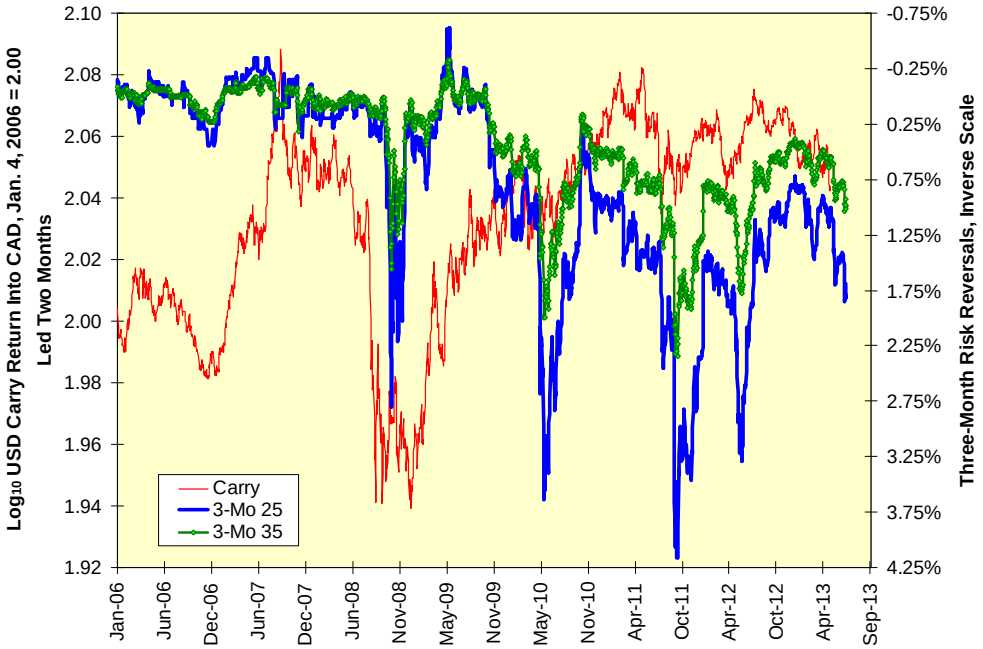
If risk reversals are to have any value in trading and market analysis, they should lead the return series and do so with a two-month lead-time on average. Accordingly, the carry return series are shifted by two months on the charts below. A very consistent picture emerges: The risk reversals in general and the more out-of-the-money 25-delta risk reversals in particular turn in advance of the currency carry returns. The economic and market interpretation here is simple and appealing: The more anxious party prior to an advance is the out-of-the-money call option buyer and vice-versa for put option buyers in advance of a decline. While asset markets do not forecast but rather measure, insurance markets such as options must reflect assessments of future risks.

This first set of charts is presented below. The euro, for all of its travails since the sovereign debt crisis, has been allowed to trade more freely than many other major currencies in recent years. For purposes of market analysis, if nothing else, the European Central Bank's late arrival to the global money-printing extravaganza meant it could trade in a two-way market more than, say, the Japanese yen or Swiss franc.



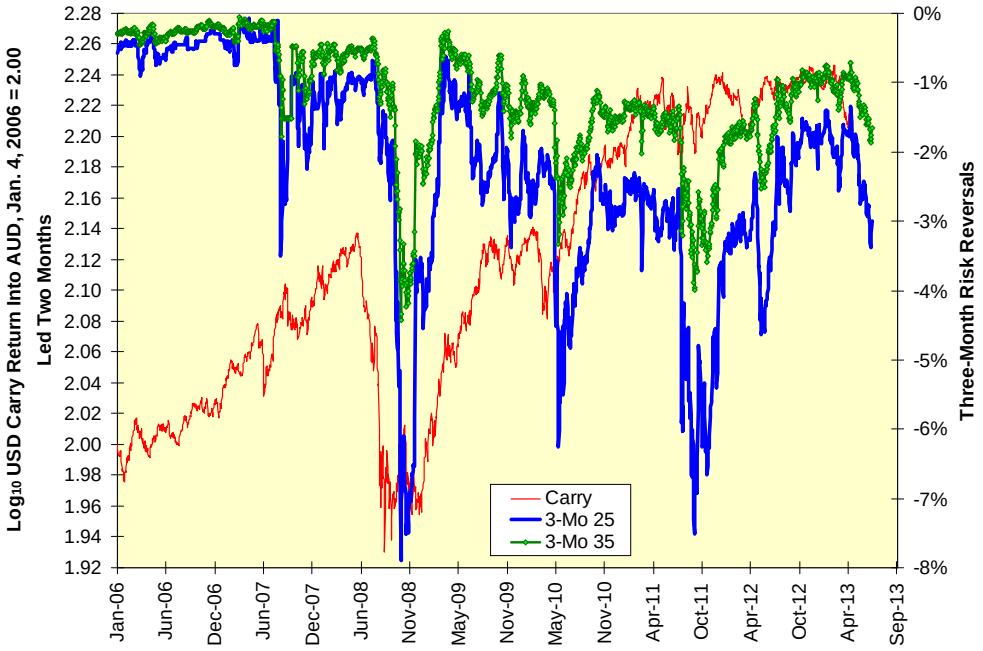

The Canadian dollar also traded in a two-way market and has a relatively clean relationship to its risk reversals. The Bank of Canada managed to keep a relatively independent monetary policy vis-à-vis the U.S., a difficult achievement considering its strong economic and financial linkages with its larger neighbor.

**The Canadian Dollar And Three-Month Risk-Reversals**



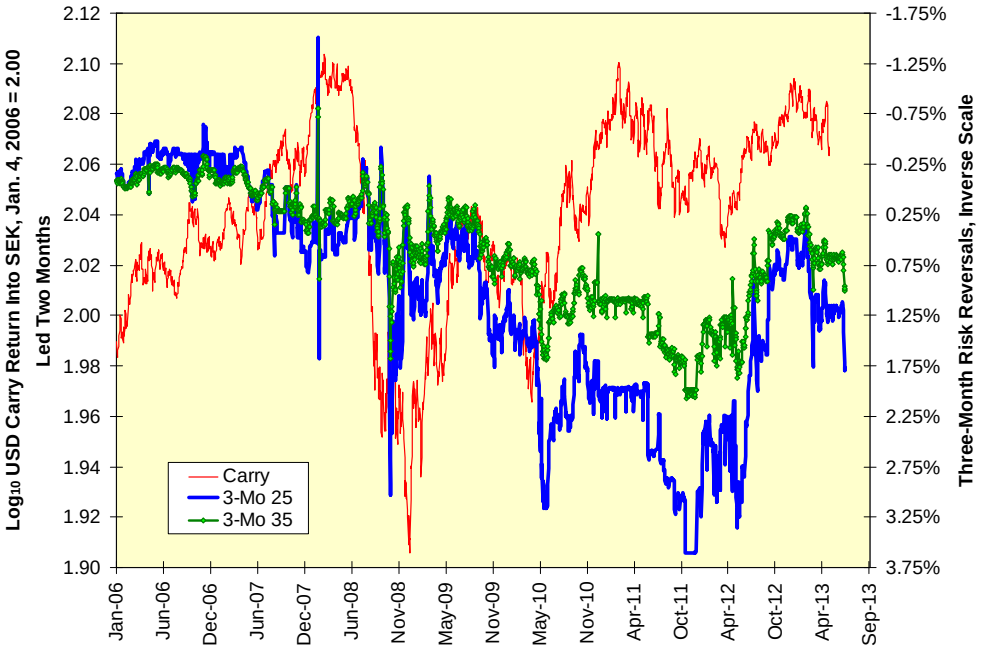

The Australian dollar's relationship to its risk reversals has been strong and as befitting the AUD's long history of volatile price movements and domestic monetary policies, the risk reversals have moved about violently. The risk reversals have been more effective in their moves higher than they have been in anticipating the downturns in the AUD.

**The Australian Dollar And Three-Month Risk-Reversals**



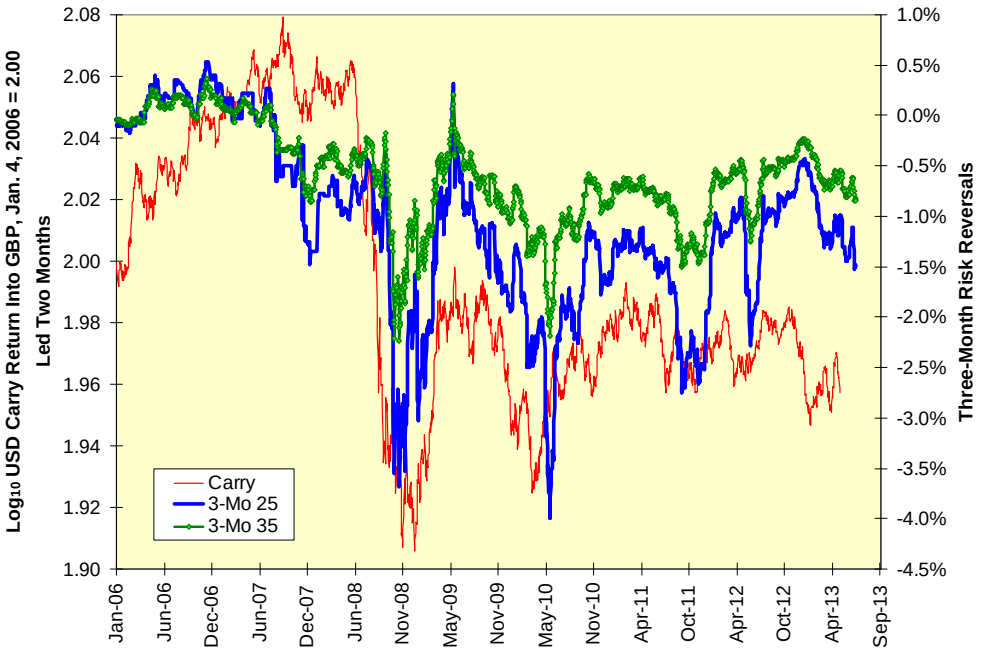

The Swedish krona occupies a different niche; the carry return matched the risk reversals going into the rescue of Greece in 2010, but once euro holders became nervous and started to search for safe havens, the SEK moved higher. The result was a strong phase-shift higher between the carry returns and the risk reversals after mid-2010 that only started to return to normal at the start of 2013.

**The Swedish Krona And Three-Month Risk-Reversals**



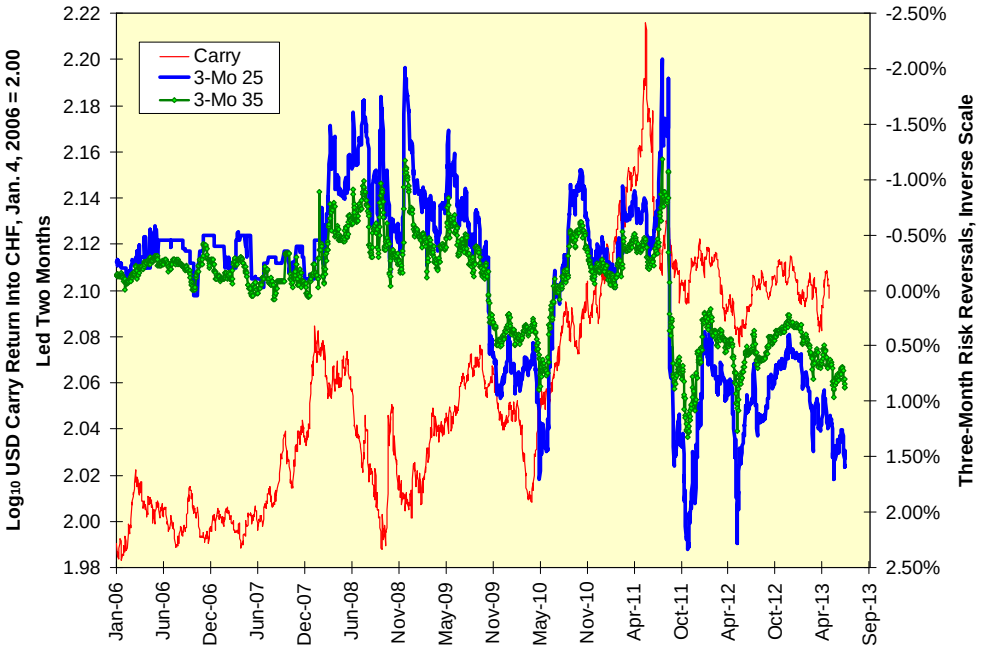

The British pound has had an opposite shift since the financial crisis. Here the carry return has paralleled the risk reversals but at a lower level. Several rounds of British quantitative easing convinced traders the GBP was going to be pushed lower.

**The British Pound And Three-Month Risk-Reversals**



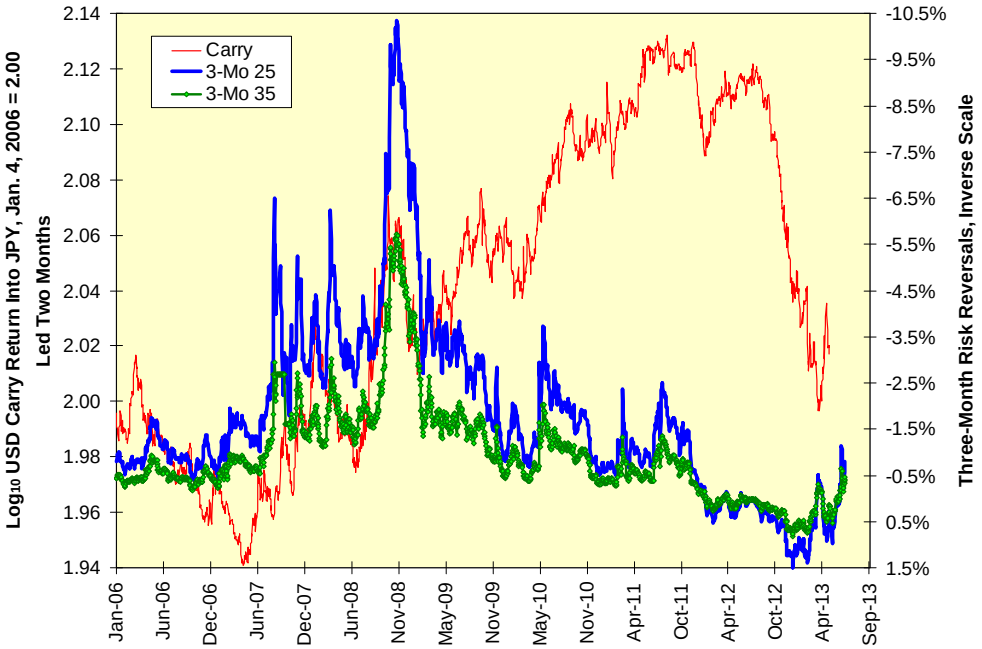

The next two currencies, the Swiss franc and the Japanese yen, are simply anecdotal in their behavior. The CHF's carry returns were low relative to the risk reversals before the financial crisis and then jumped higher as money flowed out of the Eurozone into Switzerland. The markets then shifted downward after the imposition of the franc ceiling in September 2011.

**The Swiss Franc And Three-Month Risk-Reversals**




The yen had a strong connection between its carry return and the risk reversals prior to the financial crisis. The options markets then took to believing Japan would be successful in weakening the JPY while the carry return documented the failure of those policies. By May 2013, the option markets started to price in the firming of the JPY associated with the unwinding of yen carry trades.

**The Japanese Yen And Three-Month Risk-Reversals**



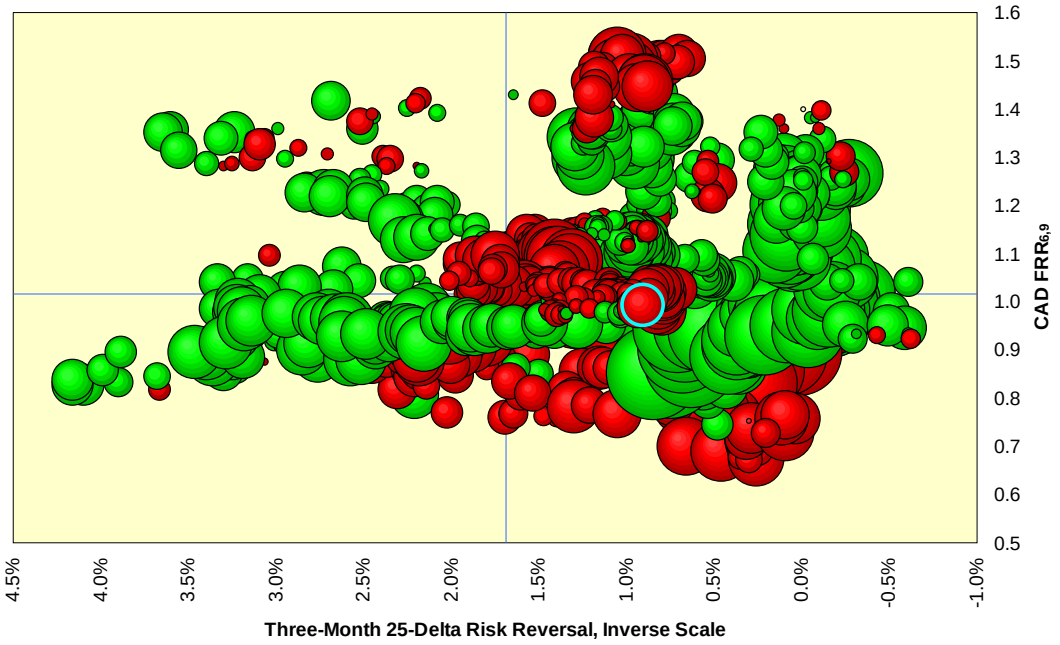

**Prospective Returns**

Now let's see whether three month-ahead returns appear to be a function of these risk reversals and of the forward rate ratio between six and nine months ($FRR_{6,9}$) for the major currencies (see "Major Currencies And The Great LIBOR Kerfuffle," June 2013). The $FRR_{6,9}$ 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 steeper the yield curve, the more this ratio exceeds 1.00; an inverted yield curve has an $FRR_{6,9}$ less than 1.00.

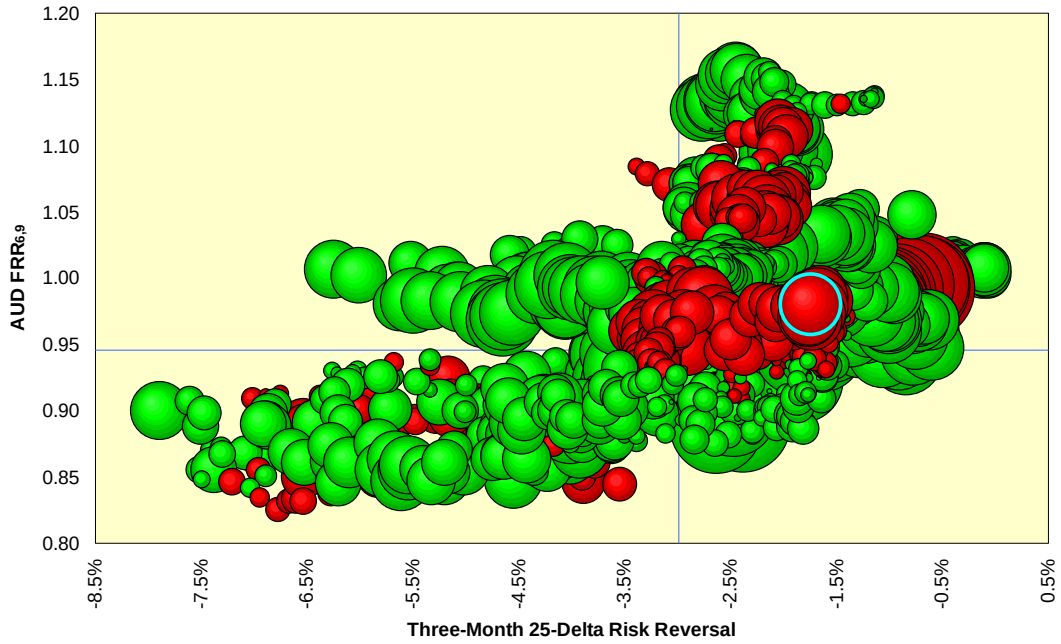
Positive prospective returns are depicted with green bubbles, negative with red bubbles; the diameter of the bubble corresponds to the absolute magnitude of the return. The last datum used is highlighted and the current environment is marked with a bombsight.

Both the Canadian and Australian dollars have large positive-return clusters associated with positive and negative risk-reversal levels combined with $FRR_{6,9}$ levels in excess of 1.00. The sign reversal is an artifact of their different quotation standards. Both charts can be interpreted as saying uptrends continue with positively sloped yield curves when risk reversals are rising or falling for the CAD and AUD, respectively. The opposite is true in an inverted yield curve environment.

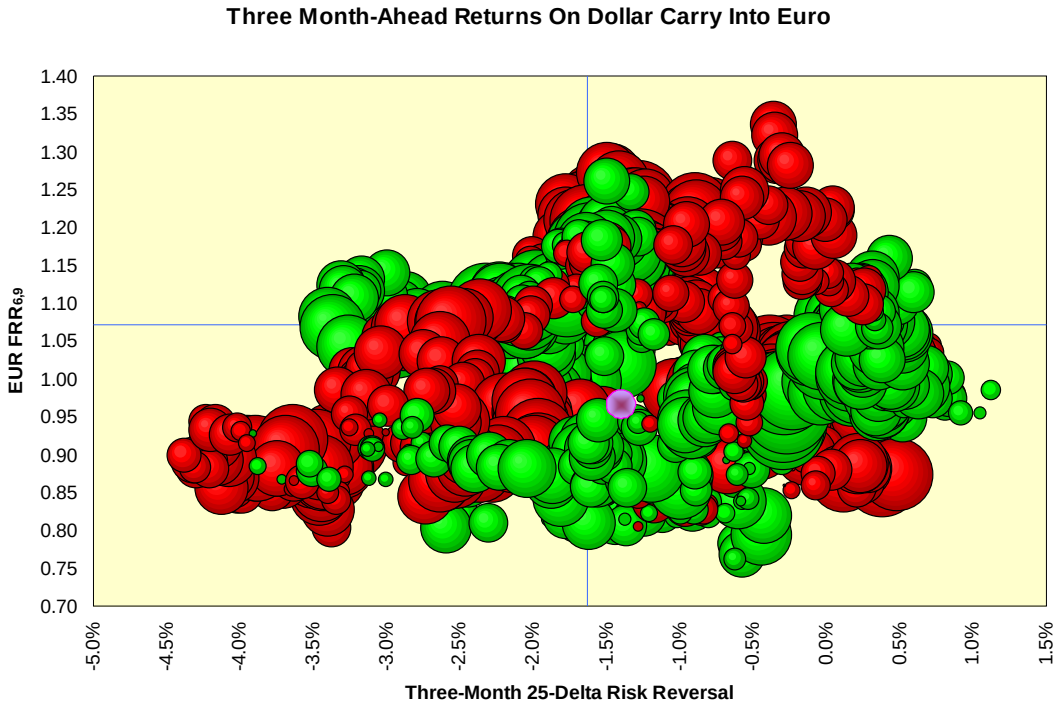
**Three Month-Ahead Returns On Dollar Carry Into Canadian Dollar**

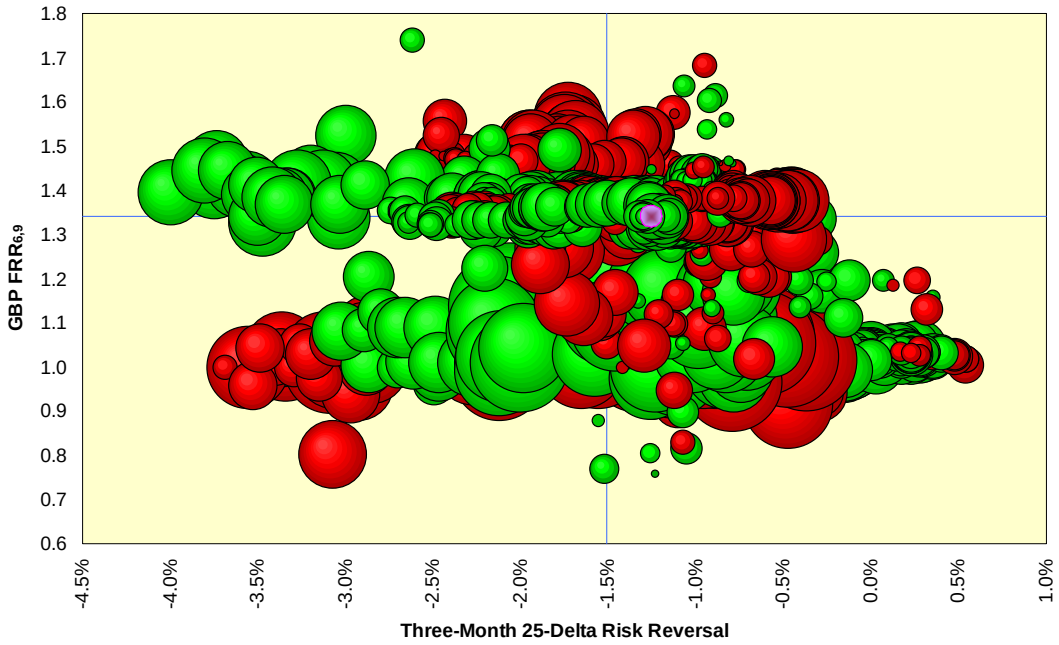



**Three Month-Ahead Returns On Dollar Carry Into Australian Dollar**



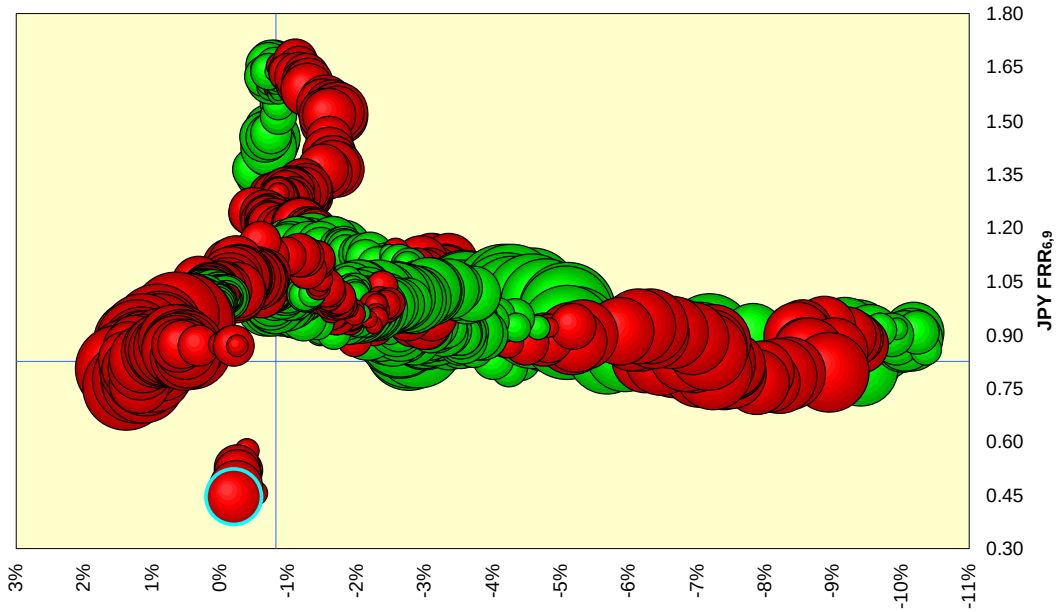
The euro and British pound also have the same well-behaved structures for positive risk reversals within a positively sloped yield curve. Both also have very large clusters of positive prospective returns associations with negative risk reversals combined with a steep $FRR_{6,9}$ and large clusters of negative prospective returns associated with negative risk reversals and inverted $FRR_{6,9}$ levels.



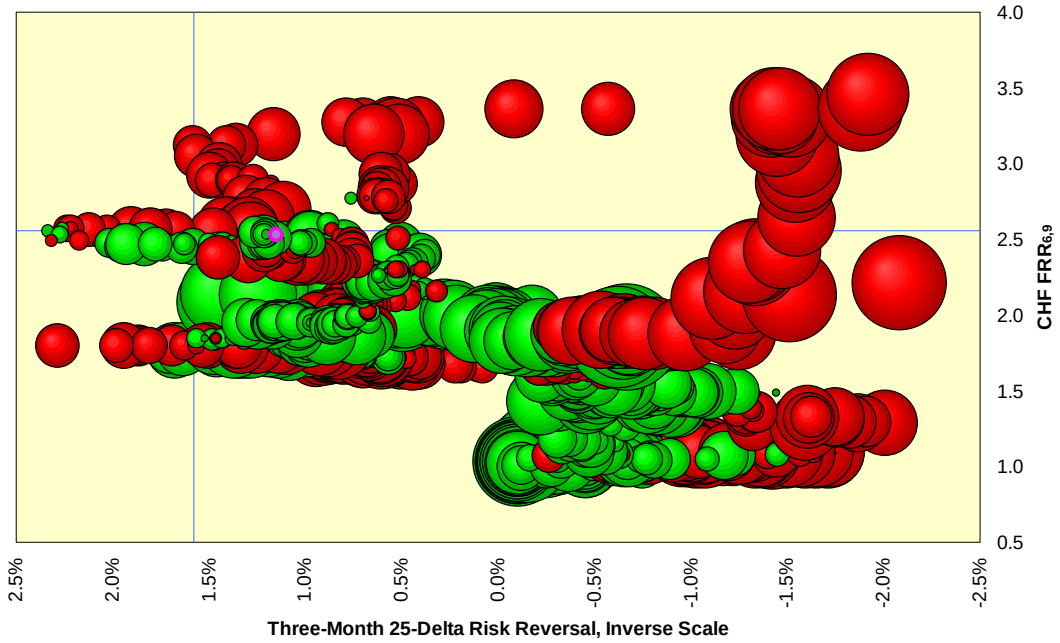




The remaining markets lack risk-reversal dependence. As noted above, the JPY, CHF and SEK all have strong anecdotal moves associated with their yield curves, monetary policies and very strong capital inflows. Perhaps in another time all would have had the well-behaved structures of the markets noted above, but the past decade has been anything but normal.

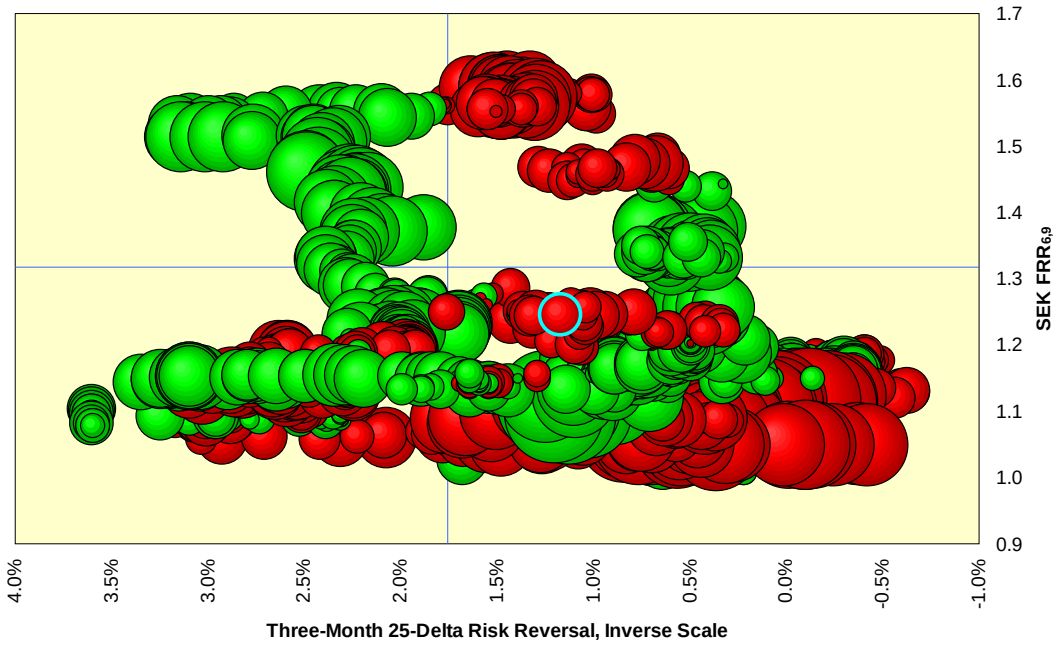
**Three Month-Ahead Returns On Dollar Carry Into Japanese Yen**




**Three Month-Ahead Returns On Dollar Carry Into Swiss Franc**



**Three Month-Ahead Returns On Dollar Carry Into Swedish Krona**




What we can conclude from the data above is the principle of relative anxiety as expressed in the relative volatility measure of a risk reversal does provide some early warning of impending trend-changes. This is not infallible, but as is the case with so many market indicators it must be interpreted rather than applied in a simple trading rule. The study will be continued next month for a set of minor currencies.