

Butterflies Are Free, And Well Worth It: The Majors

Certain words tend to turn certain traders off almost immediately; very few futures traders are comfortable with swap terminology even as the mandates of Dodd-Frank have pushed swap clearing closer into the world of futures. Non-option traders tend to react similarly to various option terms such as boxes, butterflies and the topic of the past two months, risk reversals (see “Going Forward With Reversals,” October & November 2013).

Both the October examination of risk reversals for major currencies and the November counterpart for minor currencies concluded the relative anxiety between long and short positions expressed in the different volatilities for call and put options of similar delta was information-rich for future market direction. This should not have been surprising as prices in any market are set by the willingness of the buyer or seller at the margin to pay more or accept less, respectively.

What about symmetric anxiety as measured in a butterfly trade? These trades are defined as buying both the call and the put of a similar delta and selling two at-the-money options. We generally expect out-of-the-money volatility to be higher as a matter of course to reflect the greater risks involved in writing those options. In practice, however, the “smile” of volatility often is skewed so that volatility in either the call or put wing is greater than the at-the-money volatility while the other wing’s volatility is less than the at-the-money volatility.

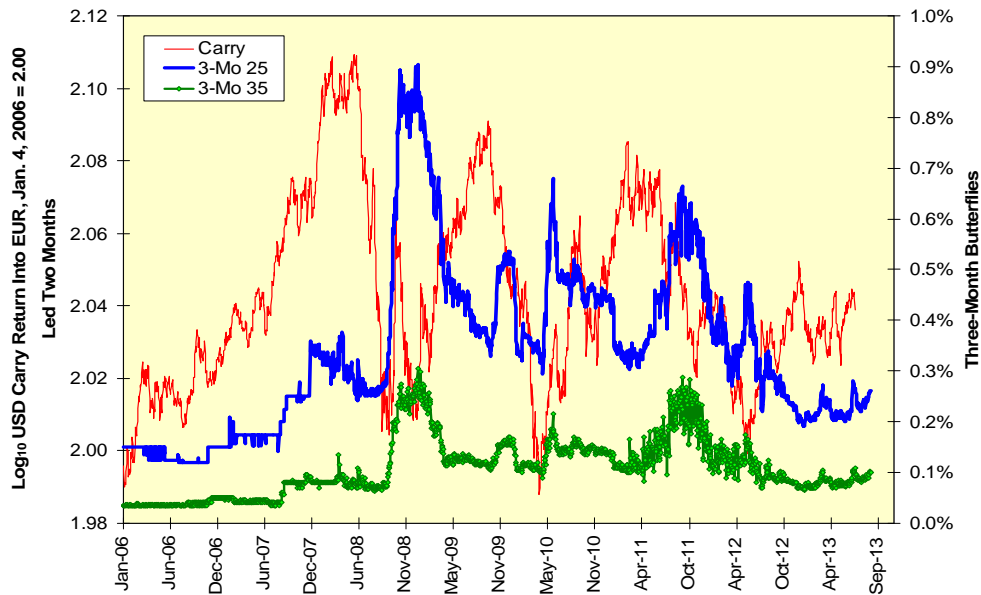
How do butterflies relate to the carry return from borrowing the USD and lending into the target currency? First, let’s map the butterfly values for both three-month 25- and 35-delta against the common logarithm of the total carry return from the U.S. dollar into those currencies reindexed to January 2006. This depiction allows for the intuitively appealing rising line depicting a stronger currency.

As in the case of risk reversals, if butterflies are to have any value in trading and market analysis, they should lead the return series. The same two-month lead-time on average as used previously will be used here. However, we should not expect the more symmetric risk measurement of the butterfly to be as strong a directional indicator as risk reversals. Therefore, the second part of this discussion will focus on butterflies as a mean-reverting indicator for future absolute returns relative to recent absolute returns.

Butterflies And The Majors

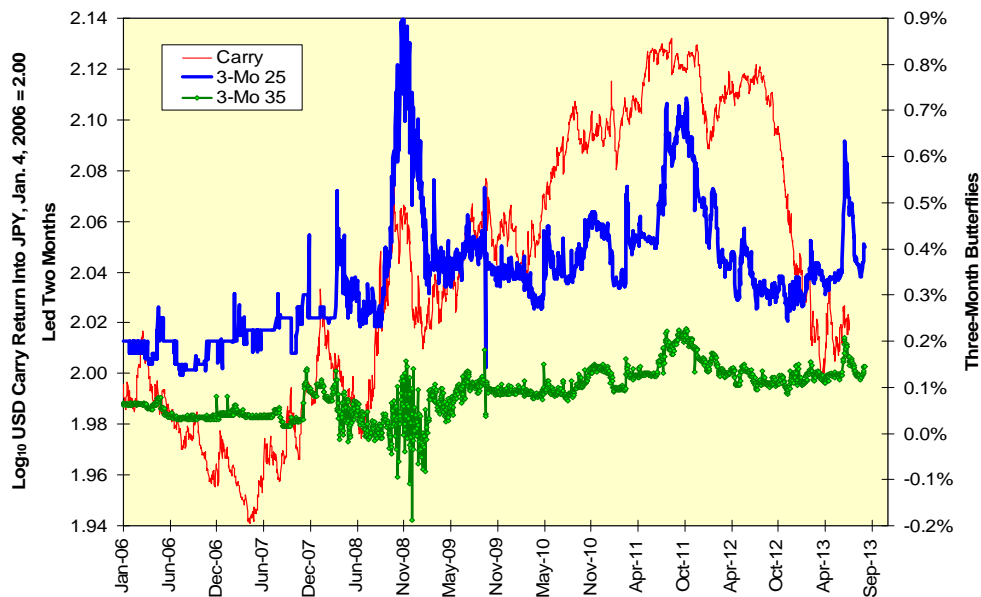
The euro has lived in a near-permanent state of crisis since the sovereign debt woes of its weaker members came to the fore in late 2009. However, no one should confuse tension with price action; the common currency has been confined in the upper half of the range it has occupied since its January 1999 inception. Given the number of stories about the bloc fragmenting, the demand for option protection at the wings was small, especially for the 35-delta butterfly, going into May 2013. That started to change with speculation over the Federal Reserve started to taper its money-printing exercises under QE3.

The Euro And Three-Month Butterflies



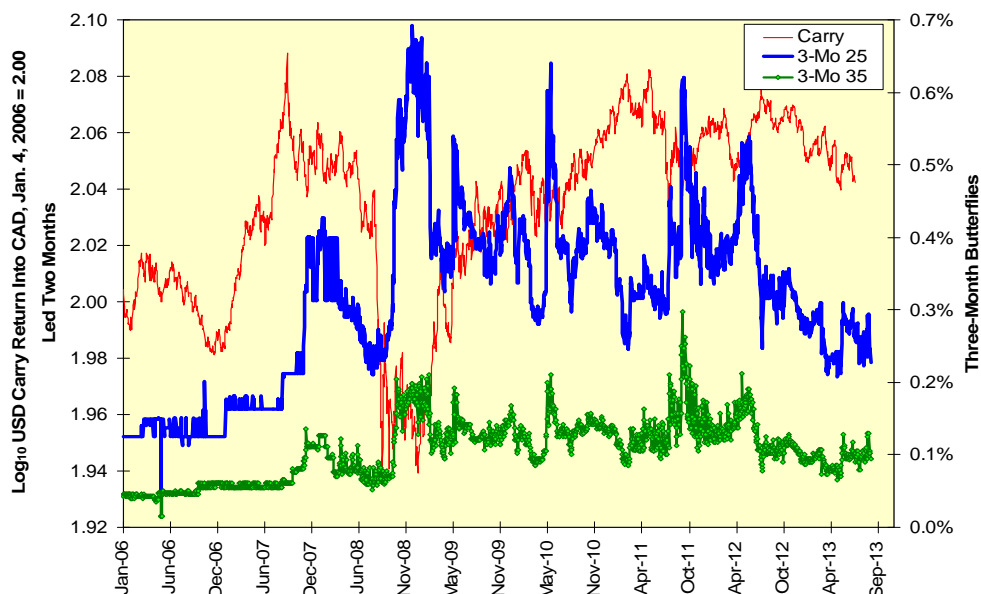
The yen, as is its wont, presents a very different picture. While the 25-delta butterfly spiked higher during the 2008 financial crisis, the 35-delta butterfly turned negative; this is evidence of a large demand for protection against large moves combined with a lack of concern about small moves. Both butterflies rose during the 2011 U.S. debt ceiling and European sovereign credit situations and then fell as Japan started to become much more aggressive in its attempts to drive the JPY lower. Once “taper-talk” began in May 2013, the 25-delta butterfly rose.

The Japanese Yen And Three-Month Butterflies



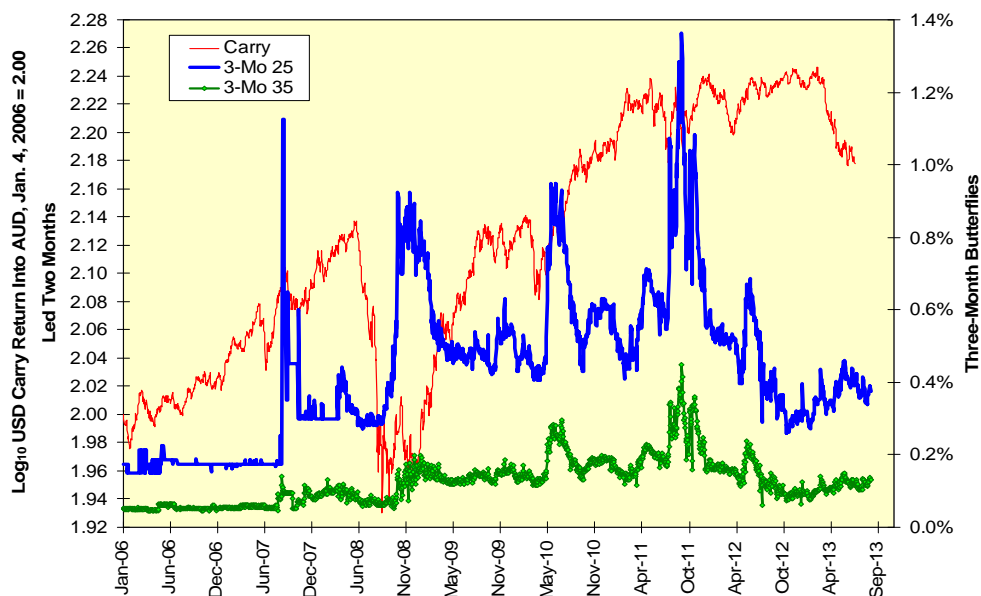
Prior to 2013, butterflies for the Canadian dollar were unusually active relative to the underlying moves in the currency. The large spike in the 25-delta butterfly during the 2008 financial crisis was to be expected, but the spikes associated with the first rescue of Greece in May 2010 and yet another European debt crisis in October 2011 were almost as large. They were not associated with large moves in the currency itself. Once the CAD settled into a weak downtrend in 2013, the butterflies stopped flapping about.

The Canadian Dollar And Three-Month Butterflies



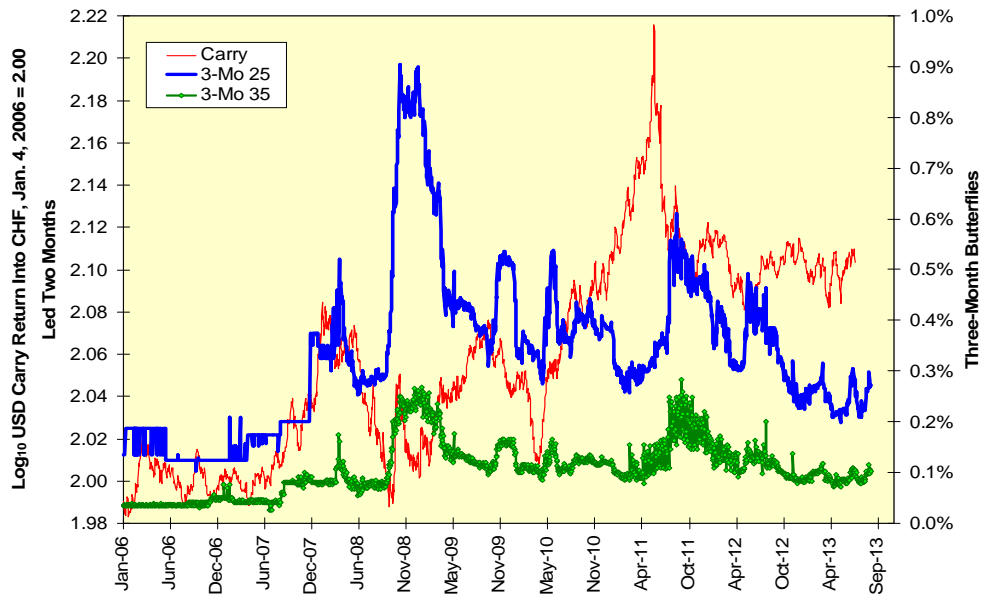
Butterflies for the Australian dollar exhibit a series of spikes corresponding to periods of high tension in global financial markets. With the exception of the 2008 financial crisis, these were unrelated to movements in the AUD's carry return. As in the case of the euro, butterfly levels declined sharply following the November 2011 expansion of global currency swaps. The 25-delta butterfly rose during the first five months of 2013 as the AUD turned lower and then declined once taper-talk began even as the AUD remained under pressure.

The Australian Dollar And Three-Month Butterflies



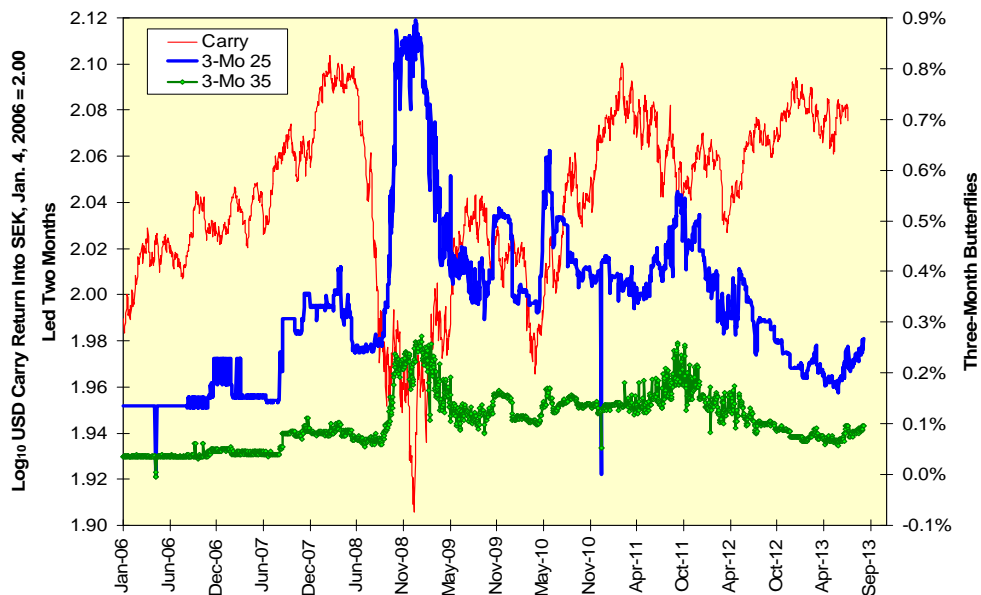
The Swiss franc's butterfly history has been sedate given the currency's volatility and imposed rate ceilings since the financial crisis. It has the usual spikes during the financial crisis along with one following the imposition of the 1.20 CHF per EUR ceiling in September 2011, but has been remarkably stable since that event.

The Swiss Franc And Three-Month Butterflies



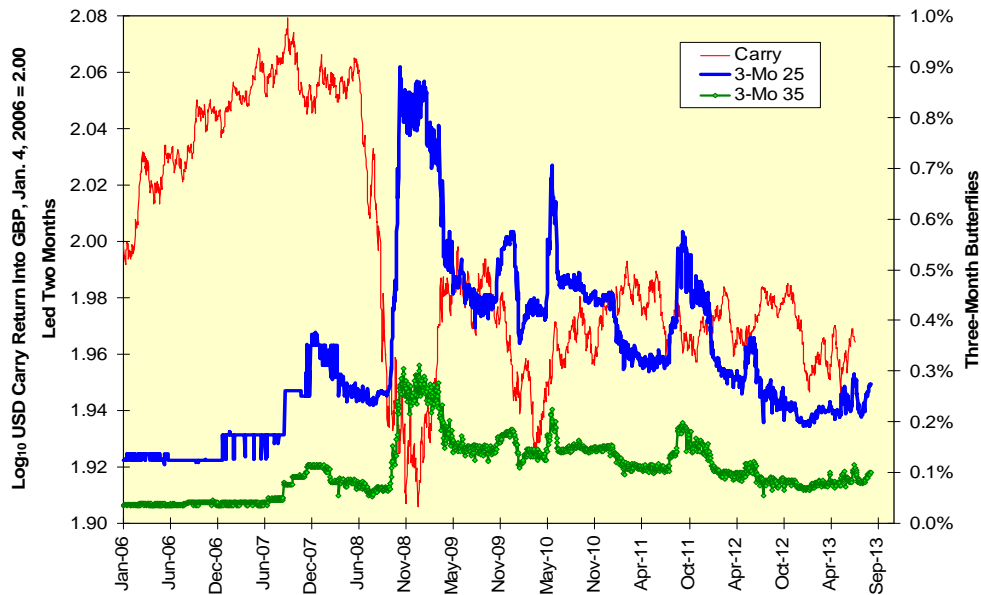
The Swedish krona has not been as much of a repository of flight capital from the Eurozone as the CHF has been, but its butterfly history has been quite similar. Its 25-delta butterfly declined steadily between the expansion of currency swap lines in November 2011 and the beginning of taper-talk in May 2013. Both butterflies have been rising since then.

The Swedish Krona And Three-Month Butterflies



Finally, the British pound's butterfly history has declined steadily since the 2008 financial crisis with the two exceptions of the first rescue of Greece in May 2010 and the European sovereign credit crisis of late 2011. The Bank of England's aggressive monetary easing has kept the GBP out of the spotlight and, most critically, within fairly steady trading ranges against both the USD and the EUR. The low butterfly levels reflected this narrative into May 2013; the 25-delta butterfly then began to expand like the euro's.

The British Pound And Three-Month Butterflies



Prospective Returns

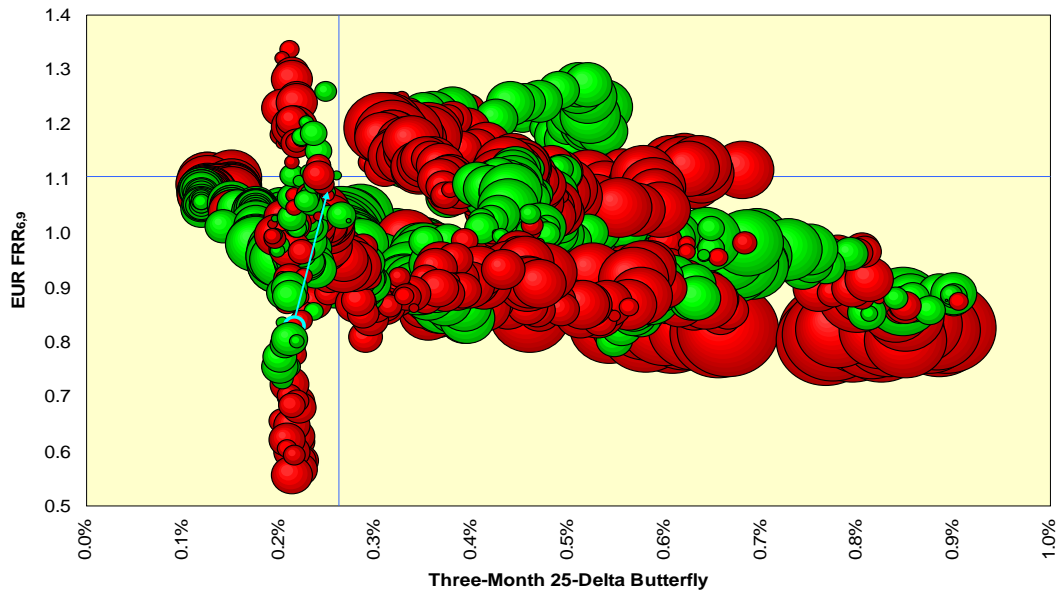
Now let's see whether absolute three month-ahead return shifts appear to be a function of these butterflies and of the forward rate ratio between six and nine months ($FRR_{6,9}$) for the major currencies (see "Major Currencies And The Great LIBOR Kerfuffle," June 2013). The $FRR_{6,9}$ is the rate at 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.

Prospective return shifts will be defined as the absolute average daily return for the next three months less the average absolute daily return for the previous three months. The goal here is to see whether 25-delta butterflies, which measure the difference between out-of-the-money and at-the-money volatility, lead changes in absolute return levels. If so, traders can use them to emplace trading strategies such as straddles or strangles, both of which are bets on large or small absolute movement in either direction, respectively.

Positive absolute return shifts 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, from the beginning of June 2013, is highlighted and the end-August 2013 sample-end is marked with a bombsight.

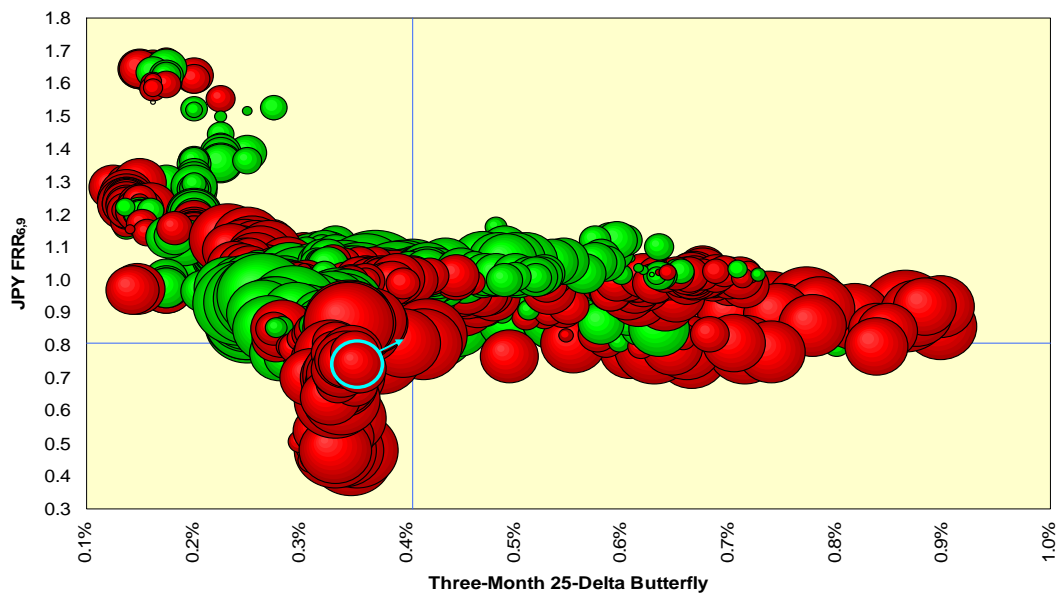
In the case of the euro, the results are indeterminate. The steepening of the EUR $FRR_{6,9}$ combined with the rising 25-delta butterfly in the taper-talk era has placed prospective returns into a zone of mixed indications.

Three Month-Ahead Return Shifts For The Euro



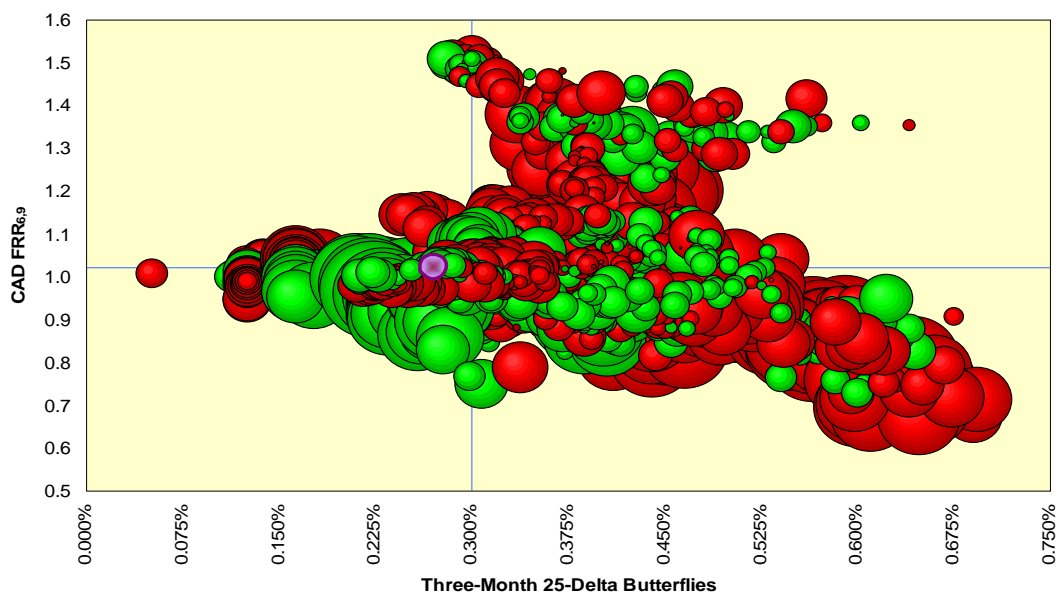
The yen, on the other hand, has moved into a zone of negative prospective returns. It would take a steeper JPY $FRR_{6,9}$ with a material shift either higher or lower in the 25-delta butterfly to place the yen in a zone of positive prospective returns.

Three Month-Ahead Return Shifts For The Japanese Yen



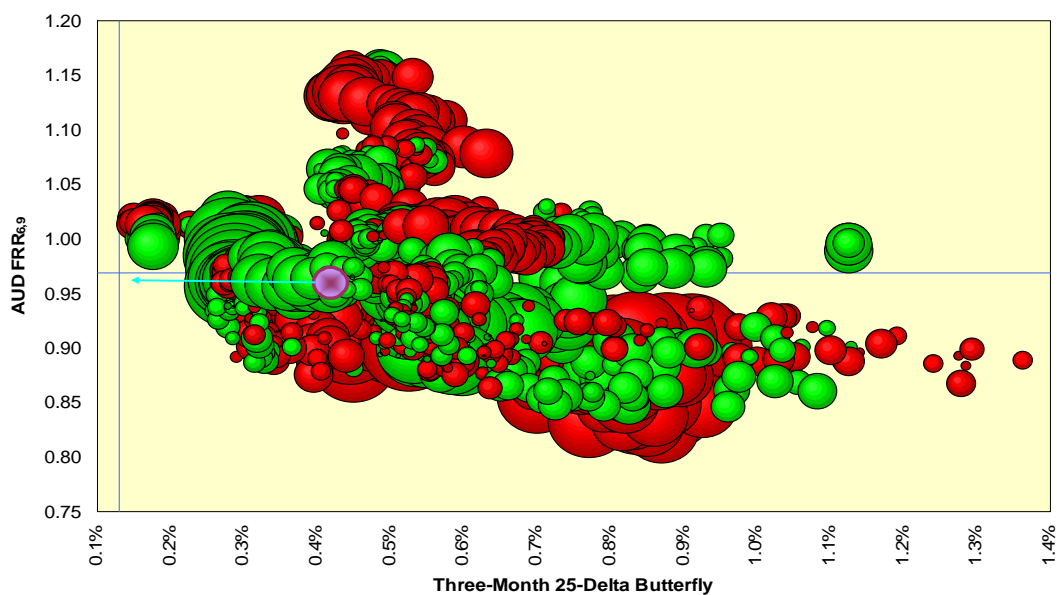
The Canadian dollar's map is poised to move into a zone of positive prospective returns if the CAD $FRR_{6,9}$ and the 25-delta butterfly both decline. Moves toward steeper yield curves and higher 25-delta butterfly levels would put the CAD into a zone of negative prospective returns.

Three Month-Ahead Return Shifts For The Canadian Dollar



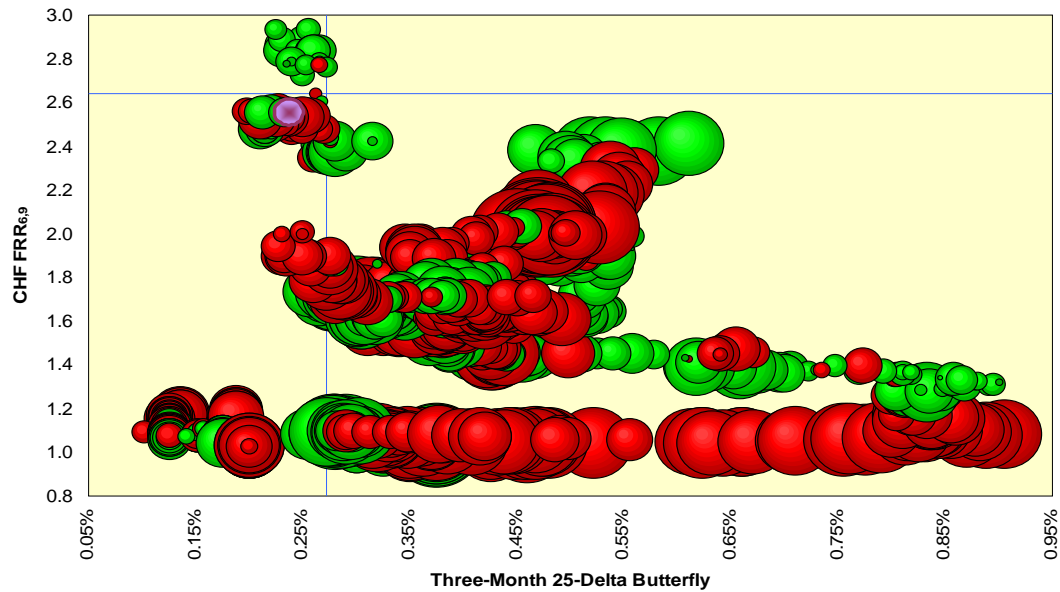
The collapse in 25-delta butterflies for the Australian dollar has pushed the map into an unpopulated zone, a sort of terra incognita similar to European maps before the Age of Discovery. On a purely contrarian basis if nothing else, the present configuration lies much closer to zones from which positive returns on the AUD have emerged.

Three Month-Ahead Return Shifts For The Australian Dollar



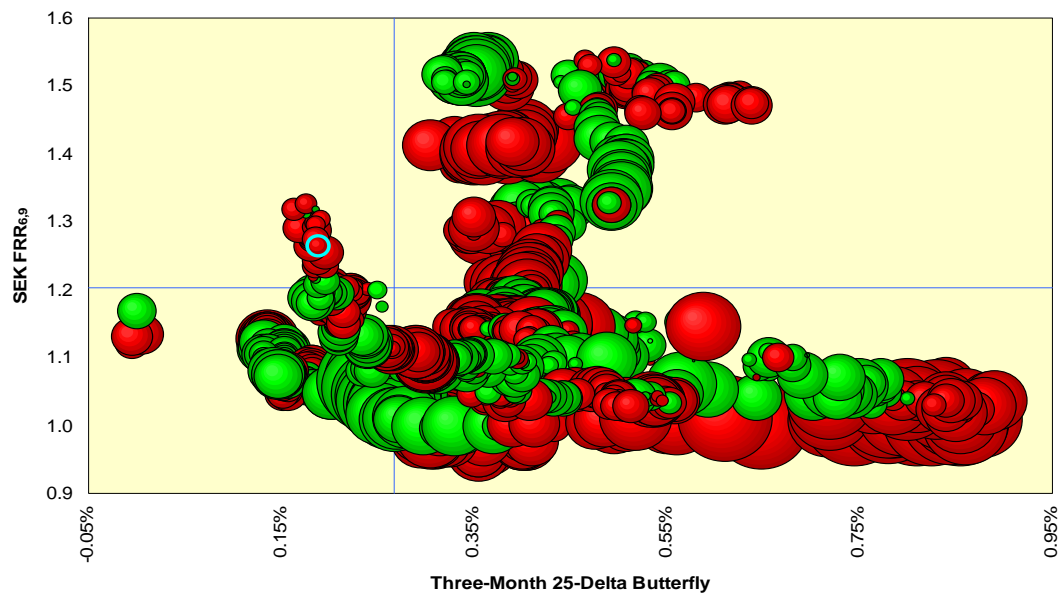
The Swiss franc's map has a very large and defined zone of negative return shifts with 25-delta butterfly levels greater than 0.40% and an $FRR_{6,9}$ less than 1.20. It also has a cluster of positive prospective returns with 25-delta butterflies near 0.30 and with CHF $FRR_{6,9}$ levels greater than 2.50. However, trading the CHF has been nothing other than an exercise in political intelligence since the first large-scale interventions by the Swiss National Bank at the end of 2009; no one should assume either the option or money-market indicators are related to free-market assessments.

Three Month-Ahead Return Shifts For The Swiss Franc



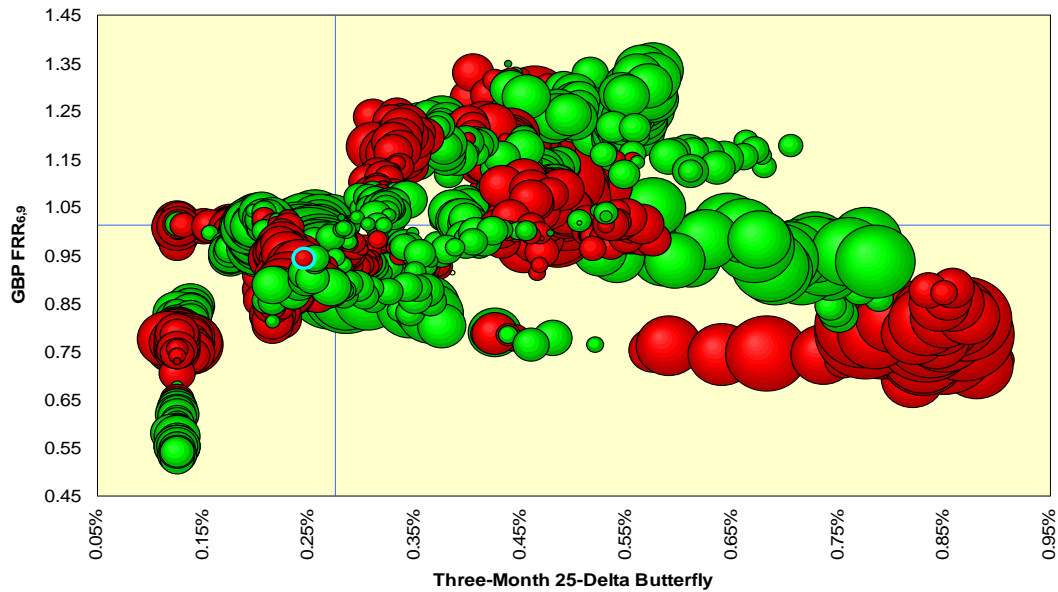
The rising butterfly levels for the krona along with its flatter SEK $FRR_{6,9}$ are keeping the SEK on a path of prospective negative returns. The history of this market has been very clear: Movements toward the southeast corner are associated with a weaker SEK.

Three Month-Ahead Return Shifts For The Swedish Krona



Finally, the map for the British pound is moving in a direction of positive prospective returns. A reversal of conditions prevailing since May 2013 would be required to push the outlook for the GBP in a negative direction.

Three Month-Ahead Return Shifts For The British Pound



All mean-reverting strategies involving volatility involve the problem of parameterization: The terms “high” and “low” are meaningless by themselves; they need to be placed into some reference of absolute realized volatility, time-adjusted price proximity to a last new high or low or broader measure of intermarket volatility.

It would be nice to think the butterfly market could provide us with an easy mechanical approach to trading option volatility on the major currencies, but this does not appear to be the case. We will see next month whether this conclusion holds for the minor currencies as well.