

## When Excess Becomes Predictable: The Minors

Last month's examination whether excess volatility for the major currencies and trading strategies based thereon was a function of the shape of the money-market yield curve and previous carry returns from the U.S. dollar into those currencies was encouraging despite the understandable inability to formulate mechanical trading rules.

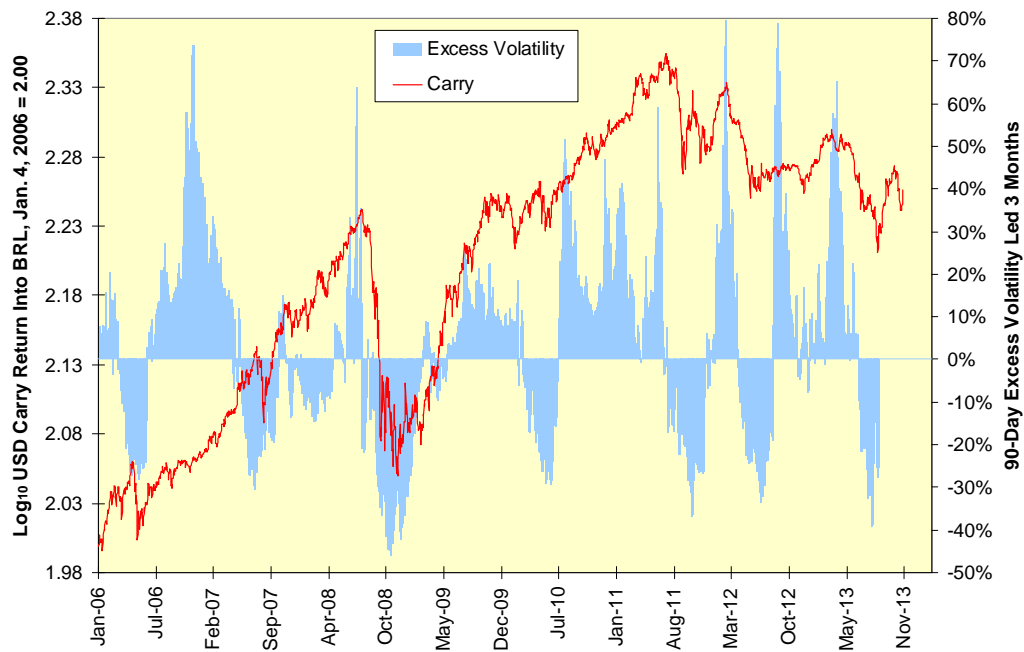
As a refresher, excess volatility will be defined as the simple ratio of 90-day volatility to 90-day realized volatility, minus 1.00. As was done last month (see "When Excess Becomes Predictable: The Majors," February 2014) the first section of the discussion below will be devoted to mapping returns on selected minor currencies 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 second section will look at this measure of excess volatility as a function of the carry return over the past three months and of the lagged value of the money-market yield curve as measured by the forward rate ratio between six and nine months ( $FRR_{6,9}$ ) for the major currencies. 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.

### Excess Volatility And Returns

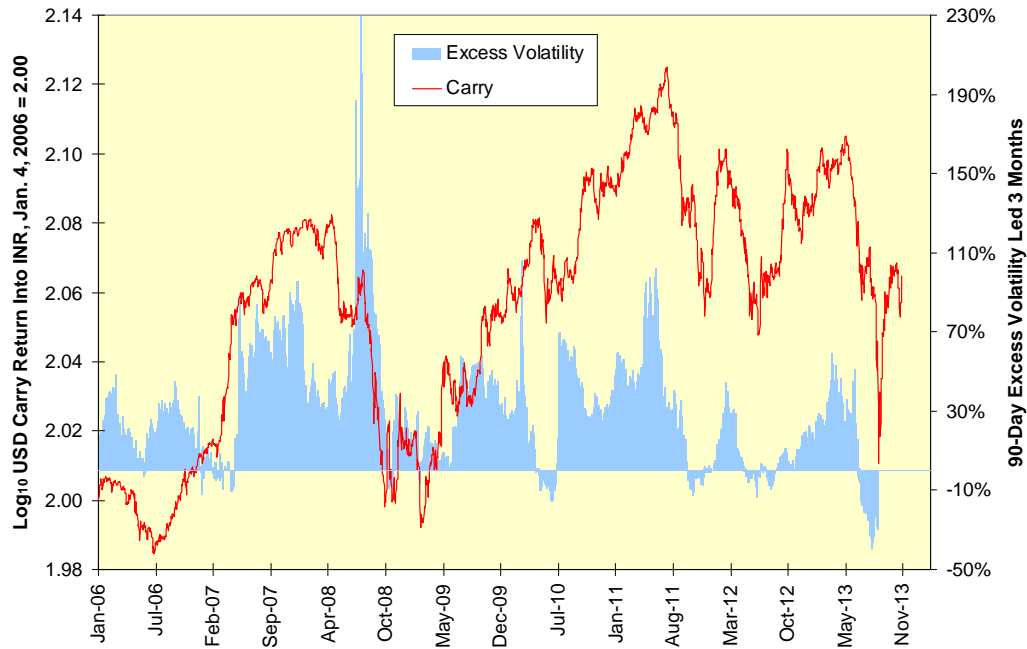
The Brazilian real's excess volatility path involves a relatively symmetric pattern of spikes both higher and lower. While several of the spikes higher are aligned with downturns in the carry return for the BRL three months prior, the overall record in this regard is spotty. The same applies for negative excess volatility returns and upturns in the carry return. More consistency would be needed for this picture to be intriguing.

**The Brazilian Real And 90-Day Excess Volatility**



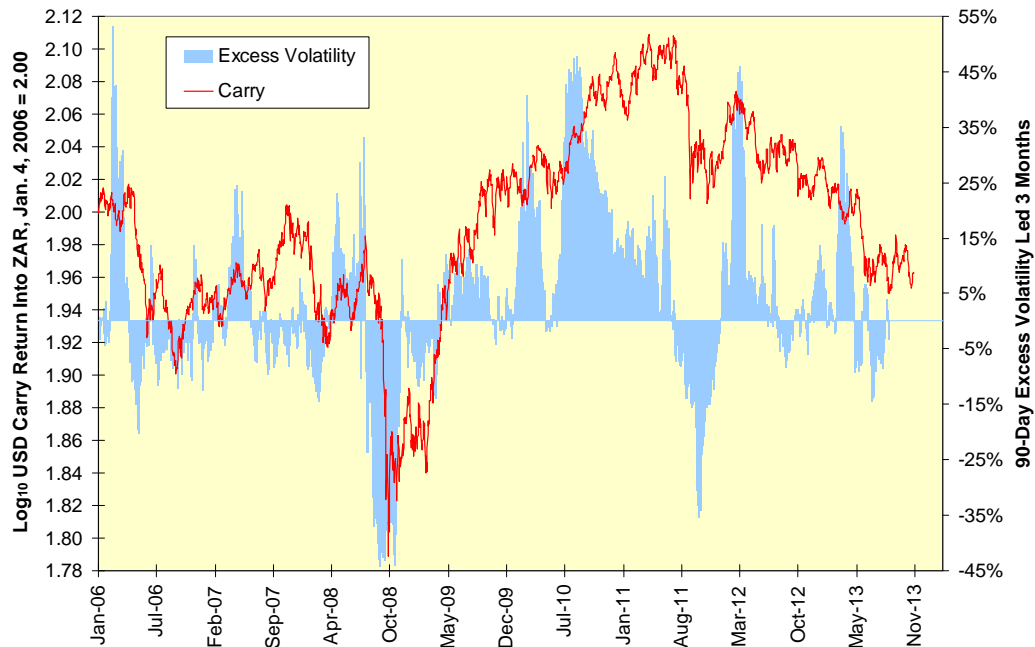
The Indian rupee on the other hand does have a more consistent picture from its very asymmetric pattern of excess volatility. Here the markets become nervous about INR strength and start bidding implied volatility higher; once the INR sells off, as it did for much of 2013, excess volatility declines rapidly.

### The Indian Rupee And 90-Day Excess Volatility



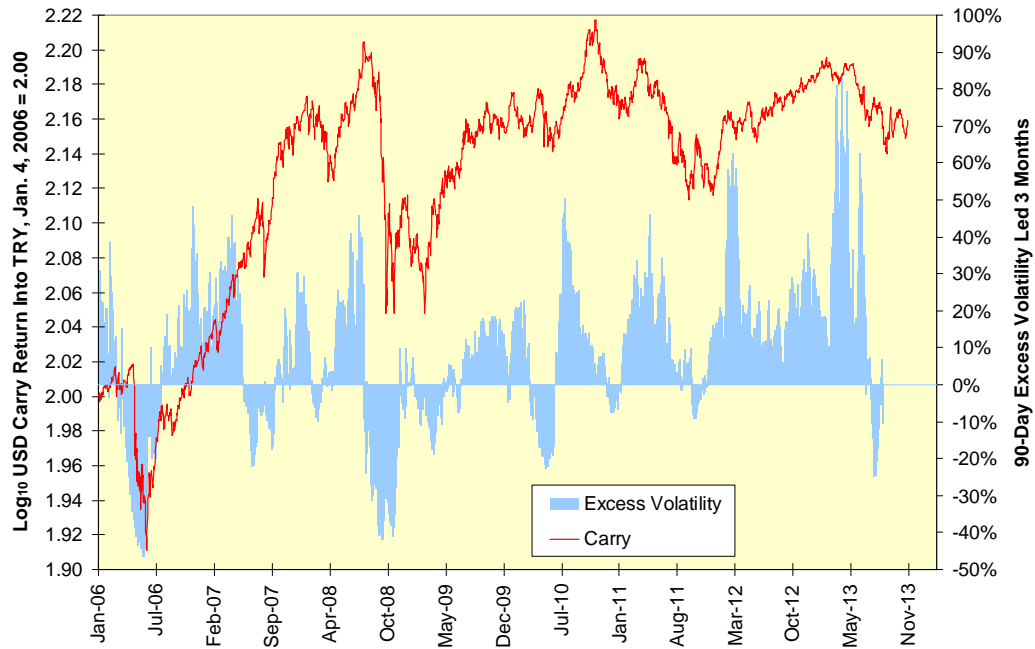
The South African rand would have a similarly clean pattern were it not for a large and prolonged spike higher in excess volatility during the second half of 2010. This spike occurred as the ZAR rallied against both the USD and EUR, but it turned lower well before the carry return into the ZAR did. It is as if the markets suddenly lost their anxiety about ZAR strength and abandoned protective option positions.

### The South African Rand And 90-Day Excess Volatility



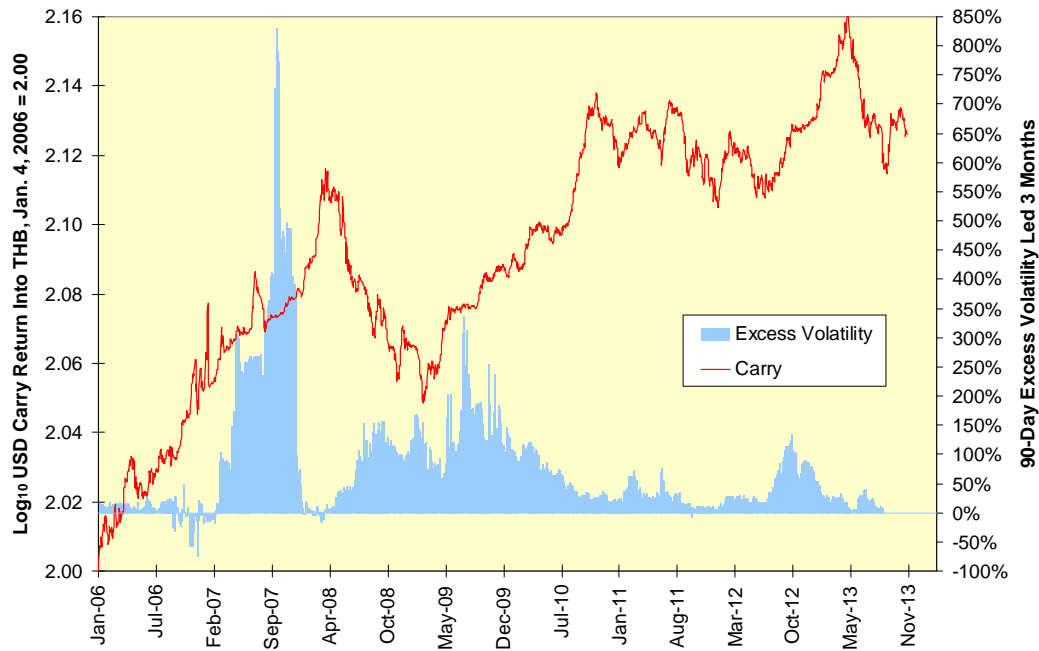
The Turkish lira's carry return has been dominated for years by its interest rate spread component as opposed to its spot rate component. As a result, the TRY's carry return largely has moved separately from the option markets focused on spot rate return. While excess volatility for the TRY has been symmetric, it appears to convey little relationship to the carry return.

### The Turkish Lira And 90-Day Excess Volatility



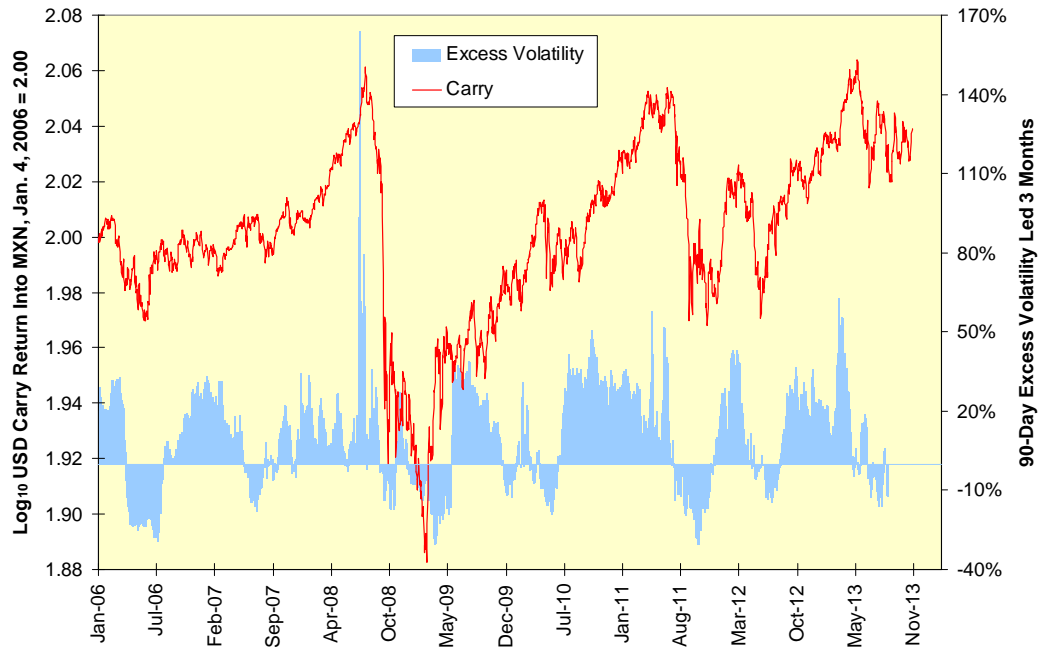
A similar disconnection is visible for the Thai baht; here excess volatility surged on an order of magnitude scale in 2007 and by a lesser but still large amount in late 2009. Moreover, excess volatility for the THB has been highly asymmetric; its last negative value occurred in 2008.

### The Thai Baht And 90-Day Excess Volatility



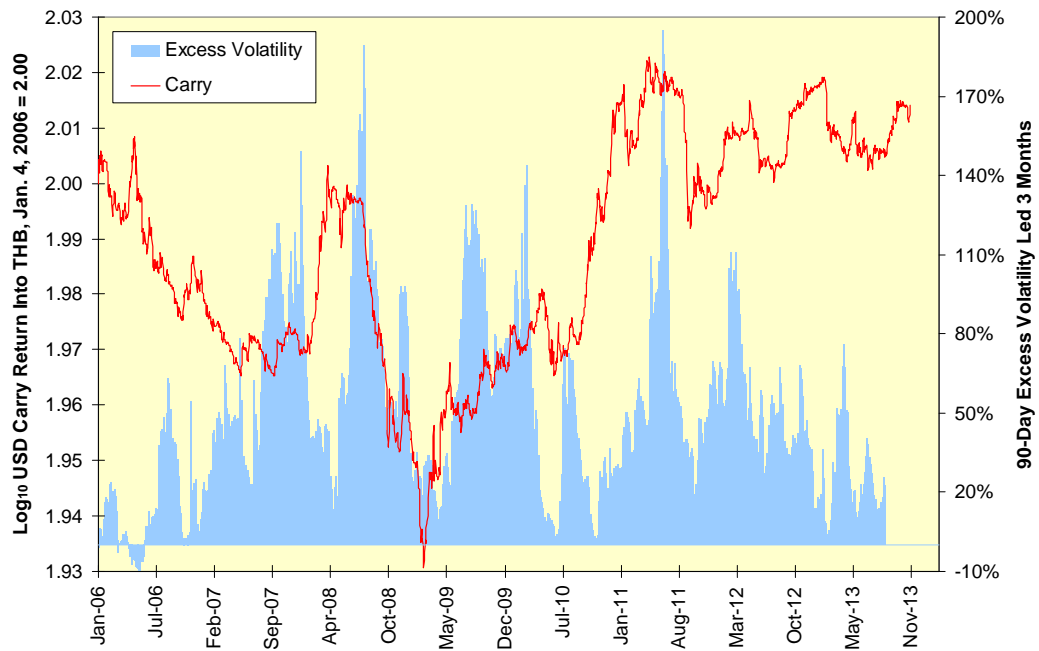
While the visual interpretation of the Mexican peso's map may seem as lopsided as the Thai baht's, the rise and fall of excess volatility has mirrored the carry return into the MXN reasonably well since the 2008 financial crisis. It was that crisis and a large but short-lived spike in excess volatility that distorted this picture.

### The Mexican Peso And 90-Day Excess Volatility



Finally, excess volatility for the Taiwan dollar has been very asymmetric over its history; the last negative readings here were seen in 2006. Even though the carry return for the TWD has moved higher steadily since the March 2009 adoption of quantitative easing by the U.S., the option market keeps overpricing insurance against this obvious trend. Tellingly, a sharp downturn in the carry return during late 2011 was followed by a quick drop in excess volatility.

### The Taiwan Dollar And 90-Day Excess Volatility

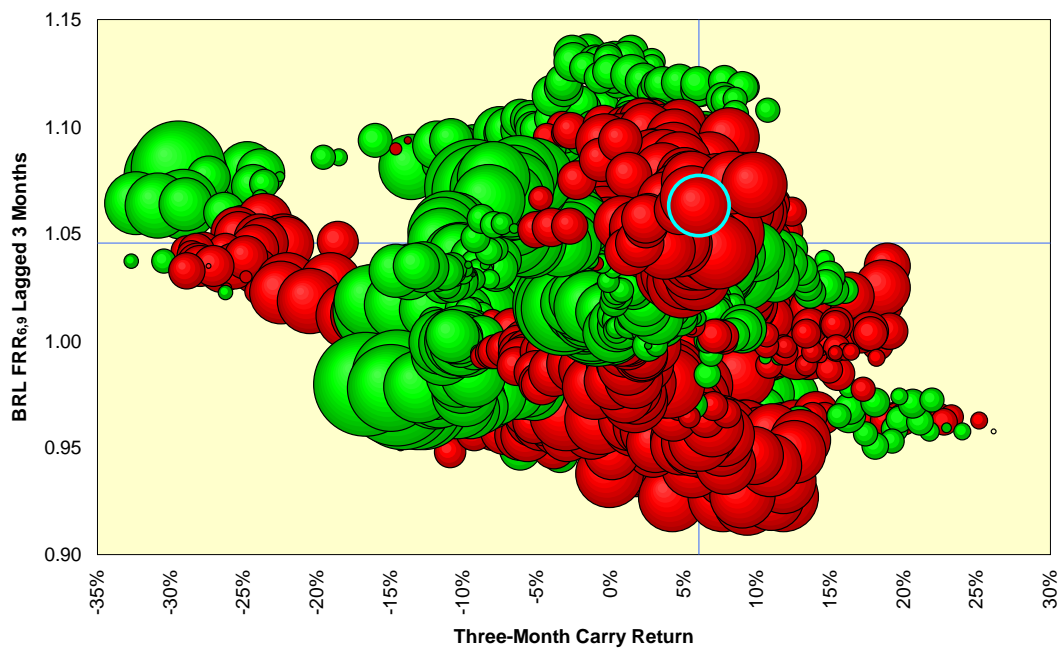


### Leading Indications Of Excess Volatility

Now let's look at excess volatility for each of the minor currencies as a function of the previous three months' carry return and three month-ago values of its  $FRR_{6,9}$ . Positive levels of excess volatility are depicted with green bubbles, negative levels with red bubbles; the diameter of the bubble corresponds to the absolute magnitude of the excess volatility level. The last datum used is highlighted and the late-November 2013 environment is depicted with a bomb-sight.

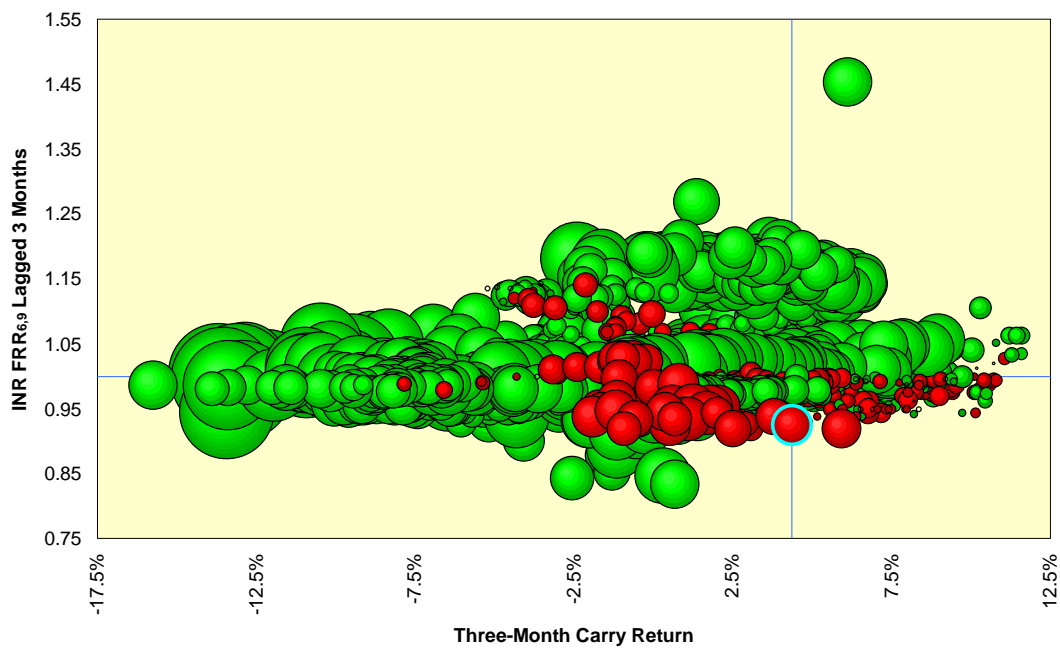
While the map for the Brazilian real has large and coherent zones of positive and negative excess volatility values, they are too interspersed with each other to suggest a uniform approach to volatility trading.

**90-Day Excess Volatility For Brazilian Real**



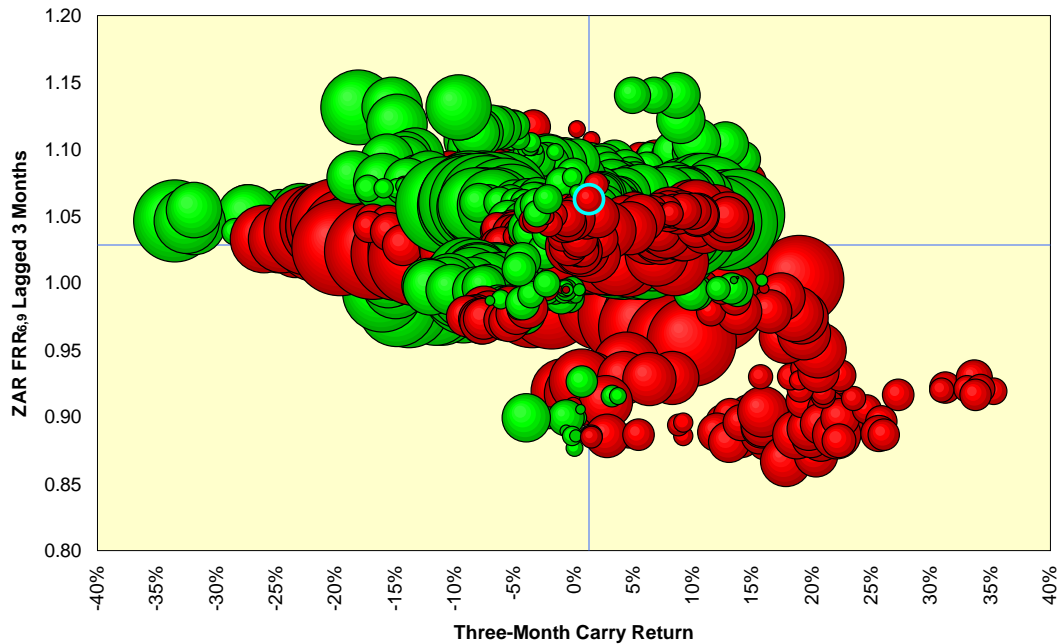
The Indian rupee presents an interesting case. While the map is dominated by positive excess volatility readings, the region with previous carry returns less than -3.0% is overwhelmingly green. Restated, a 2013-style selloff in the INR is an open invitation to take a long position in implied volatility for the rupee.

**Excess Volatility For Indian Rupee**



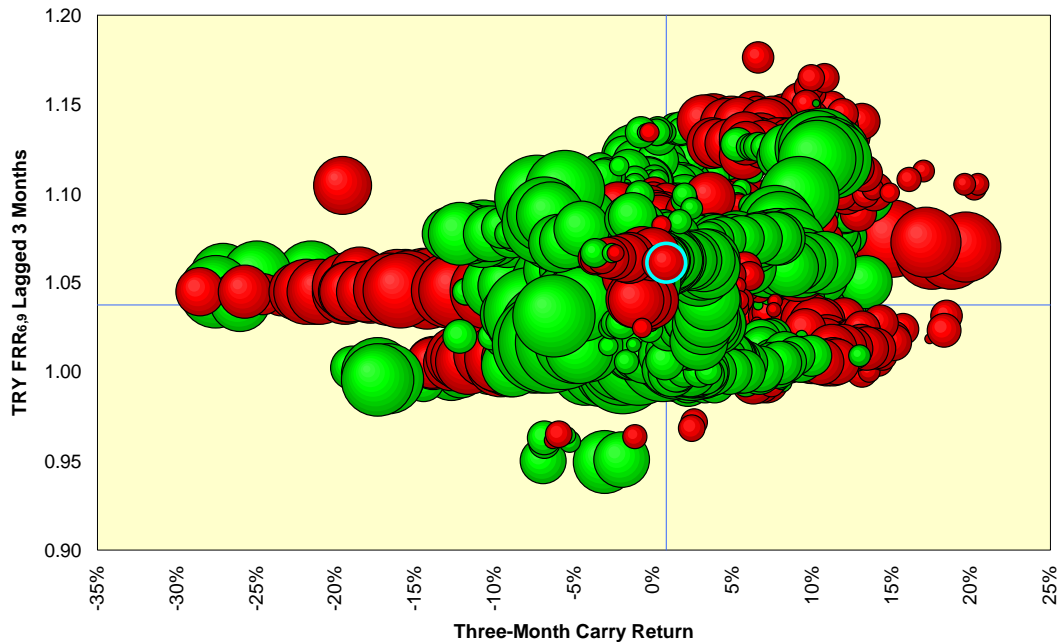
The South African rand has an almost opposite picture. Here positive previous carry returns along with a flat-to-inverted yield curve lead to nothing but negative excess volatility readings. Here, too, the strategy response is straightforward: Rallies in the ZAR should be met with short implied volatility positions.

### Excess Volatility For South African Rand



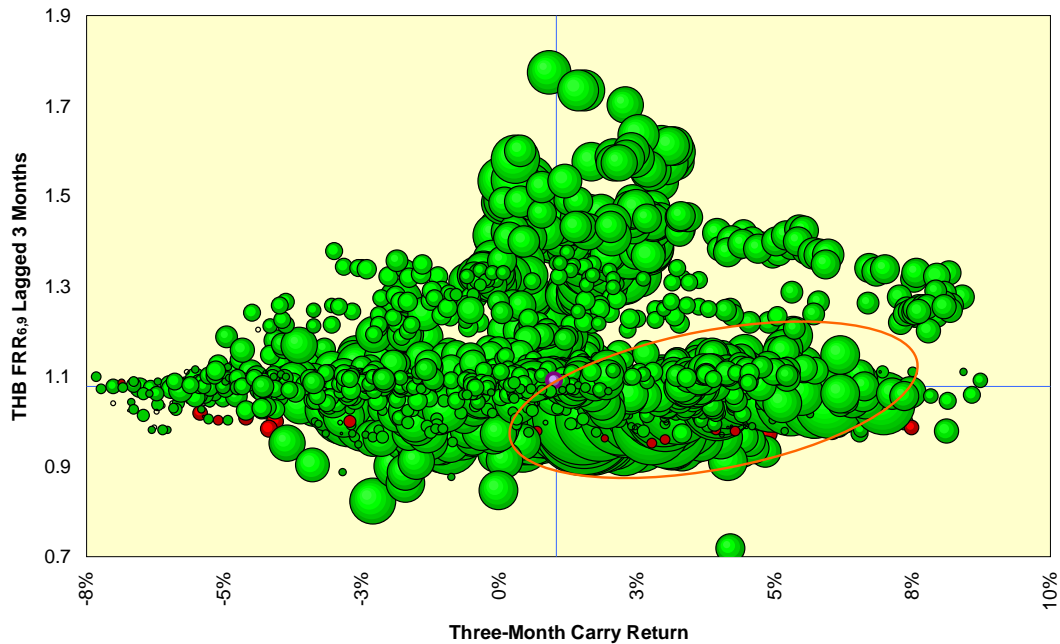
No such direct strategies appear possible for the Turkish lira. As noted above, the carry return for the TRY is only a small function of its spot rate changes relative to its interest rate spread; this has separated the option markets from the carry return.

### Excess Volatility For Turkish Lira



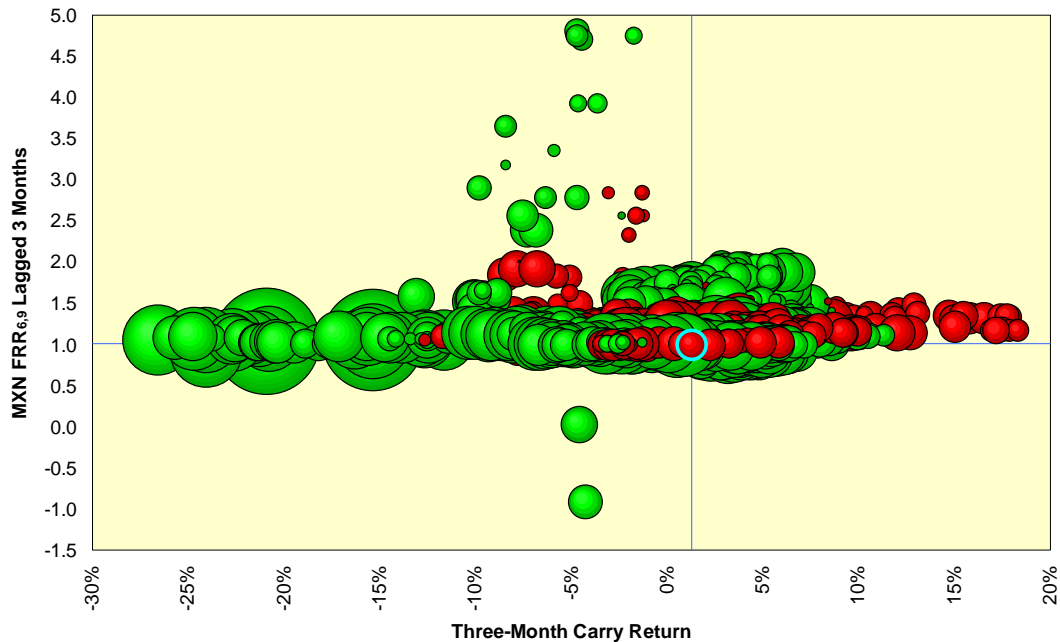
The Thai baht, like the INR, presents an interesting case. While the map is a sea of green – if you want a Red Sea, one is available – please note the distribution of large and small bubbles. The large bubbles are concentrated in the region marked with an oval of positive previous carry returns in a flat yield curve environment. This suggests an obvious entry point for long volatility strategies.

### Excess Volatility For Thai Baht



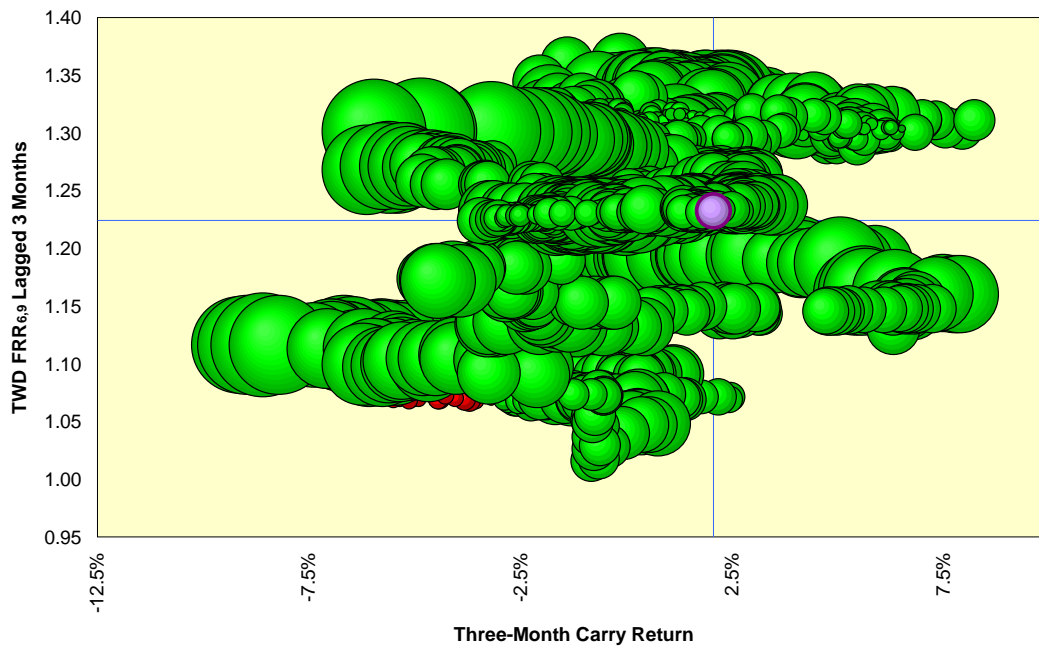
The Mexican peso also presents an interesting case once we get past the visual barrier of a few extreme FRR<sub>6,9</sub> cases. Previous carry returns less than -15% are followed by positive excess volatility readings; the opposite is largely true for previous carry returns greater than 15%.

### Excess Volatility For Mexican Peso



Finally, the Taiwan dollar, like the THB, essentially is a sea of green. Unlike the THB, however, nothing in the distribution of large and small carry return changes or FRR<sub>6,9</sub> levels suggests any sort of trading strategy.

### Excess Volatility For Taiwan Dollar



Epithets are tossed about occasionally about a “banana republic” or “Third World” style of government. The different patterns seen between the major and minor currencies suggest the financial crisis and its policy aftermath have saddled the majors with more ad hoc monetary policies than observed for the minors. As a result, the trading responses for the minors are less direct than those seen for the majors.

The author has noted at other times how most financial innovation, if we may call it that still, derives from attempts to flee either taxes or regulations. Markets go offshore for good reasons. This thought can be extended to the insurance markets as well: Option protection against sharp currency moves and the differential levels of smiles, skews and ratios examined in these pages over the past six months largely is protection against bad or erratic policy decisions. Someone should be embarrassed by this although perhaps far too few are.