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- We continue to underscore the use of VIX “seagulls” (short put, long call spread) as an effective hedge for risky assets that leans on a floor in implied volatility.
- In our Macro Model, Economic Policy Uncertainty is the main source of VIX support and gives us comfort on selling VIX puts to fund call spreads.
- Post the February VIX ETP blow-up, the VIX was meaningfully above our modelled level. This has switched and now the VIX is below our 14.2 model-derived value.
- VIX positioning data statistically appears to have utility as a predictor of the spread between the market VIX price and our VIX projection
- Regressing current VIX positioning levels combined over the VIX model error suggests a new steady-state VIX projection (combining both macro inputs and market structure) of 13.3

Derivatives Strategy
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Trade Idea:

- **Sell VIX July 11.5 put to Buy 17-20 call spread for 0.15 (ref. 12.84, 27d)**
- **Buy VIX July 14-17-20 call fly for 0.40 (ref. 12.84, 11d)**

Macro Model Attribution

Our piece on Friday “[How Low Can it Go?](#)” further worked through utilizing a combination a short put to fund a call spread in the VIX as a hedge against a risk asset portfolio. In addition to seeing a logical floor in realized volatility as well as quantifying the historical probability that the VIX can fall from here, we support our view with the MRA VIX Macro Model. Using three inputs – 1) ISM Manufacturing PMI, 2) current activity (SPX return on assets), and 3) the Economic Policy Uncertainty Index – the Model projects 14.2 as a fair VIX level based on economic fundamentals, higher than VIX average of 12.7 thus far for June. As we show in **Figure 1** below, the actual VIX is now below our model-derived estimate for the first time in 2018.

Macro model of VIX vs. monthly average VIX, 2014-2018

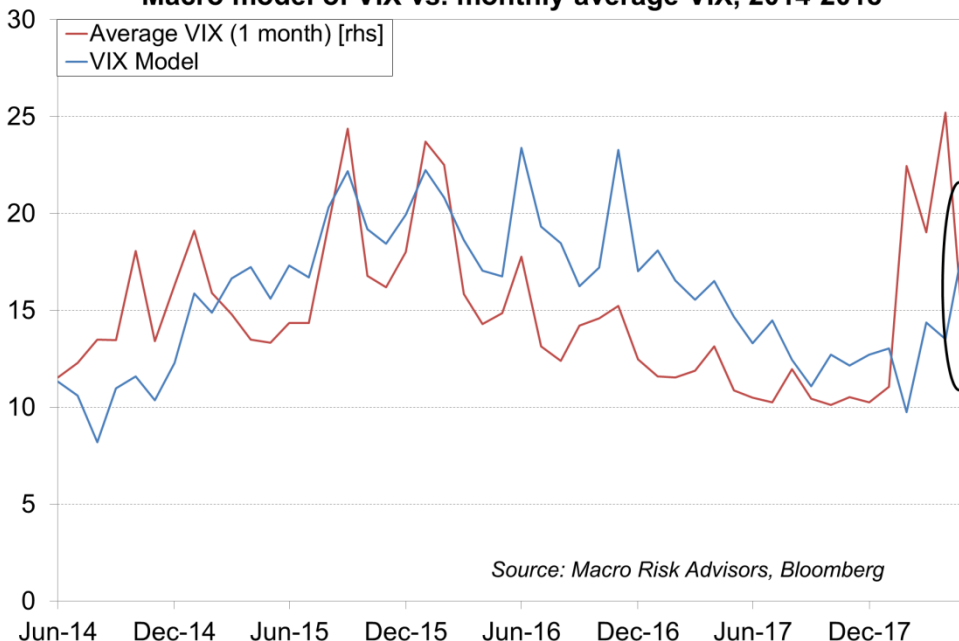


Figure 1: VIX macro model vs spot VIX over last 4 years

Economic fundamentals of the U.S. economy remain generally strong. Economic Policy Uncertainty constitutes the main driver of a higher VIX (this incorporates views about trade policy). If trade rhetoric continues to occupy market focus then we could reasonably expect the VIX to increase.

Volatility Attribution: Macro drivers of volatility

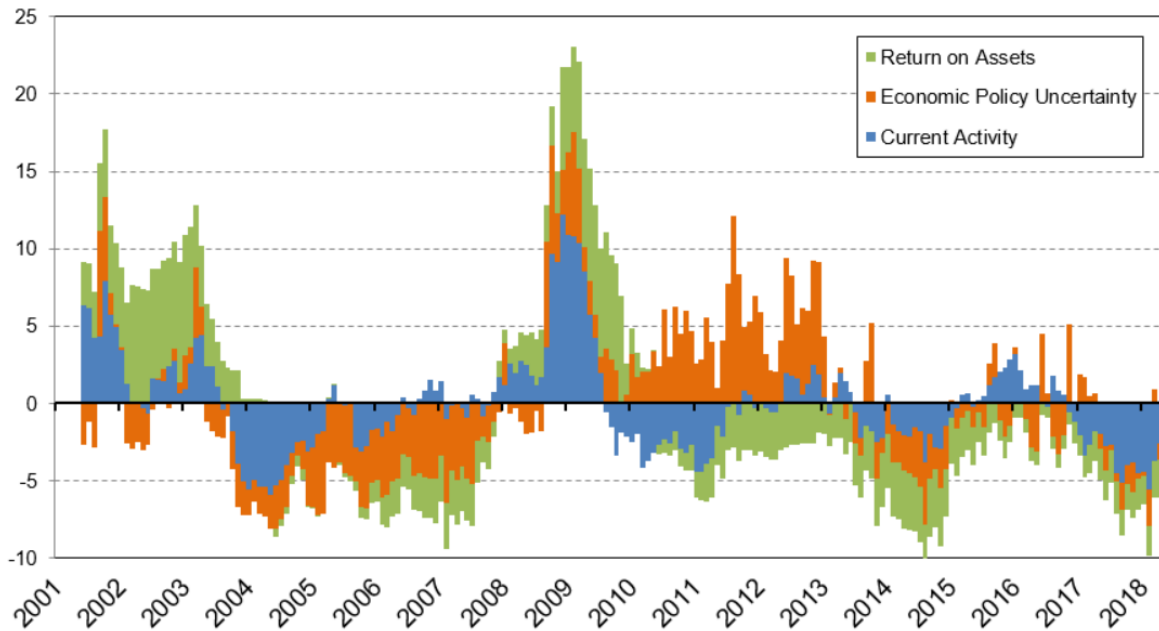


Figure 2: Attribution of VIX Macro Model Regression by Inputs

Figure 2 above shows the contribution of the components of the VIX macro model, with the orange section (Economic Policy Uncertainty) acting as the main current driver of VIX. The Economic Policy Uncertainty Composite Index is in the 79th %-ile of its 4-year range.

To get a sense of the potential lower bound of VIX based on uncertainty, we can replace the current Economic Policy Uncertainty index from our model with the 2017 average from its current elevated levels. In this scenario using this lower uncertainty value, our model suggests a fair VIX level of 13.5. If the index dropped to its lowest level in the last 4 years (from August 2014), our VIX projection would be 9.7, while if it jumped to its highest level we would expect the VIX to exceed 18.8.

How much is VIX positioning affecting VIX levels?

The CFTC records daily positioning data for futures and options based on data reported from firms like exchanges and brokerages, which it then aggregates and releases every Tuesday. The regulatory body estimates net positioning (how long or short a particular type of investor is in aggregate) based on whether they are *commercial* (a market participant that uses futures/options for chiefly hedging purposes) or *non-commercial* (a participant using futures/options for speculative purposes). Information on commercial traders in particular provides valuable color on market sentiment.

The level of the VIX heavily exceeded our Macro Model’s fair values in February and March. Some market participants wondered whether a reason for the elevated VIX (beyond what was warranted by the market fundamentals) was long vol investor positioning.

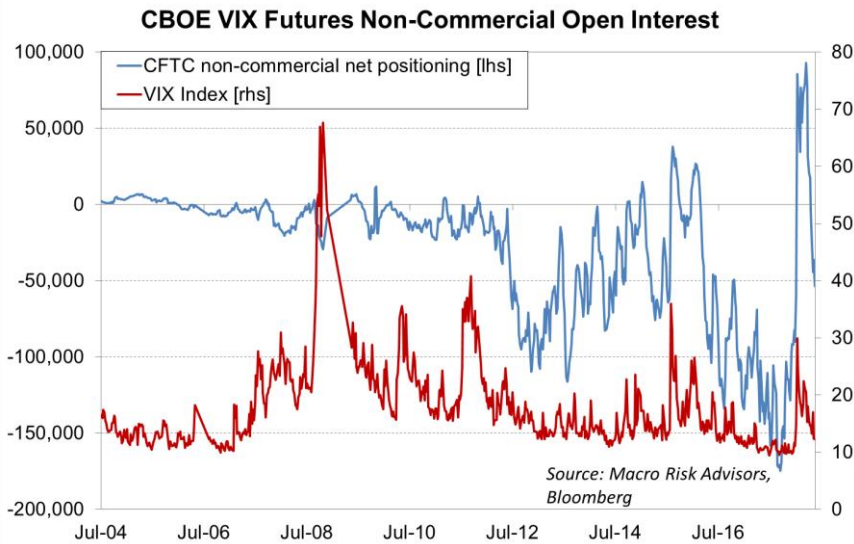


Figure 3: CFTC non-commercial net positioning vs VIX

To test this, we regressed the spread between spot VIX and the Macro Model’s expected VIX price on VIX positioning estimates (using CFTC CBOE VIX future positioning data from non-commercial entities, to be precise). We regress the VIX positioning data (monthly averages) both over the same time and lagged 1M behind on the spread between real VIX and our macro prediction (“Error”). The 1M lagged model had a meager R^2 of 0.12 while the cotemporaneous model had an R^2 of 0.20. However, significance testing (t-test) on both lagged and cotemporaneous models yields p-values of 5.3×10^{-6} and 1.3×10^{-15} respectively, suggesting that the trend is strong enough for the slope to be different than 0.

The coefficients for the cotemporaneous and lagged models were indeed positive (small decimals due to the difference in scale between VIX positioning data and model error), and suggest that there may be a modest positive relationship between VIX positioning and the amount the spot VIX exceeds our macro-based projection. Given this insight, we can use the non-lagged regression to improve our estimate of a “fair VIX”. The May average for VIX non-commercial positioning at -7,023 would suggest that VIX should be 1.30 over the Macro Model’s expected value of 14.2 (already over the market’s current VIX price), leading to a total value of 15.5. However, the most recent positioning print of -53,346 as of June 12th would bring that figure down to 13.3, closer to current levels.

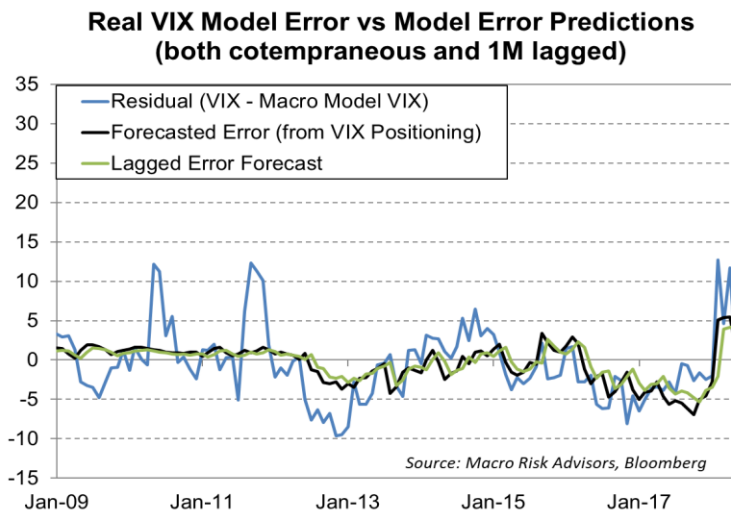


Figure 4: VIX – Macro Model VIX spread (“Error”) vs regressed Error values from VIX positioning inputs

The significance of this analysis is that it isolates another factor which could cause VIX to drop precipitously low (heavy investor short VIX positioning). Current inventory levels give an intuitive and statistically sound reason for why VIX may not return to 2017 levels until investor positioning fundamentally changes. **Figure 5** below shows that in general investor positioning is in the middle of its long term (8-year) range, making it difficult to predict which direction positioning will move in by itself; the higher the percentile, the more long market participants are on VIX.

If realized volatility drops relative to implied volatility and volatility selling becomes more profitable, however, we may see positioning to continue to become more short.

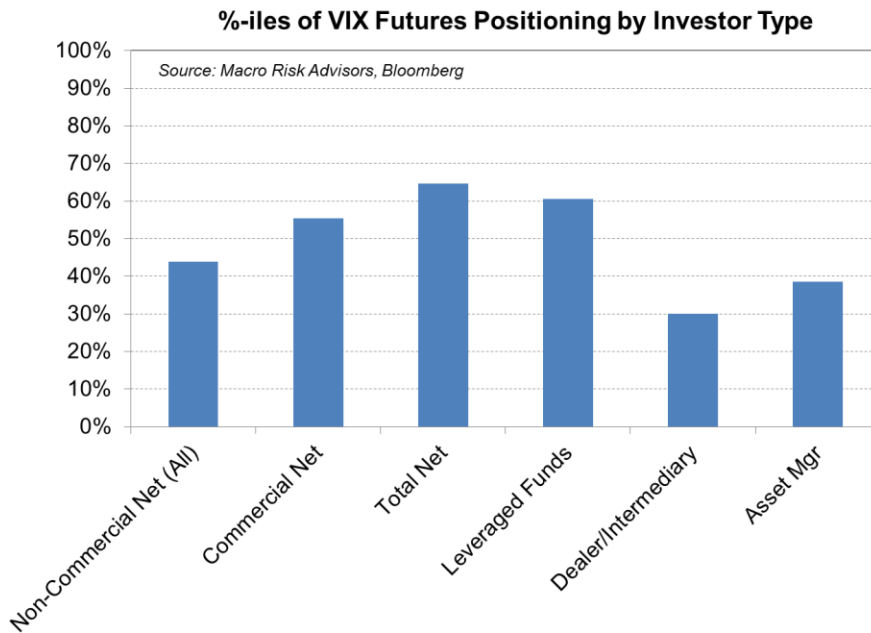


Figure 5: Positioning percentiles (of current values in 2010-2018 range) broken down by investor type

We re-iterate our “seagull” trade structure from last week:

Sell VIX July 11.5 put to Buy 17-20 call spread for 0.15 (ref. 12.84, 27d)

This structure can be modified to eliminate the VIX downside risk (with the tradeoff of requiring more premium) by making it into a VIX call fly.

Buy VIX July 14-17-20 call fly for 0.40 (ref. 12.84, 11d)

→ Buy July 14 and 20 calls, Sell 2 July 17 calls