GANSALO CAPITAL

The VIX Cycle

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Extreme levels of VIX present trading opportunities with high return and low risk…

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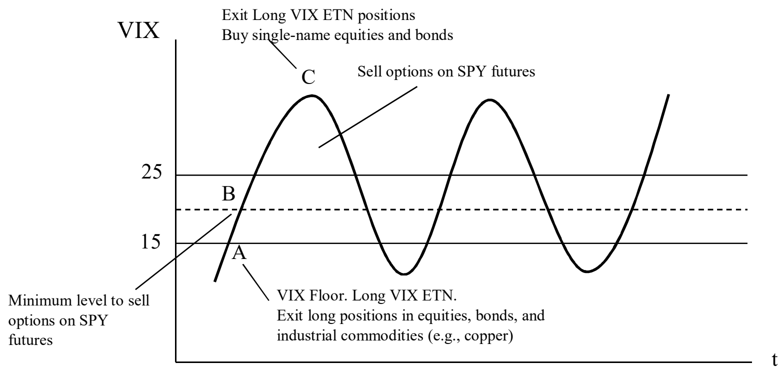
VIX measures the market's view of volatility in a product or underlying 30 days forward. It is inferred from options prices and, when viewed together with the option's skew, or the degree to which prices are asymmetric towards calls or puts, reflects the direction the market expects the price of the underlying to trend. For instance, a high VIX for a product that is skewed toward puts (e.g., SPY) suggests that investors expect a decline in its future price and are willing to pay higher premiums for puts to hedge against that risk; and vice versa.

As it relates to the CBOE VIX index for the S&P 500, in a bull market, investors put a lower probability on material future market risk and have less need to hedge against it. Put premiums will decrease and drive VIX down. But the premiums have a floor below which writing them will have an unattractive risk-reward ratio for option writers. At that level (less than 15) there is more room for VIX to increase than to decrease. In the other extreme, when investors are bearish, there is a greater demand for hedging which drives put premiums (and VIX) higher to a point where the options become too expensive and unattractive as a hedge instrument. This is when VIX will start to decline as investors are better off reducing their long exposure to the S&P than hedging the exposure with options.

Extreme levels of VIX coincides with those of credit spread (the risk premium for below investment grade bonds over investment grade bonds) and present trading opportunities with high return and low risk. One of such strategies is a direct exposure to VIX through any of the liquid ETNs that track VIX futures: we would go long the ETN when VIX reaches its floor, exit when it starts to peak; then go long single-name equities and bonds selling at a discount to tangible book and par, respectively, and hold the positions until VIX reaches its floor again. The risk is that the ETN decays over time when VIX futures are in 'contango' (i.e., the term structure of VIX futures is increasing and shorter contracts are rolled over at higher prices, causing the ETN to take a loss upon each rollover). But the decay is less of a concern if the long ETN position is accumulated when VIX is at its floor and the basis, or price difference, between the ETN and VIX is low.

VIX Cycle



A is the VIX Floor. Options premium below this level is unattractive for options writers

B is the level where VIX starts to reflect normalcy in the market. We would start selling SPY options when VIX exceeds this level and stop selling when it falls below the level

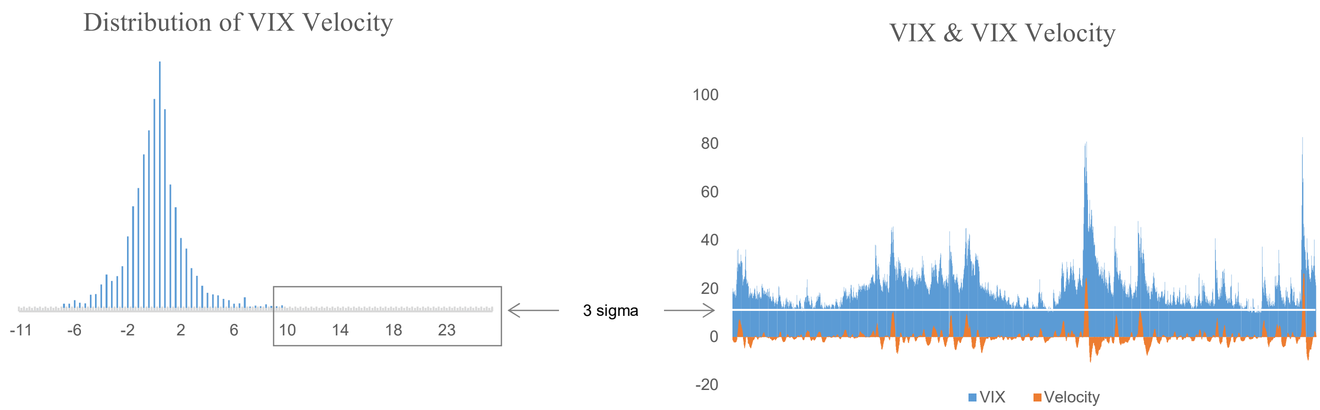
C is the extreme of VIX. A good proxy for this is when the 30-day moving average exceeds the 90-day moving average by 10 points or more.

VIX Floor

We can think of put options on SPY futures as an insurance policy against S&P decline. And, like all insurance products, the price will imply a higher probability of the event occurring than is expected, otherwise the insurance seller will not write the policy. As price takers, writers of put options on SPY futures will not sell at a price that implies a probability of market decline that is lower than the expected probability. The VIX Floor is inferred from that price threshold. We think the VIX Floor is ~15 and will be bullish when it falls below that.

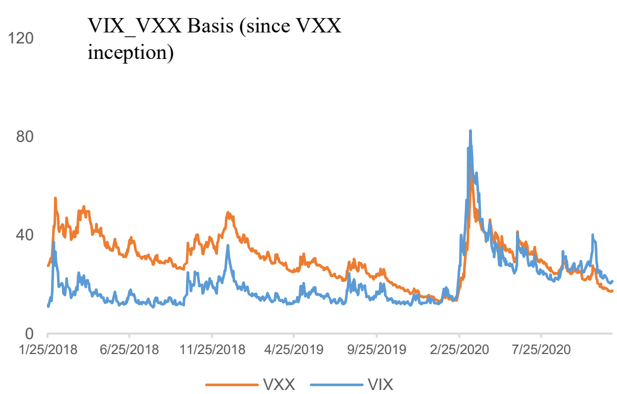
VIX Peak

Though VIX peak is unknown, we can tell when VIX is accelerating at a speed that is more likely to decline than to increase. At that speed (or velocity), VIX peak is near. We use simple MACD, the difference between the 30 and 90-day moving averages, as proxy for velocity. The distribution of velocity since 1990 is shown below. At the 3-sigma level (~10) there is little or no room for it to increase further, suggesting that VIX will soon peak. We will exit long VIX positions at that level.

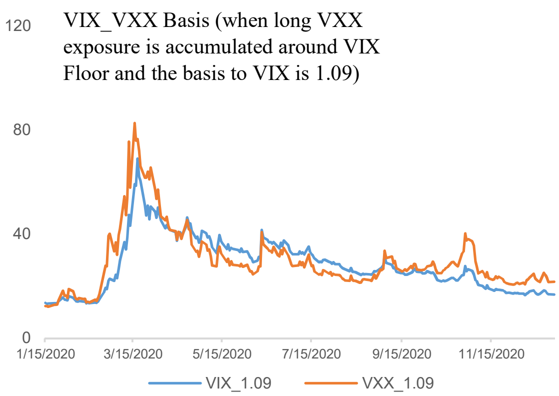


Exposure to VIX through VXX

VXX is an exchange traded note that tracks VIX futures. It is a way to get exposure to VIX, though it carries *"basis risk"* when VIX futures are in contango – i.e., when far contracts are pricier than near contracts, VXX will generate a loss when it rolls over contracts, eroding its value in the process. This was evident between mid-June 2018 and early October 2019 when VIX decreased by 5% and VXX decreased by 17%. And between late April 2019 and late January 2020 when VXX decreased 63% while VIX remained flat! The following chart shows the divergence between the two since VXX inception.



While the divergence is an inevitable result of the way the ETN is constructed, it can be reduced significantly when the long VXX exposure is accumulated around the VIX floor and the basis between VIX and VXX is low. Under these conditions, the average variance between the two is less than two points and the 95% confidence interval is within ten points; compared with an average variance of 9.5 points with a confidence interval of 29 points without the conditions.



Summary of trading strategy through the VIX Cycle

VIX	What it means	What to buy	What to sell
< 15	○ There is higher risk of a one-way equities market (dominated by buyers), putting more pressure on prices when buyers exit at the same time ○ There is a higher likelihood that VIX will increase than decrease ○ Credit spread (the risk premium for below investment grade bonds over investment grade bonds) is thin and credit is abundant, increasing financial fragility in the economy	○ VXX when basis to VIX is < 20% ○ Treasuries ○ Munies	○ Equities ○ Bonds ○ Industrial commodities (e.g., Copper) ○ Real estate
15 – 25	○ No market extremities ○ S&P is neutral ○ VIX is normal ○ Credit spread is normal	○ Anything selling at a deep discount to its fair value, though such opportunities would be rare	○ Options on commodities futures, 30-day tenor, hedged diagonally or with the related volatility call option
Velocity or MACD (30-day MA minus 90-day MA) > 10	○ Market is in the extreme and opportunities for value trades are abundant ○ S&P is oversold ○ Credit spread widens	○ Single-name equities with strong historical performance selling at or below tangible book ○ Bonds of issuers with strong historical performance selling at deep discounts to par ○ Industrial commodities (e.g., copper)	○ VXX ○ Treasuries ○ Munies ○ Options on commodities futures, 30-day tenor, hedged diagonally or with the related volatility call options