The Mean Reverting Fear Factor

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Central Issue of the Paper

The complacency that investors experienced most of the year is starting to be a thing of the past. As we witnessed an uptick in volatility in October 2018, it behooves us to revisit some of the volatility products available to investors, specifically short volatility products. In “In Free Fall and Yet Attractive? Short Volatility ETFs” by Claus Huber, he poses the question: “How can an ETF, which is accessible to retail investors, suffer an almost total loss in such a short time?” This question was raised after the markets were struck with a violent increase in volatility earlier in the year (February 2018) and investors fell victim to a loss of more than 80% mainly around two products, “ProShares Short VIX Short-Term Futures (SVXY)" and "VelocityShares Daily Inverse VIX Short- Term ETN (XIV)."

Approach Employed by Paper

Short volatility products rely on the underlying volatility measure, such as VIX, to decrease or remain constant. The VIX is an index calculated from options on the S&P500 index with a maturity of 30 days. It is not directly tradable, but there are futures contracts with the underlying VIX. These futures contracts are offered with maturities of up to nine months in the future. The maximum loss of short volatility ETFs is theoretically infinite. With the VIX's low price levels of 10, the probability of a movement from +100% to 20 or even +200% to 30 is significantly higher than in the upper regions above 25, such as from 30 to 60. In January 2018, the VIX was between 9.2 and 14.8. In a similar range, the VIX stayed for the entire year 2017.

At VIX around 10 short volatility ETFs can therefore be said to have an unfavorable asymmetric risk profile, while a favorable asymmetric risk profile can be seen for VIX above 35. However, the latter does not mean that losses can be excluded if you buy inverse volatility products from a VIX over 35. There were times in the past when the VIX was already higher than 50 and still increased by 20% and more (e.g., October 2008). Therefore, this begs the question, how do short volatility products make money in times of low volatility? If the VIX would remain constant, you can earn money by rolling down the futures. In reality, financing and management costs must be deducted from this, but there is still a considerable return on investment for a holding period of one month. If the VIX falls, the corresponding price movement of the VIX futures contract is added.

From 2012 to 2017, SVXY has achieved returns of 156%, 104%, -9%, -17%, 80% and 179%. The results of XIV were at a similar level. Those who invested at the end of 2011 could look forward to a return of 1870% until the end of 2017, which is a nineteen-fold increase in invested capital! However, the volatility was 66%. That is still some distance away from Bitcoin spheres - where volatility was 170% in the same period - but still with gusto. By way of comparison: The volatility of the S&P500 was 12%. Another factor to take into consideration is the market power of the short volatility products manifests itself in the open interest, i.e., the number of outstanding contracts, of the VIX futures.

Why did investors enter this market? The answer lies in the VIX's ability to keep returning from levels above 20 to values below 20 ("mean reversion"). The long-term average from early 1990 to February 2018 is 19.4; the average in the last few years since 2013 is significantly lower at 14.4. Fears flaring up every now and then are expressed in a rising VIX. When the situation calms down, life returns to normality and the VIX sinks again. This brings us closer to the reason why investors are once again accessing the market immediately after the devastating price losses of short volatility products: the combination of a bet on falling volatility, the VIX close to the summit and the "Mean Reversion" property of the VIX transforms the unfavorable asymmetric risk profile of the SVXY with a VIX close to its historical lows into a favorable asymmetric risk profile. However, the window of opportunity for the favorable risk profile is extremely short (at best a few days) and only very risk-tolerant experts will be able to react so quickly.

Findings of the Paper

Short volatility ETF securities are an investment strategy that delivers a fairly high return in a quiet market environment. However, there are always market phases in which they realize catastrophic losses that can reach as far as total loss - as we have seen. As a rule, these phases of loss occur when the stock markets incur heavy losses and thus at a point in time that cannot be more unfavorable. They are therefore completely unsuitable as building blocks in a long-term oriented portfolio. However, for investors who are willing to take risks and focus on short-term trading, a temporary position can make sense if the VIX reaches higher levels of 35 or more (as of October 20, 2018 the VIX stood at ~20). Then the asymmetric risk profile turns from unfavorable to favorable. In the worst-case scenario, assuming a total loss of the Short Volatility ETF, an investment of 1% of the portfolio in this ETF results in a return of -1% at portfolio level. A short-term oriented and risk-tolerant investor could opportunistically invest in such a short volatility ETF on a VIX over 35. However, the investment decision must be made in a very short time frame of, at best, a few days, in which many other parts of his portfolio will also suffer from high price losses. Once the VIX falls well below the 35 mark, e.g., close to 15, the Short Volatility ETF should be sold again.

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