



The Rising Use of Short Volatility Strategies: Separating Fact from Fiction

By Brett Bina, CFA, CAIA

Why are asset owners increasingly embracing options-based short volatility strategies? While derivative strategies involve a degree of complexity, allocations have increased in recent years. Several large public pension plans in the US including Hawaii ERS and South Carolina Retirement System launched option writing strategies in 2016¹ and many others are considering them². Three main factors are driving investors' interest.

First, many short volatility strategies exhibit low correlation to traditional stock and bond investments, which can help reduce overall plan risk. Second, the relatively high valuation of traditional asset classes such as stocks and bonds has led allocators to think outside of more traditional return drivers. The Shiller CAPE ratio, a cyclically-adjusted ratio of price-to-earnings that analysts use to gauge S&P 500 valuations, hit a 10 year high of 30 in August 2017³. Stubbornly low interest rates are forecasted to keep a lid on fixed income returns for the near future as well. Given this backdrop of low expected ROI, investors are looking for different ways to reach their target returns while reducing reliance on equity market performance.

Another reason for the recent interest by institutional investors in volatility strategies has to do with how they are restructuring their hedge fund portfolios using a core-satellite approach, with cheaper, more transparent alternative risk premia (sometimes referred to as Liquid Alternative Investments, or LAI) such as volatility at the core, and more expensive 'true alpha' as the satellite⁴. Investors are realizing that much of the hedge fund return that was previously considered to be alpha can actually be explained by alternative beta factors (some examples of which include volatility, carry, liquidity and event). Sophisticated asset owners have begun developing alternative risk premia portfolios, at greatly reduced cost relative to standard hedge fund fees. Investors can use these alternative risk premia strategies as building blocks to form the foundation of an alternatives allocation, combined with selective exposure from highly skilled managers offering true alpha.

Short volatility options strategies are based largely upon a simple observation: equity, fixed income and other asset classes tend to be less volatile than predicted by the market. Nomura estimates that over 70% of the time, implied volatility is greater than realized volatility⁵. One explanation for this phenomenon is behavioral: investors are willing to "overpay" for protection as to avoid unacceptable losses. Another justification for the premium is market-based. There simply are more natural buyers than sellers for options. Sellers of puts and calls demand compensation for the risk they take on, which manifests in a premium price that exceeds the amount you would expect to pay by simply looking at average returns over time. Given that selling options is a useful service that investors value, short volatility does not represent an anomaly that would be expected to be arbitrated away over time.

At their core, many options-based short volatility strategies involve the simultaneous sale of a put and call on a financial instrument, either with equal strike prices (a straddle in option parlance) or with a lower strike for the put than for the call option (called a strangle). Selling straddles introduces the need to actively delta hedge the portfolio in order to reduce the path-dependent influence of market moves. A short volatility strategy using strangles



removes the need to delta hedge and takes advantage of the pronounced implied volatility skew in which the market overprices large market moves more than smaller more regular ones.

The short volatility manager promises to provide any upside past the option's strike price to the option's purchaser, keeping the premium from the option sold. A short volatility strategy's total return is composed of the premia collected, minus any losses from the options sold (e.g. if they expire in-the-money), combined with the return generated on any collateral. Losses occur when realized volatility exceeds the volatility levels implied by the option's price during the initial sale. In other words, options sellers do well when the options they sell expire worthless (out-of-the-money) or if they can correctly forecast the risk of price movements and cover their short options positions before losses occur.

Sellers of volatility need to actively judge the market environment as new positions are added. As the maximum profit is often known at trade inception (the option premia collected plus any return on collateral), the main way short volatility managers add value is by determining how many options to sell, when to sell them, and how to manage risk by carefully liquidating positions that become too risky on an ongoing basis. For options sellers, selling when volatility is high is lucrative, but perilous, as periods of high volatility can often coincide with in-the-money expiry.

Some investors wonder if selling short call options can represent unlimited risk. Theoretically this could be true, because securities could potentially appreciate without any limit. But in practice, most short volatility managers utilize cutting-edge risk management techniques that seek to close positions well ahead of a potential in-the-money expiry. As such, due to the stop-loss limits placed by many leading volatility managers, a theoretical unlimited risk is reduced to a manageable level based upon an investor's risk tolerance. In addition, diversification across asset classes can help volatility managers reduce risk even further.

What is the most common misconception about short volatility strategies?

To the chagrin of the many highly educated PhDs who carefully manage volatility strategies with reams of data and mathematical insight, their techniques are often portrayed as "picking up nickels in front of a steamroller". Though it is accurate that short volatility strategies will struggle in the short run, and do, to an extent, often get rolled over by the proverbial steamroller during an extreme market move, what is missing in this narrative is what happens after the steamroller passes by. A good short volatility manager will often latch on to the steamroller and increase their exposure as option prices go up, pocketing fattened premia which gives their strategy a chance to perform well after a crisis event.

High single digit returns for short volatility managers in 2011 during a flat year for stocks offered enormous diversification potential for pensions seeking uncorrelated returns. A good example of how short volatility strategies can be expected to perform during a risk event can be illustrated by 'Black Monday'. Black Monday occurred on August 8th, 2011 when Standard & Poor's downgraded the US's AAA credit rating to AA+. The S&P



500 plunged 6.7% on the news, and finished August down 5.7%. September was even worse for US large caps, with the index sinking another 7%.

Unsurprisingly, as equity markets plunged, volatility managers got whacked too. The CBOE Eurekahedge Short Volatility index, a proxy for average manager performance in the space, fell by over 10% in August 2011. But then something changed. As US equity markets continued to sink by over 7% in September, volatility managers didn't fall by nearly as much, with the index declining by only 1%. Over August and September, short volatility managers outperformed the S&P 500 by over 1%. Several short volatility managers ended 2011 with high single digit returns as the S&P index remained flat, including the Berenberg DyMACS strategy, which returned 9% net of fees.

It is not entirely accurate to characterize all managers who sell options as "short volatility", because the strategies are not uniformly hurt by increasing levels of volatility. Managers who are savvy enough to adjust exposures in different conditions are able to take advantage of periods of high volatility, and may up riding the wave, instead of being rolled over by it.

Conclusion

Short volatility options strategies offer investors a means to maintain returns along with significant diversification properties. The strategies also have the potential to act as building blocks that form the foundation of an alternative allocation at a much lower cost than many traditional hedge funds. Skilled short volatility managers add value by adjusting exposures when it's a favorable time to do so, allowing investors to profit from selling volatility in a risk controlled environment.



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Additional information available upon request.

¹ <https://www.wsj.com/articles/pensions-play-with-puts-for-protection-1471777202>

² <http://www.institutionalinvestor.com/article/3667659/investors-pensions/the-hedging-strategy-thats-cheaper-than-hedge-funds.html#/.WYssalWGNph>

³ <http://www.multpl.com/shiller-pe/table>

⁴ <http://www.pionline.com/article/20170206/PRINT/302069979/hedge-fund-investors-apply-core-satellite>

⁵ https://www.nomura.com/events/9th-annual-global-quantitative-investment-strategies-conference/resources/upload/3_30_Nick_Firoozye.pdf