

Volatility as an Investment Strategy

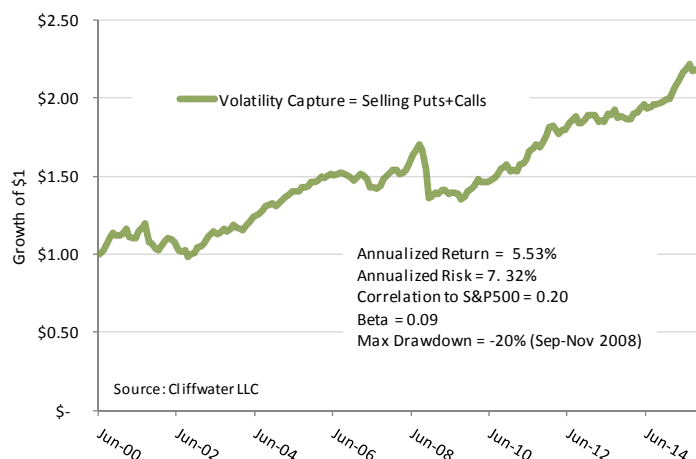
May 10, 2016

*Investors seeking uncorrelated returns sometimes look to trade “volatility” through exchange traded option contracts. For example, data suggests that investors tend to overpay for options to protect against losses, and overpay for options that facilitate potential profits. We simulate a **volatility capture** strategy that takes advantage of perceived option mispricing to form a return series that some would identify as “alternative or smart beta.”*

Investors can and do use options in other ways, including downside protection, yield enhancement and sources of alpha. Our objective is to introduce readers to volatility capture as an investment strategy and, in so doing, demonstrate that options can potentially be a useful tool for both return generation and risk management. At the same time, we caution readers that our analysis is based upon historical simulation and that actual implementation can be challenging for larger investors and risk must be carefully managed.

Exhibit 1 shows simulated cumulative returns for a passive strategy that continually “sells volatility” from June 2000 to December 2015. The sell volatility strategy consists of continuously selling (writing) 3 month at-the-money put and call options on the S&P 500 Index. This strategy is sometimes referred to as “volatility capture.”¹ The 5.53% annual return over the entire period suggests that investors tend to overpay for options, either overpaying for put options to protect against losses or overpaying for call options to potentially earn gains at limited cost.

Exhibit 1: Performance from Volatility Capture Strategy: June 2000 to Dec 2015



The strategy’s low 0.2 correlation with the S&P 500 Index return and 0.09 beta suggests that our volatility capture strategy might be a good diversifier. While that is generally true, the strategy’s largest drawdown of -20% coincided with the -50% drawdown in the S&P 500 Index during 2008.

¹ The simultaneous purchase (sale) of at-the-money call and put options on the same underlying index is also known as a “straddle”.

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The source of the positive return found in Exhibit 1 is the fairly consistent positive difference between implied volatility for the S&P 500 Index and its realized volatility. Implied volatility is found by applying the Black-Scholes option pricing formula to traded option premiums. The higher the option premium or price, the higher is the implied S&P 500 Index volatility. A positive volatility spread will produce a positive return to option sellers over time and a negative volatility spread will produce positive returns to option buyers over time.

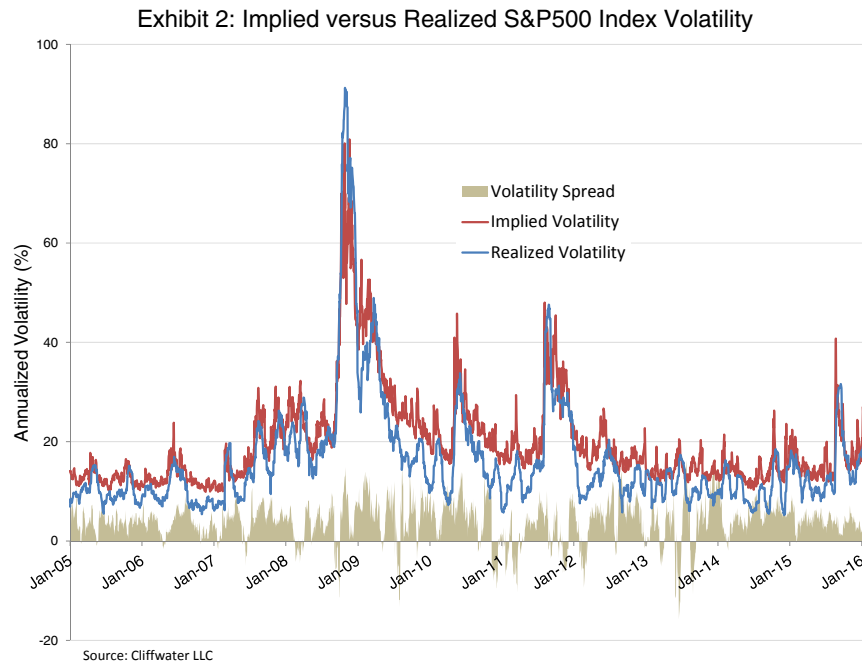
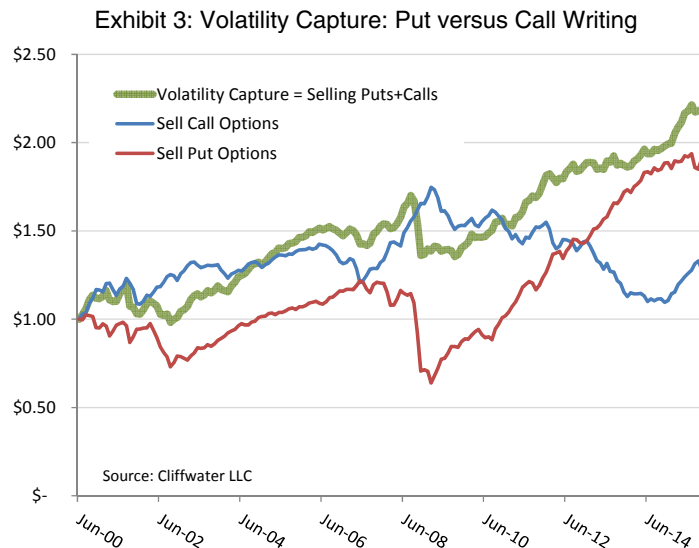


Exhibit 2 shows that implied volatility tends to be higher than realized volatility, except during market dislocations such as the 2008 Financial Crisis and the 2011 Euro Crisis.

Exhibit 3 divides the volatility capture returns in Exhibit 1 into its two components: put option writing and call option writing. Our goal in doing so is to understand whether the benefits from volatility capture comes mostly from puts, calls, or both.



Volatility capture performance in Exhibit 3 (repeated from Exhibit 1) equals the sum of put and call writing. Not surprisingly, the put and call writing returns move in opposite directions. The put writing returns are much stronger over the 15+ year time period but the drawdowns appear much larger and correlated with the S&P 500 Index. As an example, the put writing strategy would have experienced a -39% drawdown during the 2008 Financial Crisis, compounding losses on any existing stock holdings.

Call writing produces lower returns over this time period but is countercyclical to both the S&P 500 Index and the put writing returns. It would therefore appear that the combination of put and call writing produces the strongest risk-adjusted volatility capture returns.

This report provided a brief introduction to volatility capture as a strategy to exploit option mispricing. Volatility capture can cut across many markets and securities and active managers have their own unique strategies. We conclude by cautioning that the performance presented above is based upon historical option data and assumes transactions occur at the prices reported. This may not be possible for larger institutional accounts.

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