

Trade The VIX Via The S&P 500

One of the more telling passages in *When Genius Failed*, Roger Lowenstein's classic account of the 1998 undoing of Long Term Capital Management, involved the disappointment of outsiders upon seeing LTCM's positions for the first time. Surely the assorted Nobel laureates and erstwhile Masters of the Universe had all sorts of exotic positions and derivatives, right? Um, no; for the most part they managed to get both themselves and the remainder of the global financial system into all that trouble mostly by being long mortgage-backed securities and short Treasuries.

This was a case of position size leading to illiquidity. Most of the time, though, it is exotic positions traded not on a central clearing platform but bilaterally in the cash market that lead to illiquidity. Occasionally you get a combination of massive size and a high degree of complexity, such as the 2008 credit default swap position of AIG; ah, those were the days.

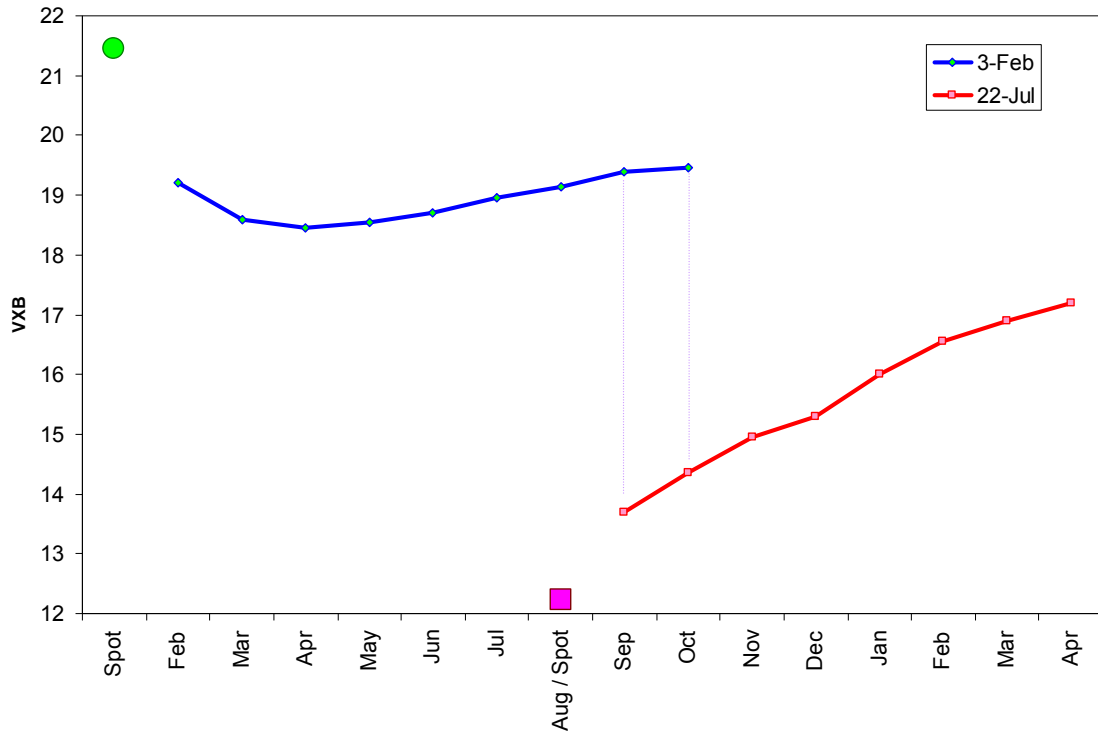
Simplicity is a virtue in most walks of life, trading included. Which brings us to our present subject, whether you should trade expected price movements in one market, the S&P 500 (SPX), via an attribute of that index, implied volatility as measured by the VIX. While the question whether implied volatility is an asset class cannot be answered here for the very good reason there is no widely accepted definition of what an asset class is, we should be cautious in defining it as such. The VIX provides a reading of future price uncertainty of the SPX; which makes it an attribute of an actual asset. The VIX itself is an intangible concept; unlike recognized financial assets you can neither own it nor or detach a stream of returns from it.

The question whether volatility is an asset comes into play when we consider the forward curve of VIX futures, which are priced off the VXB or "jumbo VIX." Unlike a standard futures forward curve where there is a defined full-carry pricing structure where a futures contract represents the spot price plus all of the physical and financial costs of holding it to the delivery date, the VIX forward curve represents a series of forward-start one-month fixed legs of volatility swaps. The price of a three-month VIX future should not reflect current movements in the spot VIX index so much as the level at which volatility and variance swap traders can agree to do business starting three months from now. The implications here are simple: Trading a three-month future based on current VIX readings is like seeing a forecast for rainy weather over the next few days and ordering an umbrella to be delivered three months from now.

Let's illustrate this by comparing the pseudo-forward curves for VIX futures on February 3 and July 22, 2014; the former occurred near the low of a selloff and the latter on an approach to a new high in the SPX. The spot VXB values are highlighted in large markers and the pseudo-forward curves between February 2014 and April 2015 are drawn with high-low lines between the two overlapping contracts, those for September and October 2014.

Please note how the February pseudo-forward curve was inverted while the July pseudo-forward curve was sloped positively. The market judged, correctly, in February the surge in the spot VXB would not lead to a sustained period of high volatility and was pricing in higher forward volatility in July. Anyone who went short either September or October VIX futures in February would have captured 62.0% and 55.4% of the spot VXB's decline by July 22, 2014. That is a small reward received for a large risk assumed.

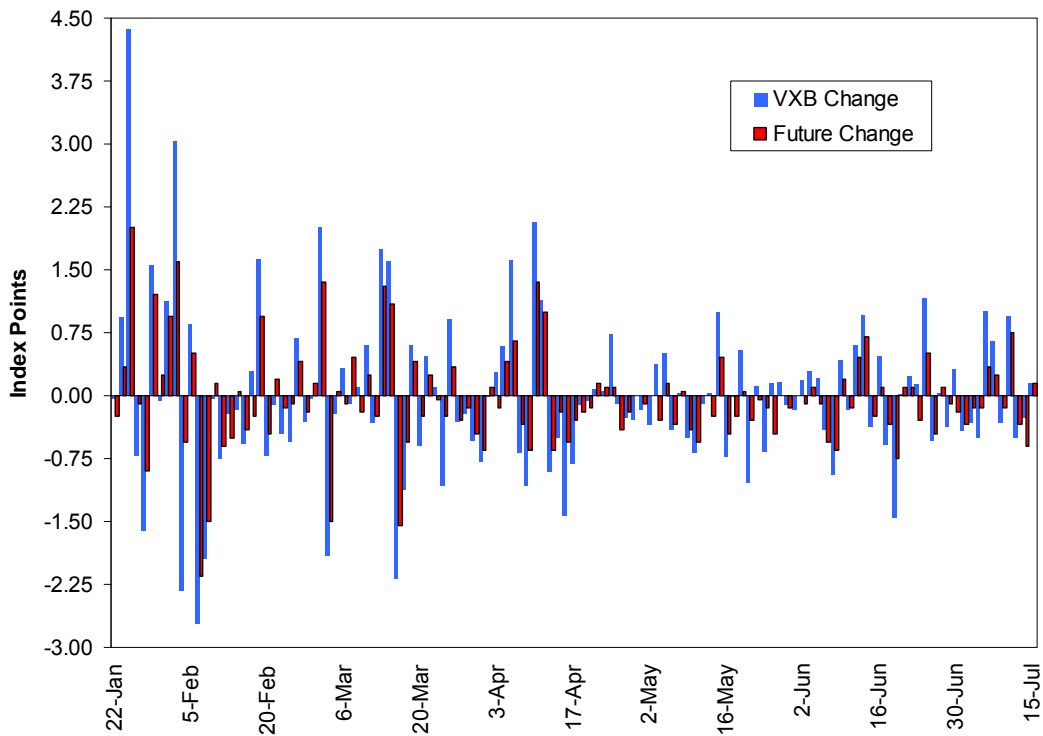
Differential Pseudo-Forward Curves For VIX Futures



Source: Bloomberg

If you are about to retort, correctly, most traders might be willing to confine themselves to the front-month future, you still have the partial-capture problem. If we map the spot VXB changes and the front-month VIX futures changes for each day when the February-July 2014 contracts were the front-month, we see a dominant pattern of much larger VXB changes...and a few days when the VIX futures moved in the opposite direction.

Front-Month VIX Future Changes Seldom Match VXB Change

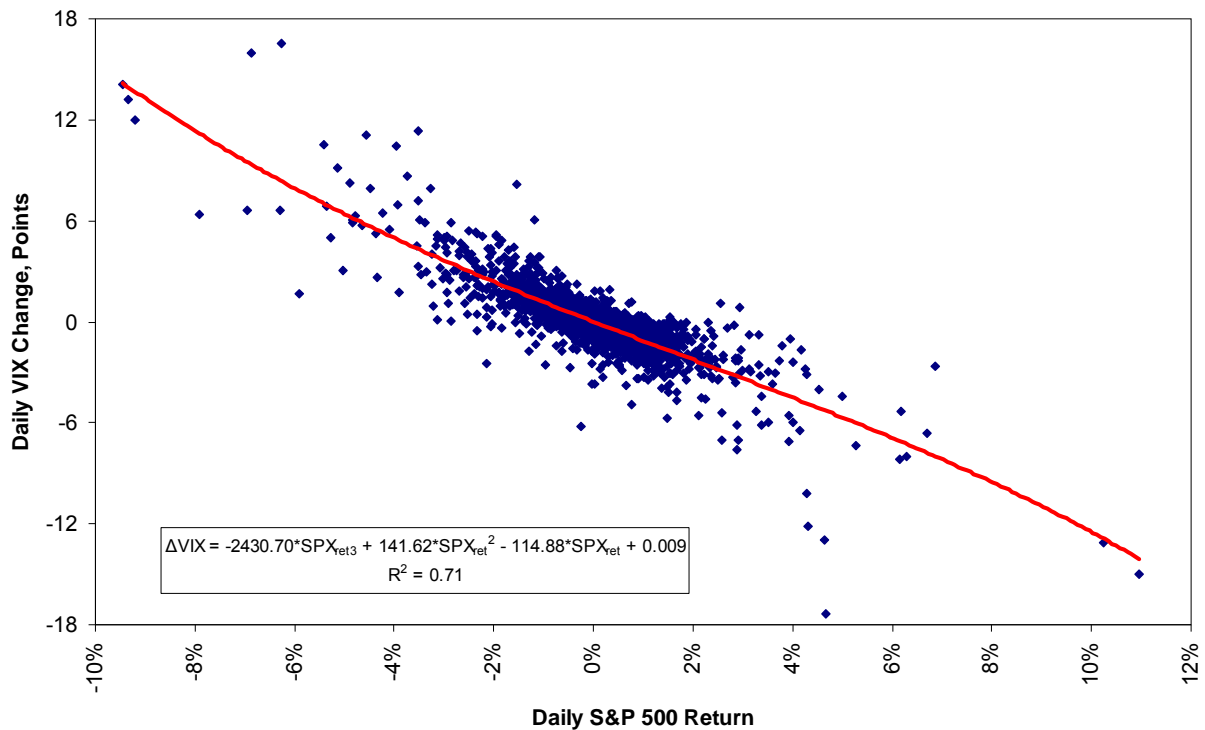


Source: Bloomberg

A Price Opinion

While there are times when the VIX rises when the SPX falls, often after a high-variance period where the market appears topy, that is not the way to bet over the long-term. The relationship since the March 2004 advent of VIX futures has been a simple and powerful one where the VIX is an inverse cubic function of daily returns on the SPX. If this is the case, why make life difficult for yourself trading a partial-capture instrument when you can trade the real thing?

A Well-Defined Negative Relationship

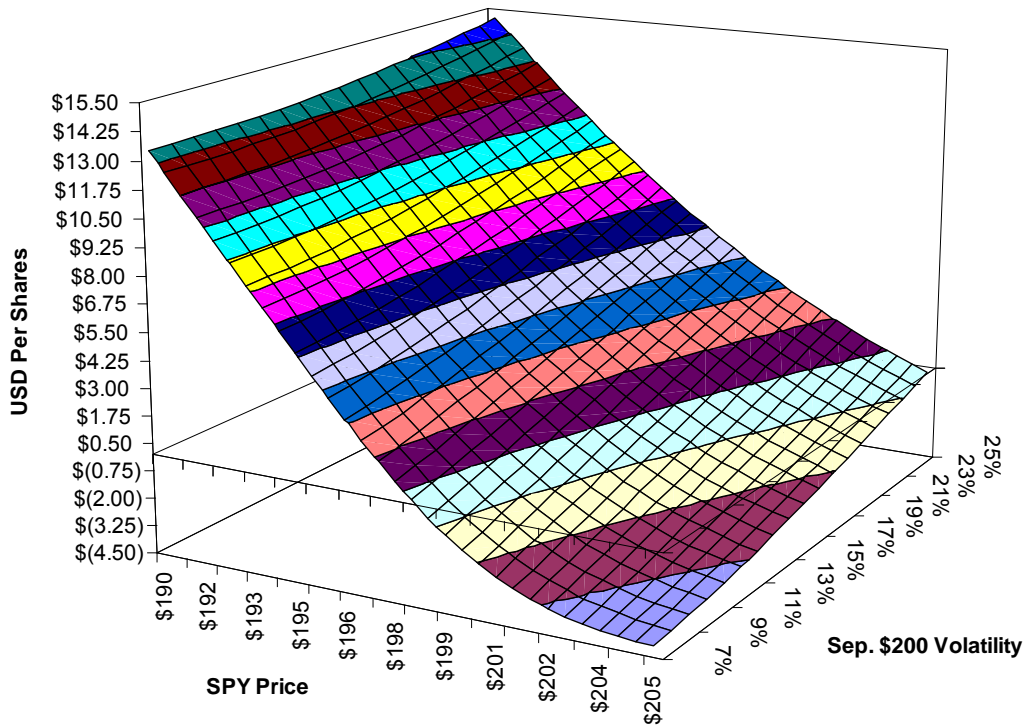


Source: Bloomberg

Of course, you can have your cake and eat it, too, by trading a long put option position. Not only will this rise if the market falls, it will benefit if volatility rises as well. The optimal put option position selected by the Dynamic Option Selection System (DOSS, see “Using Options The Spec Way,” July 1994) for a \$1 million short position in the S&P 500 tracking ETF (SPY) on July 22, 2014 was 88 September \$200 puts at a cost of \$2.34 apiece. This gives full-delta coverage to the equivalent of 5,000 shares. For reference, the SPY was trading at \$198.36 and the volatility of the September \$200 put was 10.95%.

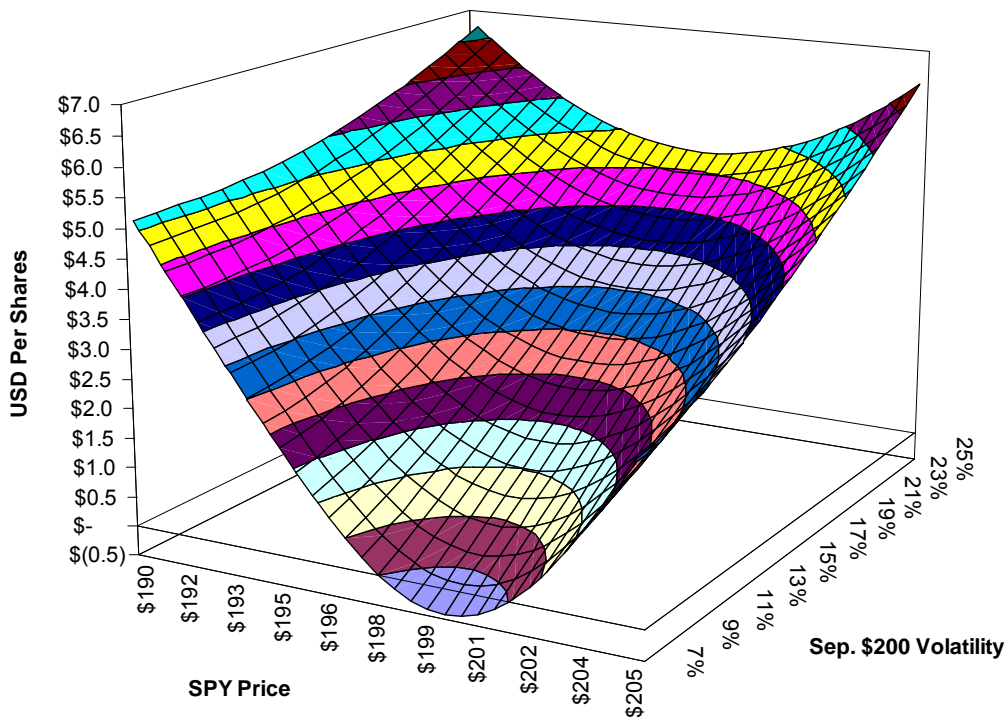
Let’s take a snapshot of the trade’s gross gain/loss per share on Friday, September 5, 2014, two weeks prior to expiration across a range of price and volatility. You would expect to profit under a wide range of lower price or higher volatility environments. You will lose otherwise, as tends to happen when your initial assumptions prove wrong.

Gross Gain/Loss On Sep. \$200 SPY Put



Now let's compare this gain/loss to the base case of being short 5,000 shares of SPY. The low initial volatility makes the long put option a superior alternative to the base case except in the static price/declining volatility environment.

Incremental Gain/Loss On Sep. \$200 SPY Put



It would be nice to be able to compare the results of the SPY option trade with a VIX futures or options trade, but that is really impossible given the partial and irregular response of VIX instruments to the SPX. That statement alone should be enough to convince you if your trade motivation is higher volatility, it most likely will be accompanied by lower price and most certainly will be traded more efficiently with a price and not a volatility instrument.