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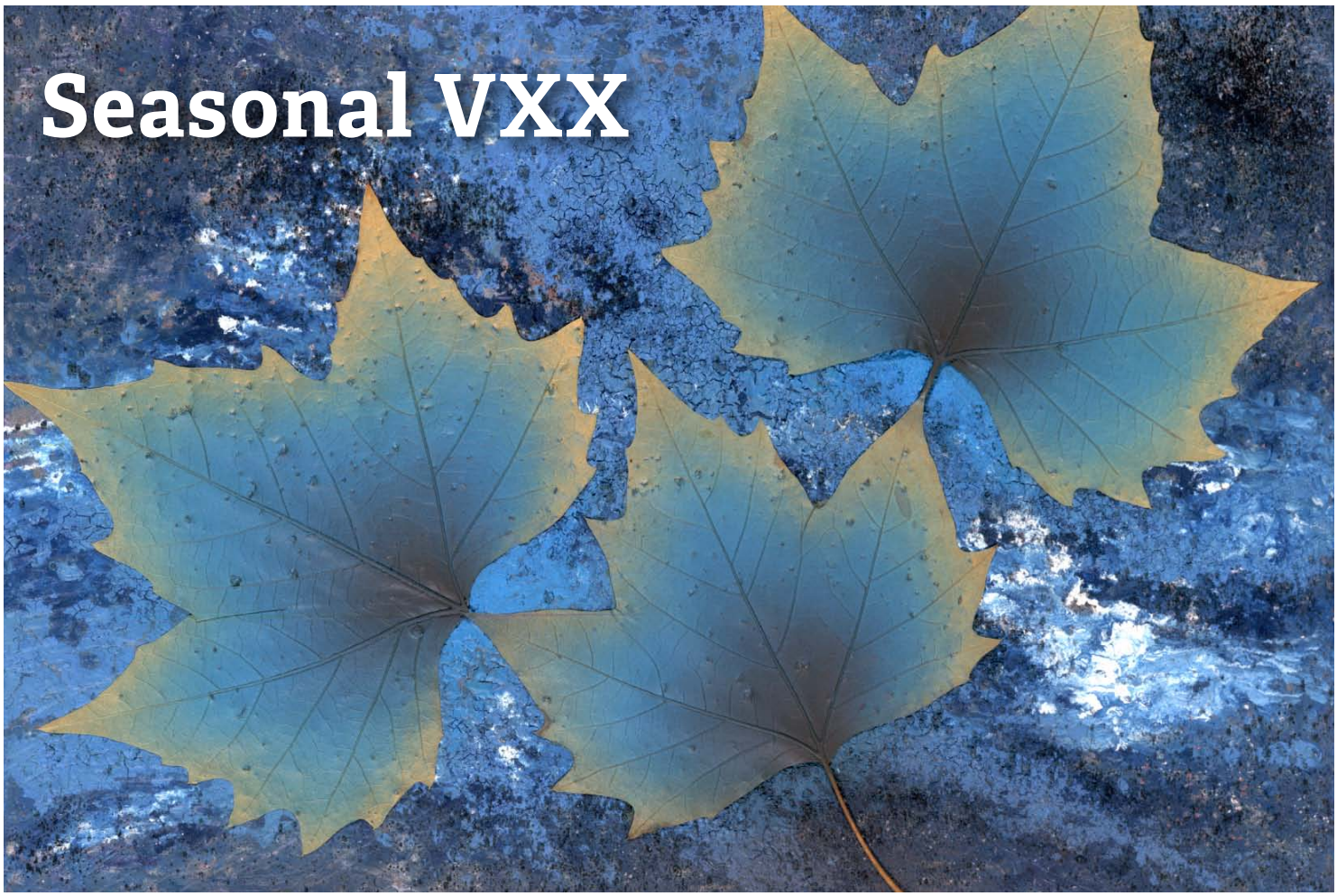
THE OPTION TRADERS JOURNAL



The Predictive Value of Option Activity

VIX Risk Reversal

with Strikes Determined by Term Structure (A Longitudinal Study)

Thinking Long Term in a Short Term Market

EXPIRING MONTHLY
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About the Expiring Monthly Team

Bill Luby

Bill is a private investor whose research and trading interests focus on volatility, market sentiment, technical analysis, and ETFs. His work has been has been quoted in the Wall Street Journal, Financial Times, Barron's and other publications. A contributor to Barron's and Minyanville, Bill also authors the VIX and More blog and an investment newsletter from just north of San Francisco. He has been trading options since 1998.

Prior to becoming a full-time investor, Bill was a business strategy consultant for two decades and advised clients across a broad range of industries on issues such as strategy formulation, strategy implementation, and metrics. When not trading or blogging, he can often be found running, hiking, and kayaking in Northern California.

Bill has a BA from Stanford University and an MBA from Carnegie-Mellon University.

Jared Woodard

Jared is the principal of Condor Options. With over a decade of experience trading options, equities, and futures, he publishes the Condor Options newsletter (iron condors) and associated blog.

Jared has been quoted in various media outlets including The Wall Street Journal, Bloomberg, Financial Times Alphaville, and The Chicago Sun-Times. He is also a contributor to TheStreet's Options Profits service.

In 2008, he was profiled as a top options mentor in Stocks, Futures, and Options Magazine. He is also an associate member of the National Futures Association and registered principal of Clinamen Financial Group LLC, a commodity trading advisor.

Jared has master's degrees from Fordham University and the University of Edinburgh.

Mark Sebastian

Mark is a professional option trader and option mentor. He graduated from Villanova University in 2001 with a degree in finance. He was hired into an option trader training program by Group 1 Trading. He spent two years in New York trading options on the American Stock Exchange before moving back to Chicago to trade SPX and DJX options For the next five years, he traded a variety of option products successfully, both on and off the CBOE floor.

In December 2008 he started working as a mentor at Sheridan Option Mentoring. Currently, Mark writes a daily blog on all things option trading at Option911.com and works part time as risk manager for a hedge fund. In March 2010 he became Director of Education for a new education firm OptionPit.com.

Andrew Giovinazzi

Andrew Giovinazzi started his career in the financial markets after graduating from the University of California, Santa Cruz with a B.A. in Economics in 1989. He joined Group One, Ltd. and quickly became a member of the Pacific Stock Exchange (and later the CBOE), where he traded both equity and index options over a 15 year span. During that period he never had a down year.

At the same time, Andrew started and ran the Designated Primary Market Marker post for GroupOne on the floor of the CBOE. It became one of the highest-grossing posts for the company in 1992 and 1993. While actively trading, Andrew was instrumental in creating and managing an option trader training program for Group One.

He left Group One, Ltd. to co-found Henry Capital Management in 2001. Andrew then joined Aqumin LLC (2008–2011) to help bring 3D quoting and analysis to financial data. He is Chief Options Strategist at Option Pit.

Editor's Notes

Mark Sebastian

AS EXPIRING MONTHLY BEGINS our morph from a magazine to a research and trading-intensive publication, we are going to do our best to always be timely with its release. That said, from time to time different projects and schedules for our writers can hold things up. This month was one of those times; we apologize.

To make up for the tardiness, we have some amazing content to bring you. Jared presents a great study on whether option activity is predictive of future movement. Bill then follows up with a great piece on constructing a VIX risk reversal using VIX term structure. Andrew discusses how to think long term in a short market. Finally I come in to examine whether there is seasonality in the VXX.

Again we apologize for the delay. Our hope is the product was worth the wait.

As always, readers are encouraged to send questions, comments or guest article contribution ideas to editor@expiringmonthly.com.

Regards,
Mark Sebastian

The Predictive Value of Option Activity, Part 2

Jared Woodard

LAST MONTH, I reviewed a paper which claimed that monthly option open interest was not a meaningful predictor of future stock returns. I suggested that the study could be refined by looking at daily or weekly data instead of aggregate monthly figures, and that standardizing volume and open interest against average levels would permit better tests for informed trading. This month, we will review three papers that incorporate just these sorts of changes when studying the predictive value of changes in option market demand.

In "Do Option Open-Interest Changes Foreshadow Future Equity Returns?", Fodor, Krieger, and Doran take up the relationship between changes in option open interest and future equity returns. The authors assume that option traders who expect good performance from an asset in the future will buy more calls and fewer puts, such that changes in beliefs about future returns will be reflected in open interest totals. Changes in put and call open interest each month are recorded a few days prior to options expiration, and stocks are sorted into quintiles based on those changes. The authors focus on the ratio of change in calls to change in puts, and find that stocks in the highest quintile for that ratio outperformed stocks in the lowest quintile by 52 basis points per month, with stronger effects associated with the change in put open interest. They test for size, book-to-market, momentum, and implied volatility as additional dependent variables to demonstrate the significance of open interest as an indicator.

The key intuitive justification for any claims about the predictive value of option markets for subsequent equity returns is that "informed" investors will be attracted to trade in the options market instead of just executing trades in the underlying shares. Black (1975) and others present several plausible reasons why informed investors might be so tempted: the ability to take greater leverage, to obtain downside protection, to trade

Fodor, Keiger, and Doran 2011

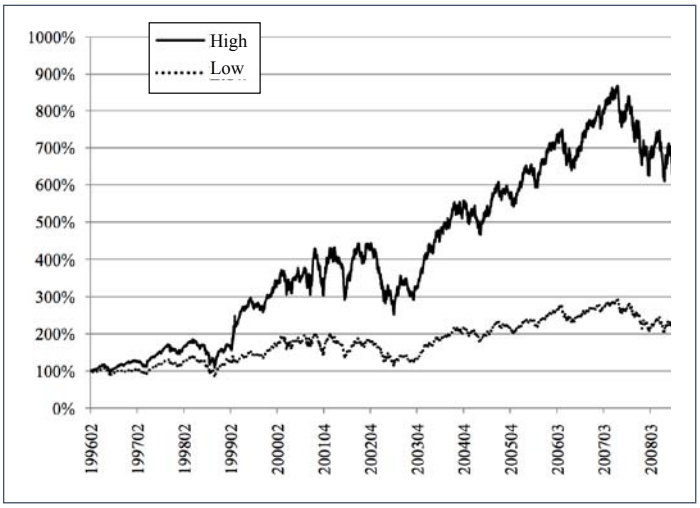

FIGURE 1 *Time Series Buy-and-Hold Returns By ΔCall/ΔPut Open-Interest Ratio Quintile*

Baltussen et al.

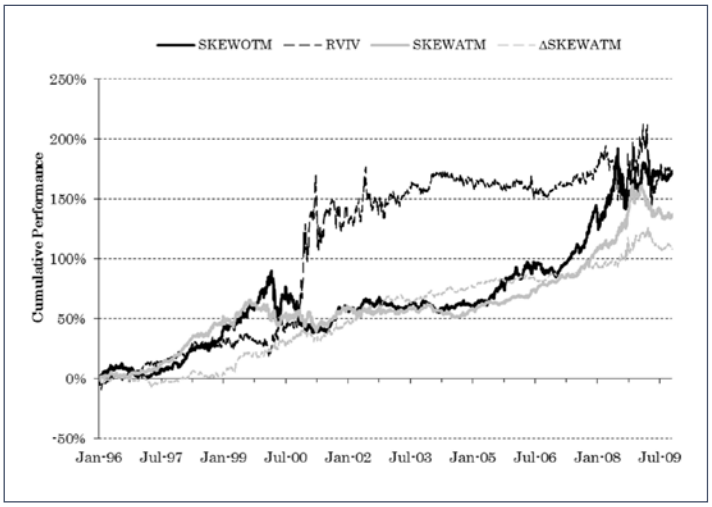

FIGURE 2 *Cumulative performance of individual option market variables, 1996–2009*

with less initial capital, and to trade the implied volatility of the underlying.

In "The Information Content of Option Demand," Kehrle and Puhan derive a new measure of option trading, "option market sidedness," (OMS) intended to indicate the presence of informed traders. OMS for calls (puts) is defined as the correlation between open interest changes of OTM call (put) options with open interest changes of in-the-money (ITM) put (call) options. A low OMS measure for calls is supposed to indicate excessive demand causing a low correlation between open interest changes in OTM calls with ITM puts, suggesting informed positive bias about underlying returns. The authors find that large changes in the OMS measure have statistically significant predictive value up to three weeks out, with economically large strategy returns associated with buying OTM options based on the OMS signal.

The authors find that large changes in the OMS measure have **statistically significant** predictive value up to three weeks out.

Finally, "Exploiting Option Information in the Equity Market" (Baltussen et al.) takes a broader approach, looking at several options-based alpha strategies to support the general idea that information about the path of future returns diffuses from options into the underlying stock market. They test a long-short stock portfolio that trades the 100 largest U.S. stocks relying on four signals from the options markets: out of the money volatility skew, the spread between realized and implied volatility, at the money volatility skew, and the change in at the money skew. A portfolio designed to limit transaction costs generated an annual return of 7% from 1996–2009.

One of the features uniting the above studies is the complexity of the signals used to test the informativeness of options market activity. Many traders still use widely-available indicators like put-call ratios and volume studies for market timing; however, indicators like the ΔCall/ΔPut open interest ratio or the correlation between changes in OTM call and ITM put open interest (the OMS signal) require larger data sets and more significant computation, particularly in the context of tradable quantile-sorted portfolios. Even if the complexity of these indicators makes them inaccessible for many casual traders, it is better to know which sources of information (whether ready to hand or not) have proven empirically valuable than to rely on unhelpful indicators out of mere habit. EM

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VIX Risk Reversal with Strikes Determined by

Term Structure

(A Longitudinal Study)

Bill Luby

THIS YEAR WILL go down as the year in which everyone was waiting anxiously for the seemingly inevitable VIX spike that—at least through the October options expiration cycle—never materialized. As a result of these dashed expectations, investors have been dramatically overpaying for long positions in VIX futures, options and exchange-traded products along the way, riding the slope of the term structure down and incurring substantial losses in the process.

Frankly, there have not been many ways to play volatility on the long side this year without getting hurt by the term structure, whether it is in the form of the monthly futures roll, options time decay or the negative daily roll yield faced by exchange-traded products.

Risk Reversal Overview

One strategy that always seems to capture the imagination of VIX options traders is a long VIX risk reversal, which is also known as a long combo in some circles. A long risk reversal is a two-leg position consisting of a long call and a short put. Traditionally, both the call and the put are out of the money. The position loses money at expiration if the underlying slips below the put strike and makes money at expiration if the underlying moves above the call strike. The profit and loss for this position at expiration when the underlying expires between the put strike and the call strike is determined by the difference between the proceeds from the put sale and the cost of the call purchase.

Traders often seek to establish a symmetric position when trading risk reversals. For instance, one can trade roughly equal deltas such as dual 20 delta strikes or 30 delta strikes. Alternatively, the focus may be on percentage OTM, such as 5% or 10% OTM strikes for both options. While I have traded VIX risk reversals with strike selection dictated by deltas or percentage OTM, lately I have been experimenting with a different approach that allows for dynamic strike selection, based upon the VIX futures term structure.

> I have been **experimenting** with using the VIX futures term structure as a means by which to determine the **strike selection** for VIX risk reversal trades.

In this article, I outline one relatively inexpensive way to build long volatility exposure via a risk reversal strategy and begin to track the effectiveness of this strategy over time in what I anticipate will be an ongoing longitudinal examination of this approach.

The VIX Term Structure Twist

While there is an intuitive appeal to trading puts and calls with strikes that are equidistant from the underlying in terms of deltas or percentage out of the money, as a veteran VIX options trader I know that there are times when I may want to adjust the strike selection to match market conditions. Interestingly, the VIX futures term structure, which just happens to be the best framework for evaluating the underlying for VIX options, also fluctuates with market conditions, providing information on how investors are thinking about future volatility trends and also making it easier to determine how cheap or expensive various VIX option strikes and expirations are relative to each other. The result is that the VIX options landscape and the opportunities it presents are much different when the VIX futures are in contango (front month cheaper than more distant months) than they are when the VIX futures are in backwardation (front month more expensive than more distant months.) Specifically, when the VIX futures are in contango, investors are anticipating that volatility will increase and VIX OTM calls can be very expensive as a result of consensus expectations. Conversely, when the VIX futures are in backwardation, investors are predicting that volatility will decline over time and

consequently, VIX OTM calls can be relatively inexpensive.

With this in mind, I have been experimenting with using the VIX futures term structure as a means by which to determine the strike selection for VIX risk reversal trades. Further, by rolling these positions on a monthly basis, the strike selection becomes dynamic and asymmetric as market expectations expand and compress the extrinsic value of options.

Trade Approach: VIX Risk Reversal with Strikes Determined by VIX Futures Term Structure

While it is natural to think about using the VIX futures term structure to establish a calendar spread or diagonal spread, I want the risk reversal trade I am looking to implement to utilize the same expiration so that I can roll both legs at the end of each expiration cycle. So instead of using, for example, the front month VIX futures to determine the strike selection for the short put leg and the more distant month to determine the strike selection for the long call leg as well as the corresponding expiration month, I am limiting this trade to the front month only.

In looking at alternative strikes, I have elected to use the front month VIX futures to select the short put leg and the fourth month VIX futures to select the long call leg. In order to push the strikes farther away from the underlying, I have chosen to round down the front month VIX futures to the next lowest strike and round up the fourth month VIX futures to the next highest strike.

Structuring the VIX Risk Reversal Trade

I launched this "proof-of-concept" trade strategy on September 19th, at the close of the first day of the VIX October expiration cycle. On that date the VIX front month futures settled at 16.05 and the fourth month futures settled at 20.80. Just before the close, I went short one October 16 put (0.3% OTM) for 1.275 (bid-ask midpoint) and went long one October 21 call (30.8% OTM) for 0.625. See Figure 1 below for a summary of this initial transaction, as well as a snapshot of the VIX and SPX at that time.

Position Monitoring and Rolling

In Figure 1, I have also captured some closing values for three additional trading sessions. October 16th is the day prior to the VIX futures and options expiration, when these products can last be traded. At this point the trade is down a nickel. On October 17th, the put leg settles 1.04 in the money and absorbs the entire 0.65 net proceeds from the beginning of the cycle, plus an additional 0.39. By the close, however, the VIX front month futures are up to 16.45 and the fourth month futures are at 20.05, so I end up with a new short put position and long call position at the same strikes for November. This time the November 16 put is sold for 1.20 (2.7% OTM) and the November 21 call is bought for 0.55 (27.7% OTM.) The net proceeds bump the cash for this strategy back into positive territory at 0.06.

The last entry in Figure 1 shows what happened to the position on October 19th, when the VIX spiked 12.9%. Here the shrinking value of the call jumps dramatically, while the value of the put declines substantially, pushing the cumulative profit and loss of this risk reversal strategy to its biggest gain since the initial transaction.

Figure 2 (next page) shows the movements of the VIX (index) and SPX during the October expiration cycle and the November expiration cycle through October 19th.

Initial Observations

My intent is to periodically update the data from this trade in future edi-

Date	Cash	Short Put	Long Call	P / L	VIX	SPX
9/19/12	0.650	-1.275	0.625	**0.000**	13.88	1461.05
10/16/12	0.650	-0.700	0.000	**-0.050**	15.22	1454.92
10/17/12	0.060	-1.200	0.750	**-0.390**	15.07	1460.91
10/19/12	0.060	-0.800	1.070	**0.330**	16.97	1433.19

Livevol, VIX and More

FIGURE 1 *VIX Risk Reversal Trade Summary Table*

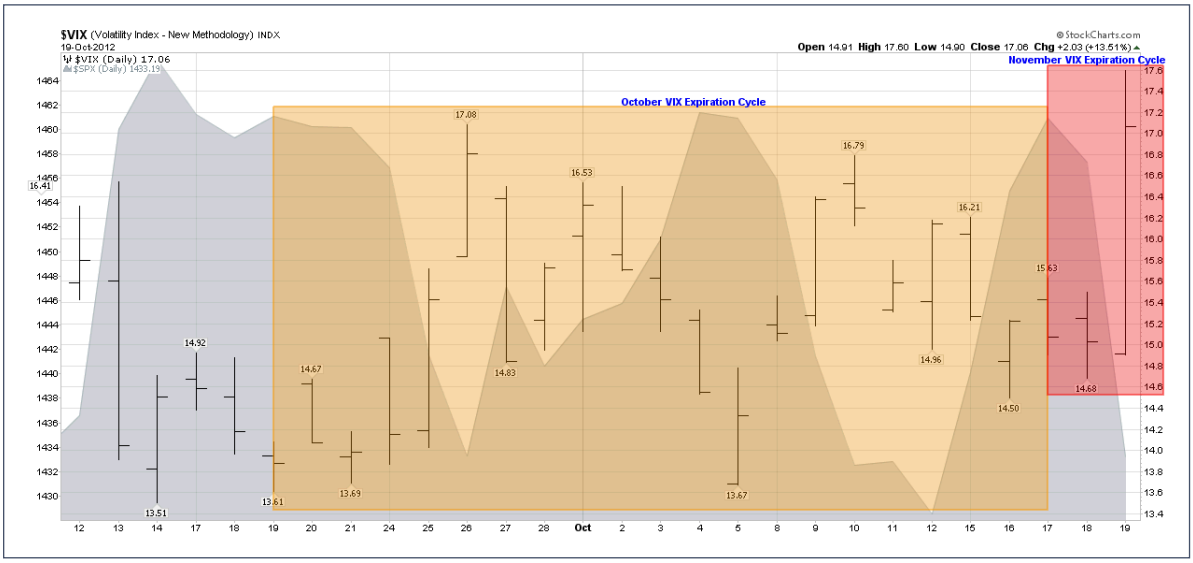

FIGURE 2 *VIX OHLC Chart for October and November Expiration Cycles*

tions of *Expiring Monthly*, particularly when there are significant learnings to pass along. At this stage it is too early to evaluate the effectiveness of this VIX risk reversal strategy with a term structure twist. Hence the longitudinal approach.

Clearly things will get interesting if the VIX term structure moves into backwardation during the period covered by this strategy and it will be interesting to see how the strategy performs in that environment.

Apart from this particular implementation of a VIX risk reversal, I am also conducting similar proof-of-concept strategic experiments using deltas and percent OTM for strike selection. I am also experimenting with some other term structure approaches and look forward to a comparative analysis in a future article. EM

Further Reading

"Exploring the VIX Futures Term Structure, Part I" *Expiring Monthly*, August 2010

"An Interpretive Framework for VIX Futures (Second in a Series)" *Expiring Monthly*, September 2010

"VIX Futures: Putting Ideas into Action (Third in a Series)" *Expiring Monthly*, October 2010

"A History of VIX Futures Roll Yields" *Expiring Monthly*, September 2011

"Investing Implications of the VIX Term Structure" *Expiring Monthly*, October 2011

"Calculating the Future Range of the VIX" *Expiring Monthly*, February 2012

"The VIX Term Structure as a Predictor of Future Returns" *Expiring Monthly*, March 2012

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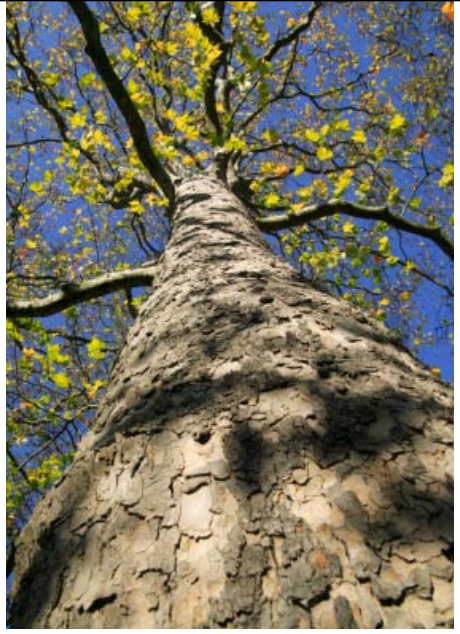
Thinking Long Term in a Short Term Market

Andrew Giovinazzi



I THINK ONE OF MY least favorite sayings in investing is "in it for the long term". The meaning of that is still a bit foggy. Does that mean we have to take pipe for several years before the investment thesis plays out? Like the FB IPO all the pundits were buying FB at a 100 billion dollar market cap for the "long term" and then paper was leaving it like a sinking ship in the short term. The reason to buy or sell anything is that the investor sees value today versus the value the security or business will bring on exit. "Holding for the long term" sounds too much like a concept invented by Madison Ave. when a mutual fund firm was shopping for catchy phrases. I cannot imagine Ben Graham telling someone to hold on just because time will fix everything. Ultimately the trade has to provide value in the time frame allotted. Just because something is cheap does that make it a good buy?

The reason that I am using the "long term" analogy is that options are particularly tuned to time. They have finite life spans and any value has to happen during the expiration cycle. That is why we get students at Option Pit to try to match the trade cycle with the expiration cycle. Essentially traders should pay for (or sell) the cycle that fits the time horizon of the position. Selling a straddle 6 months out in the indexes will not yield that entire premium in a two week period. Traders need to look at the appropriate "Greek" for the conditions.

As I write this, the short term volatility in the indexes is climbing higher across the board. The front two VIX futures contracts are both underwater as the market struggles to find a bottom. Investing for the long term comes to mind. Not so much just scooping up equities but to see if there is some cheaper volatility to buy in light of the recent sell-off. I touched on the appropriate Greek above and thinking long term for volatility is buying vega. When is vega cheap enough to buy?

Livevolpro.com

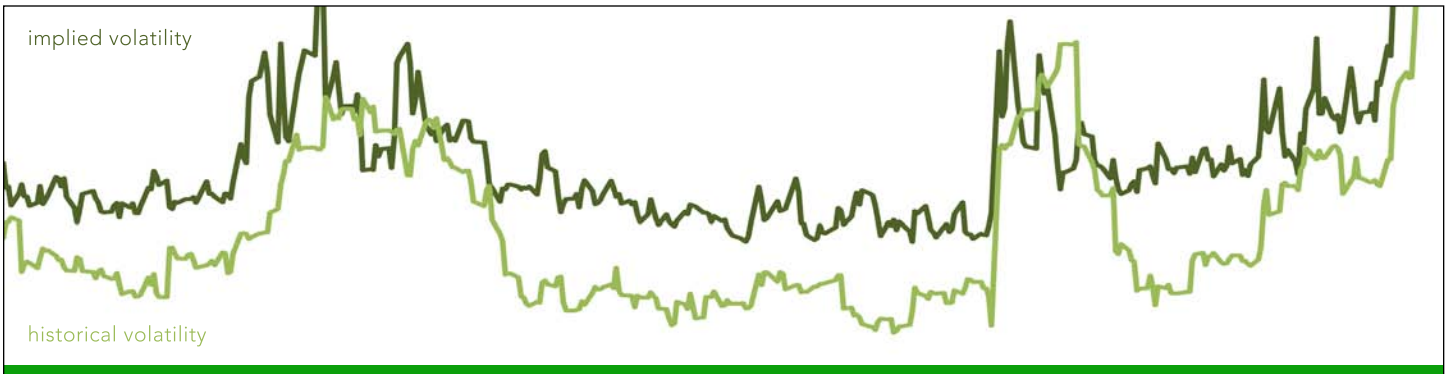
FIGURE 1

Vega is a straightforward Greek risk. For this article we will talk about the buy side. Buying cheap implied volatility is a bit of a black art. The reason being as traders purchase options the decay is a constant battle. Investing for the long term when it comes to vega is really just trying to avoid decay. The farther out the option the less decay per day it will cost. If we buy options in this light there are a few things to consider:

1. Is the volatility cheap on an absolute basis in the cycle of interest? In our GLD snapshot above GLD is heading toward, if not at, a two year low in IV 120.
2. Where is the same time frame of HV relative to the IV? At this point HV 120 is coming in just below the IV 120 and very near the bottom of the last two years.
3. What is the capacity to hold and trade the position? Positions with 120 durations are looking to stay on that long. The market can move in the meantime but making a Vega purchase that far out means mentally the trader is in the position for the cycle.

Does that make GLD vega a good buy now? From an absolute point of view IV 120 is near the bottom of the range so that gets interest. The second positive is that GLD seems to work a bit opposite of standard options in that rallies tend to pump up the volatility. Right now Jan/Feb cycle options look interesting because GLD has been so quiet lately. If you notice the screenshot above, GLD realized volatility gets very quiet right before the big upswings. That feels like what the market is coming into now.

When getting going for a longer term vega purchase (maybe even look out to March) there is the small financing issue for the position. Vega costs rent and this GLD time decay is no exception no matter how small. Entertain some smaller long theta position against any entry into the back month long vega. This is still a case where buying for the long term just means fitting the cycle to the expectation. When buying vega that is the most important thing. EM



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Seasonal VXX

Mark Sebastian

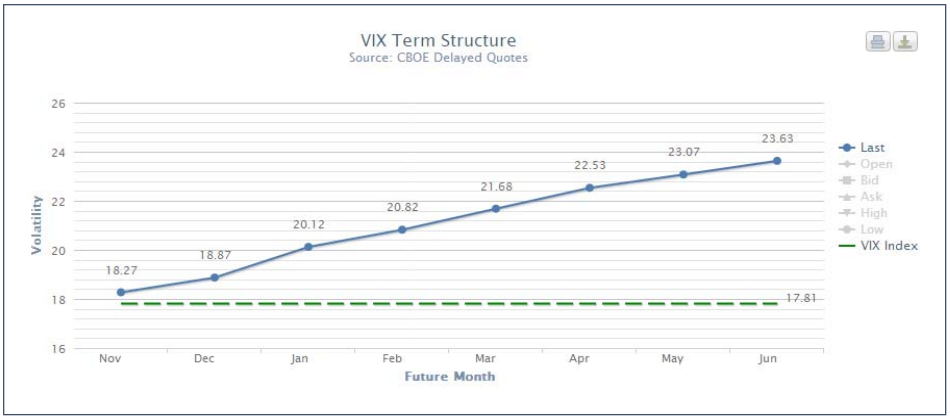
WE ARE ALL AWARE of the abysmal history of the VXX ETN. Since its inception, the ETN has given away around 98% of the initial value of the fund. It has had to reverse split on several occasions and will likely do so again. This ETN is, in the end, a poorly constructed product. I have heard my colleague Bill Luby say on several occasions that 'In the near term VXX's path is determined by the VIX; however, in the long term, the product's path is determined by contango in the VIX futures.

Currently, the VIX futures have a unique structure, in that December is depressed due to the Christmas holiday. This causes the term structure of the VIX futures to be much flatter than they normally are in an environment where the VIX is below 18. Normally, a flat VIX curve is reserved solely for pops in the VIX. *(Figure 1)*

This got me thinking, if the VIX futures are flat from November to December, can this help the VXX stop bleeding money for a month? Is there a short period of time in October and November that the VXX is only marginally bad? To find the answer I pulled up the monthly returns of VIX and VXX to compare them. *(Figure 2)*

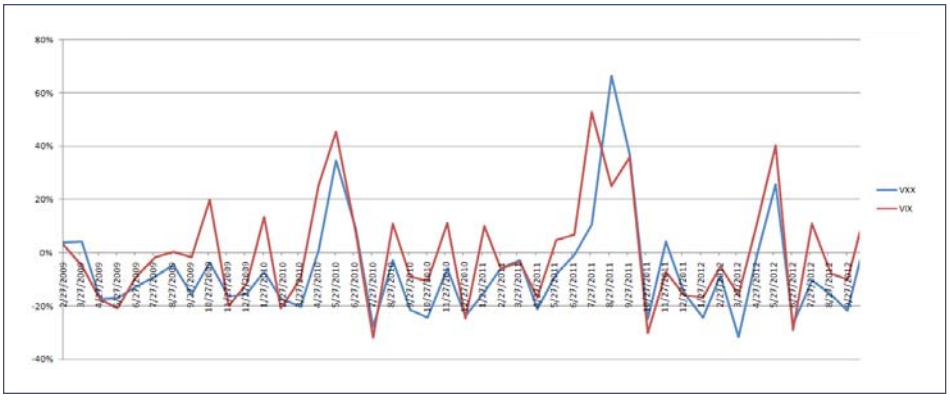
Initially we can see that since inception the VXX on a month over month basis consistently underperforms the VIX, save about 4 occasions. On each of these occasions there is a good reason. The VIX was falling, while the VIX futures stayed somewhat stable, at the same time, the VIX futures were also in backwardation. This supports Bill's statement on term structure, in that the only time the VXX truly outperforms VIX is after the VIX actually spikes on its way down.

My hope was that we would see a softening of the underperformance in October and November due to VIX term structure. Interestingly what I found was almost the opposite. On average the VXX has a monthly return that is 6.3% lower than the VIX. If the VIX has a return of 0, the VXX will have a return of -6.3%. I was surprised that the month of October is the VXX's 3rd worst performing month relative to the VIX at about 10.5 worse than VIX. November and December are both about average. The worst month for both the VIX and the VXX is January, which is also when the VXX performs at its lowest level. *(Figure 3, next page)*



CBOE, VIXcentral.com

FIGURE 1



Yahoo.com

FIGURE 2

Looking at the returns in a graphical comparison . . . *(Figure 4)*

We can see that the month of December is an abysmal month for both the VIX and the VXX, and that in overall return it is the lowest. However, it is not the time when the VXX underperforms. We can also see that in fact the summer appears to be a big stay away for both of these products. Shorting VXX from the end of November through March appears to be a marvelous play; however, the VXX is only 3 years old so much of our data is incomplete.

That said, I would conclude that while the VXX is not a well-constructed product, so far, we have not seen a seasonal effect in the product. Sometimes when we go fishing, we only come up with a boot or an old tire. EM

Yahoo.com

Month	VXX Return	VIX Return	Spread
January	-0.1545692	0.0222199	-0.17678915
February	-0.0687144	-0.0716651	0.002950657
March	-0.1253897	-0.084463	-0.04092669
April	-0.0968581	0.0045934	-0.10145146
May	0.0889764	0.1742809	-0.08530449
June	-0.077709	-0.0581748	-0.0195342
July	-0.0906483	0.075204	-0.16585226
August	0.1089694	0.0717835	0.037185919
September	-0.0540026	0.0383612	-0.09236373
October	-0.1385634	-0.0327255	-0.10583785
November	-0.0605432	-0.0543624	-0.00618079
December	-0.1804463	-0.1732336	-0.00721274

FIGURE 3

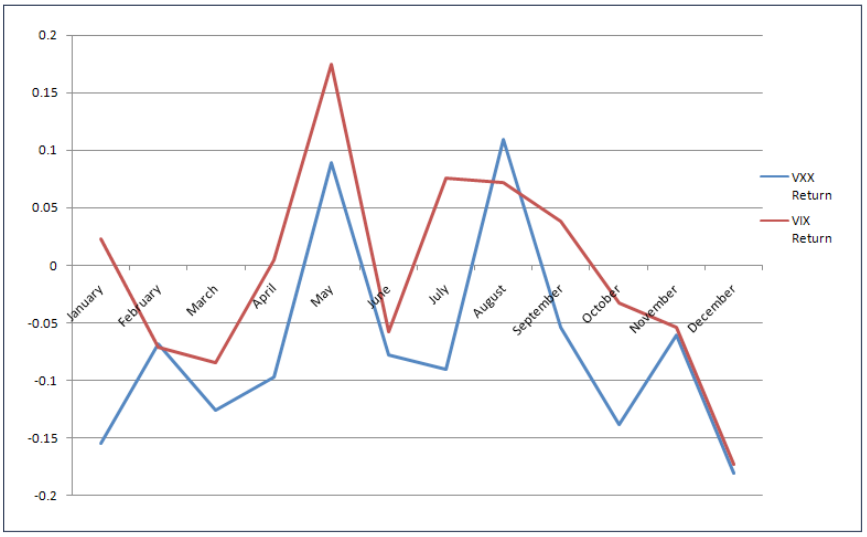


FIGURE 4

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