Seeking Alpha$^{\alpha}$

Why VXX Loses Value Over Time: Another Look

PRO Pick | May 28, 2015 10:00 AM ET64 comments
by: David Easter

Summary

- VXX historically has lost value at an average annual rate that exceeds -50%.
- VXX prices are linked to a weighted mixture of front-month (F1) and second-month (F2) VIX futures.
- The historical long-term average value of the weighted futures mixture (WF12), relative to spot VIX, is constant.
- The apparent roll yield is negative and predictable over long periods.
- Long-term VXX losses can be equivalently explained either in terms of the apparent roll cost or in terms of single-contract time decay.

Introduction and Background

iPath S&P 500 VIX ST Futures ETN (NYSEARCA:VXX) began trading on January 30, 2009, at a split adjusted price of 6690.98. It closed on May 18, 2015, at 19.42. Since inception, the share price has decreased to 0.29% of its original value over 6.3 years, consistent with an average annual loss of -60.5%. This is in the same ballpark as the 5-year average annual losses of -56.22% and -59.86% posted on Yahoo Finance and Morningstar, respectively.

In this article, "day" normally refers to a trading (not calendar) day, and the analysis considered data up through Friday, May 22, 2015, unless specified otherwise. The word, "price" will sometimes be omitted in the text, but implied when appropriate within the context: For example, *F1* should be interpreted as *the price of F1* VIX futures, when the context warrants. For this study, historical VXX data were taken from Yahoo; VIX, *F1*, and *F2* data through May 8, 2015, were taken from here; and the most recent VIX, *F1* and *F2* data were recorded by hand from the CBOE Web Site. The VXX prospectus documents the details of how the ETN works. The methodology underlying the S&P 500 VIX Short-Term Futures Index (SPVXSTR), which VXX tracks, can be found here.

VXX share values are correlated to a weighted balance of front month (*F1*) and second month (*F2*) Volatility S&P 500 (VIX) futures, such that the average expiration date of the

mixture is constant and equal to one month. To maintain the targeted balance, each day a fraction of *F1* futures are exchanged for (rolled into) *F2* futures. The specific fraction that is rolled depends on the total number of days in the roll period. When *F2* > *F1*, which has been true 83.8% of trading days since March 26, 2004, the short-term futures are in contango. While in contango, lower-priced *F1* futures must be sold and replaced with higher-price *F2* futures, resulting in the notion of an *apparent* negative roll yield. The *apparent* roll cost is the first reason commonly cited for the historical losses in VXX value.

A second reason that has been cited for persistent losses in VXX focuses on the fact that *F1* and *F2* futures tend to decrease toward the spot VIX as the time to expiration decreases. This is cited as a negative factor whenever futures prices are higher than the spot VIX. Since the VIX futures began trading on March 26, 2004, *F1* has been higher than VIX 75.3% of the time, and both *F1* and *F2* have been higher than VIX 72.9% of the time.

This article attempts to separate and to clarify both the role and the importance of these two factors, as they influence price changes in VXX. Unless otherwise noted, analysis specifically involving VXX goes back to its inception date, and considers only verifiable historical data. Pre-inception model prices were not used, because such data are dependent on modeling assumptions which, right or wrong, we are investigating, and therefore did not adopt *a priori*. The investigation described is based primarily on mathematical and statistical analysis. Apology is made to those who have a phobia of math. Enough technical detail is included so that objective individuals can verify the accuracy of our findings. Readers who prefer to skim the details will still find the major conclusions to be informative.

Model Overview

The model described in this article was developed with the goal of being as *intuitive* as possible. Note carefully that the equations used here are *not* identical in form to the methodology underlying the SPVXSTR index, upon which VXX pricing is based. In a future article, we will explicitly correlate our model to the methodology underlying the SPVXSTR index.

1. Our *weighted F1-F2 balanced mixture* price (*WF12*), evaluated at the *close* of a given market day, is defined and calculated as: $WF12 = (DR/TD)F1 + (1 - DR/TD)F2$. Here *TD* represents the *T*otal *D*ays available to trade *F1*, and *DR* represents the number of trading *D*ays *R*emaining, (*excluding* the current day). At market *close* on the day preceding expiration, *WF12* will be equal to *F2*, which will be re-designated as *F1* the following day.

TD varies month by month, depending on actual expiration dates and the number of weekday market holidays. Its value ranges from 17-25, and averages approximately 21.3.

2. Our model's *apparent daily roll cost* is defined as: *Roll* = (*F1* - *F2*)/*TD*. This estimates the hypothetical cost of selling a fraction (equal to 1/*TD*) of *F1* shares and buying the same fraction of *F2* shares.

A Note on Terminology: *roll*, *roll cost*, *roll yield*, and related terms are used in different ways, which causes significant confusion. The Investopedia dictionary definition of *roll yield* is:

> The amount of return generated in a backwardated futures market that is achieved by rolling a short-term contract into a longer-term contract and profiting from the convergence toward a higher spot price.

[Note that *backwardation*, as used in this and the following definition, refers to the relationship between *F1* and spot prices, such that *F1* < spot.] The Wikipedia definition is slightly different:

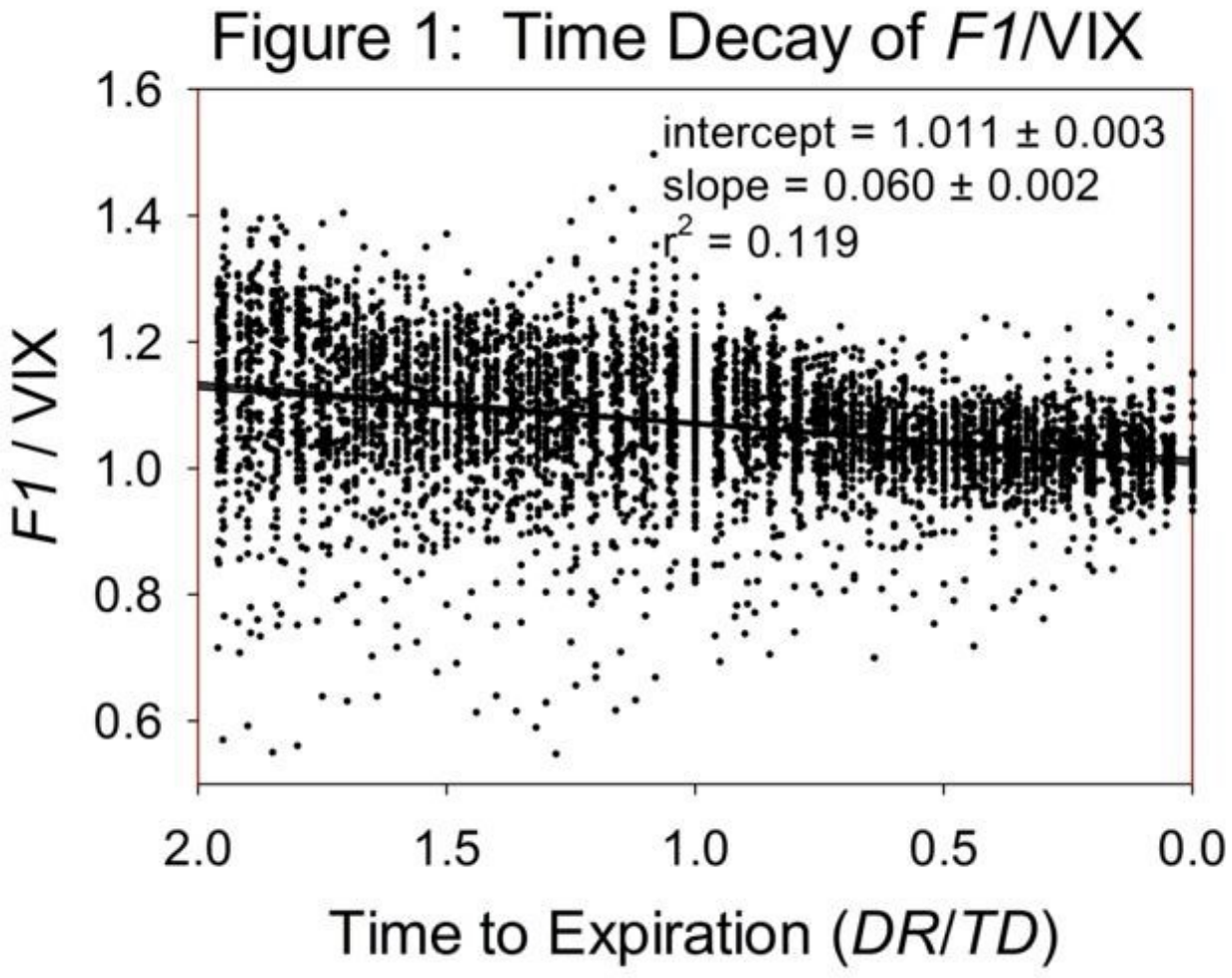
> The *roll yield* is the yield that a futures investor captures when their futures contract converges to the spot price...

The term, *apparent roll cost*, as used in this article, generally refers to any VXX price loss, exclusive of the ETN's overhead fees, that can neither be attributed to, nor explained in terms of changes in volatility. Our model defines *apparent* roll (*Roll*) as a mathematical construct that would be consistent with a hypothetical mechanical process in which a fixed fraction of *F1* contracts are sold at their current price, the same fraction of F2 contracts are purchased at their current price, and the cost differential (a loss, whenever F2 > F1) disappears forever into a black hole. While the implied mechanism does not describe a process that actually occurs, it remains (as will be shown below) that the construct is powerful in its capability of explaining VXX price action. The modifier, *apparent*, was added to emphasize the hypothetical nature of the transaction.

3. The initial analysis described below makes use of *F1*, *F2*, and *WF12* prices that are *normalized* (divided) by the spot VIX. For example, the normalized *F1* price is equal to *F1*/VIX. Using normalized futures prices enables an assessment of how the futures prices tend to change in a neutral-volatility environment where spot VIX remains constant.

How Normalized *F1*, *F2*, and *WF12* Prices Change as the Time to Expiration Decreases

Normalized prices and the fractional months remaining (*DR/TD*) were calculated from historical data. The relationship between historical *normalized F1* (vertical axis) vs. time remaining (horizontal axis) is shown in Figure 1, which includes data back through 3/26/2004. In the figure, *F2* futures were re-designated as *F1*, with exactly one month added to reflect their absolute expiration dates. Thus, the plot describes the relative price activity of a futures contract, traced over the two-month period preceding expiration. Individual data are shown as points. A regression line (inner straight line, which is difficult to distinguish) and 95% confidence bands (outer, slightly curved lines) are included. Regression statistics are included in the top right corner. For convenience, these values are also collected in Table 1.



The high degree of data scatter and the relatively low value of r^2 are immediately noticeable. These convincingly demonstrate that *daily fluctuations are the rule*, and underscore the fundamental principle that long-term averages and trends should neither

be used as the basis for making short-term price predictions nor for initiating a trade on any given day.

Despite that caveat, regression analysis results in a well-defined, statistically meaningful, downward sloping trend line when plotted as in Figure 1, which is characterized by narrow 95% confidence intervals. The trend line represents the *typical* historical price decrease of a futures contract toward spot VIX as the time to expiration decreases. This trend is referred to as *time decay*.

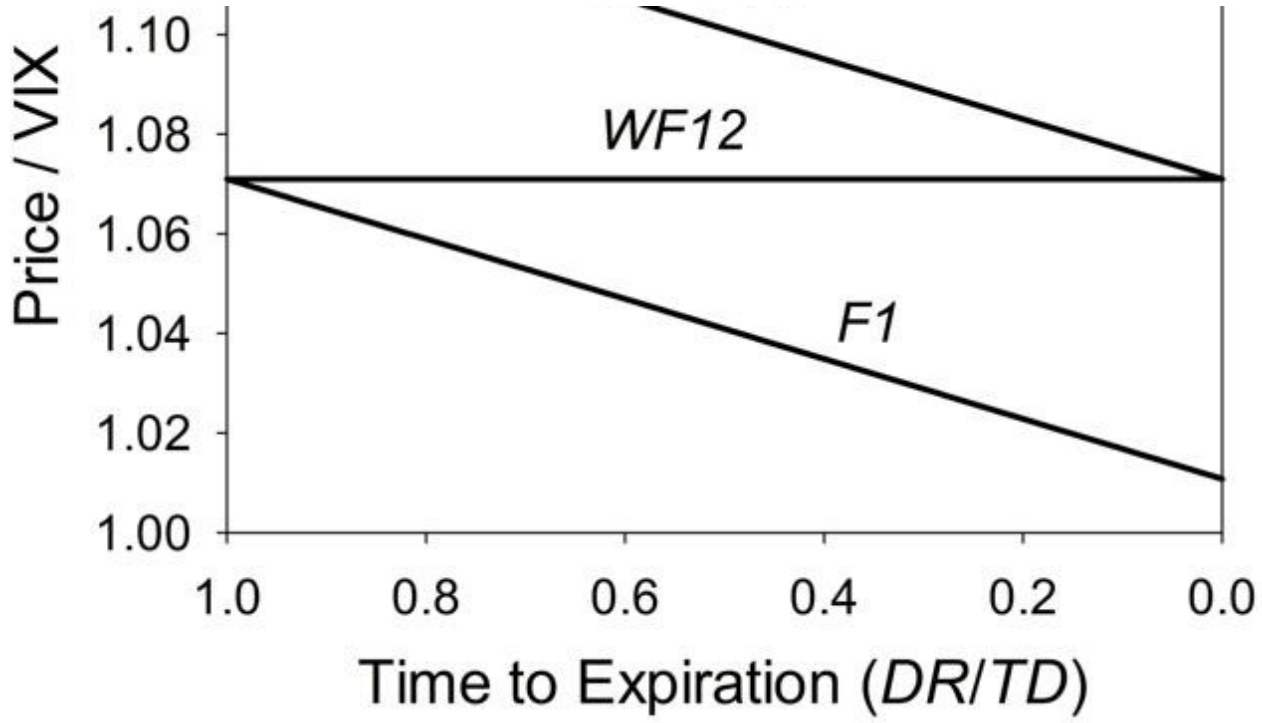
On a technical note, we experimented with modifications to the linear description by incorporating a factor that would slightly accelerate the time decay as expiration draws closer. No modification that we tested improved the prediction of historical trends. It is conceivable (perhaps even probable) that extending the analysis to a longer time (from two to eight months) would permit identification of a nonlinear component. Therefore, our regression results neither prove nor imply that the time decay is strictly linear over the entire eight-month period. With that stipulation, we use the linear decay model because it provides a strong description of average historical behavior over the final two months preceding expiration.

Table 1. Collection of numerical data and quantitative results.

Quantity	3/26/2004 through 5/22/2015	1/30/2009 through 5/15/2015
Percent of days when F2 > F1	83.8%	88.0%
Percent of days when both F1 and F1 > spot VIX	72.9%	79.0%
slope (m) for the regression ($F1/VIX = m\,(DR/TD) + b$)	0.060 ± 0.002	0.071 ± 0.003
intercept (b) for the regression ($F1/VIX = m\,(DR/TD) + b$)	1.011 ± 0.003	1.018 ± 0.003
r^2 for the regression ($F1/VIX = m\,(DR/TD) + b$)	0.119	0.179
*$WF12/VIX = m + b$	1.071 ± 0.003	1.088 ± 0.004
*Average *apparent* daily roll (fractional), *relative* to *WF12*: $\frac{-m}{TD(b+m)}$. TD = 21.326 ± 0.094.	-0.264% ± 0.010%	-0.304% ± 0.013%
*Annualized losses attributable solely to *apparent* roll losses in the model, assuming 252 trading days per year	-48.6% ± 2.4% [-50.8% to -46.2%]	-53.6% ± 3.0% [-56.6% to -50.6%]
Annualized losses in VXX that are independent of volatility changes, based on historical VXX data	----	-53.9% ± 1.3% [-56.6% to -50.6%]

* Using the slope (m) and intercept (b) values determined from the linear regression

Figure 2: Trends of *F1*, *F2*, and *WF12*



The regression results from Figure 1 (*m* = slope and *b* = intercept) can be applied to calculate normalized *F1*, *F2* and *WF12* prices. The three trend lines are presented in Figure 2. Note that the *F2* line is identical to that of *F1* in Figure 1 when *DR*/*TD* > 1, offset by one month, *i.e.*, $F2_T$ (Figure 2) = $F1_{T+1}$ (Figure 1).

The upper and lower trend lines confirm what is already well known. Normalized *F1* and *F2* prices tend to experience time decay, i.e., they decrease toward the spot VIX (equivalent to a relative price of 1.00 in the plot) as the time to expiration decreases.

What may not be common knowledge is that the normalized, 30-day weighted *WF12* price *remains constant and unchanging* over the entire period. Algebraically, *WF12*/VIX is equal to *m* + *b*. This result is eminently reasonable for two reasons. First, if normalized *WF12* systematically increased (or decreased) throughout the roll period, the trend would imply a discontinuous price jump (down or up) in *WF12* on the first day of each new roll cycle. Second, the time decay that is associated with *F1* and *F2* futures is fundamentally linked to their constantly decreasing time horizons to expiration. With a fixed, one-month expiration horizon, the time-to-expiration of the *WF12* basket *never decreases*, removing the underlying cause of time decay.

The result is significant: to the extent that VXX price changes depend on changes in market volatility, as measured by *WF12*, time decay can be ruled out as a contributing factor.

How the *Apparent* Daily Roll cost of VXX changes as the Time to Expiration Decreases

The *apparent* daily roll cost, as defined earlier, was calculated from historical *F1* and *F2* data. The result was normalized (divided) by *WF12* to obtain the *fractional apparent* daily roll cost. Algebraically, our definition of *Roll* can be expressed in terms of previously defined quantities, giving the fractional daily *apparent* roll as -(*m*)/(*TD*(*m*+*b*)). Thus, the *apparent* daily roll cost, averaged over time, is constant, and is independent of time remaining to expiration. The historically averaged (since 1/30/2009) *apparent* daily roll cost was calculated to be 0.304%, with a 95% confidence limit of ± 0.013%. Hypothetically, if spot VIX and *WF12* were constant for an entire year (252 trading days), the *apparent* daily roll cost would effect an annual loss of -53.6 ± 3.0% in VXX. This outcome, included in Table 1, is surprisingly close to the well-documented historical losses in VXX.

A Reality Check: How do VXX prices Actually Change over time when spot VIX is constant?

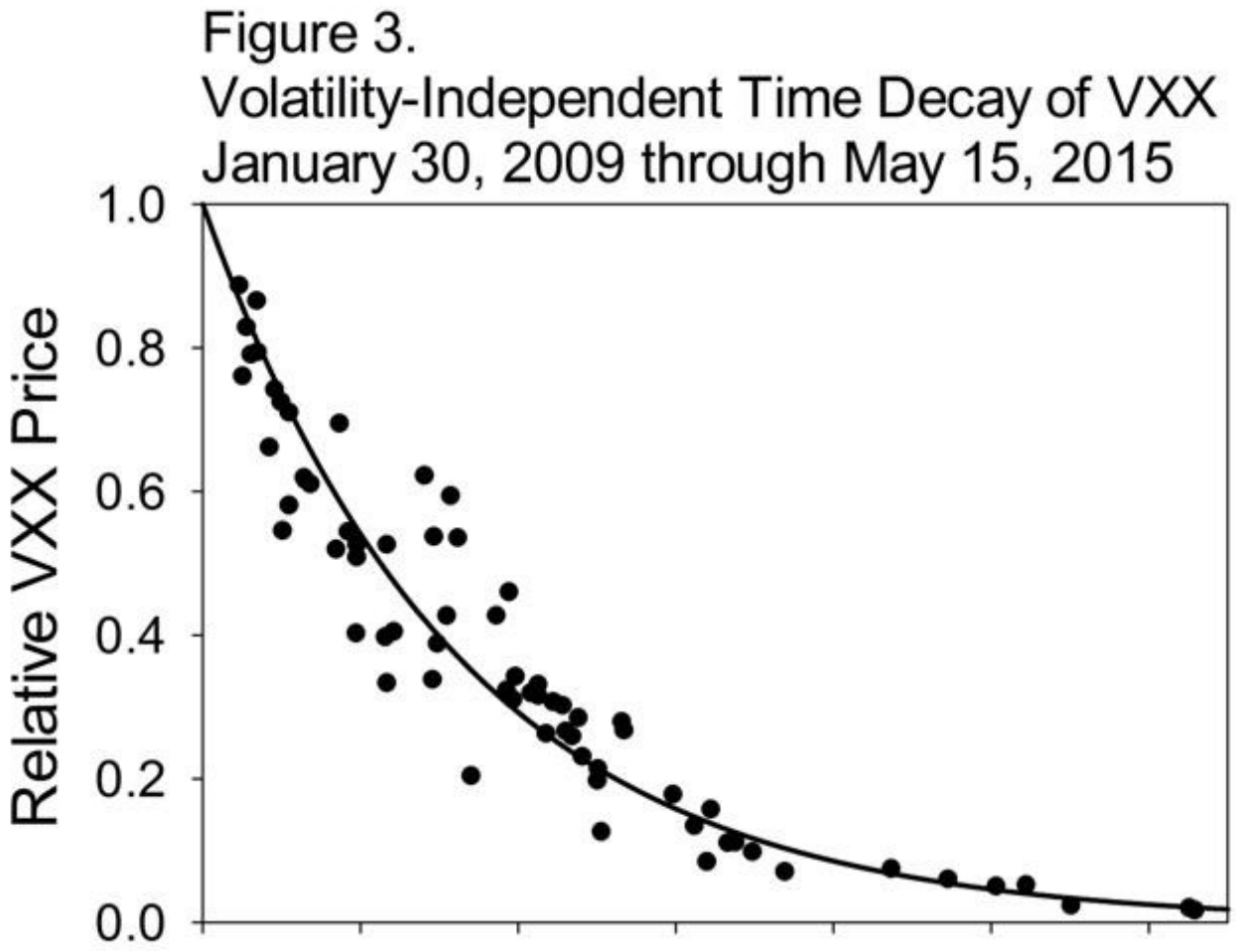
Our working model assumes that daily changes in VXX can be subdivided into three conceptually distinct components: the change in *WF12*, the *apparent* roll cost, and overhead fees. For the following reality check, the effects of changes in *WF12* are hypothetically eliminated, and the focus is solely on the cumulative effects of the *apparent* roll plus overhead fees. For purposes of simplification, the sum of *Roll* plus fees is treated as an averaged, long-term constant.

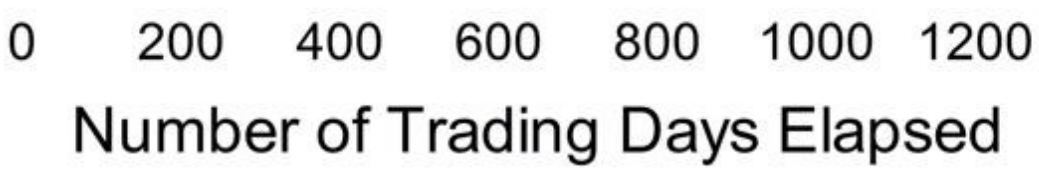
To perform the analysis, data were considered for subsets of market days in which the closing price of spot VIX was identical. We considered only sets containing four or more such days, with at least four in the set being 30 or more days apart. One such subset is exemplified in the table below. The first column (M Day) sequences market days, beginning with the inception day of VXX, where M Day is set equal to zero. The fourth column (Days) shows the number of market days elapsed since the first day listed in the sequence. The last column (Rel Value) represents the VXX close that day divided by the VXX closing price of the first day listed. Similar records were identified and used for 24 distinct VIX closing price subsets. Elimination of the first entry in each subset resulted in 74 distinct ordered pairs of unique (Days, Rel Value) data.

M Day	Date	VIX Close	VXX Close	Days	Rel Value

478	12/22/2010	15.45	585.92	0	
587	5/31/2011	15.45	340.64	109	0.5814
874	7/19/2012	15.45	200.80	396	0.3427
1522	2/18/2015	15.45	30.81	1044	0.0526

The combined data set is unified by the principle that it evaluates the performance (relative value) of VXX based on the number of market days elapsed, in a constant-VIX environment. Specific dates and historical variations in spot VIX closing prices thereby become non-factors. In a neutral-volatility environment, we assume that long-term losses are independent of *WF12* price movements and depend exclusively on daily costs. Furthermore, if these daily costs are treated as being constant, the relative value after any given number of Days has passed is calculated by: Rel Value = (1 - daily costs)^(Days), where ^ indicates that Days is an exponent. Regression analysis of the dataset identifies the historically averaged daily costs as being equal to -0.307% ± 0.005%.





Rel Value data vs. Days are plotted as points in Figure 3. Model-calculated values, based on an average daily cost of -0.307%, are represented by the solid line. Scatter in the historical data is observed (as expected) confirming that the underlying assumptions contain simplifications. Specifically, an unchanging spot VIX price guarantees neither a constant *WF12* price nor a fixed *apparent* daily roll cost, both of which were assumed. Scatter in the data reflects the extent to which the approximations are imperfect.

Given that stipulation, the model fit is excellent. The difference between the average daily loss (calculated here as -0.307%) and *Roll* (calculated above as -0.304%) is 0.003%, which translates to an annualized price decrease of 0.75%. The VXX prospectus reports the ETN's expense ratio as 0.89%. The difference (0.14%) is miniscule, considering that the uncertainty inherent in these calculations of annualized loss is typically 2 - 3%.

Putting the Parts Together: A Description of Why VXX Loses Value over Time

Historically, *F1* and *F2* futures tend to decrease toward the value of spot VIX as the time to expiration decreases. Our analysis confirms a fact that "everybody already knows." Figure 2 shows that *WF12*, the weighted basket of *F1* and *F2* futures, maintains a *constant historical average* relative to spot VIX, independent of time remaining to expiration. Although real day-to-day fluctuations in *WF12* exert significant influence on VXX prices in the short term, *mean reversion* guarantees that such fluctuations neither increase nor decrease the ETN's value over sufficiently long periods.

The *apparent* daily roll cost averages to a constant value over long periods. Although real costs vary from day to day, the average explains the exponentially decreasing ETN value.

Recent articles by Vance Harwood, published on the Six Figure Investing and Seeking Alpha web sites, concluded that the cost of contango is *not* the negative roll yield. His analysis was based on calculations of the SPVXSTR index (which VXX tracks), as applied to sequential days when *F1* and *F2* are in contango, but both are constant in value. Those calculations correctly showed that under the stated conditions, SPVXSTR would remain unchanged (except for a very small increase attributable to T-bill interest).

A perceived weakness is that those articles neither identified nor discussed the fact that, in a volatility-neutral environment, historical trends require that *F1* and *F2* will *decrease*

toward spot VIX. Historically, therefore, the assumption of constant *F1* and *F2* prices implies an *increase* in the underlying spot VIX price - consistent with a *volatility-increasing* (*not* neutral) environment.

Using our definitions and applying the aforementioned article's stated condition (that both *F1* and *F2* are unchanged and in contango), the one day change in the value of the 30-day weighted *WF12* is calculated to *increase* by +(*F2*-*F1*)/*TD*, while the *apparent* roll loss is given by -(*F2*-*F1*)/*TD*. In this unique scenario, the change in *WF12* increases the value of VXX; however, that increase is exactly offset by the *apparent* roll cost, leaving a net index (and VXX) change of zero. The *net* result is identical to that of Harwood's calculation.

Harwood's math in the aforementioned article was accurate. Math is not the issue. In the discussion that follows, we will argue that the two seemingly contradictory conclusions are both correct within the specific points of reference that underlie them.

We assert that long-term losses in VXX are well described in terms of *apparent* roll costs. Harwood concluded that there are no roll costs. Who is right? Bill Clinton once famously said,

> It depends on what the meaning of 'is' is.

Is there a roll cost? The answer depends on what you mean by "roll cost".

Reconciling Two "Competing" Points of View

The author sent an early draft of this article to Vance Harwood for feedback. His input was collegial and extremely beneficial for understanding how two viewpoints, appearing initially to be irreconcilable, lead to identical outcomes. The differences lie in the *paths taken*, not in the final destination. Consider this simple analogy. Suppose that one day after leaving the office, I stop to fill up my gas tank before going home. Suppose the next day, I stop to buy groceries at the supermarket before going home. In both cases, my path was different, but my final destination was the same. In the following paragraphs, we consider the two different paths that describe the price deterioration of VXX.

Path I. On any given day, the appropriate fraction of *F1* contracts is sold for some total dollar amount. The total dollars generated are then used to purchase new contracts of *F2*. In an ideal world where fractional contracts are permitted and transaction costs are zero, the net cost (proceeds from the sale of *F1* minus the cost of buying new *F2*) of the

transaction will be zero. Now, forget about the *F1* contracts that were sold, and concentrate exclusively on the new *F2* contracts. Over the ensuing month, the *F2* contracts will eventually be re-designated as *F1* contracts, and - assuming that historical trends prevail - will suffer loss from time decay. One month later, the same lots will be sold as *F1* contracts, normally at a loss relative to their original purchase price. Following this path, there is *no* cost involved in the initial roll transaction; hence, there is *no roll cost*. All losses (or gains) are attributable to the change in contract price over the month when the lot was held. Within this framework, the gain or loss from the sale of a contract is equal to $F1_T - F1_{T+1}$, where the subscripts, *T* and *T+1,* identify the day as "today" (the sale day), or as one month ago (the purchase day). Note that even though the specific lot never changed, the designation, $F1_{T+1}$, would have been $F2_T$, prior to the most recent expiration date.

Path 2. It is intuitive to expect that changes in VXX are explainable in terms of (1) changes in volatility, (2) overhead fees, and (3) other quantifiable variables. This represents *Path 2*. In this article, changes in market volatility are expressed in terms of changes of the weighted *WF12* basket, and the "other quantifiable variables" are expressed in terms of *apparent* roll. The equation used to define *Roll* assumes the form of a calculation that determines gain or loss when a fixed fraction of *F1* contracts are hypothetically sold and then replaced by the same fraction of *F2* contracts, yielding an *apparent* roll cost that depends on the difference between the closing prices of *F1* and *F2*. A crucial distinction is that this hypothetical transaction involves an equal number of *F1* and *F2* contracts that trade at different prices, whereas the transaction in *Path 1* involves equal total-dollar values, and requires an adjustment in the number of new *F2* contracts purchased.

Evaluating and Comparing the Two Paths: Is One Superior to the Other?

Consider how the losses predicted by *Path 1* will affect the long-term price action of VXX. Recall that the historical average of $F2_T$/VIX is equal to that of $F1_{T+1}$/VIX, as demonstrated in Figure 1 and Figure 2. Substituting $F2_T$ for $F1_{T+1}$ in the daily loss calculation, and then dividing by *TD* gives the average daily gain or loss as $(F1_T - F2_T)/TD$. This is *identical* to our model's definition of *Roll*. The conclusion is clear: The mathematical description of long-term price decay is the same for both paths.

The significant result is that *both paths lead to identical quantitative predictions* of VXX price decay over the long term. Based on the single criterion of prediction accuracy, both paths are equally correct.

Path 1 has the advantage of reflecting general realities of how futures contracts are traded

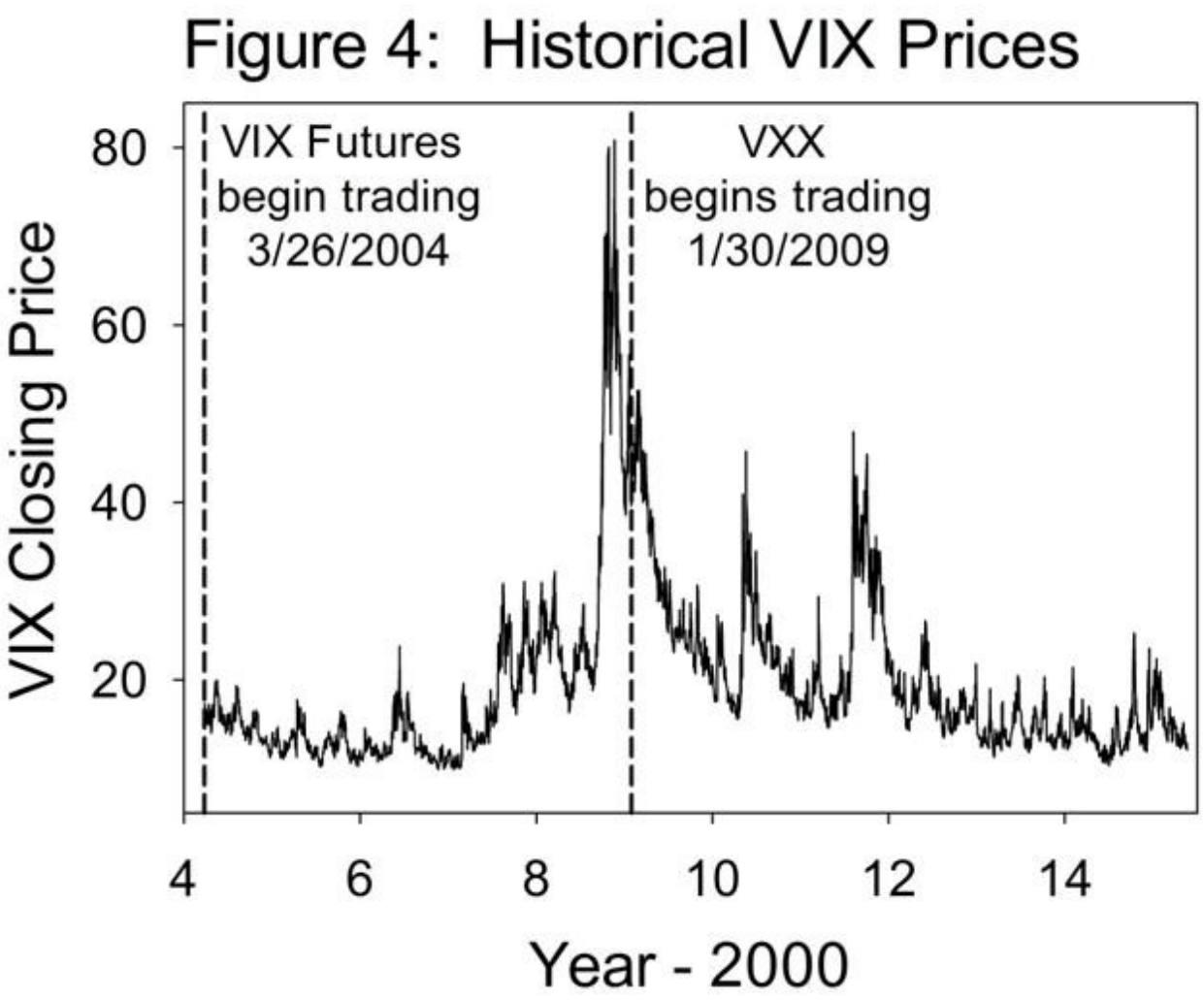
in real markets, and how the typical time decay of a single contract over its one-month holding period leads to persistent and predictable losses. That said, *Path 1* has the disadvantage of being less intuitive for purposes of interpreting the *day-to-day* price action of VXX.

Path 2 has the disadvantage of being based on two *hypothetical* "transactions," neither of which literally occurs. The 30-day weighted *WF12* basket cannot literally be traded as an independent entity. Furthermore, the hypothetical transaction implied by the equation for *apparent* roll does *not* literally occur. That stipulated, *Path 2* has the advantage of being *more intuitive*. Traders of volatility have an expectation that the change in VXX on any given day should move in the same direction, and should be proportional to that day's change in volatility. *WF12* in *Path 2* is a proxy for quantifying market volatility and serves as the basis for anticipating changes in VXX if volatility changes were the *only* contributing factor. But, as everybody who trades these products knows, volatility change is *not* the only factor. The *apparent* roll (*Roll*), then, is added as a proxy for evaluating and predicting how factors that are *unrelated* to volatility will influence both short- and long-term changes in VXX prices, and for anticipating losses in a constant volatility environment.

The author's conclusion is that both approaches are equally valid, and that neither is superior. Ultimately, it comes down to choosing between: (*Path 1*) a realistic description of how trading typically happens; or (*Path 2*) an *intuitive* description of how VXX prices are affected separately by changes in volatility and by other non-volatility factors. With the caveat acknowledging that transactions implied by *Path 2* are purely hypothetical, the author prefers the more intuitive description that *Path 2* provides.

A Cautionary Note Regarding Long-Term Averages and Trends.

The analysis reported in this article depends heavily on long-term *historical averages* and *trends*. A problem is that the average values calculated are dependent on the specific time interval considered. This is demonstrated by the values listed in the next-to-last row of Table 1. For 3/26/04-5/22/15, the compounded *apparent* roll losses are estimated to yield -48½% annually, which is 5% better in comparison to estimates based on 1/30/09-5/15/15. The difference can be understood in terms of differences in historical volatility, illustrated by the VIX chart in Figure 4. Just prior to the inception date of VXX, market volatility was high, and VIX futures were in backwardation more frequently than they have been since. A period of increased backwardation is characterized by a decrease in *apparent* roll cost, consistent with the calculated results. This emphasizes the importance of the standard disclaimer: past performance does *not* guarantee future performance.



Upcoming Articles

One upcoming article is in preparation that analyzes the relationship between the SPVXSTR index in terms of our model's concepts of *WF12* and *Roll*. We hope to show that SPVXSTR can be deconstructed as an exact linear combination of *WF12* + *Roll* + *net fees*, as defined in this article. Changes in historical VXX prices will then be correlated to changes in the three contributing factors, treated as separate and independent variables.

Another future article intends to explore historical performance relationships between VXX and other related short-term volatility ETPs, including: ProShares Ultra VIX Short-Term Futures (NYSEARCA:UVXY), ProShares Short VIX Short-Term Futures (NYSEARCA:SVXY), VelocityShares Daily Inverse VIX ST ETN (NASDAQ:XIV), and VelocityShares Daily 2x VIX ST ETN (NASDAQ:TVIX).

Summary and Conclusions

The hypothesis explored in this article is that daily changes in VXX can be quantitatively

attributed to a combination of three intuitive constructs. The three factors include the change in volatility, measured in terms of the 30-day weighted *F1-F2* VIX futures basket (*WF12*), the cost of quantifiable non-volatility factors, measured in terms of the *apparent* daily roll, plus the ETN's overhead fees.

The long-term historical average of *WF12*, normalized by spot VIX, is constant, implying that long-term losses are independent of daily moves in *WF12*, which tend to cancel over time. The long-term historical average of the *apparent* daily roll cost is -0.304%, consistent with an annual VXX loss of approximately -53.6%. The conclusion of the present analysis is that long-term losses in VXX can be quantitatively explained in terms of *apparent* daily roll losses, plus (to a much smaller extent) the overhead fees charged by the ETP. The "market-based" explanation of VXX losses is that individual contracts typically suffer loss from time decay, and are normally sold at a loss one month following purchase. The predicted long-term price decline in VXX is identical, whether one describes the losses in terms of an *apparent* roll cost, or in terms of single-contract time decay.

Disclosure: The author is long SVXY.

The author wrote this article themselves, and it expresses their own opinions. The author is not receiving compensation for it (other than from Seeking Alpha). The author has no business relationship with any company whose stock is mentioned in this article.

Additional disclosure: Depending on market conditions, the author's long position in SVXY could be closed in the near future.

Comments (64)

Eli Mintz, Contributor
I have analytically shown that it is the futures contango that determines the VXX long term:

http://seekingalpha.co...

28 May 2015, 10:13 AM

carlsnyder
Thanks to the author for taking on this most difficult task. The math is no fun for the great majority of us, but it's important to at least understand the concepts of contango, roll over, and decay. Also, the fact that inverse funds , (like SVXY) do not fully duplicate the theoretical inverse of VXX, helps us traders who attempt to capture the decay

in the VXX.

28 May 2015, 10:26 AM

Anonymous Vol trader
Did you just nuke the cute mole in your garden? I don't mean to be impolite, but feels like overkill, and there are ways to make this easier to digest... (anyone who didn't understand VXX rollcost before reading your article will probably not get to the end of the article anyway...)

28 May 2015, 10:27 AM

Robert Zingale, Contributor
There are a lot of articles out there on this topic (many of them incorrect), which are for more general audiences.

I thought this article did a great job settling the debate on this topic, although there was never a debate in my mind.

If you construct VXX yourself from the VIX future data, it becomes quite apparent that the long-term driver is the difference between F1 and F2.

Ultimately, we might be arguing semantics, but I think the more accurate term to describe what is happening is called "roll costs."

28 May 2015, 11:14 AM

Anonymous Vol trader
Yes, agreed, tough to tell the weeds from the actual plants. I agree with your findings, just find this a tough read, but maybe my motivation was too low because I didn't expect to discover anything new in this article. My personal take is that you can make the maths much easier to digest (I say that having taught a course which included slides on VXX rolling insurance costs...)

28 May 2015, 12:29 PM

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dc10
Math.

31 May 2015, 03:09 AM

Anonymous Vol trader
Thanks for the correction, that was the French speaking...

01 Jun 2015, 04:06 AM

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ctomso

Hi David, thanks for your in depth analysis! How did you account for missing F2 data in 2004/05/06 in Table 1? Did you exclude those days?

28 May 2015, 10:55 AM

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smartestone
I suspect there is more to VXX than just the front month contracts and the front-month contango. I suspect the much further dated options and SPY puts have some important impact as well. Since feb. 2015 VXX has been in free-fall despite the market being pretty flat and VIX in a 12-14 range, whereas in Summer-Fall 2014 VXX did not fall despite a very low VIX and a slightly rising market. If you look at the 1-year chart of VXX you can see long 6 month period where nothing happened. Still trying to figure out the mystery behind that

28 May 2015, 11:04 AM

4cessna
"in Summer-Fall 2014 VXX did not fall despite a very low VIX and a slightly rising market"

Look at 90 day average of VIX for summer and fall of 2014. It went from 12.5 to 15. That is a 20% rise. The ave of F1 and F2 also went up as would be expected. (It is easier to use VIX for the comparison, though I know it is F1 and F2 we are really studying)
VXX went sideways and not up due to contango that averaged about 5% during this time.

"Since feb. 2015 VXX has been in free-fall despite the market being pretty flat and VIX in a 12-14 range, whereas in Summer-Fall 2014 VXX did not fall despite a very low VIX and a slightly rising market"

Contango has averaged about 10% since Feb.

28 May 2015, 01:32 PM

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smartestone
hmm..maybe going long VXX only when contango is >8% could be a good strategy

28 May 2015, 05:39 PM

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jacobtr
You didn't actually read the article, did you?

29 May 2015, 05:19 PM

Stephen Aniston, Contributor
smartestone, only VIX1 and VIX2 matter to VXX as they are part of the fund. Nothing else matters.

30 May 2015, 06:09 AM

Chris DeMuth Jr., Marketplace Contributor

David Easter,

Thank you for this article. I love this stuff. I am going to read this to my kids as bedtime reading (they are all short vol).

28 May 2015, 11:10 AM

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ctomso
A great idea! My 7yo daughter will be so interested she won't fall asleep! Her portfolio is 16.67% SVXY.

28 May 2015, 11:17 AM

Hardog
Chris

Hope your kids don't fall asleep too quick.

28 May 2015, 09:47 PM

David Easter, Contributor
Author's reply » ctomso: For the F2 data, I relied on the source cited (http://bit.ly/NXWpLl) which lists an F2 value for every market day. I did not exclude any days from that dataset. The question I can't personally answer is how that source's author might have derived a value for F2 in the event that the original value was missing.

28 May 2015, 11:15 AM

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ctomso
Thanks, I'll check it out.

28 May 2015, 11:25 AM

Nat Stewart, Contributor
Anyone who wants to understand these products correctly at an intuitive level should start following, analysing, and trading the futures. Once you do this, all the "confusion" will be lifted. It is actually pretty simple.

It is only "confusing" because stock traders who don't understand the underlying markets put a false framework of what is "intuitive" on what is really going on. They have it backwards, mostly.

An intro article I did in 2013 on the topic can be found here:

http://seekingalpha.co...

28 May 2015, 01:37 PM

Paul Charbonnet
Well, I skimmed the various comments. Did anyone claim to have a way to make a reasonable risk-adjusted return

out of this information . . . no matter the details . . . is there actually a way to profit?

28 May 2015, 02:20 PM

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ctomso
VXX puts or SVXY during times of contango, best to buy after periods of backwardation.

28 May 2015, 02:45 PM

Del Lindley, Contributor
To be honest I did not find this treatment to be very insightful, largely because it takes an empirical approach to what is really an analytical issue. In other words, except for the minor assumption regarding the linear convergence from future to spot prices, the entire "roll yield" phenomenon can be reduced to a simple equation with basic algebra. It is mostly analytical because the VXX fund has specific trading rules that it must follow. The real problem, of course, is organizing these rules into a set of mathematical expressions that can then be used to solve for the VXX price partial derivative with respect to time (i.e. the roll yield.) The primary utility of historical price data then, is not to provide insight directly, but rather to act as a sanity check for one's math. I distill all of this in my first SA article from several years ago:

http://seekingalpha.co...

A very important point that the present article sidesteps is the distinction between the VXX price and the associated weighted combination of futures. Here the author merely says that they are "correlated," and in doing so leaves out an important part of the roll yield story. To understand what is going on you have to look at the problem for the perspective of the fund and its total value. This total value is the product of the number of contracts held times the price per contract, and both these factors change during the course of daily fund rebalancing and affect the magnitude of the roll yield. As a VXX shareholder you own a proportionate share of the fund's total value, not a fixed number of synthetic futures contracts.

28 May 2015, 03:38 PM

David Easter, Contributor
Author’s reply » Del: Discussion of the point that you raise was postponed (due to the length of the present article), not sidestepped. The first paragraph in the "Upcoming Articles" section states this, albeit in different terms than those that you use. Hopefully that article will satisfy your concern.

28 May 2015, 04:06 PM

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charles17
I read the article and went to bed with a headache>

28 May 2015, 04:48 PM

New Keynesian
David,

Thanks for the article. It helps to clarify why VXX is only good for short time frame trading where you guess correctly on where volatility is going.

Yes the read is dense but I understand that you are attempting to address a wide range of different readers.

28 May 2015, 05:39 PM

Charvo
I just see the components of the VXX (front month VIX and the next month) being still too high over spot VIX since all the VIX futures eventually go to spot. The far month VIX futures are also highly priced compared to spot. Back in July of 2014, futures got really cheap vs the spot. It was almost like buying the spot VIX when buying the VXX. Buying the VXX now is like buying a call option that is far out of the money.

28 May 2015, 07:30 PM

Freedoms Truth
Figure 2, worth the price of admission! Good article.

28 May 2015, 07:47 PM

Laurent1962
How does BX4 compare to VXX please ?

28 May 2015, 09:12 PM

David Easter, Contributor
Author's reply » Laurent: I don't have any data on BX4. Hopefully one of the readers who does will reply to your question.

28 May 2015, 10:06 PM

ctomso
Interestingly, the double short France CAC 40 has had around the same return as VXX over the last year. The European version of VXX is VIXS and it trades on the London exchange.

29 May 2015, 11:21 AM

Laurent1962
Thanks for this Information about VIXS, I believe Société Générale (yes, Jérôme KERVIEL's favorite Bank :-)) also has its own Version trading in € in Paris. Unfortunately I don't remember its Code ..... :-(

29 May 2015, 07:05 PM

Laurent1962

ETF ProTrader, Contributor

Thanks.. some more insight into what makes a ton of money for me every month (4-8 week monthly ATM VXX Puts hedged with just enough OTM VXX weekly Puts to pay the theta). My simple spreadsheet analysis comes up with a daily (trading day) loss of -0.467%. Would love to have an equation that would accurately predict the VXX price given the VIX price; I have a killer model for ViX but with only 6 years of data, which roughly corresponds to the recent bull market, I haven't got enough data to construct a meaningful trading model on VXX alone.

Want to tackle UVXY?

Got an opinion on the new VXUP and VXDN ETFs?

So far they seem to be just as bad as VXX.

28 May 2015, 09:30 PM

David Easter, Contributor

Author's reply » ETF PT: I plan to deal with UVXY in the second upcoming article. I won't tackle VXUP/VXDN until there is sufficient historical data. The problem with using VIX is that at least 20% of daily changes in VXX cannot be explained on the basis of changes in VIX. That unknown 20% will often eat your lunch.

28 May 2015, 10:13 PM

Stephen Aniston, Contributor

The VXX does not trade spot VIX. The VXX buys VIX1 a certain amount each day and sells it as VIX2 on average 22 trading days later. For the VXX futures composition every day you can go to tradingvolatility . net

http://tinyurl.com/pgv...

The VXX happens to look like it is matching spot VIX because the futures curve moves up and down with the spot VIX. However, different parts of VIX Futures Curve don't ALWAYS move with spot vix so hence VXX can act "unexpectedly" if you don't understand how it works.

The VXX doesn't have any "flaws" so to speak. If you are looking for a spot VIX trading vehicle, such does not exist and can NOT exist. The VIX is an index, not an actual commodity that can be traded. You can't have a bid and ask for an index, hello! The index is a calculation. So you are left with the futures market. The VXX does what it does with the futures market and it's probably the best design yet for a VIX trading vehicle. It sucks that it loses so much money but that has little to do with the VIX itself and more with the FED which is actively suppressing volatility and as a side effect pushing the volatility curve down into

contango pretty much permanently.

If spot VIX were in the 20-25 range, the VIX Futures Curve will be rarely in a contango formation.

29 May 2015, 12:04 PM

Alan248
"If spot VIX were in the 20-25 range, the VIX Futures Curve will be rarely in a contango formation. "

Why do you say that ?

07 May 2016, 07:25 PM

Thomas Novak, Contributor
I believe I expressed Harwood's idea first (albeit with less eloquence). Please see this article: http://seekingalpha.co...

As long as futures stay the same, VXX will remain the same (ignoring interest) no matter what the spot price does.

"Recent articles by Vance Harwood, published on the Six Figure Investing and Seeking Alpha web sites, concluded that the cost of contango is not the negative roll yield. His analysis was based on calculations of the SPVXSTR index (which VXX tracks), as applied to sequential days when F1 and F2 are in contango, but both are constant in value. Those calculations correctly showed that under the stated conditions, SPVXSTR would remain unchanged (except for a very small increase attributable to T-bill interest).

A perceived weakness is that those articles neither identified nor discussed the fact that, in a volatility-neutral environment, historical trends require that F1 and F2 will decrease toward spot VIX. Historically, therefore, the assumption of constant F1 and F2 prices implies an increase in the underlying spot VIX price - consistent with a volatility-increasing (not neutral) environment."

28 May 2015, 10:49 PM

Freedoms Truth
"As long as futures stay the same, VXX will remain the same (ignoring interest) no matter what the spot price does."

This is true but meaningless. Its meaningless because you have to ask what spot and future *actually* do.
1. Spot VIX wanders around based on market fear vs complacency. can be as low as 9 or as high a 80+. But mostly in the 12-30 range.
2. Spot VIX is mean reverting around a log-normal distribution.
3. Because people want to hedge long portfolios with VIX futures calls and because vix can shoot up, to accoutn for that volatility of VIX and risk insurance, there is a typical premium in VIX futures.
4. That premium, as shown in article above average about 7%/mo. But it can be higher or lower at any given point.

5. The result is that, just as spot VIX is mean-reverting, VIX futures have a tendency to go from a premium of spot to the spot on day of expiration.

I like how the author expressed it a VIX futures/ VIX, because the argument over what VIX does, or whether VIX moves or futures moves, is a pointless one. Either/or both can happen, and vix volatility any day or month is a lot greater than these contango effects.

Now the real prize goes to someone explaining why the vix avg 30-day futures premium is 7% or so, and not more or less.

29 May 2015, 01:54 PM

Thomas Novak, Contributor

Agreed with your first point. Everything else the same, futures will move in the same direction as the spot rate. But as the clock ticks and expiration approaches, futures will ignore moving with the spot in favor of toward it...whether that means with it or against it.

And that example has a lot of meaning. It shows roll decay is nonsense. It shows that performance is strictly a function of futures pricing, and not futures sloping.

Lets speak on long term averages, not in any 1 singular case.

Futures will decline in value no matter how they are sloped. They should be sloped negatively when the spot is above the center and they should be sloped positively when the spot is below the center. The problem is that they are always individually overpriced. I think this is what you were getting at with a risk premium in your 3rd bullet point.

But anyway slopes don't matter, only changes in future pricing.

Also the VIX is not lognormal. Even if you mean that its center of reversion follows a lognormal distribution, that is still incorrect, because its center is also center reverting, or at least bounded.

Lognormal distributions are used to model exponential boundless random walks. Also the VIX is far too leptokurtotic relative to its volatility for lognormality.

I fit the following CIR inspired model to it pretty well but I have no idea what to call it: http://seekingalpha.co...

And I think the 7% premium is just the going market rate. Asking why is like asking why people value shiny yellow metal.

29 May 2015, 07:28 PM

Nat Stewart, Contributor

"Futures will decline in value no matter how they are sloped" That is not true.

29 May 2015, 08:05 PM

Thomas Novak, Contributor
When futures are priced at a premium, it is true on average (by definition). Do you think this premium goes away when they are downward sloping?

If anything I think it goes up - when futures are downward sloping, it is because the spot is elevated, generally due to a scared market. Usually during this time people over panic and rush to buy more insurance.

29 May 2015, 10:40 PM

Nat Stewart, Contributor
Futures are not always priced at a premium. There is nothing fixed about it.

The futures create profit signal that entices market participants to either store a commodity or bring it to the spot market for current use/processing. A Futures discount (relative to spot) creates an incentive for consumers/processors to defer use, while encouraging producers to sell in the spot market. A steep contango market and premium in deferred contracts incentivises storage on the producers part and consumption on users/processors part.

Prior to around 2004 Crude Oil traded consistently at a discount to spot, which created a persistent positive roll yield for buying long-dated futures contracts. It can be true with VIX futures as well. Empirically, a steeply backwardated market can set up conditions where buying VIX futures is on average profitable.

None of these things are fixed. If fundamental supply/demand conditions change or too many people try to game the relationships, they break down and change.

29 May 2015, 11:55 PM

Thomas Novak, Contributor
Empirical data in the form of 12-month snap shots of VXX show that VIX futures have always been overpriced. I didn't think we were talking about any other kind of future in this forum.

Just like lottery tickets, volatility is always priced at a premium.

31 May 2015, 03:20 AM

Nat Stewart, Contributor
Your belief describes a particular volatility regime or period in time, it is not universally or uniformly true of VIX futures contracts. After a 3 year period of highly compressed volatility with no periods of sustained backwardation, it is entirely understandable.

However, it was not true for the full time period over which I have traded VIX futures, the research I have

done on individual contract data for the full period of their existence, or the research of Academics or other highly sophisticated traders that I have read or had discussions with.

I used the example of Crude Oil because much of the terminology was developed for that market, and similar principles apply.

Fixed beliefs such as, "volatility is always priced at a premium" is one reason why so many volatility sellers end up losing all (or more) of their profits in a week or even a day or two. As a futures trader with nearly 20 years of experience I have seen traders blow up like this many, many times.

31 May 2015, 09:41 AM

Thomas Novak, Contributor

I don't know how volatility looked before the inception of the VXX. However any 365 day snap shot of it since yields a negative return.

In my opinion this is representative of contango as defined by Investopedia: "A situation where the futures price of a commodity is above the expected future spot price." (If one is able to accurately model an expected future spot price.)

If you are able to prospectively attribute shorter periods of positive return like August of 2011 to underpricings in the volatility market then you must be an excellent trader. I am just including them in the long-run as dilutions to the overall premium.

Still I believe my original point still holds: that no matter how futures are priced, VXX is strictly a function of the performance of each. The "apparent" roll yield associated with term structure slope is ostensibly responsible for performance. In reality it only accounts for the change in total share count.

Lastly I will thank you for calling me out on the use of the word "always", which leads to incorrect generalizations and poor thinking.

31 May 2015, 11:22 AM

Stephen Aniston, Contributor

The reason VIX1 and VIX2 are higher than VIX is because VIX is meant to be mean reverting. So long as VIX is lower than the historical average VIX1 will be higher than VIX and VIX2 will be higher VIX1 and so on. The theoretical infinite future for the VIX will be exactly at the historical average. If the VIX is above historical average then the curve goes into backwardation.

Obviously as the future expiration comes, the spot and VIX1 need to converge or else on the day of settlement somebody is making free money and somebody is losing earned money. People losing the earned money will make sure they are not being robbed. However, the VIX picture is usually unchanged so VIX2 tends to stay up. That tends to exacerbate the contango in the middle of the month historically.

And more importantly when the VIX futures curve goes into backwardation is a very special moment:

You can read more here at VIXContango . com:
http://bit.ly/1Bjkjc3

The math is not breathtaking, simply beautiful. Like another poster said, there is no need to blast a dove with a bazooka. A slingshot will suffice.

By the way, contango happens in the VFC (VIX Futures Curve) 95% of the time.

29 May 2015, 05:46 AM

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jacobtr
Great article. Thanks for the detail.

29 May 2015, 05:27 PM

Blind Guide
About the time pundits began crying "This bull is growing long-in-the-tooth!", a respected 'market maker' and contributor to the formation of the VIX recommended buying 'portfolio insurance' via the VXX. I literally 'bought in' to that argument beginning in July of '13 and averaging into a position comprising about 3% of my total portfolio (5% of my equity investments) and have held that position for the nearly 2 years since disregarding the losses since - after all - insurance has its costs!

However - in this recent series of blog discussions - I encountered the opinion that 'value leakage' (due to roll costs, etc) structured into VXX will inevitably result in a 46-50% annual loss. This opinion is in line with the nearly 70% total loss I have endured on my VXX position and raises these questions:
1) Is the going 'long' on VXX really a valid 'correction/crash insurance' strategy?
2) If so, can it be expected to 'work' over an indefinite holding period or only short-term?
3) If only short-term, under what conditions and for how long?

30 May 2015, 07:39 PM

Stephen Aniston, Contributor
1) No
2) No
3) Max 3-6 months and ONLY if the world is ending - Lehman 2008/AAA Credit rating 2011 are the only episodes with positive VXX performance in the 100-200% return range. Slow declines, flat markets result in slowly declining to break-even VXX performance. Uptrending markets are like now 8-10% contango and 50-70% loss per year guaranteed.

In other words, VIX has to be above 25 for you to make money on VXX and after it hits 25, it needs to shoot up to 40 and 50 for you to make a nice return. If it hits 25 and sits at 25, you're not making a whole lot of money on VXX. Certainly will not compensate for your losses elsewhere.

30 May 2015, 08:56 PM

Anonymous Vol trader

Stephen Aniston, Contributor
This trade can't get crowded. First, the ETF issuer increases the number of shares based on actual demand. Second, trading the VIX is trading a calculation, an index. It has nothing to do with actual demand and supply found in traditional commodities. The underlying trade - the SPX can certainly get overcrowded, but then again the SPX after treasury bonds is the most liquid, AAA-rated instrument on earth. If governments decide to plunge their cash holdings into the SPX, the liquidity of this instrument can go up to practically infinity.

01 Jun 2015, 06:06 AM

Anonymous Vol trader
Whether you go short VXX, long XIV, or actually replicate with Vix futures, of course it can get "crowded"... But I am not saying that it currently is, I actually believe it currently isn't; if it were crowded the VXX up moves would tend to over react on SPX drops, which hasn't been the case at all recently.
Also, on top of making the short trade more volatile, crowding tends to reduce the carry (because positioning against the rolldown actually compresses the roll)...
My 2c...

01 Jun 2015, 06:18 AM

Stephen Aniston, Contributor
Again, the number of shares in the VXX or the XIV is not fixed. Shares are added or removed in order for the VXX or XIV to track their baseline calculation. As a result, great demand for the VXX or XIV can't push the price higher or lower than it should be for more than a few minutes or hours until the algorithm adjusts the number of shares.

01 Jun 2015, 10:10 AM

Anonymous Vol trader

You have the wrong definition for crowded trade. I am not saying VXX or XIV will diverge from NAV, but that NAV and rollcost could be impacted by heavy flows (if everyone wants out of the trade at once). See definition of crowded trade below.

http://bit.ly/1d9h0OV

01 Jun 2015, 10:25 AM

Nat Stewart, Contributor

Stephen, isn't the issue that traders conduct semi-arbitrage (meaning not perfectly offset risks) between VIX instruments and the index options, and this links the VIX trading levels to options premiums which can be competed downwards depending on supply demand like anything else - which then indirectly can influence the forward curve.

01 Jun 2015, 10:26 AM

Stephen Aniston, Contributor

VIX speculators are a tiny part of the SPX option pool. Theoretically, their activity can affect it, but practically VIX arbitrage traders are a miniscule part of the market. Fidelity's or Black Rocks's or Legg Mason's put buying alone is probably 1000 times the volume of all the hedge funds combined.

The VXX trade has been "crowded" since 2012. Three years later, the crowd has never left and nothing has changed. And it won't change until the institutional asset managers change their mind about the stock market.

Look up the VXX prospectus. Apart from momentary influx of orders, the VXX will stick to the NAV period. If you look at the volume chart of the VXX, the VXX volume is 5-10 times what it was in 2012. And nothing has changed. The VXX goes down like a rock regardless of the millions of people buying it.

01 Jun 2015, 10:43 AM

Anonymous Vol trader

"VIX speculators are a tiny part of the SPX option pool."

I don't believe that statement to hold anymore. On front month Vix futures, sizes are large. 107k contracts traded on UX1 on May 26th, is equivalent to 100bil notional of ATM 1month SPX options in terms of vega... I wouldn't call that "a tiny part".

01 Jun 2015, 11:03 AM

Stephen Aniston, Contributor

Goldman Sachs AUM is north of $1T (yes for trillion), Chase 1.5T, Morgan Stanley is 2 trillion, Black Rock is nearly 5T, Fidelity is 5 Trillion, etc.

Yes, 100 billion is impressive for you and me. In the real world, it's a drop in the bucket. The entire hedge fund industry that could potentially be involved in VIX trading (long/short funds) is about 500 billion in size and of that I guess a tiny portion is devoted to VIX itself.

01 Jun 2015, 11:20 AM

Anonymous Vol trader

1T$ AUM doesn't mean they are trading 1T$ notional of 1 month puts daily... And what % of this AUM actually trades derivatives? I suspect a pretty low percentage...

Yes historically insurance companies have been big buyers of SPX puts as a liability management for their life insurance/annuity products, and some funds overwrite their delta, but most of the industry is long only with no options...

FYI, index options traded Friday on CBOE was 1.3mil, or roughly 260Bil notional.

01 Jun 2015, 11:32 AM

RobBrown

No question the VIX market continues to grow. But the vols of the SPX options prices are tied to vols of the options which make up the index as well as those that trade on SPY and ES. When the prices get out of line prop firms take advantage very fast. It would be very hard for VIX futures and especially for ETN's like VXX to have any influence over vol in the options markets.

05 Jun 2015, 10:02 PM

David Easter, Contributor

Author's reply » A big thank you to everyone who contributed constructive comments to this discussion.

A new article has been posted at http://seekingalpha.co... that addresses some of the points raised in the discussion above.

The article shows how the separate contributions from volatility and roll yield separately affect prices of VXX. Of special interest are two figures that show very different VXX price action in high volatility periods vs. low volatility periods.

The new article was purposely organized such that the main take-home message is isolated from the gory math and technical analysis, which are contained in the appendix. Hopefully this organization strategy will meet the needs of a broad and diverse spectrum of readers.

Best to all.

05 Jun 2015, 04:18 PM

RobBrown

VIX futures prices aren't based on spot VIX, each contract is based on a different month's SPX options prices which the settlement value is determined by. Volatility has been in a long term down trend since 2009 and longer term vols tend to be more static while near term vols are more elastic, that is why there is a near constant contango. Although it's not the same type of contango you have in the commodities markets where all contracts are settled based on the same deliverable and are largely determined by carry costs.

As long as the market keeps moving sideways or higher being short vol will continue to pay with some bumps along the road. Eventually all good things will come to an end and we will have another bear market. When that happens anyone anyone with a big short vol position that doesn't have a solid exit strategy is going to be in the hurt house.

05 Jun 2015, 09:51 PM

Stephen Aniston, Contributor

That's right. The concept of contango in the VIX world is different from other commodities. VIX is meant to be mean reverting. As a result the long term VIX future will try to be close to the historical VIX average. VXMT which is 6 month VIX has been at 17.50-18.00 range pretty much forever, because that is where the historical average is. The nearer term futures then try to get to VXMT by using decay which is the square root of time (basic option math). As a result, the front month will be close to spot while second month will be substantially higher so long as spot is far below the historical average (which lately it has been).

If spot VIX is 18 and stays at 18, contango will be 0% forever and neither XIV nor VXX will do anything other than match spot VIX.

Ad break: If you want to use contango to your advantage and get good at timing and trading XIV or VXX, go to vixcontango . com

08 Jun 2015, 11:39 AM

bk_h

In theory, one could just short VXX and hold it for many many years.

18 Jun 2015, 02:07 PM