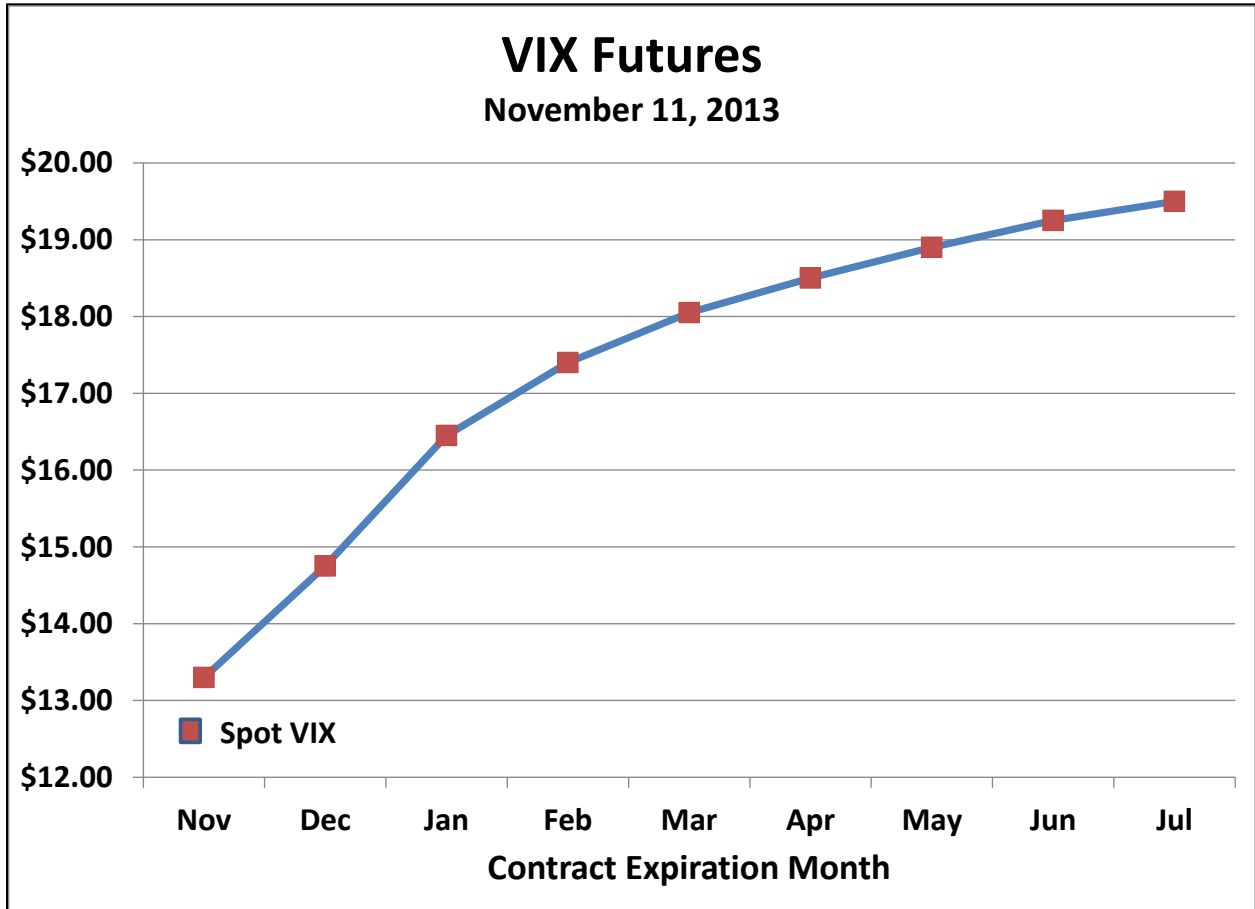


## XVIX: A SMART WAY TO DANCE THE VIX CONTANGO



Today I purchased some shares in ETRACS Daily Long/Short VIX ETN (XVIX) for myself and my clients. This ETN (exchange-traded note) is tied to the S&P 500 Index VIX Term-Structure Excess Return, an index which is short nearby **VIX** futures contracts and long more distant VIX futures contracts. As an ETN, it has credit exposure to the issuer, UBS Securities. However, I view this risk as minimal. (UBS long-term debt is rated A/A2 by S&P/Moody's, and its **credit default swap** rate is under 80 basis points, which is low compared to other major banks.) The expense ratio for the fund is 0.85%.

**VIX** is the ticker symbol for the Chicago Board Options Exchange (CBOE) Volatility Index, which gauges expectations for S&P 500 volatility over the next 30 days based upon the option implied volatility of a wide range of S&P 500 options. It is sometimes referred to as the "fear index."

This fund is a play on the fact that the VIX futures curve (pictured above) is often more steeply in **contango** in the nearby end than further out. The Underlying Index for the fund is a

composite index of 100% long the S&P 500 VIX Mid-Term Futures Index Excess Return (contract months 4-7) and a short 50% position in the S&P 500 VIX Short-Term Futures Index Excess Return (contract months 1 and 2).

Despite my catchy title, contango is not actually a dance. It refers to the upward slope of the futures curve for a particular commodity when the futures prices are above the spot price. Since the futures price must converge to the spot price by settlement date, if the futures price is above the current spot price, either the spot price must move up or the futures price must move down.

A **credit default swap (CDS)** is an instrument that requires the seller of the swap to pay off the debt of a third party to the buyer of the swap in the event of default. The buyer pays the seller a periodic premium at the CDS rate. Because it is actively traded, the CDS rate is considered a more forward-looking indication of credit risk than are bond ratings.

By the way, the opposite condition, when the futures price is below the spot price, is known as **backwardation**.

When forecasting the return of a futures contract, often the change in the spot price (a highly uncertain source of return) is broken out separately from the “**roll yield** (a much more reliable source of return).” The term “roll yield” is derived from the fact that most owners of futures contracts will “roll” them forward as they approach expiration. Usually, the “nearby” contract (the one that will expire next) is the most liquid and most widely owned, and owners of that contract will typically roll their position by simultaneously selling the nearby contract and buying the next one along the futures curve.

Roll yield can be either positive or negative, depending upon whether the futures curve is in backwardation or contango. Using the example of the VIX futures curve on November 11<sup>th</sup>, it is a straightforward task to calculate the roll yield for the November VIX contract as follows:

$$\frac{\text{Spot price} - \text{Futures price}}{\text{Futures price}} = \frac{12.53 - 13.30}{13.30} = -5.79\%$$

The buyer of the November VIX contract on November 11<sup>th</sup> paid 13.30 at a time when the spot VIX was 12.53. If the spot price does not move, that contract will have to be sold for 12.53 at expiration, resulting in a loss of 5.79%. The last trade for the November VIX futures is November 20<sup>th</sup>, so that’s a lot of price erosion in a nine day period! The buyer of those futures is betting that the spot VIX will rise more than 5.79% over that short time period.

The VIX has a strongly negative relationship with the S&P 500. (My 36-month exponentially-weighted S&P 500 beta for the VIX is roughly -4.) Thus, the VIX can function as a leveraged hedge for S&P 500 risk, which may explain its attraction—some investors are nervous about the market and want to buy some insurance. (The **behavioral finance** crowd has documented the fact that people tend to overpay for insurance and are obsessed with visible near-term risks.)

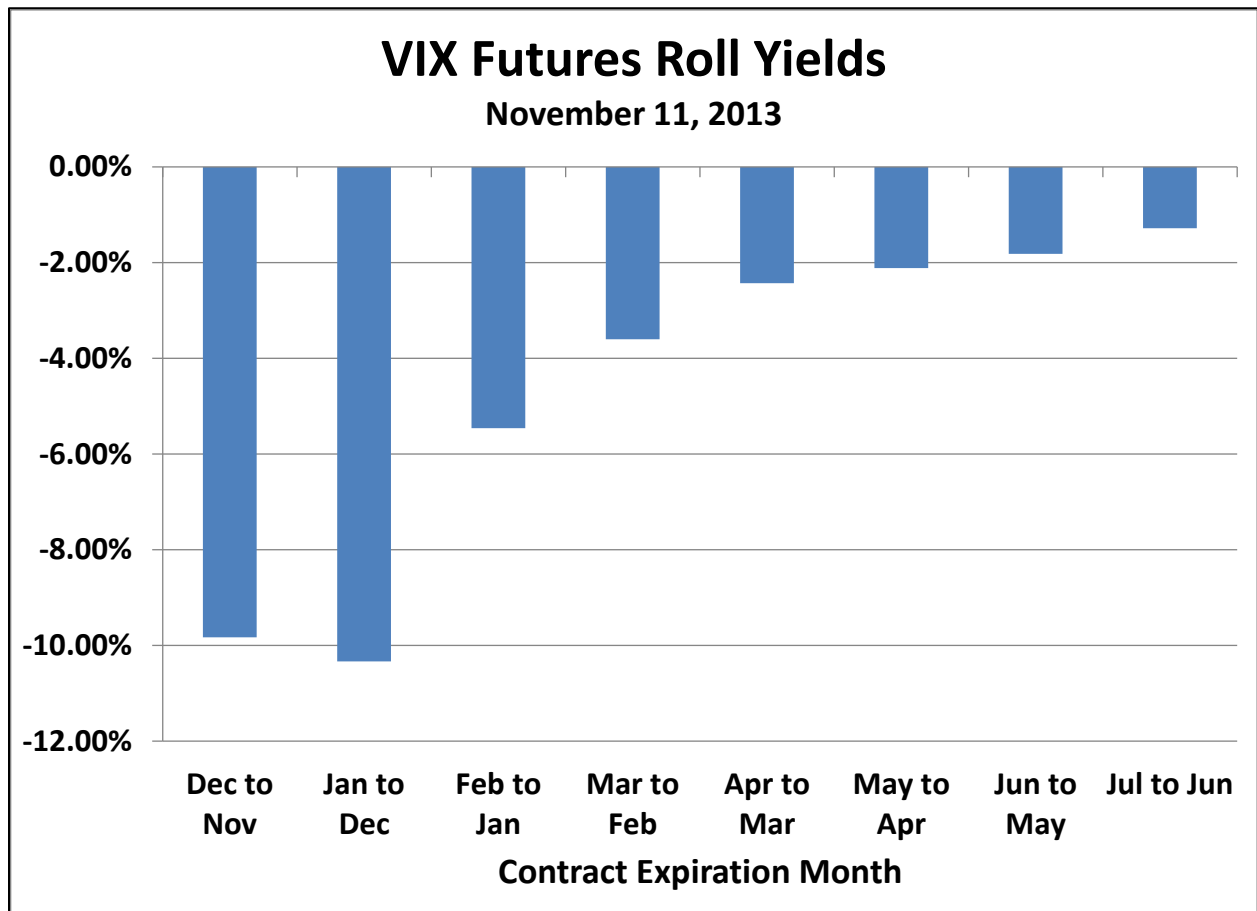
Getting back to XVIX, recall that this fund is 100% long VIX contract months 4-7 and 50% short VIX contract months 1 and 2. In practice these positions are rolled forward to the next month out as expiration approaches. Thus, to calculate the expected roll yield for the full fund involves calculating the roll yields of the various futures contracts owned, long or short.

Proponents of **behavioral finance** (some of whom have won Nobel prizes in economics) use psychological theory to explain why people often make irrational financial decisions.

For example, at the close on November 11<sup>th</sup>, the November VIX contract price was 13.30 and the December VIX contract price was spot 14.75. Using a variation on the formula above, the implied roll yield (December to November) was -9.83% as follows:

$$\frac{\text{Nov price} - \text{Dec price}}{\text{Dec price}} = \frac{13.30 - 14.75}{14.75} = -9.83\%$$

Because the VIX futures curve is so much steeper at the near-term end (the left side of the graph above), the negative roll yields for the nearby contracts are much bigger than for the contracts further out. The graph below depicts the roll yields for the various VIX contracts trading as of November 11th.

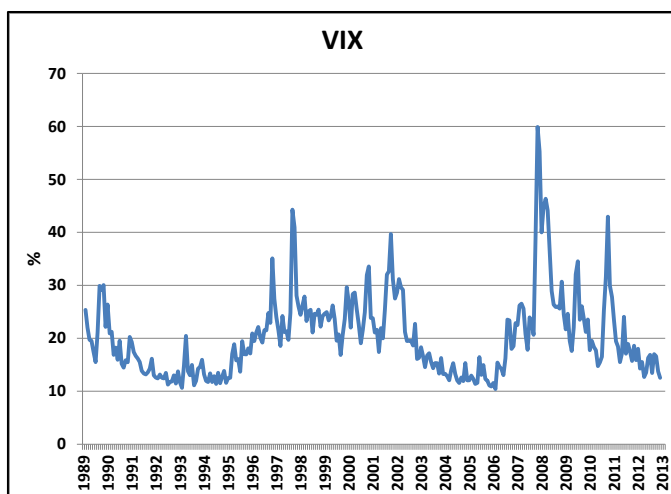


The documents for the XVIX fund are a bit opaque on the finer points of how the daily rebalancing of the indexes works, so I approximate the roll yield of the 50% short position in contract months 1 and 2 by averaging the roll yield of the first two bars above. Likewise, I approximate the roll yield of the 100% long position in contract months 4-7 by averaging bars 4-7. Here is the calculation of the net roll yield for XVIX:

|                       | <u>Avg. Roll Yield</u> | <u>Weight</u> | <u>Wtd. Roll Yield</u> |
|-----------------------|------------------------|---------------|------------------------|
| Short-Term (1-2)      | -10.08%                | -50%          | 5.04%                  |
| <u>Mid-Term (4-7)</u> | -2.49%                 | 100%          | <u>-2.49%</u>          |
| XVIX                  |                        |               | 2.55%                  |

An expected return of 2.55% over the next month may not sound very impressive, but that would be an annualized return of over 30%!

Returns like that don't come without attendant risks. What could go wrong? The primary risk is that the VIX will spike upward. Clearly, this is what those who are long the nearby VIX contracts are expecting! At its current level of 12.53, the spot VIX is below its average, and particularly below is post-2008 average. It would appear that the buyers are expecting a reversion toward the mean.



Indeed, there are plenty of risks on the horizon that could cause the VIX to move up. Who knows what Janice Yellen may say at her confirmation hearings? A deal with Iran may or may not be struck. Syria may heat up. Israel may bomb Iran. North Korea is always a wild card. And more important are the "unknown unknowns." Risks that we do not foresee are usually what bite us the most.

However, one of the attractions of XVIX is the hedged nature of the exposure to VIX. If the VIX does spike up, there is a likelihood that the entire VIX futures curve may move up, at least to some extent. Although typically there is much more volatility on the near-term end of the VIX futures curve, having the 100% long position in the mid-term section of the curve greatly ameliorates the risk of an adverse move in the VIX.

The risks seem a reasonable risk for the prospective return involved. That's what investing is all about.

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# **SELECT ALTERNATIVE INVESTMENTS LLC**

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