Trading the patience of Mrs. Yellen.
A short VIX-Futures strategy for FOMC announcement days.

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Abstract:
There is consensus in the literature that the 8 scheduled FOMC meetings are the most important regular trading news. In "When No News is Good News – The decrease in Investor Fear after FOMC announcements" [1] the authors show that the VIX and VIX-Futures decrease significantly after the announcements of the meeting. This paper confirms these findings. It omits the usual academic fuss and concentrates instead on the mundane questions of a detailed trading strategy.

Revision-1 is a complete rework of the initial paper.

Introduction:

Before the December 2014 FOMC meeting the VIX was with more than 23 points quite high. After the announcement of Mrs. Yellen "We will be patient" (to rise interest rates) the VIX was falling sharply. I noticed such effects already beforehand. A scan of the relevant literature confirmed that this impression was correct.

"We find that the VIX and the VIX futures start to decline immediately after the FOMC announcement, and this decline persists for about 45 minutes after the announcement. The VIX declines by about 3% on announcement days, whereas the nearest term VIX futures contract declines about 1.4% around the announcement" (from the Abstract of [1]).

Table B.1 in the paper of Lucca&Moench [2] contains the exact announcement dates and time from 1994 till March 2011. According this table the announcement happened in recent years between 14:13 and 14:17 EST. In 2011 and 2012 the announcements for meetings which included Economic Projections (April, June, September, December) were scheduled at 12:30 ([3]). But from 2013 onwards the announcement time is like before always at 14:00 (or a few minutes later). For the meetings since April 2011 I used high frequency data to get the exact times. Especially volume goes up significantly (see the charts in [4]).

If the claim in [1] is true the downwards drift should be present till about 15:00. The paper devotes a short note to VIX-Futures trading (the big rest is the usual academic fuss). In this note the authors hold the position till 15:30. If the effect fades away at 15:00 it would be logical to close the position already at this time. Actually it is better to close it some minutes beforehand.

The Strategy:

At each announcement day a short position of the most nearby VIX-Futures is opened at 11:00. The opening time is not critical. One can enter the position at 11:15 or 10:45 with almost the same result. The position is closed 35 minutes after the announcement. The overall win stays about the same if one closes the position 40 or 45 minutes later. But the result gets more volatile. There are days when the volatility is still falling after 35 minutes. But there are also ones were the VIX starts to revert up again. Closing the position after 35 minutes reduces the risk. After the first 45 minutes the position clearly deteriorates.

It is assumed that the initial index (cash) is 500.000$. This is an arbitrary number I have used also in previous working papers.

One shorts the most nearby VIX-Future according the formula

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Qty = -1.0 * floor((index*leverage)/(Futures-Price * $-Multiplier))    (1)
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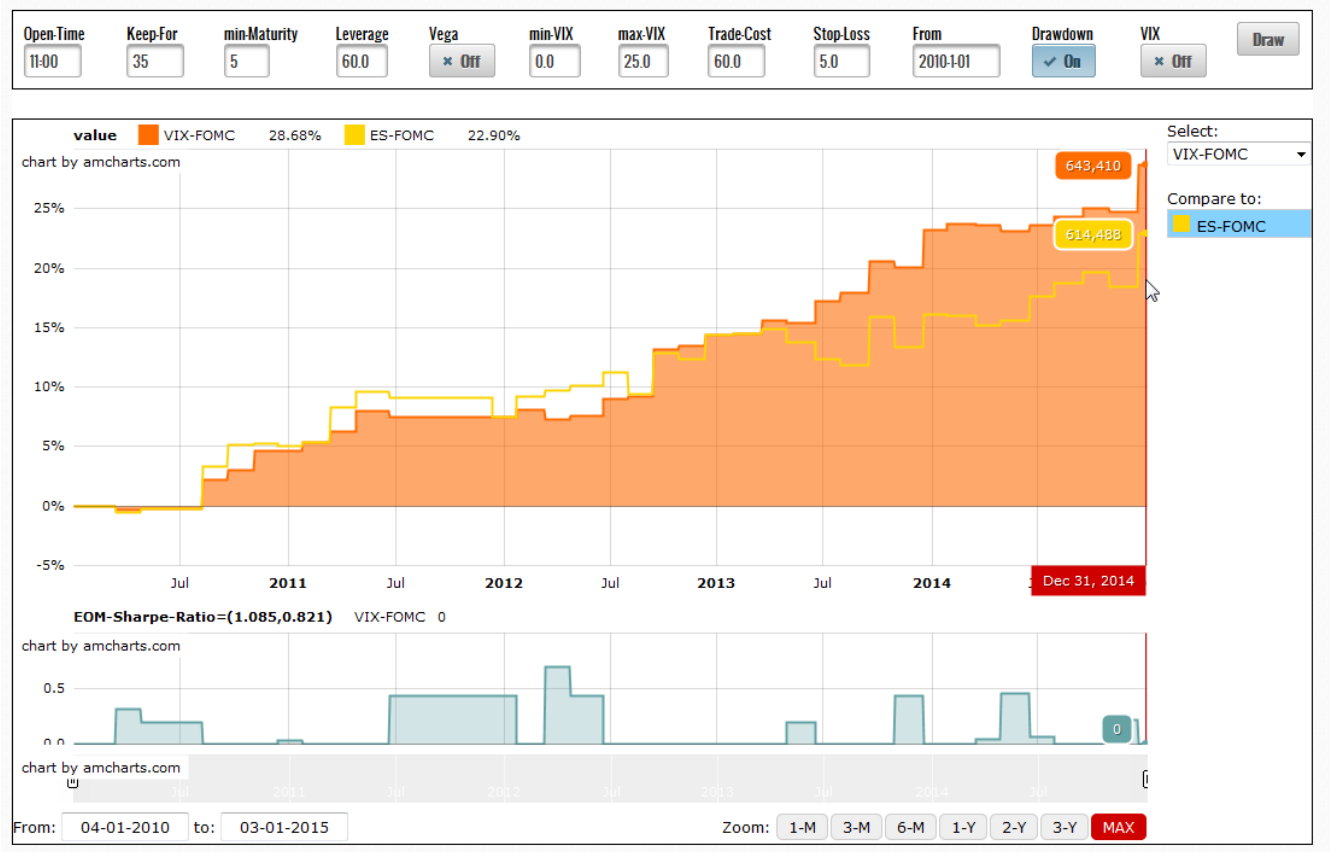
The leverage was set to 60%. This value was used also in other VIX Futures strategies (see [5] and the references herein). If the index is at 500.000 and the Futures-Price is 20.0 the quantity would be -1.0 * (500000.0*0.6)/(20.0*1000.0) = -15.
Going the VIX during a market crash short is extremely risky. One stays at the sideline if the Futures-Price is above 25.0. The VIX (and its most nearby future) can explode. So one sets a stop-loss of +5.0%. The stop-loss was never triggered in the time range from 2010-01-02 till 2015-01-02 (the last 5 years). Staying on the sideline in times of troubles already avoids the most dangerous situations. But the market herd can also panic in reaction to a FOMC announcement. The calculation assumes 60 $ round trip costs per future. One looses once the bid-ask spread of 50$ and has additional trading fees of 10$.

The orange graph in Graphic-1 shows the result for this strategy. There are 34 trades within the last 5 years (6 trades are omitted due to the filter). The overall win is 28.68%. The Sharpe-Ratio is 1.085. This ratio underestimates the performance, because it is calculated with End-Of-Month data. There are by construction months without a trade and hence zero return. The maximum relative drawdown in the bottom blue chart shows a rather low risk of 0.7%.



Graphic-1: Short VIX-Futures (orange), long SP&500-Futures (yellow) 2010-01-02 till 2015-01-02

The yellow chart shows for comparison reasons the implementation of the same strategy with long S&P-500 Futures (symbol „ES“).

The quantity is calculated according to formula (2).

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Qty = 6.0 * floor((index*leverage)/(Futures-Price * $-Multiplier))    (2)
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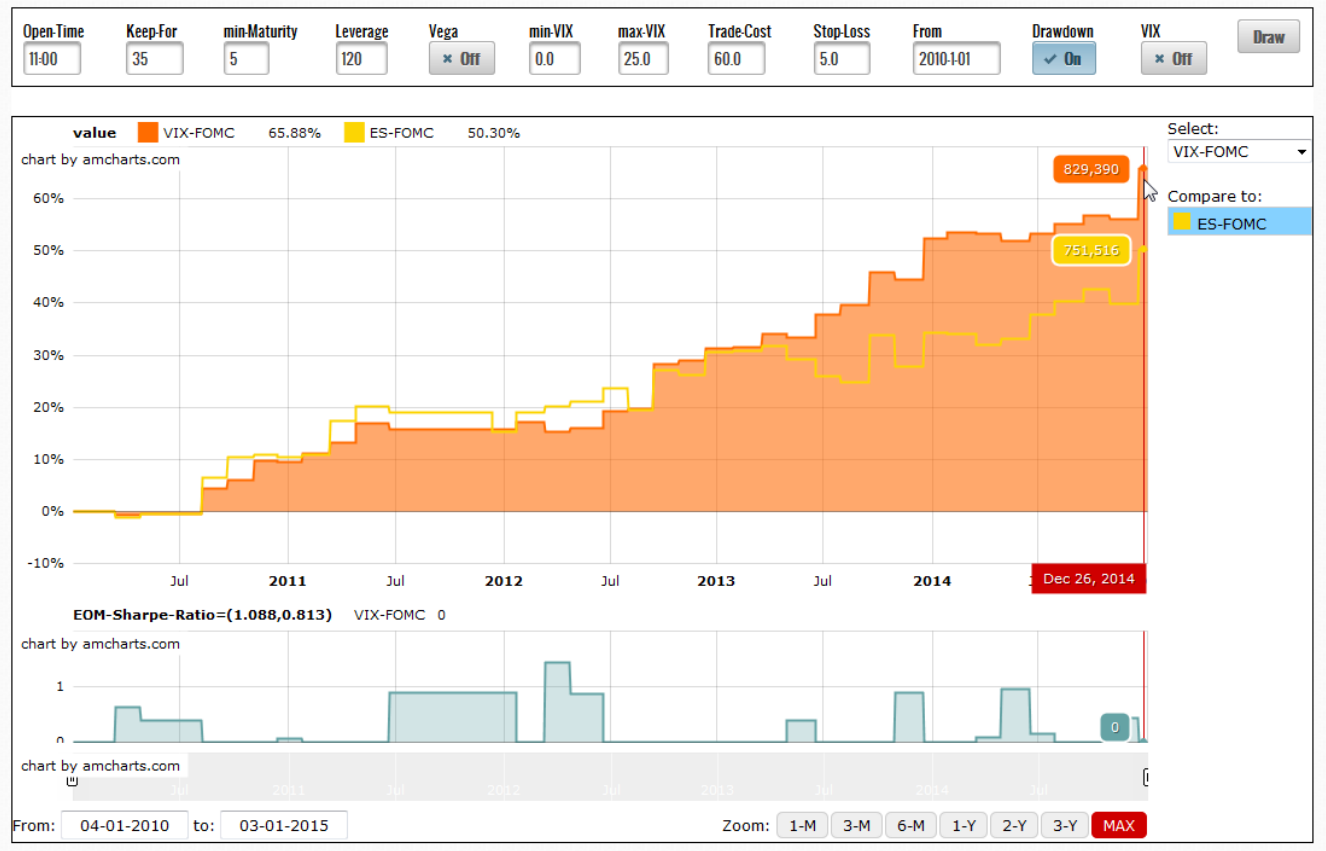
For an index of 500000 and a futures price of 2000 one would go 18 futures long. The factor 6.0 was chosen to get about the same magnitude of returns than in the VIX-Futures strategy. The round trip costs were set to 12 $ per future. The overall win is 22.90%, the Sharpe-Ratio drops to 0.821 (as the trading times are the same it has also the same downwards bias). The maximum relative drawdown increases to 2.6%. The S&P-500 and the VIX have a strong negative correlation. But it is nevertheless preferable to trade the FOMC announcements with VIX-Futures.

Due to the relative low drawdown one could double the leverage in (1) and (2). Graphic-2 shows the result of this calculation. The overall win increases for the VIX-Futures to 65.88% with a practically identical Sharpe-Ratio.



Graphic-2: Short VIX-Futures (orange), long SP&500-Futures (yellow) with double leverage

In [6] Thomas McFarren of BlackRock argues that one should determine the short VIX-Futures quantity by vega-risk. This is just another word for the $-Multiplier of the futures. The paper does not deal with FOMC trading. It addresses the question if one should add permanently short VIX-Futures to improve the overall performance of a conventional portfolio. Equation (1) is based on the VIX-Futures return risk.

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Qty = -1.0 * floor((index*leverage)/($-Multiplier))    (3)
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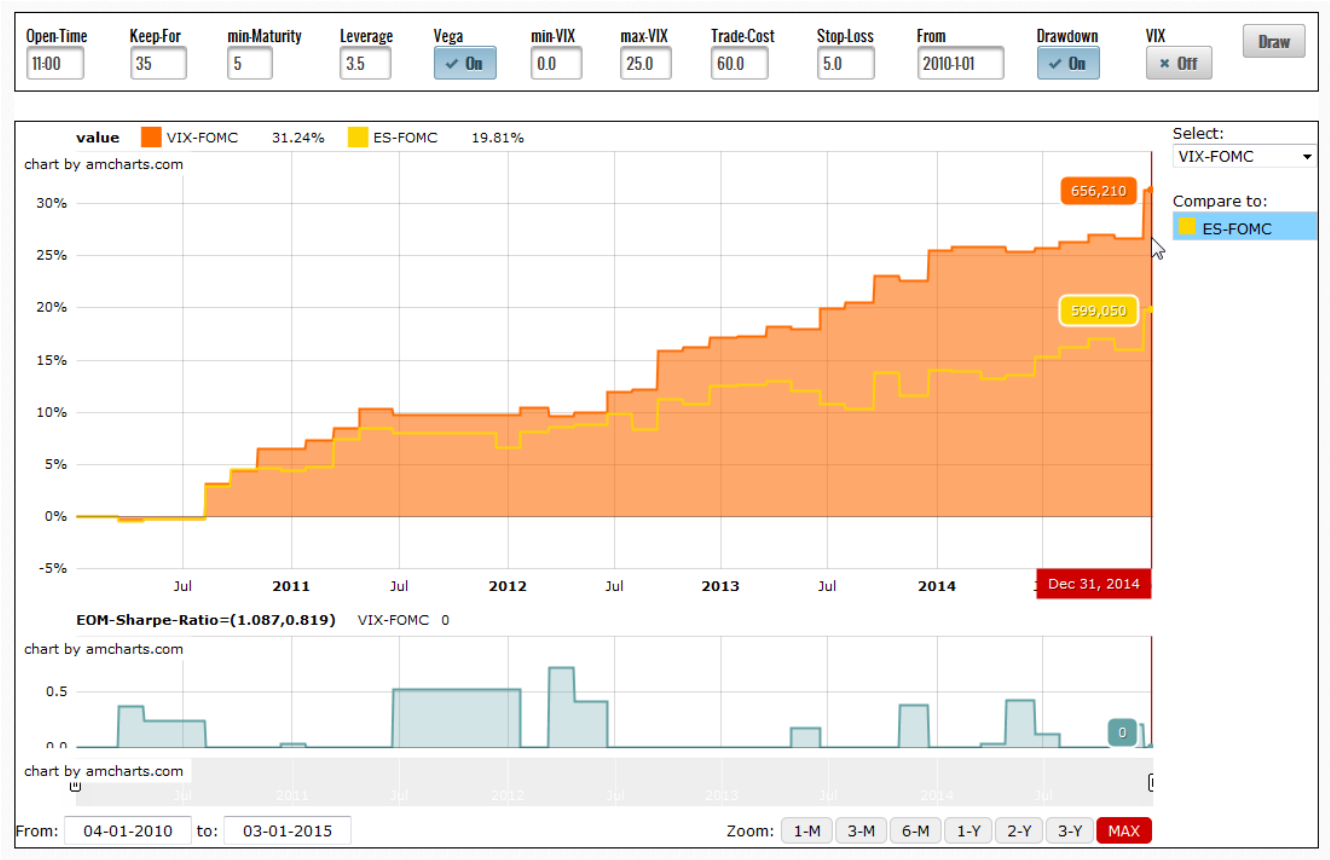
The leverage is set to -3.5%. The Qty for the initial index value of 500.000 would be -17. This value

was chosen to get the same relative drawdown as for equation (1) with a leverage of 60%. The performance difference is not dramatic. But the overall win is increased from 28.68% to 31.24%. Also the Sharpe-Ratio is minimally better.



Graphic-3: Short VIX-Futures (orange), long SP&500-Futures (yellow) with equation (3)

Conclusion:
Trading FOMC announcements is an interesting idea to beef up the performance of a fund. It seems to be a relative save bet with the parameters outlined in this paper. For the quantity calculation equation (3) based on vega-risk has a slight edge.

References:
[1] Fernandez-Perez A., Frijns B., Tourani-Rad A.: When no News is Good News – The decrease in Investor Fear after the FOMC announcement.
[2] Lucca D., Moench E.: The Pre-FOMC Announcement Drift, July 2013
[3] Baumohl B.: The Secrets of Economic Indicators 3rd Edition, FT-Press
[4] www.mypivots.com/article/details/11/fed-days
[5] Donninger Ch.: VIX Futures Basis Trading: The Calvados-Strategy 2.0, Sibyl-Working-Paper, Rev. 1, 2014-01-21
[6] McFarren Th.: VIX Your Portfolio. Selling Volatility to Improve Performance. Investment Insights, The Investment Research Journal from BlackRock, Volume 16, Issue 2, June 2013