

S&P 500 Weekly Forecast 12/6

From: SqueezeMetrics <info@sqzme.co>
To: SqueezeMetrics <info@sqzme.co>
Subject: S&P 500 Weekly Forecast 12/6
Date: Sunday, December 06, 2020 9:03 PM
Size: 246 KB

Hey everyone,

Last weekend, we talked about how the contango-decay in VIX futures resembles the decay of an OTM SPX put option, despite the fact that they are very different things. And since a customer-long OTM SPX put will "feed" subtle, bullish flows back into the S&P 500 as it decays (vanna, charm), we wondered if, despite having no gamma, no vanna, no charm, etc., customer-long VIX futures would similarly "feed" bullish flows into the S&P 500. Could we find a correlation?

To test, we simply chose two distinct periods in VIX futures history -- before 2/2018 and after 2/2018 (Volmageddon), and the results spoke for themselves. Pre-2018, when there were more money managers selling VIX futures (primarily via XIV et al.), steeper contango was a *headwind* for the S&P 500 (0% mean gain), while flat term structure was associated with average daily S&P gain of 0.10 mean absolute deviations (which is a 0.10% gain when normalized to a VIX at 20). After 2018, the impact was the opposite, where *steeper* contango was associated with a 0.10% mean normalized daily gain, and *flat* term structure was associated with 0% mean gain.

The implication is that VIX futures do work a lot like SPX OTM puts. I.e., in the same way that buying an OTM put immediately compels a dealer to hedge by selling a delta-weighted bit of the underlying (an up-front negative index flow), but then *ceteris paribus* drips those deltas back into the market as buy orders; so too the purchase of a VIX futures contract must compel a dealer to sell SPX, then drip that exposure back into the index as a bullish flow.

This realization is somewhere between "duh" and "woah!" But in any case, our intention is to open up a whole new can of worms. Because if a "pure volatility" instrument like VIX futures has this relationship with the S&P 500, then what about implied volatility, broadly speaking? Do changes in implied volatility *per se* have an impact on the index, absent option deltas?

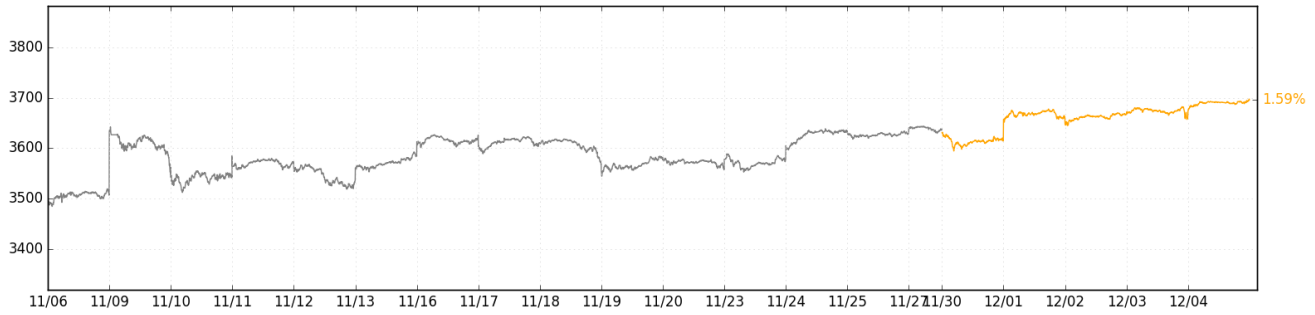
But we have other things to talk about first.

1. Astern
2. Fore
3. Duh?

Astern

Here's a fun one. Let's just quote ourselves from last weekend:

Only one thing happened this week: There was a gap up in the S&P 500 on Tuesday which had a couple hours of follow-through. Then back to sleep. Those moments of activity added up to a **2.26%** **1.59%** weekly gain. ~~Not bad for a holiday week.~~



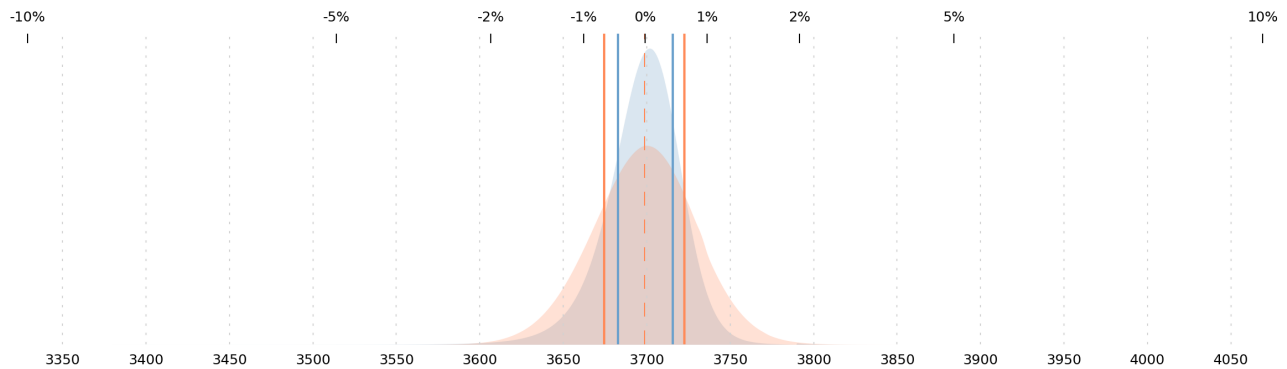
But this time, VIX was unchanged on the week -- a small comfort for us, with our long December VIX.

Just like last weekend, we want to be selling near-term SPX volatility. We wanted to be collecting gamma-rent. We wanted to be betting against movement, and we wanted to play that short gamma against our long implied volatility bet on VIX. We wanted that real bad, but we couldn't have it, because the market's near-term IVs have come down so much that we saw no edge in selling that gamma relative to what GEX+ is telling us.

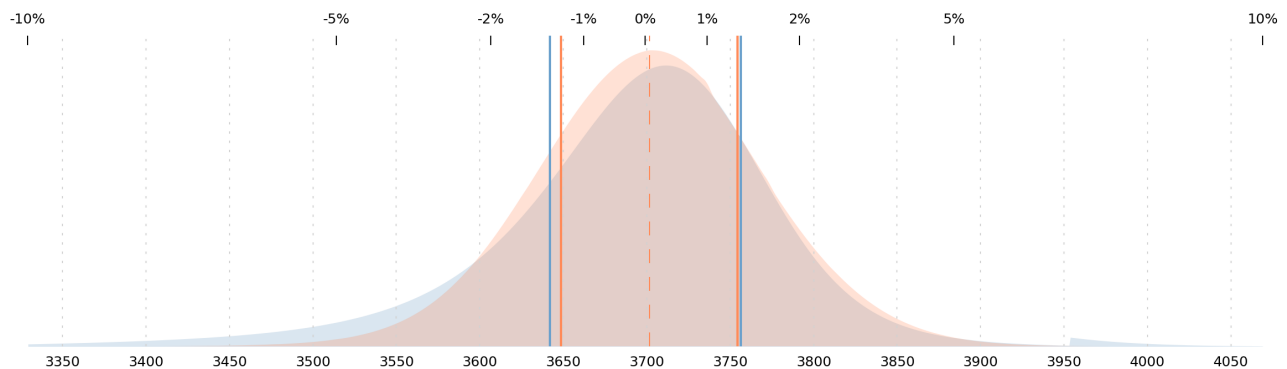
And we're still in that painful situation.

Fore

Look at this thing. Below is the 1-day density implied by GEX+ (orange) atop the market-implied density. GEX+ is actually telling us that we should expect *more* movement than the 1-day options were implying.



And when this is extrapolated out to a week, it should come as no surprise that there is *absolutely no edge* in selling near-term options. The 1-week densities completely agree.



So our deep desire, to leverage our GEX+ edge and sell some iron flies, remains unsatisfied. We can't do it.

Instead, what we're given is a situation that is very clearly unstable. The DIX is solidly in the low 40s, indicating a lack of organic buying across the index. The vanna-gamma ratio (VGR) remains at -2, which tells us that SPX option customers are over-exposed to changes in implied volatility, and which correlates to 1-week and 1-month increases in VIX. And as of Friday, SPX options' net put delta is -1.66.

This last data point is a marked difference from the last couple weeks, where a clear trend of net put buying in SPX options (-5 NPD and lower) has seemingly kept things stable -- or just stable enough for all of these other forces to herald a correction. At -1.66, NPD emphasizes the similar shallow negative reading from VGR. We've been saying throughout this past week that everyone's fear of "market-wide complacency" is overdone -- NPD has been -5 and below. But this new data point may finally dissolve that fleeting bid under the index.

On principle, we won't be adding to our tactical long volatility position. We maintain that long December VIX allocation.

Duh?

Ok, let's wax philosophical.

Let's suppose that you want to keep the volatility in your equity portfolio (i.e., the downside volatility) below a certain threshold. One thing that you could do is purchase puts in every underlying that you own, or in the S&P 500 index. The problem with this is that when you buy a put, you're targeting a particular threshold in spot price below which you aren't accepting losses, and as a result, you have a really confusing set of risks that don't really *match* what you're concerned about hedging. Those risks have gnarly path-dependency and weird exposures, and you would have to spend a lot of time and effort making sure your put portfolio is dynamic enough to actually get the insurance you want.

This is really really hard. So if I told you that you could actually buy a call on "volatility" itself, you'd be interested. This is why VIX exists. Because a lot of people liked the idea of being able to buy an option on volatility.

Now how do you, theoretically, interface with this market? Well, since you're a portfolio manager, you have either a profit target/goal combined with a broad volatility constraint, or you have a Sharpe ratio to nurse, or you have a rigidly targeted portfolio volatility (12% vol). And in order to stay between the bumpers, you want to reduce exposure as market volatility rises. You can do this in a number of ways, but they kind of boil down to two methods: There's the "DIY" method, which would be actually selling stock into higher volatility and buying into lower (which exposes you to jump risks and liquidity constraints), and there's the "pay a professional" method, which would be buying something like a call on VIX (for which you pay a premium, but which protects you from those gaps and liquidity risks).

Now let's chase down how that VIX call ought to impact the market: You buy a 25-delta VIX call. To hedge, a VIX dealer buys 25 deltas' worth of VIX futures. To hedge the VIX futures, someone has to buy a sandwich of SPX strips with the log-strike method to isolate the forward variance between the future and spot VIX. They won't do this -- they'll fudge it in whatever way their own firm economics favors (variance swaps, straddles, whatever), but regardless of what they do, they need to get long SPX volatility, and probably long skew. Long skew means buying more OTM puts than anything else, and buying more puts means having a vanna and charm exposure. Whatever dealer takes on that risk at the end of the line ends up selling some E-minis and slowly buying back those E-minis as the deltas decay.

Basically, it seems like there's a near-equivalency here between the various "delta decay" characteristics of options and VIX products, such that we can maybe explain what happens in VIX already, knowing what we know about SPX options.

But maybe we *can't*. Maybe we're missing something here. To see that this isn't quite how things work, all you need to do is look for variance-replicating strips being traded in SPX options. You see relatively little of it, and it's very "imperfect," e.g., with a lot of folks buying the 2000-strike SPX puts (as buying up a gazillion options all the time is a bit cost-prohibitive).

And then even when you get to the bottom of the food chain, in vanilla SPX options, there are unhedged risks that abound. Specifically, real volatility risk: The risk that actual realized volatility isn't going to be anything close to implied volatility. This can make the vanilla dealer lose money. This is the same risk that the portfolio manager was partially laying off in the first place by buying VIX calls. *All that hedging and alchemy* and the risk was only *slightly* transmogrified and moved to someone else's book.

That risk is fundamental. It's *beyond* deltas and gammas and vannas. And the fact that this risk is so fundamental is why you hear vol nerds talking about how "everything is volatility," or "volatility is the only asset class."

The question that we still want to answer is, why did that VIX contango from last week's tests result in SPX gains in one case and SPX losses in the other. Is this about the fundamental risk of volatility *per se*? Is it about the way the whole market positions itself with regard to volatility risk? Or is it about the way VIX products seep into the SPX complex? In other words, can what we see in VIX ever be translated fully into SPX options, or is VIX actually showing us some of those fundamental risks, without interfacing with SPX options at all?

This is a very *large* question, but it's also one we need to ask. Any volosophers out there have an answer already? We'd love to hear it.

Till next time.

The SqueezeMetrics Team
