

S&P 500 Weekly Forecast 11/29

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Hey everyone,

Last weekend, we talked about why the vanna-gamma ratio (VGR) actually works. Ironically, it hasn't been working so good over the last couple weeks, but that's a different topic.

Recap:

The customer vanna-gamma ratio (VGR) is the quantitative relationship between the vanna sensitivity (change in delta per change in IV) and gamma sensitivity (change in delta per change in spot) of all SPX option open interest that we believe to be owned in one or both directions by customers (traders, investors) rather than dealers (market-makers). Thus, these are positions that we expect to not be regularly delta-hedged, but rather to be managed at the customer's discretion. There are a lot of these positions.

[...]

... when we're looking at VGR, we're actually looking at something that tells us about the potential for a volatility squeeze. When customer gamma is only 200% more than customer vanna [*this would be a VGR of -2*], that means that the sensitivity to IVs is enormous. And that means short vol is a crowded trade simply owing to the way options are positioned across the board.

Put a pin in this.

We talk a lot about option delta, right? Actually, that's pretty much all we ever talk about. Gamma and vanna are only interesting because they are about changes in *delta*. But when people think about S&P 500 volatility, they don't think about SPX options -- they think about the VIX and VIX futures. So there's nary a conversation that doesn't eventually turn toward VIX products, and how they impact, or predict the S&P 500.

Undoubtedly, there are causal links between VIX and the index, just as there are certain arbitrage-ish relationships. Many moons ago, we would have said that, for the sake of GEX, we don't care about VIX products. VIX is about implied volatility, right? It doesn't have a delta, or a gamma, or a theta, or a vanna. But there's no denying that there's a causal link between SPX and VIX, and that in some way or another, they relate. This will be the first time we actually talk about that relationship.

Probably the best way to understand *how* they relate is by looking at SPX skew, or the "smirk." The volatility smirk represents the covariance between spot price and IV. For example, if the 1-month, 50-delta put has an IV of 20% and the 25-delta put has an IV of 30%, the market is [kinda] saying that ATM IV would rise by 10 vol points if we fall to that 25-delta strike. Since the IVs of 1-month SPX options are what VIX spot comes from, this is part of what goes into understanding the relationship between SPX and VIX. Indeed, with an ample "fudge-factor," you could even declare that VIX has a "beta" to SPX, and if there's a correlation -- even tenuous -- that means that people are trading that correlation.

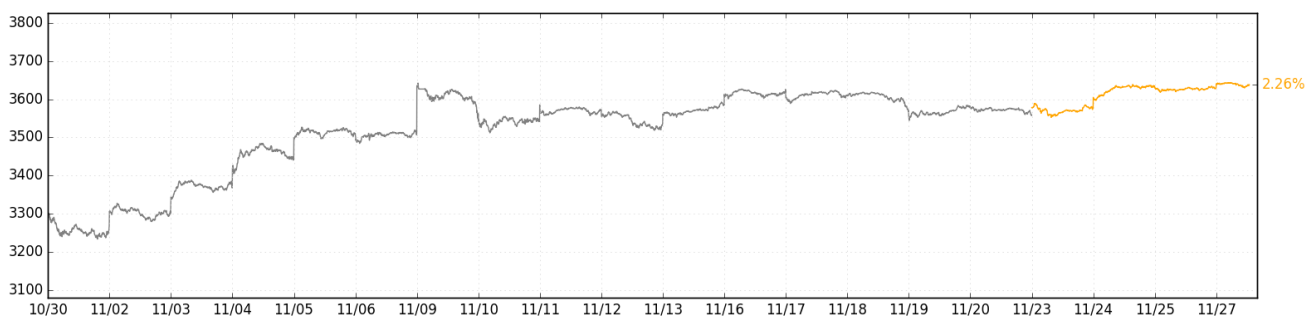
And this means that the way people trade VIX products *must* impact SPX. Isn't that obvious? *Maybe*. Since we want to learn more about how this works, let's start with a simple test.

But first...

1. The short week
2. The long week
3. VIX stuff

The short week

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%** weekly gain. Not bad for a holiday week.



But it *was* bad for us. We, who are long VIX futures, when VIX has now obtained a 20 handle. Nor would it have helped to be short gamma via a weekly iron fly. As we mentioned last weekend, there just wasn't enough premium in selling options -- and indeed, a 2.26% move in the index would have made that iron fly unprofitable.

Since you have to expect losing more than you win when you play "the long vol game," we can't be too distraught. But we can still hope for better weather ahead.

The long week

So, in addition to our other woes, something very not-funny happened on Friday, and we didn't notice until today: There is some enormous error in the Friday night Cboe data that renders several of our metrics unusable. Since it will take a few hours to work that out, let's continue to wax philosophical about VIX, and let's commit to a Monday morning update (the usual 9am thing), where we can have a quick talk about the numbers and what they mean for the coming week.

Sorry about that.

VIX stuff

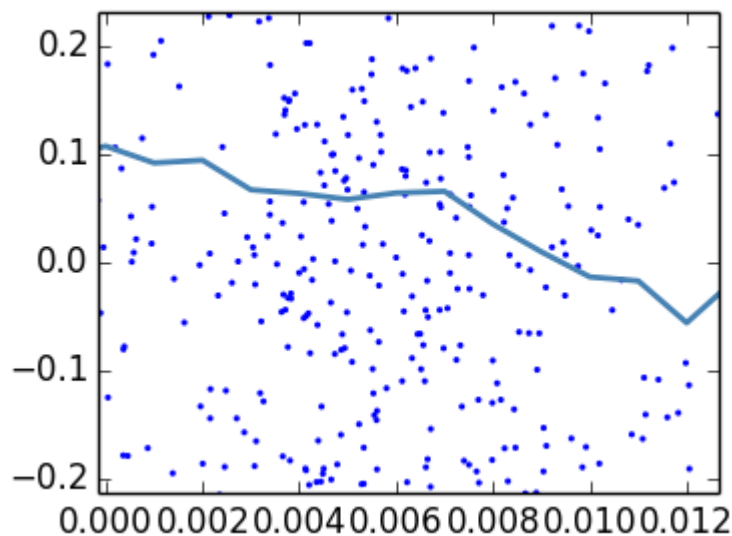
Anyone could tell you that VIX is anti-correlated to the S&P 500. At various stages of history, people insist that "short VIX" is basically the same as long SPX, or better than long SPX, or worse than long SPX. In 2017, a lot of people thought that the XIV ETN (which sold short-term VIX futures) was a magical unicorn stock, and that you were stupid if you weren't in it. A couple months into 2018, "short VIX" (re-)gained a reputation as the worst thing ever, because XIV went to zero, even though SPX didn't.

That this all goes in cycles will help us devise a test for the relationship between VIX futures and SPX

movement, because it's quite obvious that a lot of folks were short VIX futures going into 2/2018's "Volmageddon," and it's equally obvious that all those positions disappeared at once. In other words, the "short VIX" trade got blown up.

And so here's what we want to test: How did VIX futures impact SPX before Volmageddon, and how did they impact SPX afterward? The idea of being short VIX futures is that, when the curve is in contango (most of the time), you collect some kind of volatility term structure "rolldown" effect. Between spot VIX and the short-term futures, there is often a premium in "term risk," represented by the futures being higher than spot. As time presses on, the futures eventually settle to the spot price, which will often result in a profit -- unless spot goes up. When it's good, it's good. When it's not, it's not.

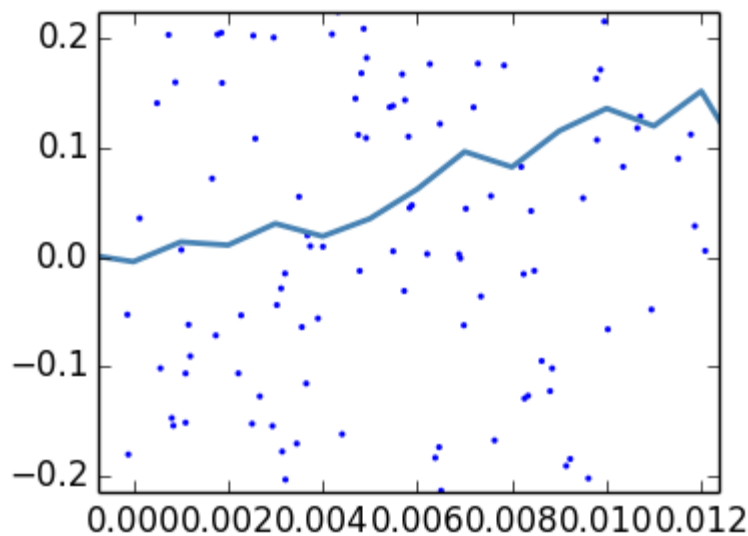
But collecting "volatility rolldown" and "term risk premium" is a sort of short skew trade, it's not directly related to gammas or vannas or anything like that. Instead, it's more a function of SPX skew and risk premium of implied volatilities. Still, we asserted above that there's obviously some correlation here, and so let's see what that means. First, here's the correlation between "contango decay" on the x-axis and 1-day SPX returns on the y-axis.



This is from data 2012 to 2018, when the short VIX trade was growing exponentially, made accessible via those big volatility ETPs. The x-axis (0.000, 0.002 ...) is denominated in "units of expected front-month VIX future decay." Let's not worry about that too much yet... the point is that as you get further to the right, that's steeper contango. The y-axis is denominated in mean-absolute deviation (MAD), which means that 0.1 is "0.10% average daily gains if VIX were 20."

In other words, between 2012 and 2018 *steeper VIX contango meant lower SPX returns.*

Now here's 2018 to present.



Same x- and y-axes, exact *opposite* relationship. Steeper contango is here associated with positive SPX returns.

Why?

If, before 2018, a whole legion of "investors" was selling VIX futures, the decay of those futures (where decay is a function of the steepness of contango) seems to have caused net selling in SPX. Once those sellers were gone, the relationship flipped, and futures' decay caused net buying.

Well, if we understand VIX futures to be at least somewhat similar to a more familiar long-skew instrument -- the long OTM put -- then it makes sense that its decay (in the case of the option, vanna or charm) would feed "long deltas" into the market, because the option dealer (who is short the put) would have to get progressively *less* short the underlying as the put loses its time value. And vice versa: A customer who is short an OTM put will cause a dealer to sell the underlying as his long put position decays.

Since VIX *contango* plays a very similar role to the time decay of an OTM vanilla put option (the futures *decay*), it seems sensible to think that the mechanism is similar.

This is just the beginning of a very long-overdue discussion on VIX. We honestly have no idea where it's headed. But first things first -- let's fix that GEX+ data.

You'll hear from us in the morning.

The SqueezeMetrics Team
