

S&P 500 Weekly Forecast 12/27

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Hey everyone,

Last weekend was story time, a *retrospective*.

The end of 2020 approaches, and it's time for some housekeeping. This week is going to be a quick retrospective, thinking about what we've learned in 2020. Next week, a prospective, looking toward 2021 and all of the unanswered questions that we still have on the table.

This weekend is the accompanying *prospective*.

So, what are our "unanswered questions?" Let's try to make a list for the new year. These are the things bothering us most right now:

1. What is the relationship between VIX, 30-day realized volatility, and VIX futures, and does *this* have any relationship with the vanna of SPX options? After all, aren't VIX products really being used as vanna products, modifying a portfolio's delta according to changes in implied volatility? Is there any standard [dynamic] portfolio of SPX options that dealers use to hedge VIX products?
2. How do VIX (and VXX) options fit into the picture? Can we derive a probability density of VIX from VIX options as we do with SPX options? Are there persistent strategic opportunities in here? What happens when we place an SPX implied density next to a VIX implied density of the same tenor? Will VIX options tell us something, directly or obliquely, about future SPX realized volatility?
3. Can we formalize a predicted probability density from NPD-VGR data, or from the RV-IV spread, or from VIX contango? If so, can we compare that density to the market-implied (VIX and VXX options) probability density? If so, can we use the Juice algorithm to find the Kelly-optimal VIX option position (combo and size) to bet on probable outcomes? If so, is there some way to simultaneously make a bet on dealer/customer gamma positioning via SPX as well as dealer/customer vanna positioning via VIX? If so, would we need to build a *three*-dimensional (rather than two-dimensional) geometric mean optimization surface and use a genetic algorithm (how *else* would you do it?) to seek out the optimal position size across two assets and their options? If so, would we find that really, everything meaningful has already been arbitrated away and that there is no practical way to find an edge by optimizing short or long volatility bets by considering both SPX and VIX options, and that we just should have been harvesting risk premia and sipping *piña coladas* this whole time?

Probably no, because *piña coladas* are gross, but other than that, it looks like we have a whole year's worth of questions to answer.

Bonus: We'd also like to be able to "triangulate" some intraday hedging bands for SPX, based on the prior day's ranges and likely delta-hedge points, since we're thinking this will come in handy for timing our long vol with a bit more precision.

But before we get back to torturing data, let's take a moment to address and marshal what we already have.

Last weekend, we said, with regard to our acronym soup of data...

Each of these bits of data has a history back to 2004, and updates every day to a spreadsheet available on the GammaVol page. Next week, we'll be writing up a "data dictionary" reference page for that spreadsheet in an effort to begin drawing together these loose threads.

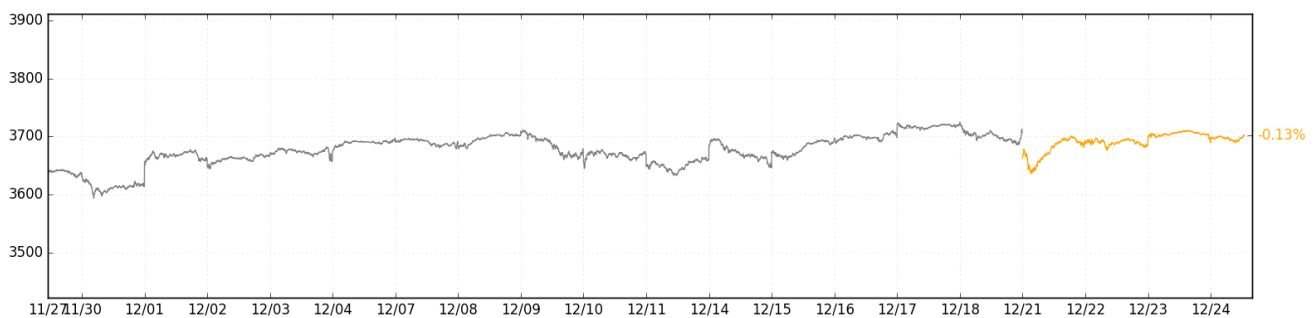
And as promised, here's that "data dictionary." Take a look. Hopefully it's presenting things succinctly. Where it leaves questions, let us know!

Moving on...

1. The holiday week.
2. Oh look, another holiday week.
3. This space intentionally left blank.

The holiday week.

SPX and VIX were both flat as a board over the course of the week. Our "long VIX, long SPX" trade worked exceedingly well -- *if and only if* you liquidated mid-day on Monday. Since we were long VIX against a 3800 SPX call to start off the week (having taken the position on Sunday night), we actually ended up taking a smallish profit on our January VIX position on Tuesday, and then... did nothing.



On Thursday, we bought *another* 3800 SPX call position (for this coming Thursday), wagering on the small probability of a melt-up, which we believed was a bit more likely than implied by market prices. Still a very low probability bet, though. Because there appeared to be no other opportunities.

It was, in summary, a holiday week. Go figure.

Oh look, another holiday week.

Obviously, we'd like it if SPX gaps up a percent tomorrow morning and makes a break toward 3800, but that's mostly beside the point.

Two things in the data interest us right now. (1) First, there's the *NPD reading of -0.94*; (2) second, there's *actually some heat* in the GEX+ heatmap.

1.

To explain the NPD situation, let's call attention to our fancy new "data dictionary."

NPD

Net put delta

The combined net customer delta of all of the day's SPX put option trades. E.g., a -20.00 NPD means that

the combined daily put activity netted out to customers buying 20 deltas of puts from dealers; and a 20.00 NPD means that it netted out to customers selling 20 deltas of puts to dealers. When NPD is in the "shallow negatives" (-5.00, 0.00), that means that customers are mostly swapping deltas with each other, and more new option positions are held without dealers as an intermediary. Since option customers, in aggregate, hedge less frequently than dealers, this increases aggregate market risk and fragility, and large moves in market volatility are likelier to occur (high vol of vol).

So we've had one day of a "high vol of vol" signal, in tandem with a VGR print of -3.56, which predicts a modest increase in VIX over the next month. Intuitively, this still doesn't feel like an "opportunity" to do anything, but with more data points, it may become interesting.

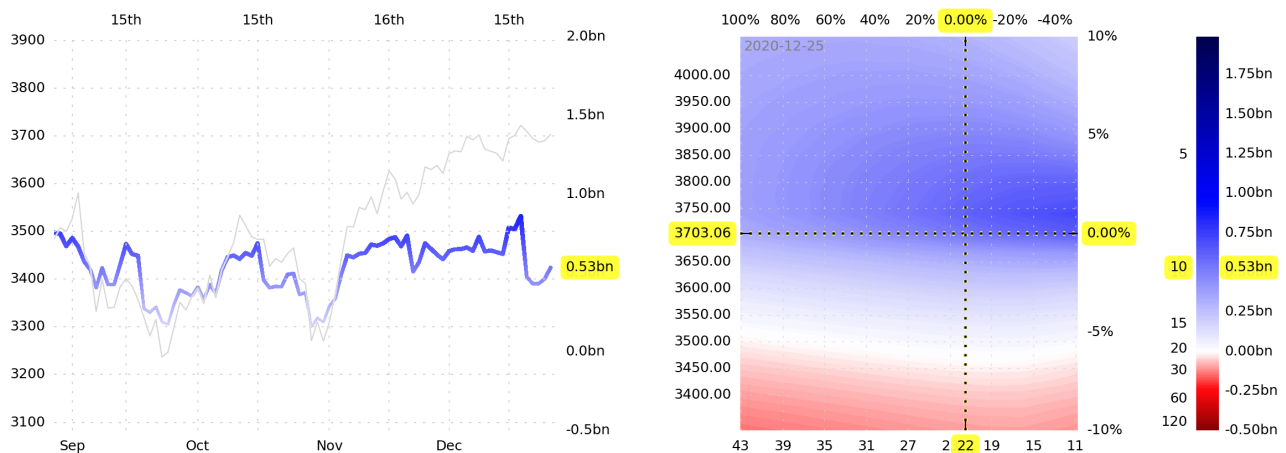
Specifically, we're wondering, recently, if one ought to wait until a likely delta-hedging band is broken (or weak) before getting into certain types of trades. Hence:

Bonus: We'd also like to be able to "triangulate" some intraday hedging bands for SPX, based on the prior day's ranges and likely delta-hedge points, since we're thinking this will come in handy for timing our long vol with a bit more precision.

What would be neat is to be able to say, "if SPX moves down 0.50% or more, a further decline becomes likely, since systematic buying from gamma re-hedges will have been spent." And this seems like it should be possible.

2.

Look! A bit of warmth in the heatmap! It's not much, but it's something.



See how, around SPX 3450, GEX+ is zero? It's been a while since zero GEX+ has even been in view. *Is this threatening?* No, not in the least. But it *is* interesting because it may signal a tiny bit of normalization in option positioning. From the heatmap colors, you can see that a drop below 3600 would actually result in around \$200mm in GEX+, which would bring realized volatility close to 15 (0.75% average daily moves), up from 10 (0.50% average daily moves).

This doesn't sound exciting, but the last time GEX+ got that low was in late October. The gamma situation has been rather boring since then. Only after the December OpEx did things get a wee bit more dynamic.

But not dynamic enough for us to get back into any meaty long- or short-volatility positions. For now, all we've got is those long SPX 3800 calls, and we're not yet seriously considering anything else just yet.

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[If there any any strong opinions on where we ought to focus our attention in 2021, or immediate insights regarding the questions we plan on addressing, please let us know!]

A very happy new year to all of the readers of this correspondence.

The SqueezeMetrics Team
