S&P 500 Weekly Forecast 8/16

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Hey everyone,

Quick update: Last weekend, we were talking about an option strike-selection and sizing algorithm that gives us the optimum spread construction and size for a given probability edge. Since GEX+ gives us a small, persistent edge in predicting future S&P 500 returns, we want to take the gamma- and vanna-implied distribution of returns and compare it to what's implied by SPX options -- then see what option combo is best to capture that edge.

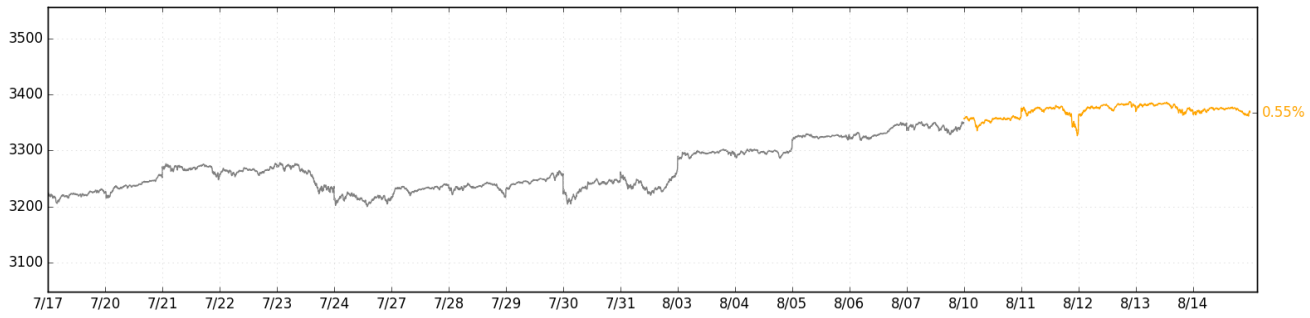
> Unfortunately, doing all of this computation in the domain of SPX options is a bit harder than in our imaginary universe of a $100 stock with a couple 1-month options. But... we know it can be done, and it's what we'll be working on this week. Hopefully, by next weekend, we'll be able to tell you what the optimal option spread is for SPX options in order to fully and accurately express our GEX+ edge.

Well, it's a pretty tough problem. Might need a bigger computer. But we *did* successfully evaluate some trades and their average rates of return, and boy is it a crazy carnival nightmare to behold.

But first (and quickly!)...

1. Aft
2. Fore
3. Out There on the Horizon

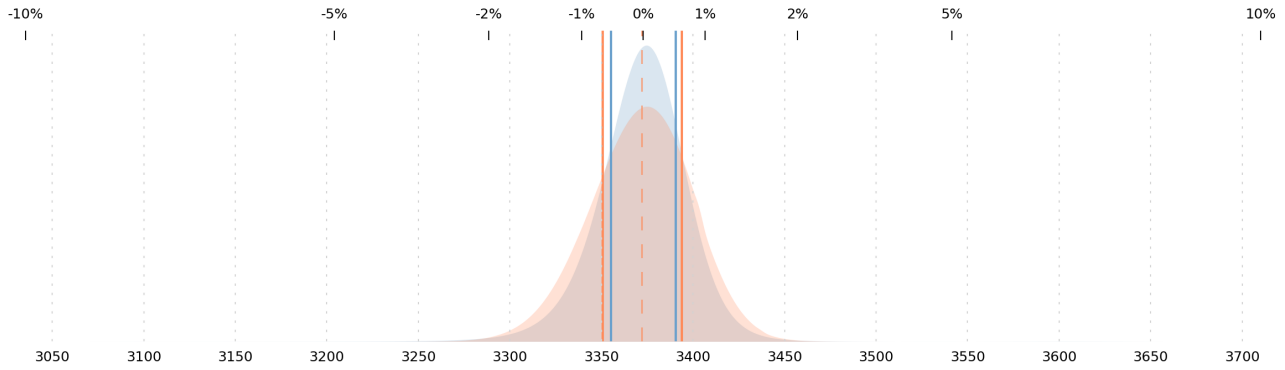
Aft
Index didn't move much. But then that's probably what you expected. We had an ITM call spread, with the long leg at 3250 and the short at 3375. Usually, when the underlying closes right at your short strike, that's a good thing. The trade did well.



Though in retrospect, the iron fly was probably still a better trade (it usually is... more on that below).

Fore

One-day GEX+ density says market's actually underpricing some of the move potential for Monday. See how the orange density is actually wider in the shoulders? This is a bit unusual -- an artifact of how low near-term vols are getting.



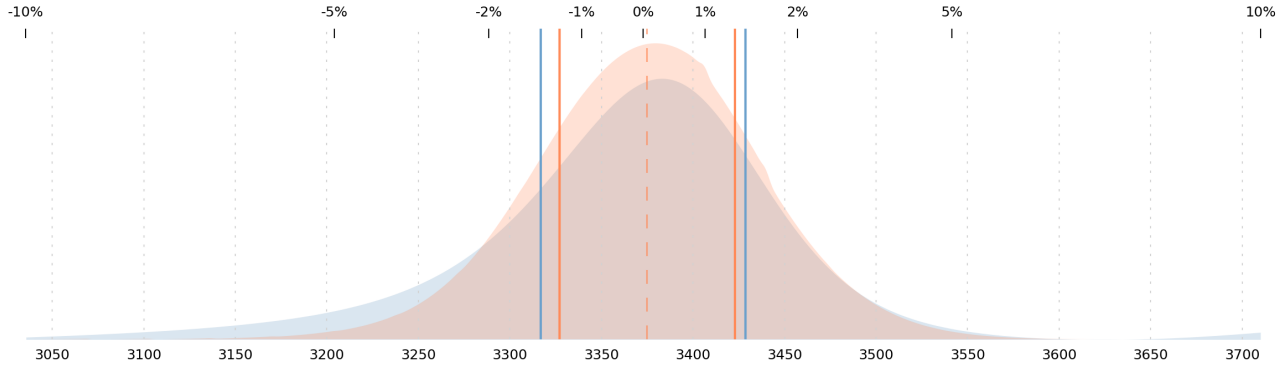
Since we're mostly active on the 1-week timeframe, though, and those densities are what we said we'd be evaluating algorithmically, let's continue that discussion below.

But first, note that everything on the SPX Risk Report is just as boring as ever. GIV around 9, GEX+ still around $700mm, and crash-risk under 1.00x. Same stuff you're used to.

The only wildcard is still a weakening DIX, but this tends to have lagged effects, so let's just keep tabs on it.

Out There on the Horizon
Some day, we'll be able to act real smug about how we're able to choose the right trade structure for a given edge, and to intuitively understand why it works. But until that day, we're going to be staring at the output of the algorithm and trying to understand how to come to terms with this insanity. Because the differences in strategy outcomes are *stark*.

So, here are the 5-day probability densities. GEX+ is in orange, and the market-implied density is in blue.



The average market participant might say something like, "the left tail is overpriced, so I'd like to sell puts where that overpricing will be most pronounced." And so they might try selling puts at 3200 or 3250 or something.

Average rate of return (ARR) of Kelly-optimal 3200-strike sold put: **-2.02%**
ARR of 3250: **-0.62%**
ARR of 3300: **+0.74%**

Got it? Selling skew and collecting very little premium is a bad trade. Slightly negative expectancy, even when it *appears* there's edge. The length of real market tails destroys these strategies. Getting closer to ATM makes it profitable.

Capping the loss, however, by selling a put spread, opens up much better opportunities by slicing off that tail, allowing the algorithm to sell twice as many contracts "safely":
ARR of 3300/3150: **+4.12%**

And that's about as good as you can do by thinking in terms of "selling puts." As you already know, we're big fans of selling flies / iron flies -- a strategy that has treated us very well in the last couple months (because it takes advantage of realized kurtosis!). The idea is that we want to collect as much premium as possible per unit of risk taken -- which almost always means you want to be selling ATM options. This is especially true because the orange density ATM is higher than the blue density above, which means that we have an edge in betting that things will end up there. So now let's evaluate an iron fly with these strikes: *3240 / 3380 / 3520*

This trade has an average rate of return of... **31.97%**. This is Kelly-betting, though, so it's placing nearly half (49.8%) of a $1mm portfolio at risk on a single trade (a 105-contracts), with an average ending account value of $1.32mm and a worst-case of $501k. Now, obviously, you don't want to risk *half* of your bankroll, but betting at some fractional Kelly still gives you an incredible return. Remember, this is a 1-week return we're talking about here. Even at quarter-Kelly, this is an **8.00%** ARR.

Hopefully it's clear why we find this exciting.

A few weeks ago, we talked about how it's very limiting to use the usual "languages" of options. I.e., PnL plots and IV skews. This is why we think that. Because when you evaluate trades using raw probabilities instead, you can optimize for your perceived edge in a way that would be completely impossible otherwise.

This outlines a whole new theory of risk-taking with options and with probability densities that describe our edge on the market. And rest assured it's something that we'll be chasing down in the coming months.

The SqueezeMetrics Team
