S&P 500 Weekly Forecast 8/2

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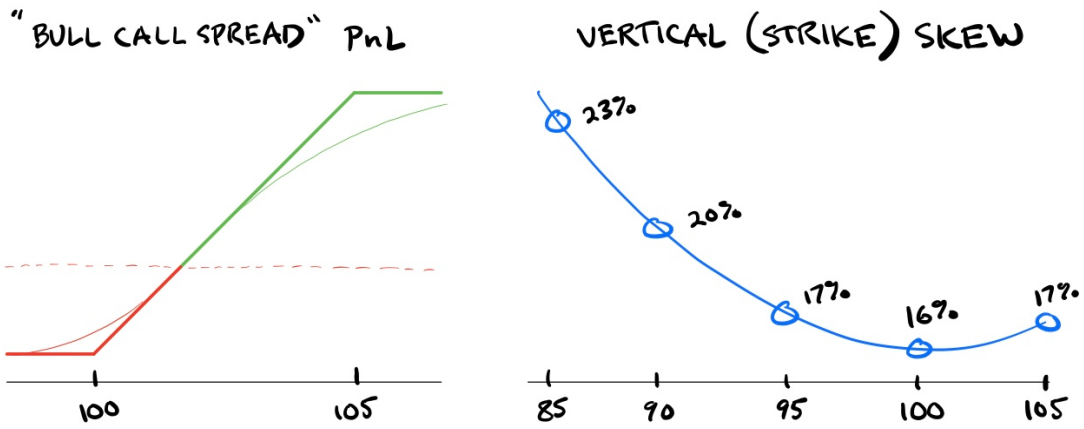
Hey everyone,

Today, we're talking about the long-awaited Probability Page.

There are two primary "languages" that you see being spoken in the world of options. The first language is the language of profit diagrams. You know, the whole, "this is the payoff of a bull call spread" PnL thing. It tells you how much you could win, how much you could lose, and maybe it'll come with some contrived statistics about probability of profit or loss. This is, broadly speaking, the language of the buy-side, or the option trader.



The second language is the language of implied volatility skews -- the language of the sell-side, or the vol trader. Skews can be either vertical in strike-space or horizontal in time-space, or they can be woven together into a three-dimensional volatility "surface." This doesn't tell us anything about the profit or loss of an option or a combo, but it does tell us about how options are priced relative to each other, and, obliquely, what the annualized one-standard deviation move in the underlying is "expected" to be (which is what an IV is supposed to tell you).

Both of these languages are vague in their own ways. The language of PnL diagrams tells you a lot about what an option will pay with relation to changes in the underlying, largely ignoring volatility; and the language of IV skews tells you more about what an option will pay with relation to changes in the price of volatility, largely ignoring the underlying. One thing that we want to be able to do is to see how option prices and volatility (vertical and horizontal), and the underlying look together, at the same time.

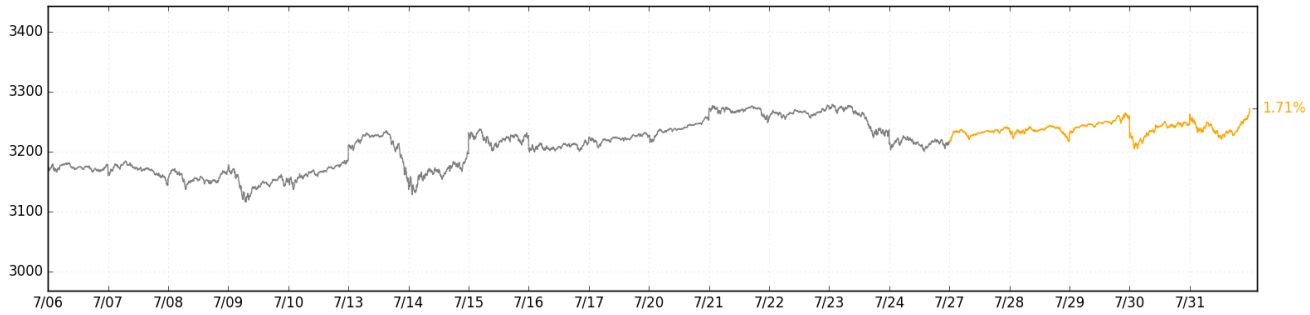
The way to do this is by finding common ground, and translating these two languages into *probability densities*.

But first...

1. Looking behind

2. Looking ahead
3. Looking dense

Looking behind
The index moved +1.71%, and for the fourth week running, the iron flies claimed a modest victory. It's been a good run.

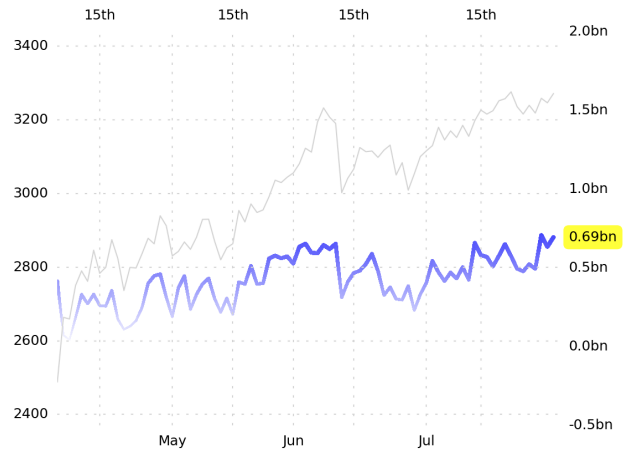


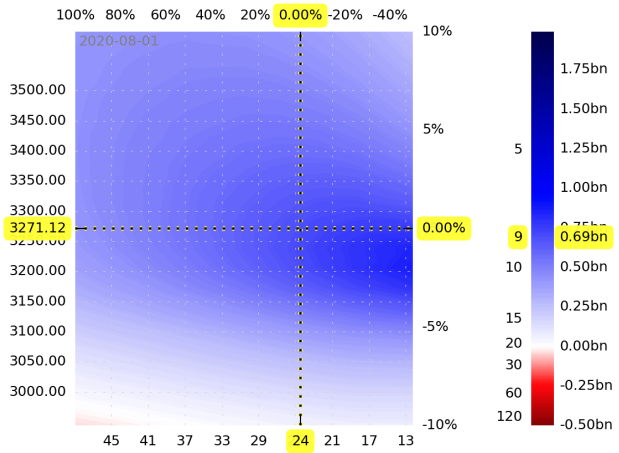
Nor did any of the supposed obstacles end up really getting in the way. Tech earnings and FOMC were supposed to derail every variety of short volatility bet -- but they didn't. The index, robust in GEX+ liquidity, found a way to soak up all sorts of event risk and dampen every move. Between event risk and natural market depth / liquidity risk, we'd rather spend more time thinking about the latter.

Short VXX did well, too, though if you recall, we reduced our size on that one quite a bit, so we can't get too excited. (And really, short VXX "doing well" is literally any day when it's *not* up 20%.)

Looking ahead
Not only is GEX+ higher than it's been in a while, but the illiquid "red zone" is now below 3000 SPX, which is over 10% away. The liquidity situation, at present, is just peachy (nor do there appear to be any latent sources of evil "shadow deltas" in VIX futures or elsewhere to trip us up).

We've been saying it nearly every day since April: Whatever you do, don't just buy puts. You want to bet on downside? If you must, make it a put spread. Make it short SPX (preferably with short VIX). Make it anything but long puts. Volatile downside has been, and continues to be, the worst bet.





Consequently, we've spent a lot of time talking about being short skew via risk-reversals, about being short VIX futures via VXX, about being short realized vol (and "long mean-reversion") by selling iron flies... etc. This

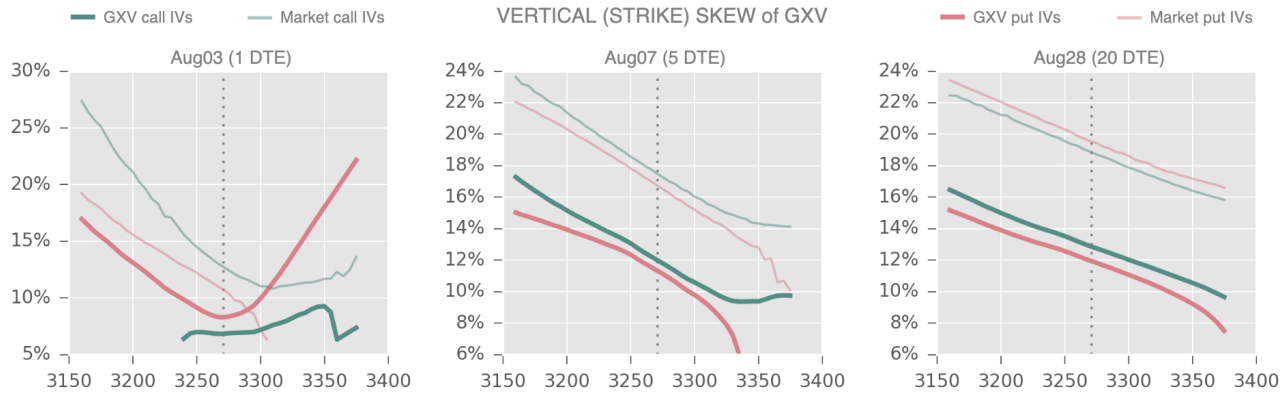
has been the ideal market for all of these things, and it looks like that's still the tendency.

However... near-term implied volatility is getting to be a bit low. If you happen to watch VIX9D (an easy benchmark for shorter-term SPX vols), you'll note that it got smooshed into the close on Friday, now with a 20 handle. This situation is making it harder to justify continuing to sell near-term volatility.

So we'll be keeping a small short VXX position, but let's consult with the new probability density data before we finalize our SPX positioning ideas for the week.

Looking dense

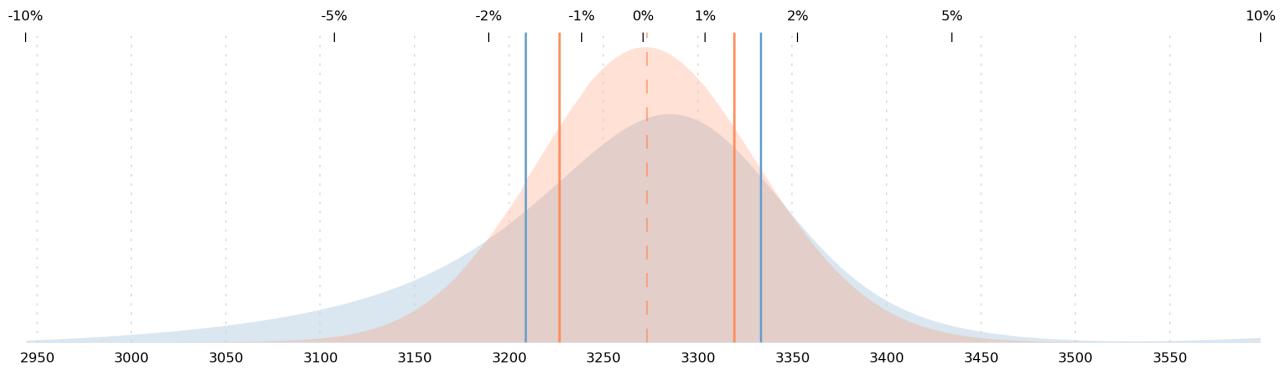
Up there, we talked about how a probability density is kind of the *synthesis* of the two primary "languages" of options: PnL diagrams and IV skews, because it tells us about what an option price and its implied volatility actually looks like in terms of the underlying. In that it synthesizes these views, we'd also say that it's, overall, a *better* language to express what an option does. But like any language, it takes time to comprehend -- especially if you started by learning a different one. The real selling point, for us, is that probability densities end up being the best way to express *edge*.



Many of you will recall that in our old "Daily Summary PDF" (which is still available for download on the GammaVol page), there were three "vertical skew" plots (see above), which took market IVs and compared them to IVs derived from historical GEX data. Thus, you were able to compare IV skew to a gamma-implied skew. At the time, this was a pretty big leap, but in retrospect, it wasn't a big *enough* leap. Think of the probability density plots on the attached Probability Page PDF as taking the next step -- converting those IV skews into probability densities so that we can *really* visualize what the option prices are implying.

And what we get to see when we do this is pretty powerful -- because we can pinpoint, and ultimately quantify, our perceived edge. What part of the distribution, exactly, are we "disagreeing" with when we buy or sell an option? Is there a better way to capture that edge?

So, as we alluded to above, here are the 5-days-to-expiration densities from the linked-to PDF.



See how the orange density (GIVs) has more going on around 0% than the blue density (market IVs)? That's what the whole month of July has looked like according to the weekly density plot we've been including every Sunday, and it's the reason we've been selling iron flies this whole month (which has turned out pretty great). But when we look at this in the context of those density plots we were trotting out before as justification to do flies -- well, this doesn't look too great anymore. Basically, the difference between the peak of the orange and the peak of the blue isn't all that big anymore.

And if you look at the *1-day* densities on the attached PDF, you'll see that, according to the gamma-implied vol distribution, everything's pretty much fairly priced. That's usually an indication that we don't have very much edge. Indeed, if you were to evaluate the plot above, the only notable difference between the distributions is that the market thinks there's a higher probability of a tail event than GEX+ does (the blue left tail). And if you were to turn this into an "actionable trade idea," it would be very boring -- the optimal position is probably a covered call (or long ITM calls and short ATM calls).

Where before we thought that we were getting paid enough to justify selling ATM options, now that the near-term vols are lower, things are just overall more fairly priced. Buying a Friday call around, say, 3150, and selling a call around 3300 exposes you to that apparent mispricing on the left side of the distribution *without* exposing you to the right side, for which we appear to have no edge whatsoever (blue and orange agree on probabilities of upside).

If this sounds kind of boring, it should. Where we felt that we had some decent edge before, now we see that over the month of July, it's deteriorated as IVs have come down. (Fortunately, we made hay while the sun shone.) And that means that we'll probably want to see a meaningful uptick in near-term vols before we get back on the iron fly wagon.

Before we wrap up, think about the 3150/3300 call spread idea in the context of the 5-day densities again. The 3150 long call is betting that the market is overemphasizing the likelihood of getting *below* 3150, and the 3300 short call is betting that the market is fairly assessing the likelihood of ending *above* 3300. This is basically pinpointing the area where the orange density is taller than the blue. See why that's cool? *Direct* expression of edge. (Well, it gets more complicated from there, but this feels like a good start.)

The Probability Page PDF will be downloadable on the GammaVol page starting on Tuesday morning before market open.

Have a lovely week!

The SqueezeMetrics Team
