

S&P 500 Weekly Forecast 4/5

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Hey everyone,

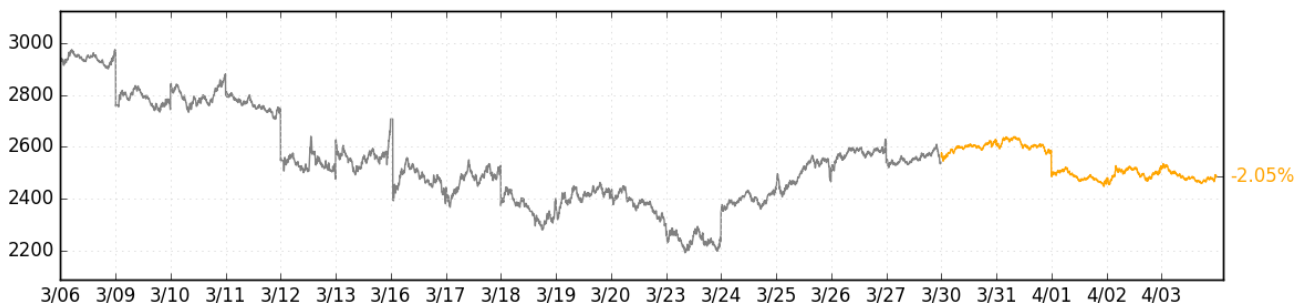
First, let's talk about this past week, Then the new data. Finally, a forecast from that data.

Week in review

The simple takeaway from *last* week's note was that we thought the market would be *less volatile* on a 1-week basis than implied by option prices, and that the trusty old iron fly would be a winning trade as a result.

So if we were to derive a pseudo-VIX from [the new GEX], it'd probably be more like 35. Which is still a whole lot lower than VIX right now, which is pricing in a lot more movement at 65. In any case, our advantage here seems to be that we believe that volatility potential is lower than the market suggests -- though we believe that there's a very very steep skew. Taken together, short 1-week ATM options, with long OTMs (another iron fly scenario) seems reasonable.

A volatility of 35 is the same as saying a 1-week *average move* of 3.93%. VIX at 65, meanwhile, was implying a 1-week average move of 7.30%. The index ended up with a 1-week move of 2.05%. So, we think we were right to bet against vol this time.



Sneak-attack nerd note: "Average move" is the same as saying mean absolute deviation (MAD). You can derive a mean absolute deviation from a standard deviation in a Gaussian world by simply multiplying by 0.7978. There is pretty much no reason not to do this -- standard deviations are not a useful interpretive tool, despite that fact that we all tend to use them by default. What we really want to know is the "average move," not the "point at which 68% of observations are, um, arbitrarily inside of this band." So, here's your warning that we're going to be trying to use MAD to describe forecasts. If you don't like that, too bad, you're wrong. And if you need more "authority" on this subject than an online cartoon lemon can offer, try this.

Anyhow, the week ended up being pretty tame compared to what options implied. But IVs ultimately converged a lot with realized over the course of the week, with VIX falling nearly 20 points to a 46 handle. And that's what sets the stage for the coming week (*cue tense soundtrack*).

But before we try forecasting, we need to talk about data.

New, new data (GEX+)

Yesterday, we sent out new data. *All* of the new data is now based on the "dealer-directional open interest" (DDOI) model, which flags SPX option trades as "bought" or "sold" by customer, and then extrapolates a gamma and vanna exposure therefrom (GEX and VEX). So the numbers you see there (even GEX) will be different from anything you've seen before -- we've completely done away with the naive underlying assumption that "all puts are bought and all calls are sold."

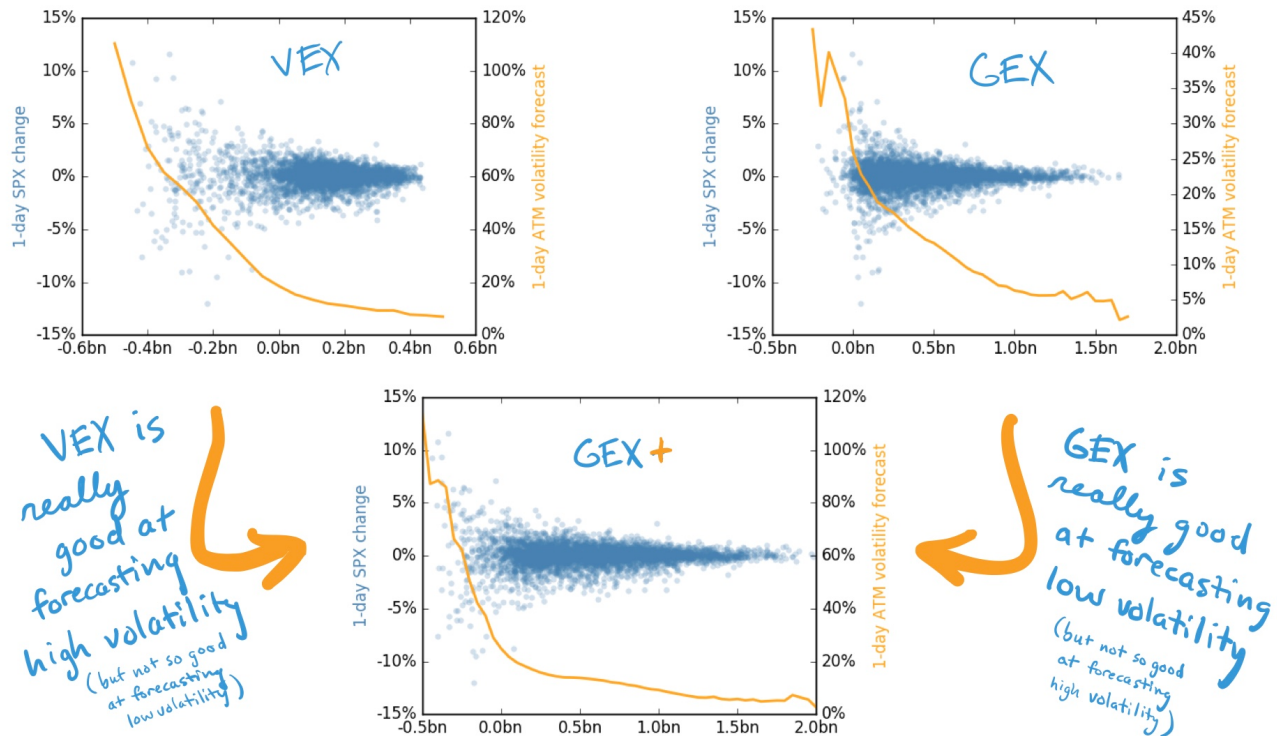
The first thing you might notice in the data is that GEX very rarely turns negative. Sure, it goes to zero, but it's unusual to see it go lower. This is because (as you probably knew already) a lot of people are selling SPX puts in some form or another. The "short vol" trade (short VIX ETPs, short variance, put underwriting, weird autocallables, etc.) is big, and a lot of that risk ends up in short SPX puts. Often, this offsets the usual demand for long put protection, especially once the market has already taken a beating and folks have "monetized their hedges."

But GEX+ *does* turn negative (hopefully, you're ok with calling the new GEX+VEX number "GEX+" for now), and it turns negative due to the influence of VEX, which measures, just like GEX, *how many dollars would have to be bought or sold into a 1-point rise or fall in SPX*. For clarity -- a VEX of +\$0.5bn means that we expect a 1-point drop in SPX to be *bought* to the tune of half a billion dollars, and similarly, a 1-point rise in SPX to spur the *selling* of half a billion dollars. That's a stabilizing effect. And when VEX is negative, it's like when GEX is negative -- buying into a rising market and selling into a falling market. Fuel for volatility.

VEX is an *objectively* smaller force than GEX, but its incremental effects have a *huge* impact on the market when it matters most (i.e., when GEX is zero). You know how we always had a bit of trouble forecasting when GEX went below zero? VEX was the missing link in this analysis.

Some of you Greeks nerds have asked: "Vanna is the sensitivity of delta to implied volatility. It's not related to the movement of the underlying (like gamma is), but rather to the movement of implied volatility. So how can we say that VEX is like GEX? How can we simply 'add them together' when they're measuring different things?" Ok, good question. The answer is, "We can't. But we did anyway." Why did we do it? Because daily implied volatility and spot price, in the case of the S&P 500, are rather intimately connected, such that there is a persistent (1%-to-10%) relationship between change in spot and change in IVs. Using this relationship, we translate vanna exposure into the numerical domain of GEX, such that we can add them together directly, dollar for dollar.

Ok, enough talk. Just look what happens when we add the new GEX and new VEX together.



See that VEX, on its own, can't provide a vol forecast lower than ~8%, but it *can* forecast up to 100% vol. Meanwhile, GEX can't provide a vol forecast higher than 40%, but it *can* forecast down to 5%. They're like peanut butter and jelly -- *meant* to be together.

So, when both exposures are smashed together, you get the delicious *cumulative* effect of dealer delta-hedging, which provides forecasts from 100% vol all the way down to 5% or less. And by golly we can't help loving that the final result tells us that when GEX+ is zero, that's *still* the point at which volatility really starts ramping up. Because that's exactly what you'd *expect* should happen.

Hopefully that helps explain where VEX is coming from, and why it's cool. Now on to the next part.

A forecast

Right now, GEX+ is **-\$186mm**. That implies a 1-day ATM volatility forecast of 48%, but it also implies a flat skew, so a VIX-comparable derivation would also be around 48. With VIX9D and VIX both in the 46s, we'd say that volatility is overall pretty fairly priced by the market, if a tad low.

The one little place that we see a trade here is in skew itself, on just about any timeframe. The market believes that there is left skew, i.e., that the mean downside move is bigger than the mean upside move. This is true of the index in the vast majority of cases, but it is *not* true right now. The advantage, then, is in buying any underpriced strike (strikes above the market) and selling any overpriced strike (strikes below the market).

This is the kinda the playbook scenario for a risk-reversal.

The reason why a risk reversal is so called is because it reverses the "volatility skew" risk that usually confronts the options trader.

But there are infinite other permutations of spreads and delta-neutral arrangements that a trader could bolt together to express their opinion. Maybe adding some ATM long puts to the risk-reversal for a three-legged strategy and less delta? You get the idea. Last week was a good time to be short realized vol. This week is a

good time to be technical, with a tighter leash on risk.

Three housekeeping notes:

1. As of today, the Premium subscription is closed. So don't invite your friends.
2. The old GEX computation will be renamed to "GXO" ("GEX-old") over time, unless someone has a better idea for a name.
3. We'll be updating you as quickly as possible with where to get up-to-date data, charts, etc.

May the wind be always at your back.

The SqueezeMetrics Team
