S&P 500 Weekly Forecast 4/19

From: SqueezeMetrics <info@sqzme.co>
To: SqueezeMetrics <info@sqzme.co>
Subject: S&P 500 Weekly Forecast 4/19
Date: Sunday, April 19, 2020 8:59 PM
Size: 343 KB

Hey guys,

It's been about a month since we said we'd be rushing to bring out the long-awaited GEX 2.0 for the S&P 500. It was a necessity -- since if we were indeed on the cusp of a long-awaited bear market, GEX needed to adapt to it. It needed to adapt not only to the effects of dealer *vanna* (delta sensitivity to changes in IV), but also to the reality that customers change their favored option strategies over time, especially when circumstances dictate. And right now, circumstances are indeed dictating.

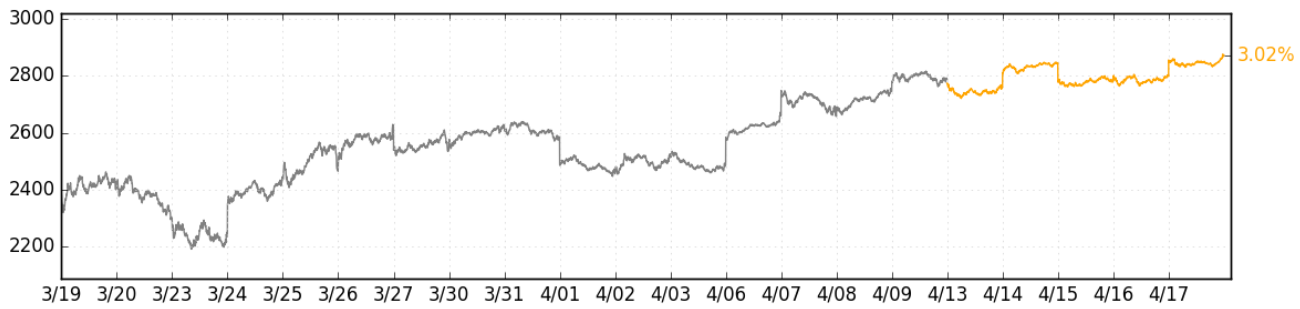
That meant tossing out the original GEX assumptions ("all calls are sold, all puts are bought") and digging into transaction-level data to discover who's buying or selling what, where, and when -- all the way back to 2004. But this research, performed with the intention of improving our GEX forecasting abilities (and it did!), always had... ulterior motives as well. And that's what we're going to talk about in a moment.

Le thème du jour:

1. Week-in-review
2. Forecast
3. Ulterior Motives

The past week
...was fascinating. On the one hand, the week underperformed (as expected) its implied volatility -- the 2790 straddle could be sold for around 100 on Monday morning, and it realized more like 85.

But on the *other* hand, those overnight gaps were insane, and threw us off. And on the *other, other* hand, intraday realized volatility was super tight, in keeping with what you'd expect from GEX+ (which forecasted sub-1% ranges every day). As we mentioned during the week, it's not unusual to see option dealers "allow" overnight gaps, since they actually profit from them whenever GEX is positive (dealer long gamma).

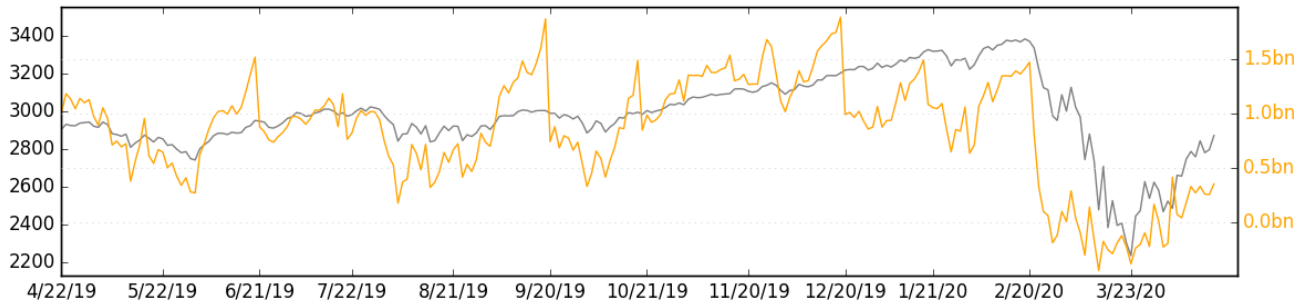


In any case, the thesis that there was no real "risk" for the week -- and that VIX being overpriced would confer a margin of safety -- seems to have worked out. All we got was a mean-reverting drift, with a leg up

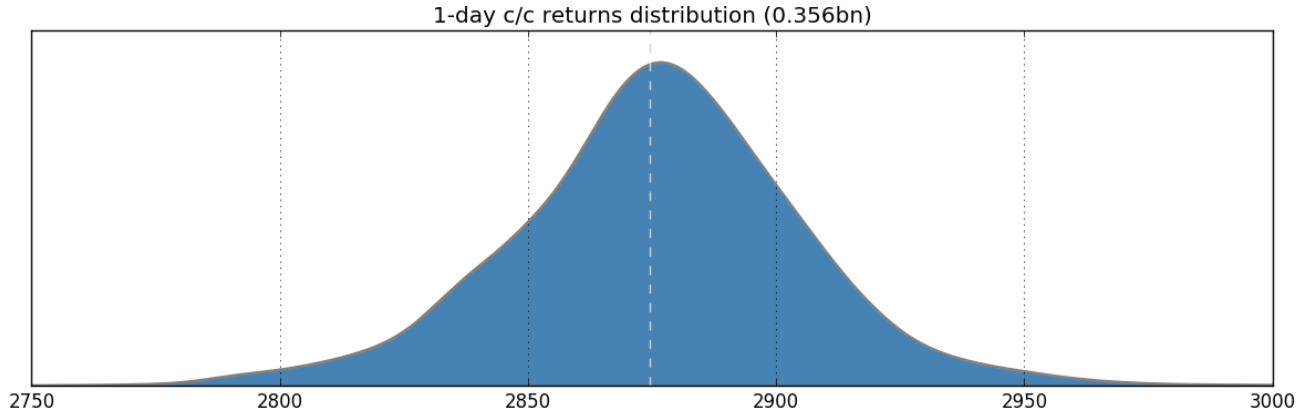
into the close on Friday.

A forecast

Speaking of Friday, the big monthly OpEx didn't do much of anything to change the gamma/vanna landscape, nor did we expect it to. GEX+ closed at **$356mm**, just a smidgen higher than where it closed last week (the slight change is owed to vanna, not gamma).



The implication is that we are entering another week very similar to last. And the GEX-derived numbers bear that out, with an average daily move of **0.80%** expected.



Meanwhile, VIX is implying 1.90% average daily moves. Like last week, if huge overnight gaps continue to occur, close-to-close volatility will certainly move a bit closer to VIX's estimate -- but we expect to see relatively muted intraday movement and a modest mean-reverting tendency regardless. Because that's just the dealer gamma/vanna situation right now. And that means we still like our iron fly spreads.

Nerdy forecast postscript: Right now, the combination of GEX and VEX is saying that a one-point rise or drop in SPX will result in about $356mm in liquidity provision (i.e., selling into a rise; buying into a fall). But as we've mentioned before, when dealers are net long gamma, they love overnight gaps, since that means they get to take a profit. This ends up being a sort of prisoner's dilemma, whereby all *option dealers benefit if* all *option dealers fail to take early profits on gaps (allowing price to stay where it gapped to); and whereby a dealer who takes profit first and hardest (especially in the illiquid premarket) damages the rest, since he causes mean-reversion, and eats into the others' profits. Clearly, the market has found a sort of symbiotic middle path, because you don't see a mean-reversion race in premarket -- but you* do *see a calm pattern of volatility-stifling delta-hedges during cash hours. This is a fascinating phenomenon, whereby dealers essentially protect themselves -- collectively -- from gamma-sellers (and don't even hurt their customers in the process!). Just something to noodle on.*

Anyway, take a quick breather, because now we're going to expand a bit on last weekend's "Grand Theory."

A Grand Theory + Ulterior Motives

Volatility is the cost of liquidity. If that doesn't make sense immediately, just keep reading: We know that volatility is the cost of liquidity because when liquidity is abundant, VIX is low; and when liquidity is scarce, VIX is high (empirically). We also know that volatility is the cost of liquidity because S&P 500 volatility *has* to be a good gauge of liquidity (logically) -- if option prices don't somewhat accurately represent the costs of replicating the payoff of an option (which requires lots of liquidity-taking in the underlying when you delta-hedge), then all option dealers will go out of business. It therefore *must* represent the cost of liquidity, and reasonably well.

Last weekend, we started fleshing out the idea that "real" risk is when volatility is mispriced.

> In other words, *it's when options are too cheap relative to* real *volatility potential when true risk arises.* "Risk" is the underpricing of volatility, not volatility itself.

This is fire-in-a-crowded-theater risk. Crash risk. *Break risk.* It's the risk that the market could temporarily fail to match buyers and sellers, because things are broken. This *break risk* arises *only* when the market fails to accurately assess its own conditional supply and demand of and for liquidity. When some exogenous event arises, but "liquidity is better than we had expected," that's not very scary. When something happens and "liquidity is much worse than we expected," that's scary, and it's bad for almost everyone -- because everyone pegs their leverage ratio to volatility (in one way or another), and when the volatility forecast is wrong, you get mass deleveraging into terrible liquidity.

This is why when we saw VIX at 40 last weekend, but we thought it *should* be more like 20, we said things were "safe." Because nothing was going to break. And that's because liquidity was (and is) better than the market was thinking. Why? Because when GEX+ is positive (as it is right now), option dealers -- the single largest source of S&P 500 liquidity -- are "making" liquidity rather than "taking." *Only when* GEX+ is negative do dealers become net liquidity takers. You experienced that recently.

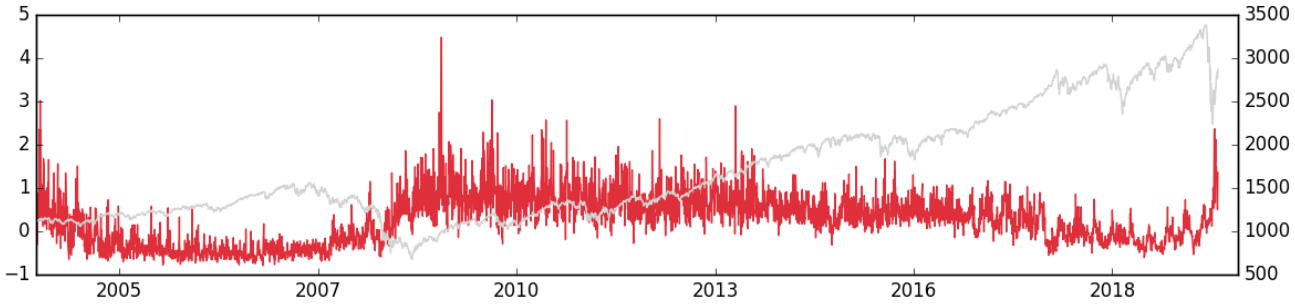
When does GEX+ become negative? Only when VEX becomes negative. On its own, we now know that GEX can't *ever* get all that negative, because not all puts are actually sold, and high implied volatility always pushes put gamma effects back toward zero GEX. So, when does *VEX* become negative? Primarily, when there are *tons of dealer long puts above the market.* Why? Because when dealers are long tons of puts above the market, they are hedged with long SPX, and any increase in IV causes the delta of the ITM long put to go down, and the delta going down forces dealers to delta-hedge by *selling* SPX -- which means that all volatility naturally and necessarily self-reinforces when dealers have lots of long puts struck above spot.

[Breathe.]

How does it come to be that an option dealer ends up with lots of long puts above spot? Well, for one, a *lot* of customers have to have *sold* those puts. And they probably sold those puts when they were 25 delta, and are now nursing sizeable losses with >50 delta short puts and unlimited loss potential. And now for the icing on the cake: If customers decide to buy back the puts, they force the dealer to re-hedge by selling his entire long SPX hedge position all at once. Cue more liquidity taking and "necessarily self-reinforcing volatility."

So, knowing that negative VEX is the main source of market *break risk*, and that customers' being underwater on lots of sold puts is the best way to get VEX solidly negative, then we reason that, for a really nasty market break to occur, customers need to be caught red-handed selling puts. Indeed, we'd expect all truly nasty crashes to precipitate from customers being, in one way or another, short puts.

And so when yesterday, we finally queried the database for this chart, we had a nice, long, evil laugh.



This is the daily ratio of SPX puts, bought to sold. I.e., "1" means 100% more puts bought than sold, and "-1" means 100% more puts sold than bought. The two worst crashes in recent market history ('08 and '20) were preceded by a huge movement toward selling puts. The crashes themselves then spurred put-buying (forced or otherwise), which eventually led to (and, to some degree, caused) subsequent stability.

Why is it that customers selling puts ultimately leads to market breaks? Let's quote ourselves from a few paragraphs up:

> [...] if option prices don't somewhat accurately represent the costs of replicating the payoff of an option (which requires lots of *liquidity-taking* in the underlying), then all option dealers will go out of business. It therefore *must* represent the cost of liquidity, and reasonably well.

The only reason for option prices to be "correct" is because when an option dealer *sells* an option, he is now short gamma, with an unlimited, concave risk that can only be hedged by taking liquidity. With the prospect of needing to take liquidity to hedge, the dealer must accurately assess the cost of liquidity across many scenarios and sell the option at a fair price, or with a slight premium.

But when it's the *customer* that's selling the option, the onus of the concave, limitless risk (and the contingent liquidity-taking need) is on the customer. Typically, customers aren't thinking about this. To the extent that they're thinking about the price of volatility at all, they're thinking about whether the premium received will help them reach their immediate investment goals -- not whether they are accurately considering the contingent liquidity needs of the entire market, and whether the price was "fair" in that context. Nor will the dealer complain.

Risk thus accumulates in the hands of the unhedged masses over time, and a mess of performance anxiety and bandwagoning push the trade further, pressuring more investors to forego put protection and wade out into the water. It's extra ironic because sold puts add to positive GEX, and decrease *felt* volatility -- while subtly adding real systemic risk to the market. Get in, the water's fine!

So yeah, that chart above is some of the insight we were hoping to get by going even deeper down the GEX rabbit hole. This was our Ulterior Motive. It's also the beginning of a compelling framework to robustly measure true systemic risk -- "break risk" -- with not only the dealer's market exposures, but also the *customer's* exposures, in mind. Right now, those exposures make us think that volatility is temporarily overpriced, and that the market is safe from that break risk. I.e., if the market wants to go down right now, it will do so in a more orderly fashion (is anyone short VIX, short SPX at the moment?)

We see lots of crazy implications here, and there's a lot more to explore. Let us know if you have questions, or are seeing something we haven't. Premium is still closed to new subscribers. GEX+ data is still updating every morning on the GammaVol page. Pre-open note continues on Tuesday.

Have a lovely week.

The SqueezeMetrics Team
