S&P 500 Weekly Forecast 5/31

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Hey everyone,

> If the SPOT (delta) and RV (gamma) components of the vol-tension model are described reasonably well by GEX already, then what about the IV (vega) component?
>
> In other words, how do we add the IV component to GEX? How do we take GEX and add another dimension to it, to include the impact of IVs? Not the impact of IVs on option deltas (VEX already did that), but the impact of IVs on GEX itself.
>
> We have an answer. It's a simple, one-word answer. And by golly we'll be excited if it works. Because if it does -- if our vague hunch is correct -- it means we've had a very powerful edge in single stocks and ETFs that we've been overlooking for years.
>
> We'll let you know next Monday.

The answer is "zomma." And yes, it works.

Zomma is the sensitivity of gamma to changes in implied volatility (DgammaDvol). It's a third-order Greek. It's not very popular, because not many people really need to worry about their portfolio's zomma. But for us -- looking at all option open interest at once -- it's plausible that this third-order Greek actually tells us something about what's going on in the market.

Last weekend, we were wondering if zomma was actually what we were looking for all along when we hypothesized the idea of a "vol triangle" and a "vol-tension model." By extension, "zero zomma" would be a condition where an increase or decrease in IVs would have *no impact* on aggregate market gamma (and, by extension, no impact on market liquidity).

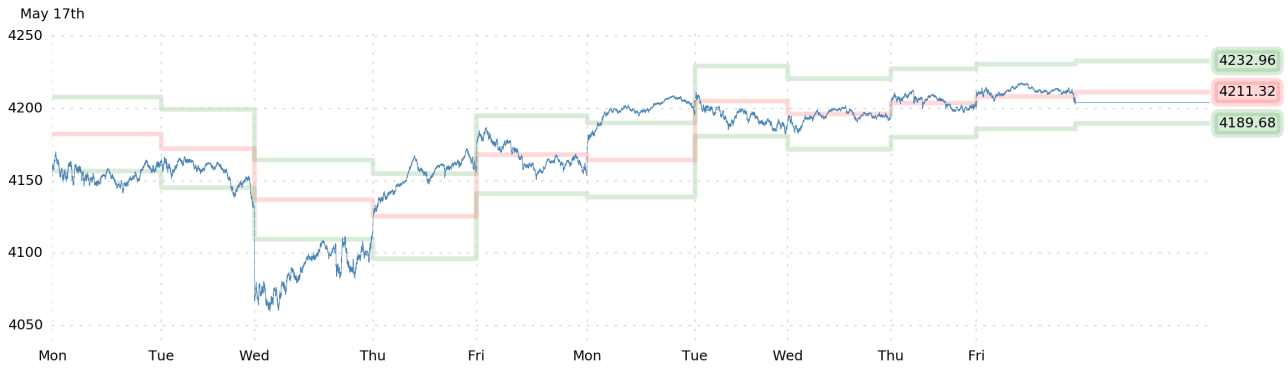
This "zero point" of zomma, where the natural tie between underlying liquidity and IV (which is the price of liquidity) is momentarily severed, is *exactly* what we were looking for when we started talking about vol-tension: It would give rise to high vol-of-vol. In other words, "zero zomma" is the same as "zero vol-tension" -- it's when the rubber band between IV and movement in the underlying is broken. *It's when fun stuff happens.*

Let's talk more about fun stuff. But first...

1. The long week
2. The short week
3. Tesla zomma (fun!)

The long week

It was a five-day week, but by golly it felt longer. Our only position, a 100-wide iron fly struck at 4150, barely eked out a profit with a weekly SPX settle at 4204.

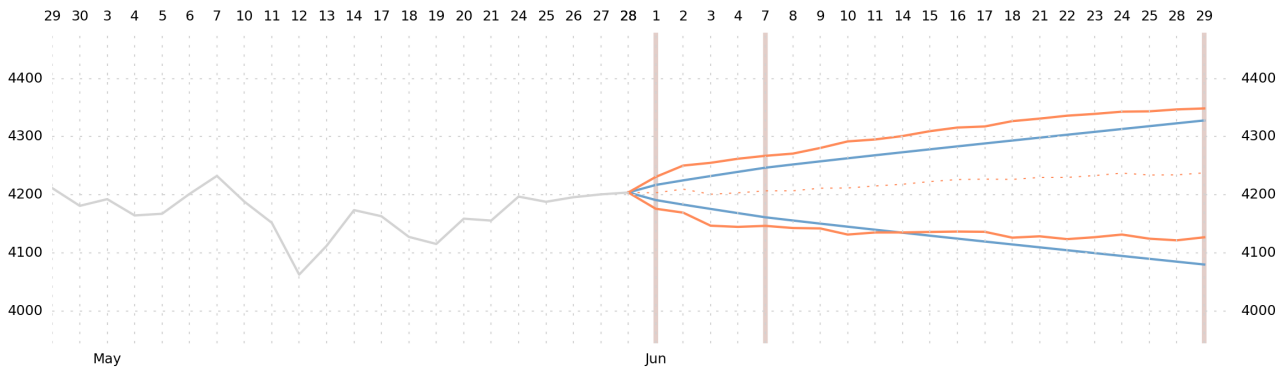


The SuMo bands provide some great context here on just how tight the daily ranges were. It was very boring.

And yes, like we said on Friday, we got into a small long SPX, long VIX position in response to IVs being so low. And we already got lucky on that with a ramp in vols (see VXX) into the Friday close. We'll see if that continues.

The short week

A whole week of no volatility can really pull down on near-term IVs. The current disconnect between IVs and GEX-implied volatility (GIV) is pretty significant.



So if there's an increase in realized volatility to the upside, we intend on our long SPX component outperforming; and if there's an increase in realized volatility to the downside, we intend on our long June VIX outperforming (vega has been outperforming on dips). And if SPX wants to drift upward, we intend on June VIX having difficulty falling in tandem, since it's already so low.

However, while VGR is [gently] predicting an increase in VIX, NPD isn't really giving us any "long vol" vibes. So the stars aren't totally aligning on this trade, and we may have to change it up if it doesn't start working for us. Hence the "small" position size.

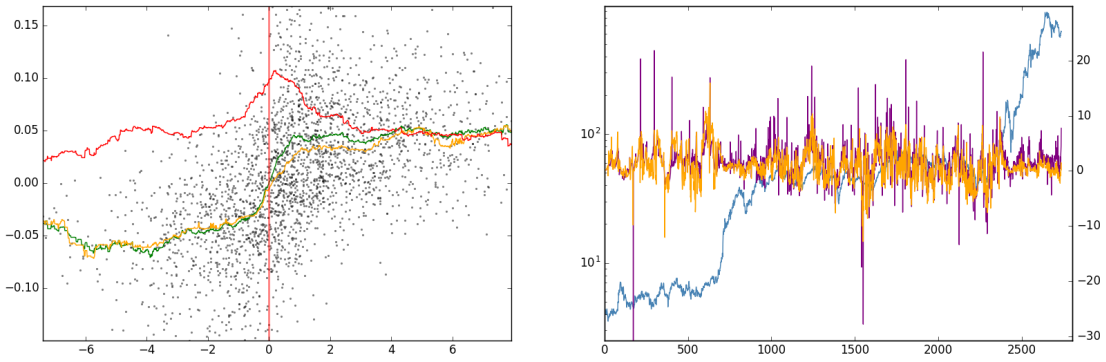
We'll see.

Tesla zomma (fun!)

Forget about dealer positioning, DDOI, re-hedging, vanna, and all of that sophisticated-sounding stuff. What we're testing right now is an extension of the vol-tension model, which seeks to be a naive accounting method for whether long delta, long gamma, and long vega are winning or losing, and what that means about what the stock is likely to do in the future. The idea of using zomma / DgammaDvol as a convention to approximate this vol-tension model is just that -- a convention that we think could be very useful.

In other words, the fact that this is effectively an extension of the original GEX model is little more than an accident. But perhaps a happy accident. To emphasize the fact that this is not meant to be an assumptions-driven dealer re-hedging model, we're going to look at Tesla (TSLA), which is universally understood to be an insane stock with a dumpster fire of an option market. Can our zomma-based vol-tension model tell us something about where and how Tesla (of all things) moves?

And so, without further ado, here's a scatterplot (left) of zomma to 1-week TSLA returns (data 2010 to present):



At zero zomma (vertical red line), volatility and vol-of-vol are extremely high, as evidenced by the standard deviation of returns (horizontal red). I.e., the red line is highest there (high vol), but also drops quickly as zomma rises and falls (high vol-of-vol).

Above zero zomma, returns are extremely bullish (3-5% weekly gains on average). *Below* zero zomma, returns are extremely bearish (3-7% weekly losses). Green line is mean returns, orange is median.

Get the idea?

To understand a bit better what positive and negative zomma actually *means*, first let's just declare that GEX is a proxy for current liquidity. Higher GEX means more liquidity (recall that higher GEX means tighter ranges), and lower GEX means less liquidity (*vice versa*). This is not new, but it's worth restating.

Now imagine what happens to GEX *itself* when IVs rise or fall. Usually, a rise in IV brings GEX -- whether it's positive or negative -- closer to zero (makes it less significant). Similarly, a drop in IV pushes GEX *away* from zero, emphasizing it. Since GEX spends most of its time in the positives, a drop in IV is usually making GEX more positive -- i.e., increasing liquidity. *It makes sense* that a drop in IVs be coincident with improvement in liquidity. *This is a "positive zomma" scenario.*

But it doesn't always work this way. When zomma is *negative*, that means that a drop in IV actually *deteriorates* liquidity, which is bad for the underlying price. This goes against the usual spot-vol covariance, and this is why negative zomma is bearish -- because there is an inverse tension between spot price and implied volatility, and they lose their strong negative correlation. Unusual, and bearish.

As for why *zero* zomma can result in high volatility and volatility-of-volatility -- imagine that IVs are completely disconnected from liquidity in the underlying. Vols can go up a ton, or down a ton, and the liquidity in the stock doesn't change. Similarly, the underlying can move up or down a ton without prompting IVs to respond. There is no natural tension between them when zomma is zero, and so no natural demands one to impact the other.

Basically, zero zomma is where the market skips a beat. It's where liquidity and the *price* of liquidity become completely disconnected, if only for a brief moment. And this, not coincidentally, is the same thing as "zero" in our vol tension model, and the same thing as our mystical 60-60-60 equilateral triangle. It's a liquidity air pocket, and it means that a lot can happen all at once. It's also the magical barrier and demarcation point between vol regimes, and at least in the case of TSLA, knowing where it is seems... useful.

Hopefully the scatterplot spoke for itself, but in case it didn't:

1. The Premium subscription is closed.
2. Please do not share this yet.
3. We will be prototyping this and ignoring everything else. Please be patient.

By the way, AAPL has zero zomma right now. This is associated with -2.00% mean weekly returns and elevated variance. And TSLA is just above zero, which predicts 0.00% mean weekly returns and lots of potential variance. Very fun.

Enjoy the short week!

The SqueezeMetrics Team
