S&P 500 Weekly Forecast 10/17

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Hey guys,

Last weekend, we walked through an event-driven backtest of Robot Jim's trading signals in the S&P 500. It was very good. Hopefully, the last couple weeks of Robot Jim's forecasts have helped make that performance more believable. The combination of DIX, GEX+, NPD, and VGR data—seen through a robot's eyes—seems very useful.

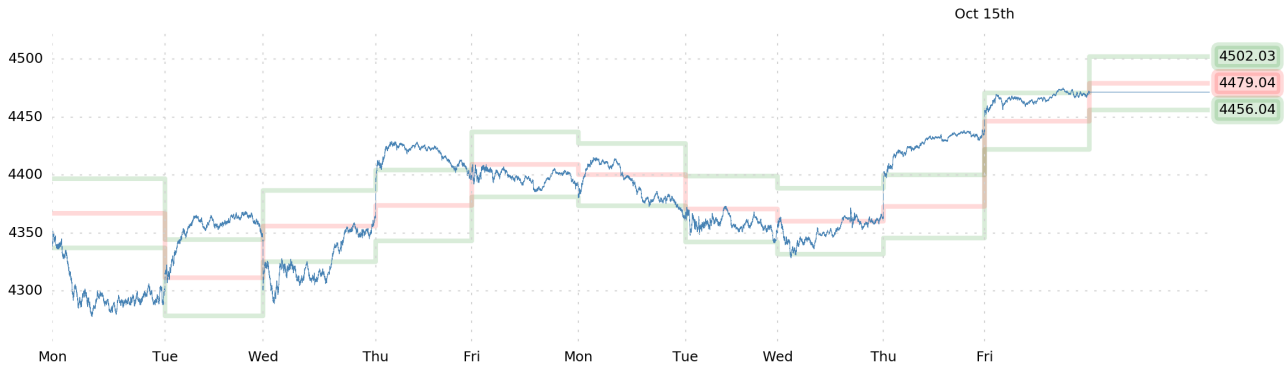
Recall that Robot Jim is nothing more than a few lines of code that create, index, and search for historical returns on a four-dimensional scatter plot. He's not a sophisticated machine-learning algorithm or "neural net." He's just an old-school robot.

Today, let's talk about what old Jim sees, not when he looks at the index—*but at single stocks.*

But first...

1. Weekly
2. Weakly
3. What Jim Sees

Weekly
You already know the story of our call spreads. It's a story with a happy ending.



So let's just reiterate that we de-risked on Friday. If you recall, Robot Jim was feeling pretty neutral about the next week, so we didn't want to hold on to our call spreads any longer.

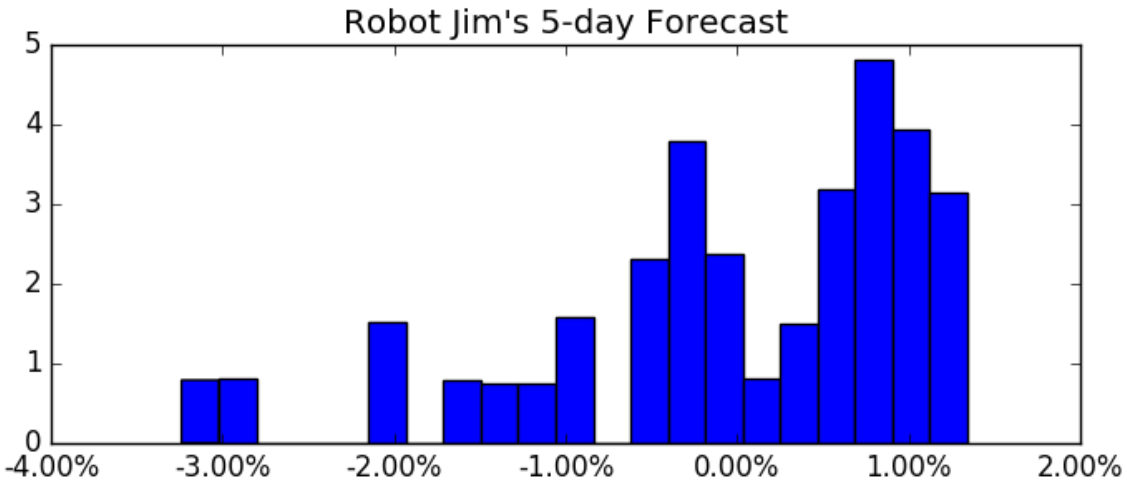
> [Jim's distribution] has a mean 1-week return of essentially 0%. So let's take his word for it and lay off the risk for now.

Right now, we have no position.

And we're happy about that...

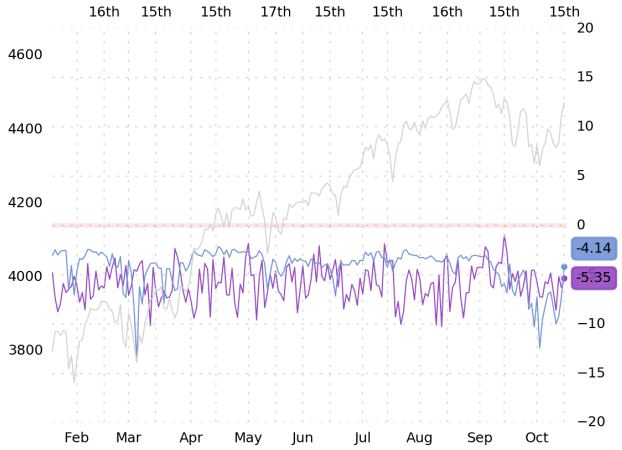
Weakly

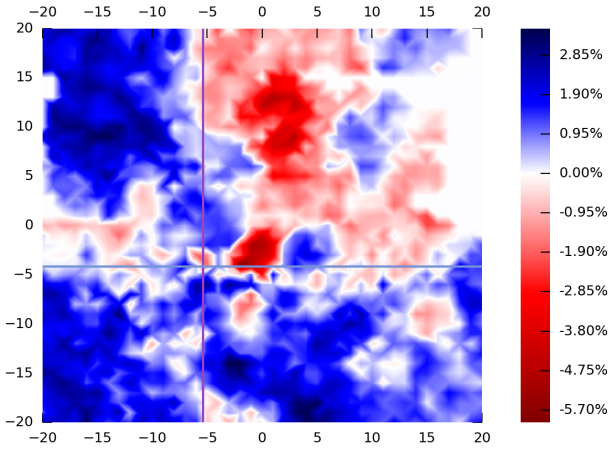
...because Jim still isn't feeling like taking risk. Here's the weekly forecast (Friday-to-Friday):



That's a mean gain of 0% and a median gain of 0.20%. It's not exciting, and it's not a situation where you want to be long the index itself. Arguably, an ATM call spread is still a decent trade, but not by a lot.

Where's the risk coming from? Well, it's not DIX, which has been rock solid, and it's not GEX or VEX per se, which are now high enough that the immediate risk of a left tail event is lessened. Rather, it's back to NPD and VGR.





As you can see from the NPD/VGR heatmap, we're back near some bearish coordinates, with both NPD and VGR back around -5. This isn't a bearish signal on its own—especially in light of the strength elsewhere. But it's not the easy default bullishness of last week, either.

So our bet is on an uninspiring week. What'd be *perfect* is a quick "bear trap" early in the week, which would bring VGR lower, and back into bullish territory by default. I.e., a buyable dip. Then, after that, a frustrating,

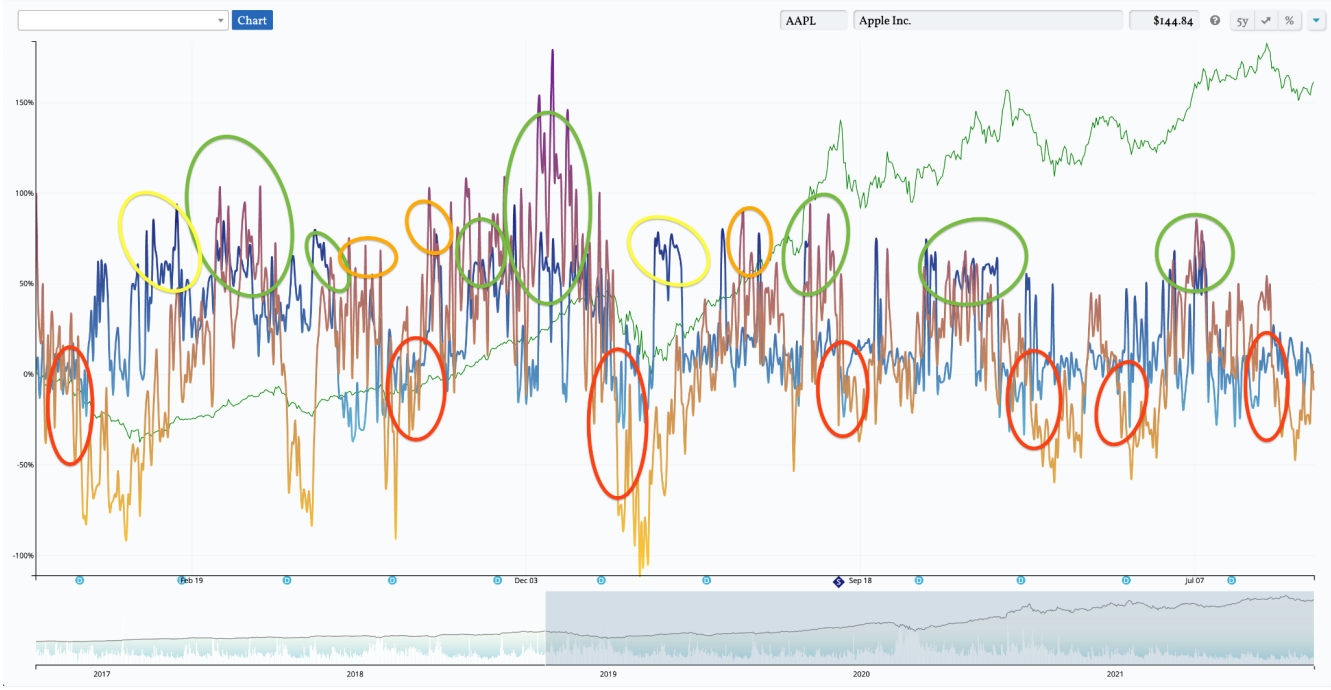
low-volatility drift through to Friday, leaving SPX only marginally higher on the week.

But we'll see.

What Jim Sees
In the S&P 500, we've pretty well established that DIX, GEX+, NPD, and VGR are distinct, valuable signals. That's what gives us the confidence that, when they're all viewed together on a single, four-dimensional plot, they're going to produce something useful.

And we feel pretty good about that.

But in single stocks, we've always had more of a struggle. Sure, when we look at charts of stocks like AAPL, we readily see patterns in the old DPI and GEX data—but only by spending an awful lot of time looking at the chart. For instance, this is what our brain automatically does when we glance at a chart of AAPL DPI and GEX:



- *Green:* High DPI and high GEX. Super bullish!
- *Yellow:* High DPI alone, pretty bullish.
- *Orange:* High GEX alone, pretty stable.
- *Red:* DPI middling to low, GEX middling to low—bearish!

To us, this is quite clear—*but we've also been staring at this chart non-stop for the past six years.* So we've had quite a bit of practice in recognizing patterns. To anyone else, this probably looks like the work of a madman.

But even our moist, pliable human brain has its limitations here. For example, we note that while GEX (roughly) tends to be higher when volatility is lower, DPI has no such relationship with volatility: So, we wonder, what happens if we parse *DPI by changes in volatility?* This is pretty much impossible to do visually on this chart, but we can be nearly certain, intuitively, that there's a difference between a low DPI in a calm

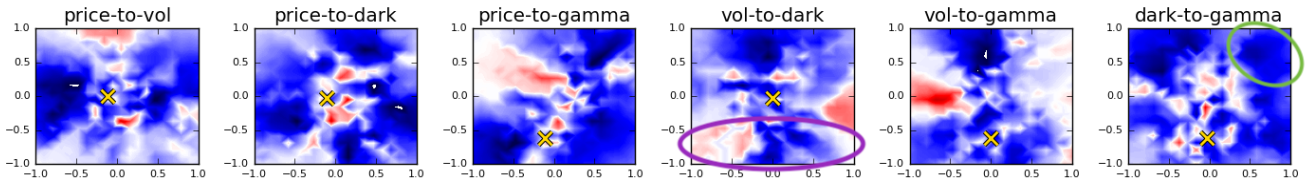
environment *(folks calmly selling shares)* versus a low DPI in an increasingly volatile environment *(desperate selling? capitulation?).* They're just going to be very different things—so might they have different effects on future returns?

When we squint at the plot and try to figure this out, though, we can't quite see it. Our brains don't work that way.

This is a job for Robot Jim.

So, to figure this out, we give DPI, GEX, *and* AAPL's PIVT coordinates (i.e., the stock's historical 1-month volatility-normalized returns and the stock's 1-month volatility-normalized change in volatility) to Robot Jim. This will put DPI and GEX in the context of returns in AAPL spot and vol, and will allow Jim to consider *each of these four dimensions at once*: Change in price, change in volatility, dark pool short volume, and naive call-put gamma exposure.

Here's an approximation of the subsequent 1-week returns that Robot Jim "sees" when we feed him all this data, where all of the dimensions are displayed pair-wise to reduce the multidimensionality of the problem, and returns are plotted by color. Blue is bullish and red is bearish:



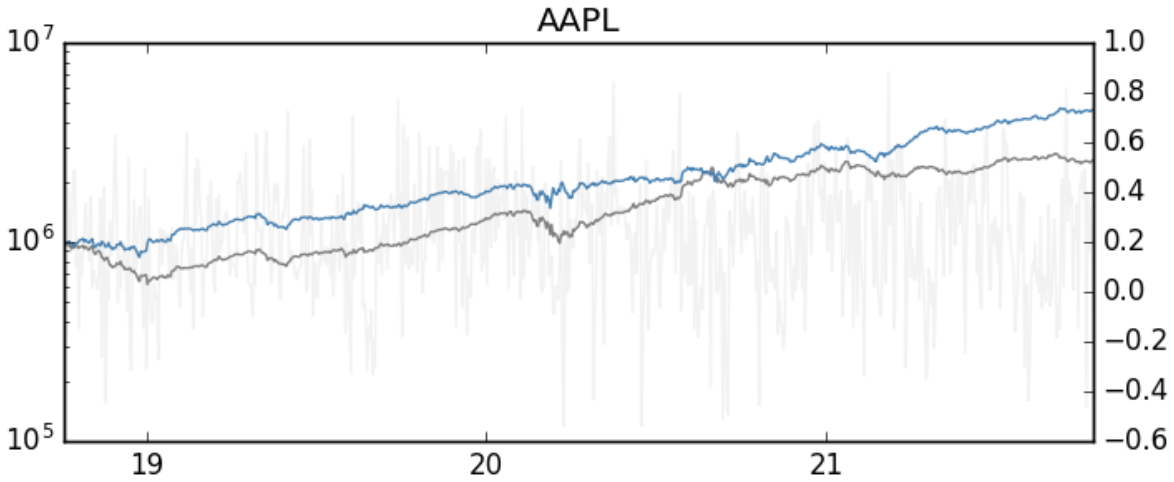
Remember how, in the above, we claimed that high DPI with high GEX was super-bullish? We've circled this area in green in the heatmaps above. Robot Jim heartily agrees with us, showing us a big, consistently blue bull-blob.

Remember, also, how we were wondering what would happen when DPI was low, but movement in volatility was indeterminate?

Well, we circled this area in purple. Note how it's very split—when volatility is falling *and* DPI is low (bottom-left of map), that's really bearish (red stuff), presumably because it means people are quietly selling a lot into a still-calm market. But when volatility is flat to rising and DPI is low, that's just business as usual (it's mostly blue). We can hypothesize that the selling represented by low DPI is "correctly" reflected in the flat-to-rising volatility, which is why it's *not* bearish—whereas when DPI is low *and* vol is still falling, that means the dark selling hasn't impacted price yet—but it will very soon. At least this is the explanation that makes sense to us.

The cool part about those heatmaps, though, is that our naive chart observations were only just scratching the surface. There are all sorts of unexpected bull/bear patterns in there that we simply weren't seeing on the chart—and that's exciting.

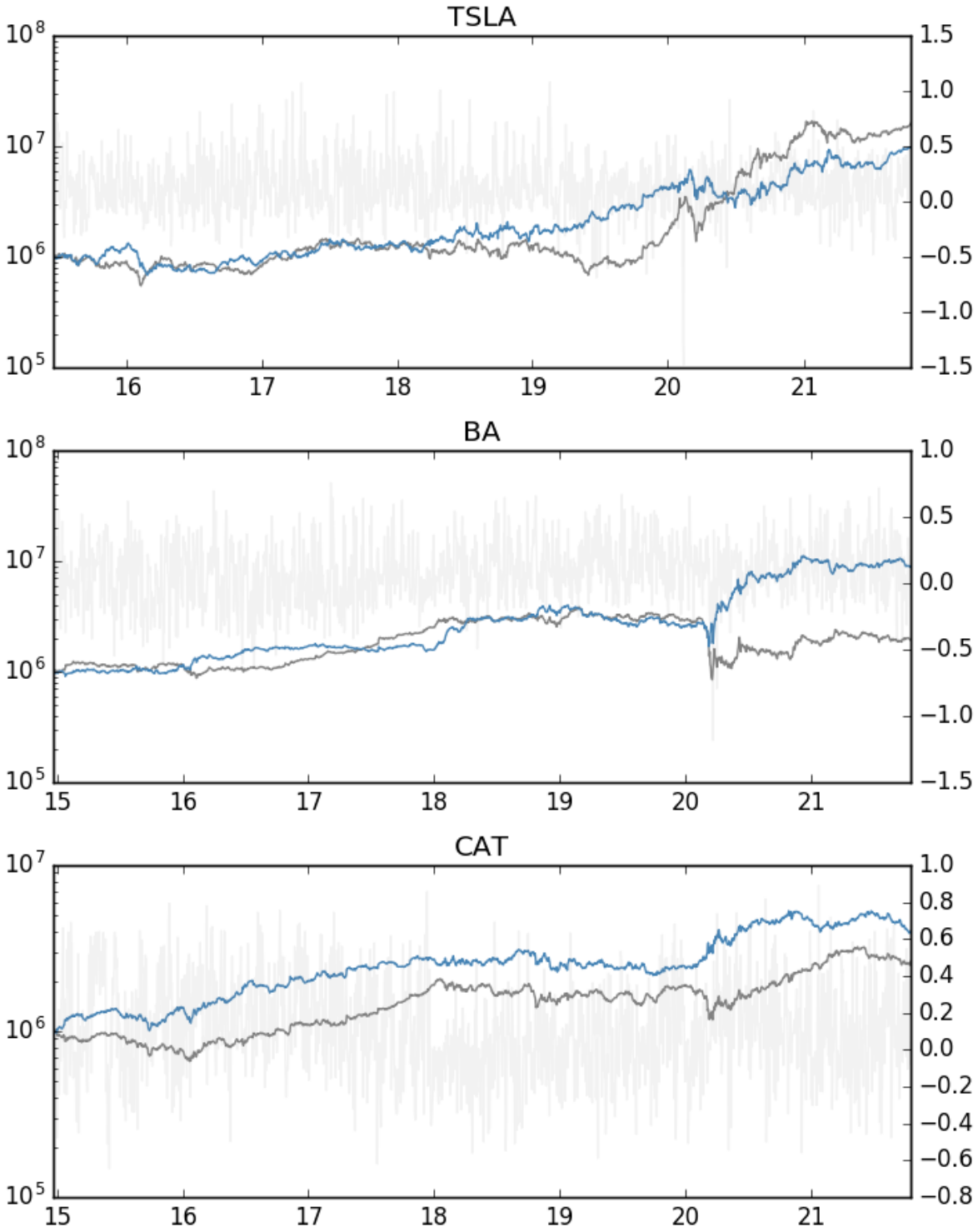
But enough *blah-blah* hypothesizing—let's generate these heatmaps, point-in-time, for *every day in AAPL's history back to 2010,* and then try to run a backtest on the period of data displayed in the AAPL chart above—the one that we drew all over. Will Robot Jim be able to outperform a buy-and-hold strategy with a simple, binary, close-to-close 100% long / 100% short signal?



The answer is yes. A portfolio of $1mm ended at $2.6mm for the buy-and-holder, but $4.6mm for Jim, and with a *beautiful* equity curve to boot. Remember, there is NO leverage being applied to the strategy in the above test. That's crazy.

We've been complaining for months now that we've been using the PIVT plots *(username blank; password "YachtClub")* with substantial success—when consulting them in a discretionary manner, alongside our usual DPI and GEX plots. Yet we could never quite reproduce that success in a PIVT backtest. It always fell short of the mark.

So instead, we handed the whole dataset over to Jim and told him to do all the work we were doing with our mushy brains. And he produced something uniquely valuable.



We've expressed in the past that the computation required to generate the PIVT plots was already taxing our hardware and algorithmic savvy. This new stuff is going to be even worse. But if you, dear reader, are willing to be patient with us, we will be doing our darnedest to incrementally roll out this new method—*Robot Jim for single stocks.*

Next weekend, though—before we get completely lost in the weeds (as we are wont to do)—let's recap and clarify some stuff. What's PIVT again? Why does it make sense to use? How does Robot Jim actually do what he does? And, like, *what* are we even doing with this data; and *why* do we expect it to work? And what's the Overarching Theory?

That'll be fun.

In the meantime, enjoy the week!

The SqueezeMetrics Team