



SPOTGAMMA

February 2020

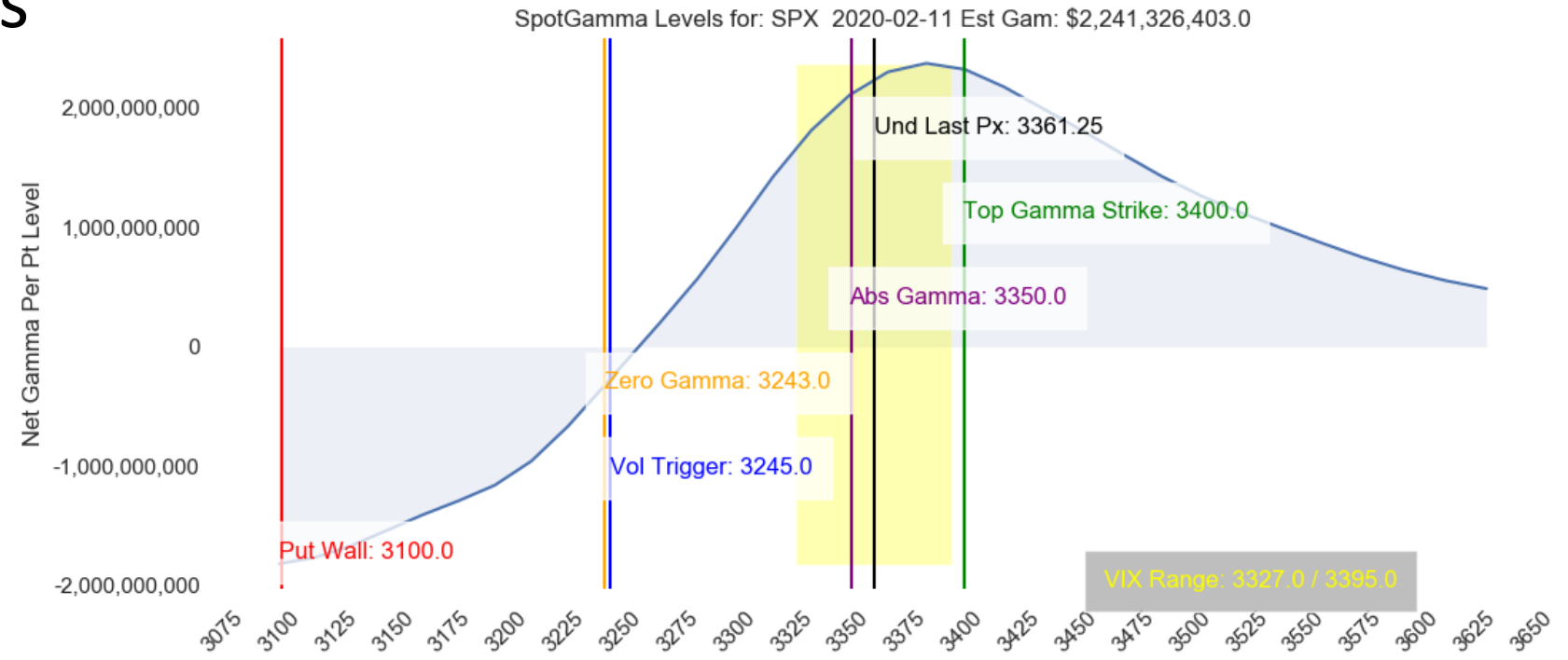
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Options Based Market Signals



1. Total Market Gamma
2. Call/Put Walls



What Is Market Gamma



At its core, market gamma is the study of volume.

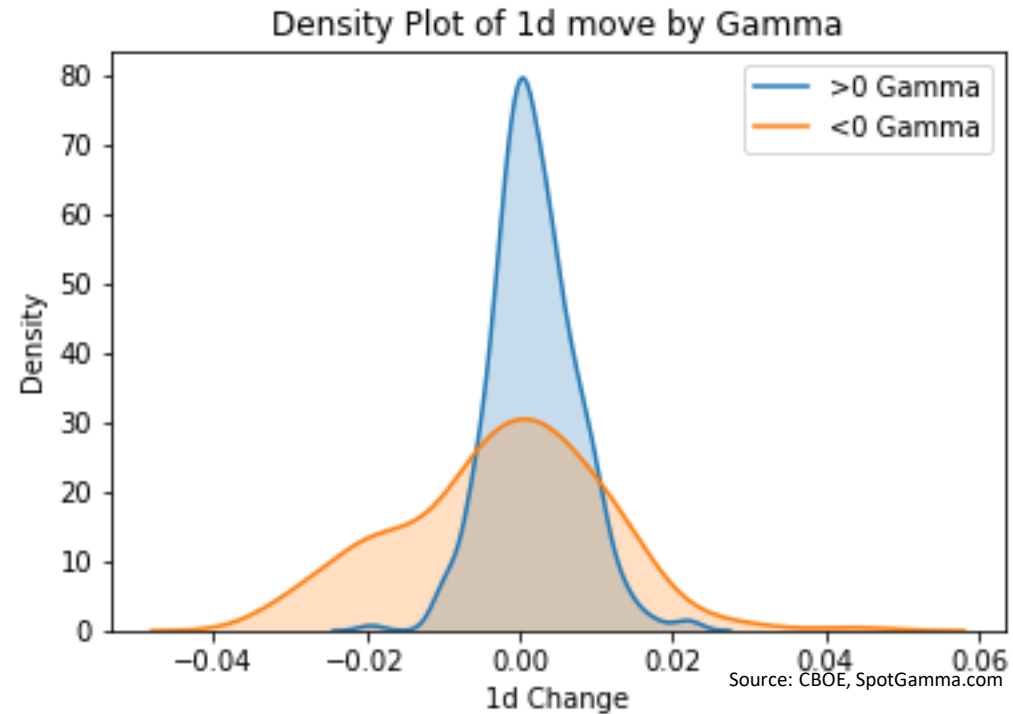
Key Questions:

1. How much volume will options players produce?
2. Are they long or short gamma?

Volatility in Gamma Regimes



- Market Gamma can be used as a predictive measure of S&P price distribution.
- Higher Gamma = Lower Dist.
- What are options pricing vs Gamma?



Why the S&P 500?



- The S&P500 is the largest index in the world with an estimated \$9.9 Trillion indexed to it.*
- Derivatives of S&P500 Index:
 - SPX
 - SPY
 - VIX – Futures, options, ETN's (VXX, UVXY, etc)
 - Futures (ES, Micro, etc)
- These derivatives all arbitrated – tied to the S&P Index

Source: <https://us.spindices.com/indices/equity/sp-500>

S&P500 Options Market Size That Big?



- Huge open interest with large notional value
 - On 1/7/20 there was 14mm contracts with ~\$8bn in delta
- Options dealers and volatility players must constantly hedge/rehedge their books based on:
 1. Option Flows
 2. The price movement of S&P
 3. Volatility movement of S&P
- This creates a large, constant source of liquidity in the markets – primarily in ES (E-mini's)
- Market Gamma seeks quantify the dealers required notional hedge size for a given move in SPX

Basic Gamma Model Assumptions



- All puts are BOT from dealers. Dealers are SHORT puts and must then hedge by SHORTING futures
- All calls are SOLD to dealers. Dealers are LONG calls and must then hedge by SHORTING futures
- Effectively they are long SPX collars (short put, long call)

SpotGamma Price Bands

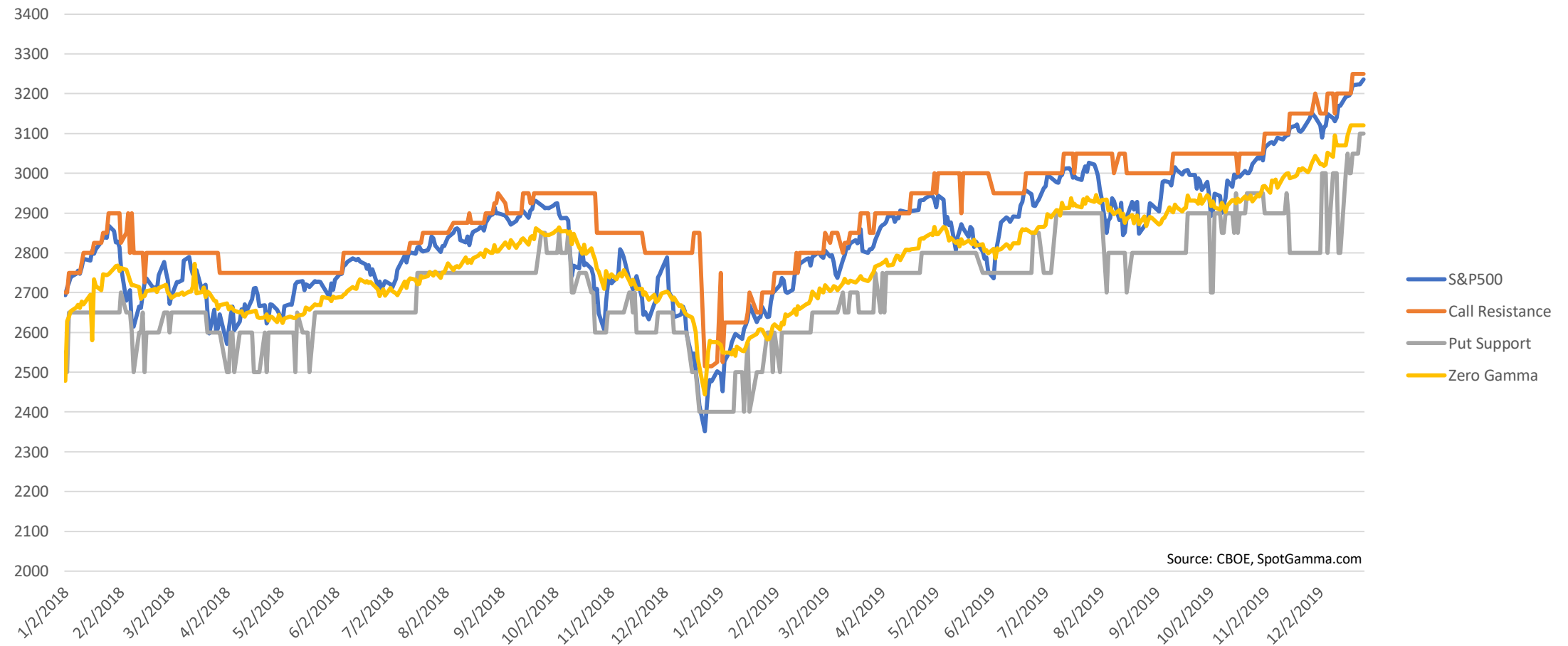


- Bands are based on concentration of options interest at various strikes. We believe these levels are significant due to the potential volume tied to those strikes
- Zero Gamma/Vol Flip: Where dealer gamma flips from positive to negative. Associated with large spikes in volatility
- High Gamma Strike: Strike with largest amount of positive gamma associated with it. Functions as a magnet and/or pin
- Absolute Gamma Strike: Strike with largest absolute call + put gamma. Functions as support/resistance
- Put Wall: Strike with largest concentration of puts – potential target/bottom on selloffs

2 Year Bands Backtest



S&P500, Proprietary Options Based Indicators



Source: CBOE, SpotGamma.com



Crash Protection

- Puts are well known as a hedge against market selloffs
- Puts are very sensitive to both:
 - Implied Volatility
 - Time Decay
- Therefore, they must be monetized by closing the position
- As puts are closed, dealers buy back futures. This causes upward momentum which further decays puts, and forces more to close.

Crash Protection



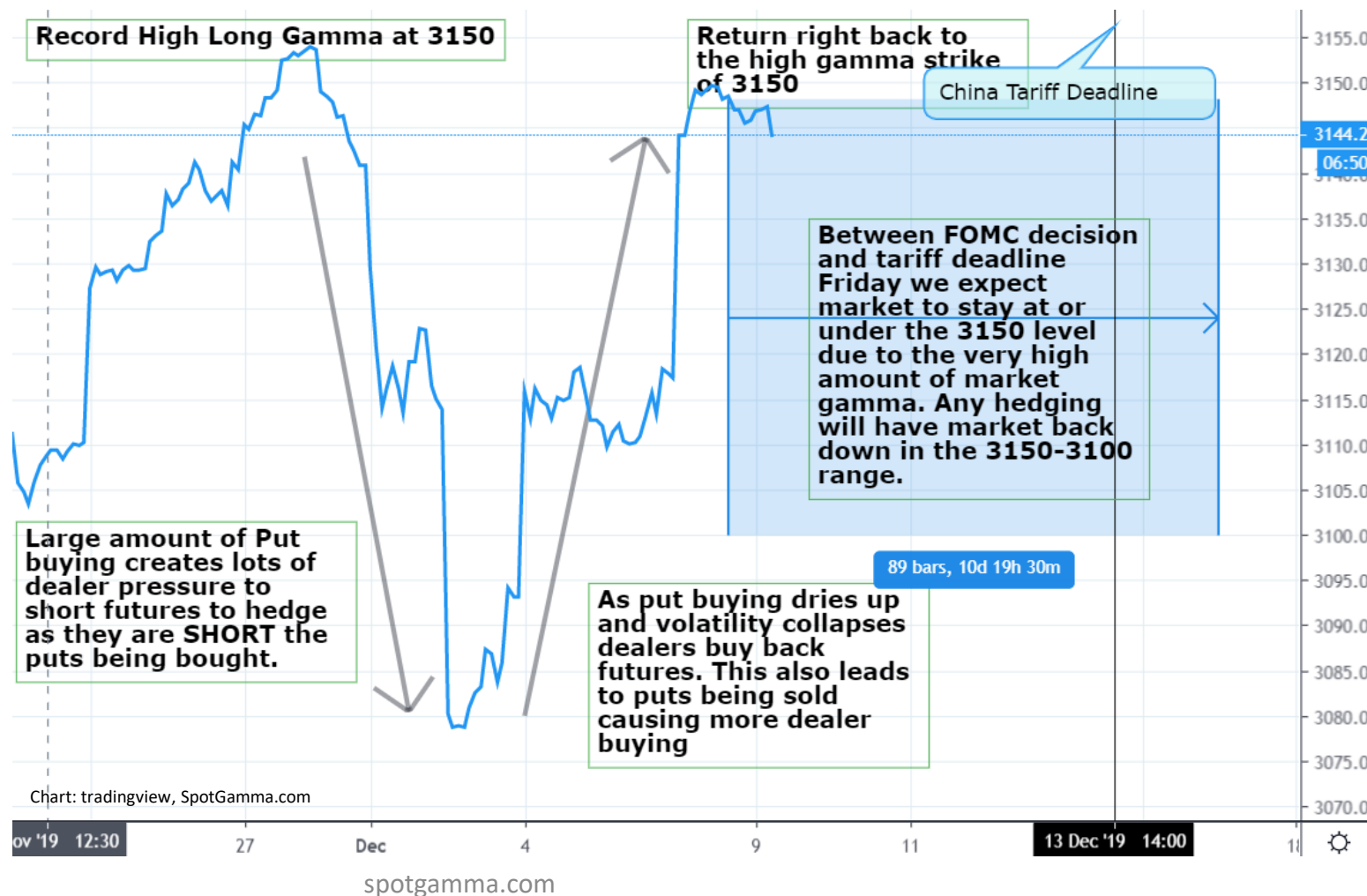
- As market finds a bottom, implied volatility comes down. Puts are closed pushing dealers to close their short hedges (dealers short puts, short stock), sparking a “buy back” cycle



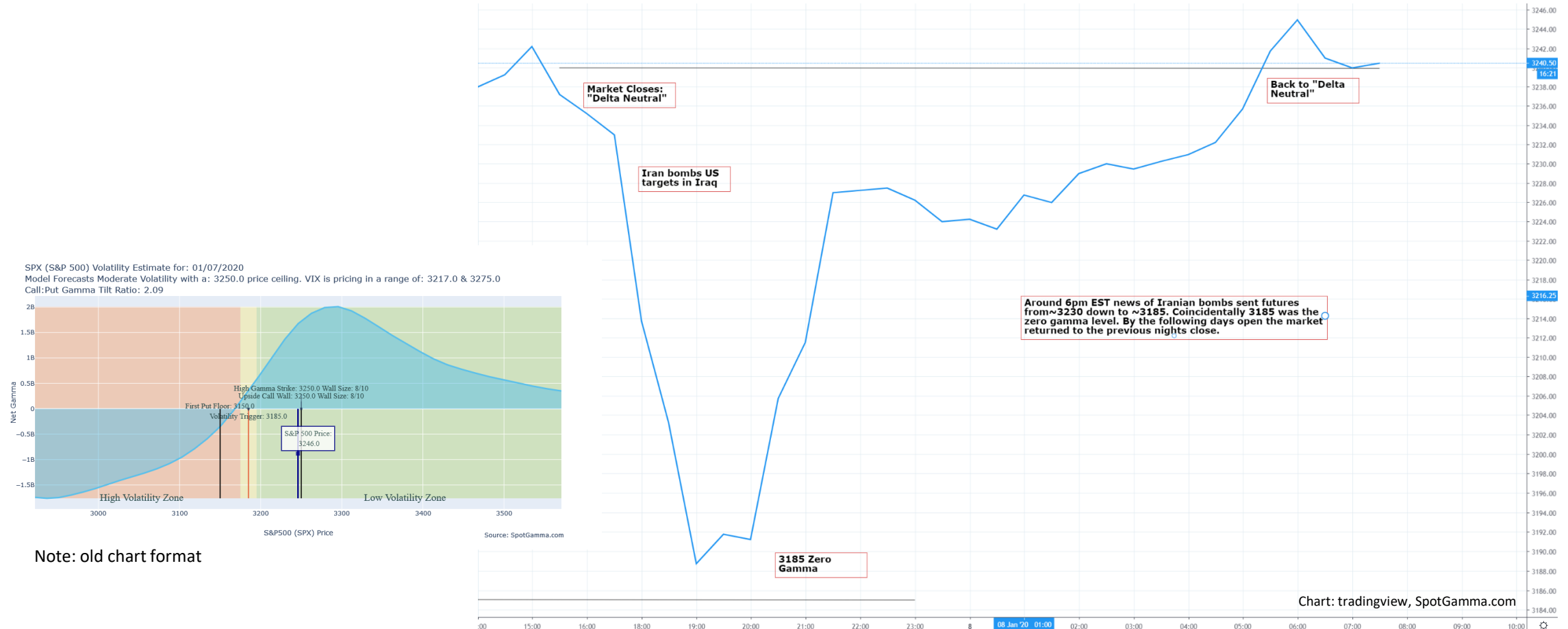
Options in control



- Dec 3rd there was negative ISM data and a large put buyer came into the market, pushing the SPX to its 0 gamma level.
- It promptly bounced at that level returning to previous highs.



Iran Bombing – Overnight Move



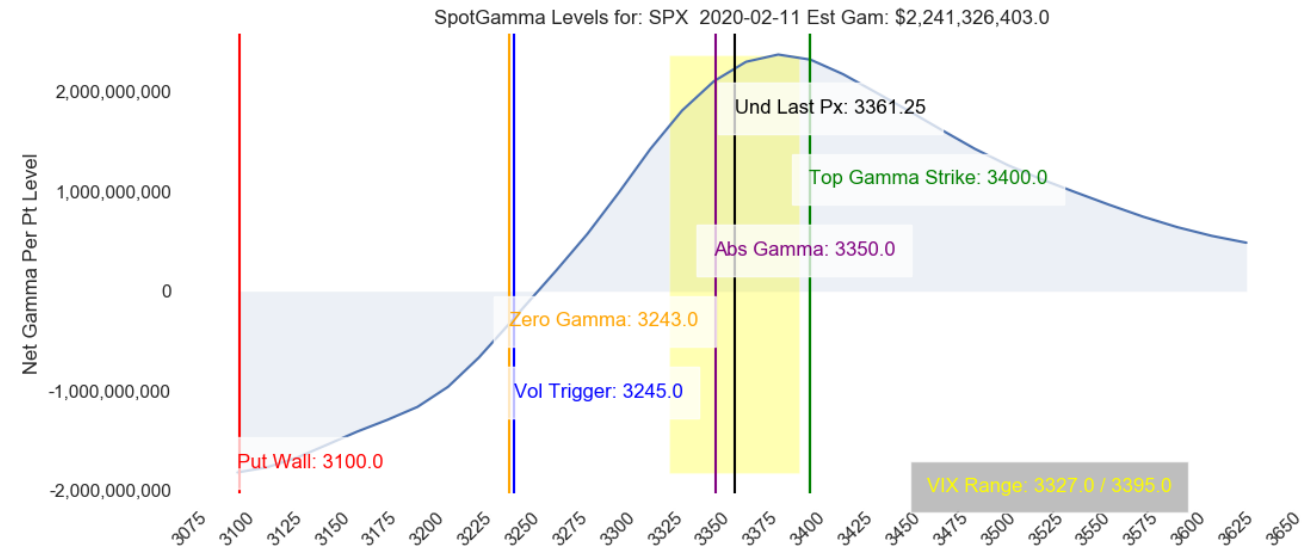
Note: old chart format

2/3/2020 Market Levels



SpotGamma Daily Research

Signal Name	Latest Data	Previous
SPX Ref:	3361.5	3353.0
VIX Ref:	14.89	15.05
Gamma Per Point:	\$2,243,970,143.93	\$2,161,766,627.14
Zero Gamma Level:	3245.0	3253.0
Vol Trig:	3270.0	3255.0
High Gamma Strike Resistance:	3400.0 Size: 8/10	3350.0
Top Abs. Gamma Strike:	3350.0	3325.0
Put Wall Support:	3100.0 Size: 4/10	3100.0
Call Wall Strike:	3400.0 Size: 8/10	3400.0
CP Gam Tilt:	2.71	2.57
Net Delta:	\$10,342,876,169.00	\$9,906,457,662.00



Model Forecast:

Intraday support/resistance levels (during high gamma periods): 3400.0, 3375.0, 3350.0, 3360.0, 3370.0

The Volatility Trigger has moved UP: 3270.0 from: 3255.0

The High Gamma Strike has moved to: 3400.0 from: 3350.0

SPX resistance is: 3400.0. Support is: 3350.0. Reference 'Intraday Support' levels for support areas.

The total gamma has moved has moved UP: \$2,243,970,143.93 from: \$2,161,766,627.14

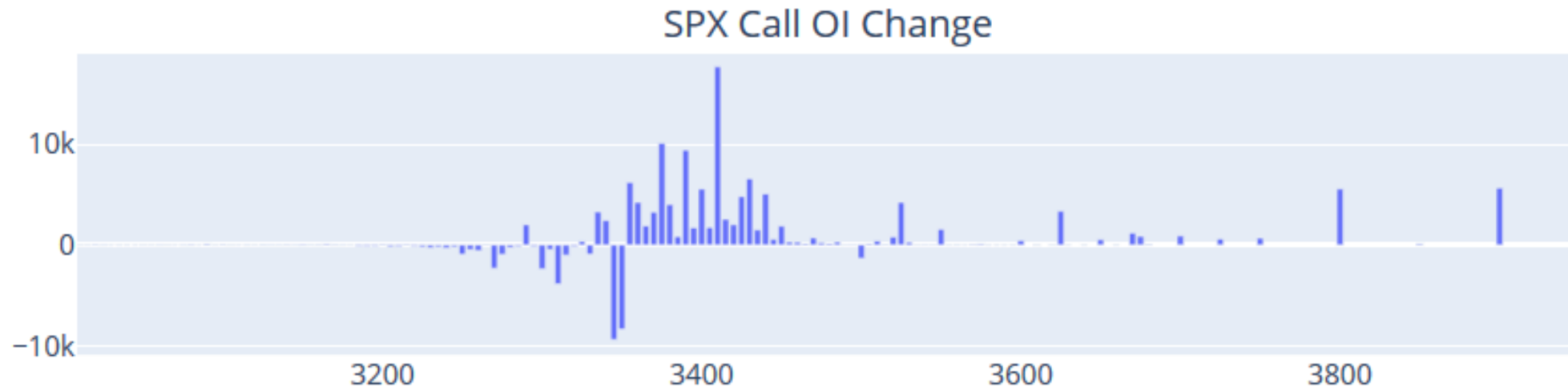
Gamma is tilted towards Calls, maybe indicating calls are expensive

Positive gamma is high. Markets tend to have little movement (Average High/Low Range of SPX PX = 0.50%) and markets tend to be mean reverting.

Open Interest Changes



We chart the changes in open interest on a day to day basis. This allows us to see when and where large positions are closed or rolled. In junction with our other data it provides inside into how the options market is positioning for future market movement.





Absolute Gamma level

The Absolute Gamma level is the strike with the largest cumulative put+call gamma. We think this strike serves as support and resistance because the amount of hedging and trading activity tied to that strike.





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