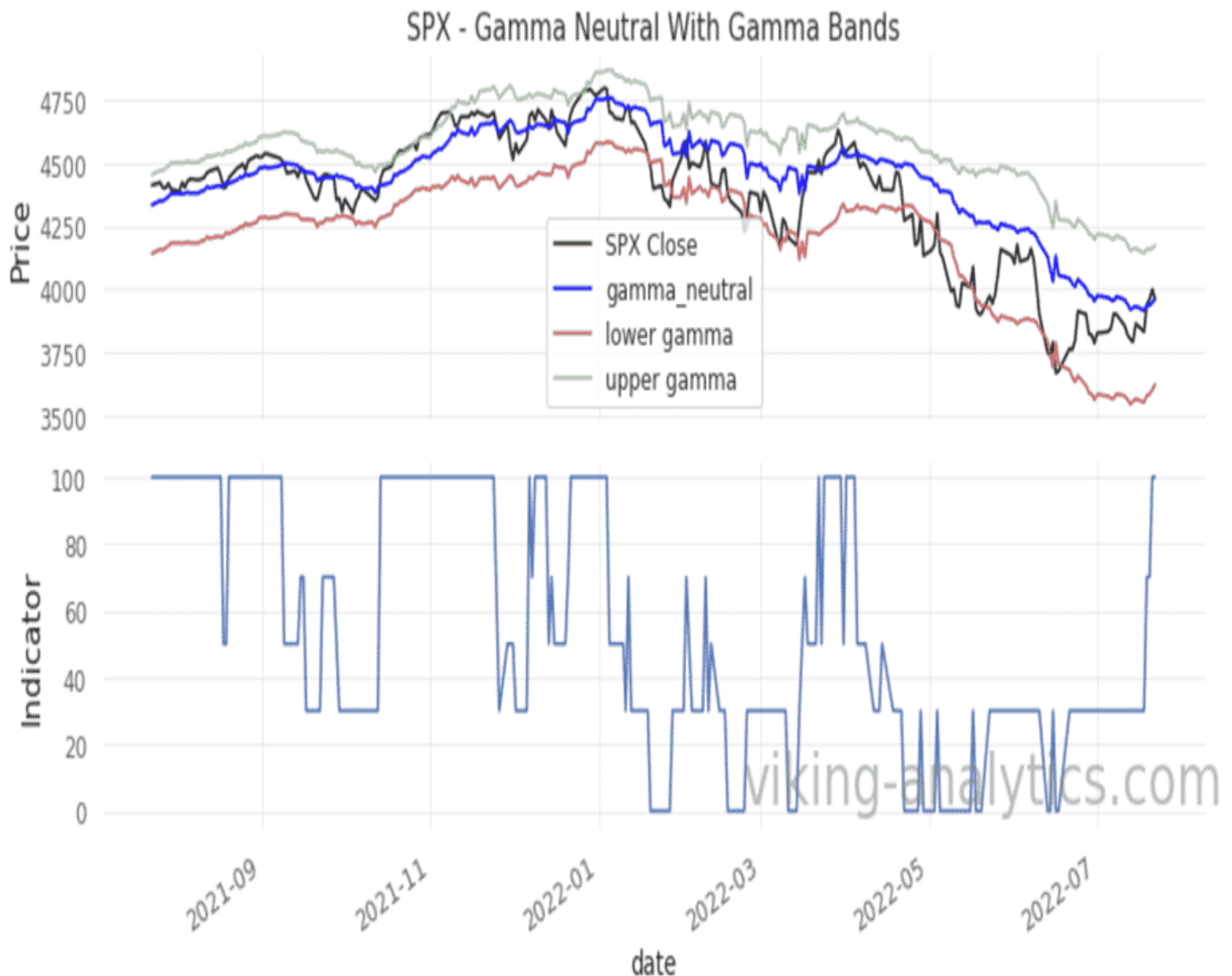


We share the Weekly Gamma Bands Update by Viking Analytics. The report uses options gamma to help you better manage risk and your equity allocations.

The S&P 500 (SPX) rallied to finish the week above the gamma flip level, which if it continues will represent a regime change from an amplified regime to a muted volatility regime. Our gamma band model enters the week with a 100% allocation to the SPX and will remain fully long as long as SPX closes above the gamma flip currently near 3,960. The model will move to a 0% allocation if the market closes below the lower gamma level, currently near 3,620.

The chart below shows how price (in black) relates to the gamma flip (in blue) and the lower gamma level (in red).• The Indicator in the second chart below shows the daily positioning allocations.



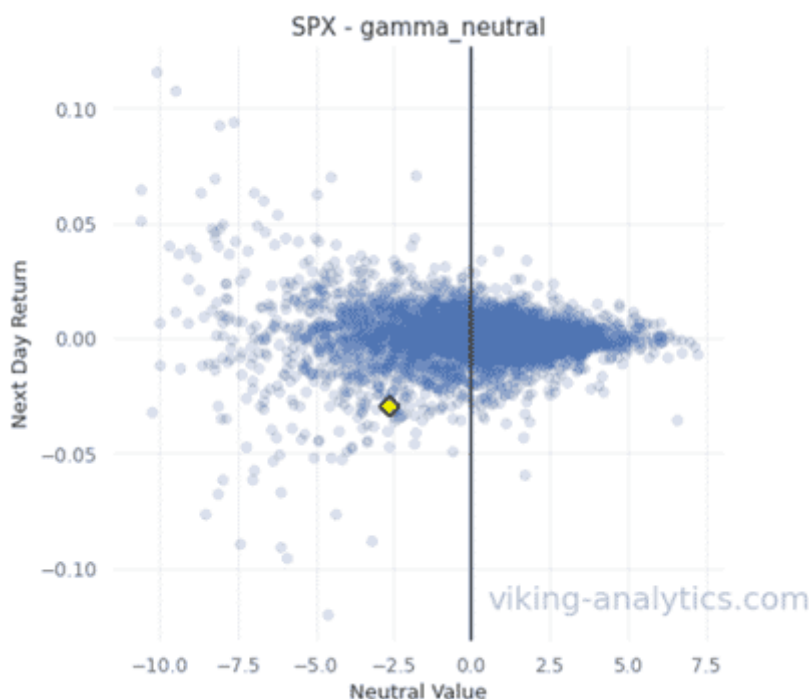
The Gamma Band model<sup>[1]</sup> can be viewed as a trend following model that shows the effectiveness of tracking various levels relating to option gamma. When the daily price closes below Gamma Flip level, the model will reduce exposure to avoid price volatility and sell-off risk. If the market closes below what we call the ?lower gamma level,? the model will reduce the SPX allocation to zero.

The main premise of this model is to maintain high allocations to stocks when risk and corresponding volatility are expected to be low. • For investors who have been conditioned to ?buy low and sell high,? it is counter-intuitive to increase allocations when the market rises, but this approach has shown to increase risk-adjusted returns in the back-test. •

Risk management tools like this have become more important than ever to manage drawdowns like the one we are currently in. The Gamma Band model is one of several indicators that we publish daily in our SPX Report (click [here](#) for a sample report). • Please visit our [website](#) to learn more about our trading and investing tools.

## The Gamma Flip - Background

Many market analysts have noted that [daily volatility in the S&P 500 will change](#) when the value of the SPX moves from one gamma regime to another. • Some analysts call this level the ?gamma flip. • The scatterplot below shows how price volatility (on the y-axis) is increasingly lower as the value of SPX rises higher above the Gamma Neutral level (on the right side of the chart). • When the value of the S&P closes lower than Gamma Neutral (to the left of the chart), volatility increases. •



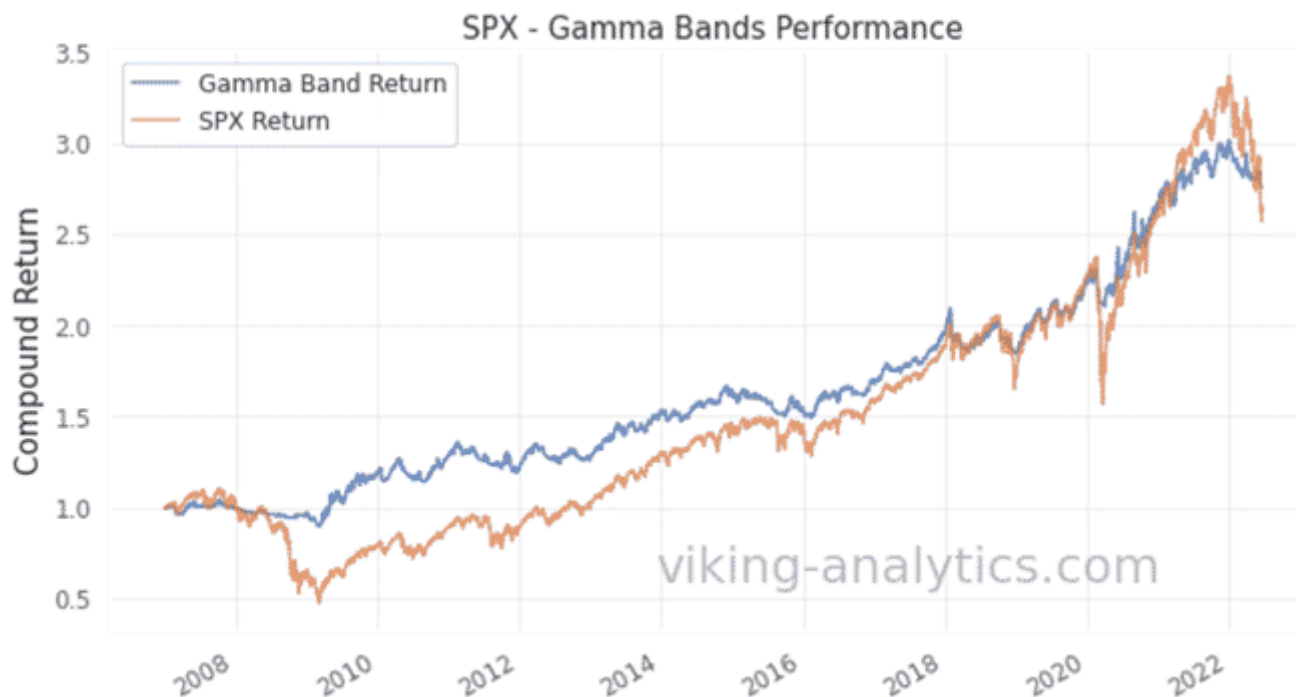
## Gamma Band Model ? Background

The purpose of the Gamma Band model is to show how tail risk can be reduced by following a few simple rules. • The daily Gamma Band model has improved risk-adjusted returns by over 60% since 2007. • The graph below demonstrates how this approach can limit drawdowns while maintaining good returns. • A quick video introduction of the Gamma Band model can be seen by following [this link](#). •

## Gamma Band Historic Information

	sharpe	kurtosis	annual_vol
Gamma Band Return	0.71	7.48	0.10
SPX Return	0.40	12.15	0.21

\* Gamma Bands improve backtested Sharpe by: 75.9%



## Disclaimer

This is for informational purposes only and is not trading advice. • The information contained in this article is subject to our [full disclaimer](#) on our website.

## Authors

Erik Lytikainen, the founder of Viking Analytics, has over twenty-five years of experience as a financial analyst, entrepreneur, business developer and commodity trader. Erik holds an MBA from the University of Maryland and a BS in Mechanical Engineering from Virginia Tech.

Rob McBride has 15+ years of experience in the systematic investment space and is a former Managing Director at a multi-billion dollar hedge fund. Rob has deep experience with market data, software and model building in financial markets. • Rob has a M.S. in Computer Science from the South Dakota School of Mines and Technology.

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