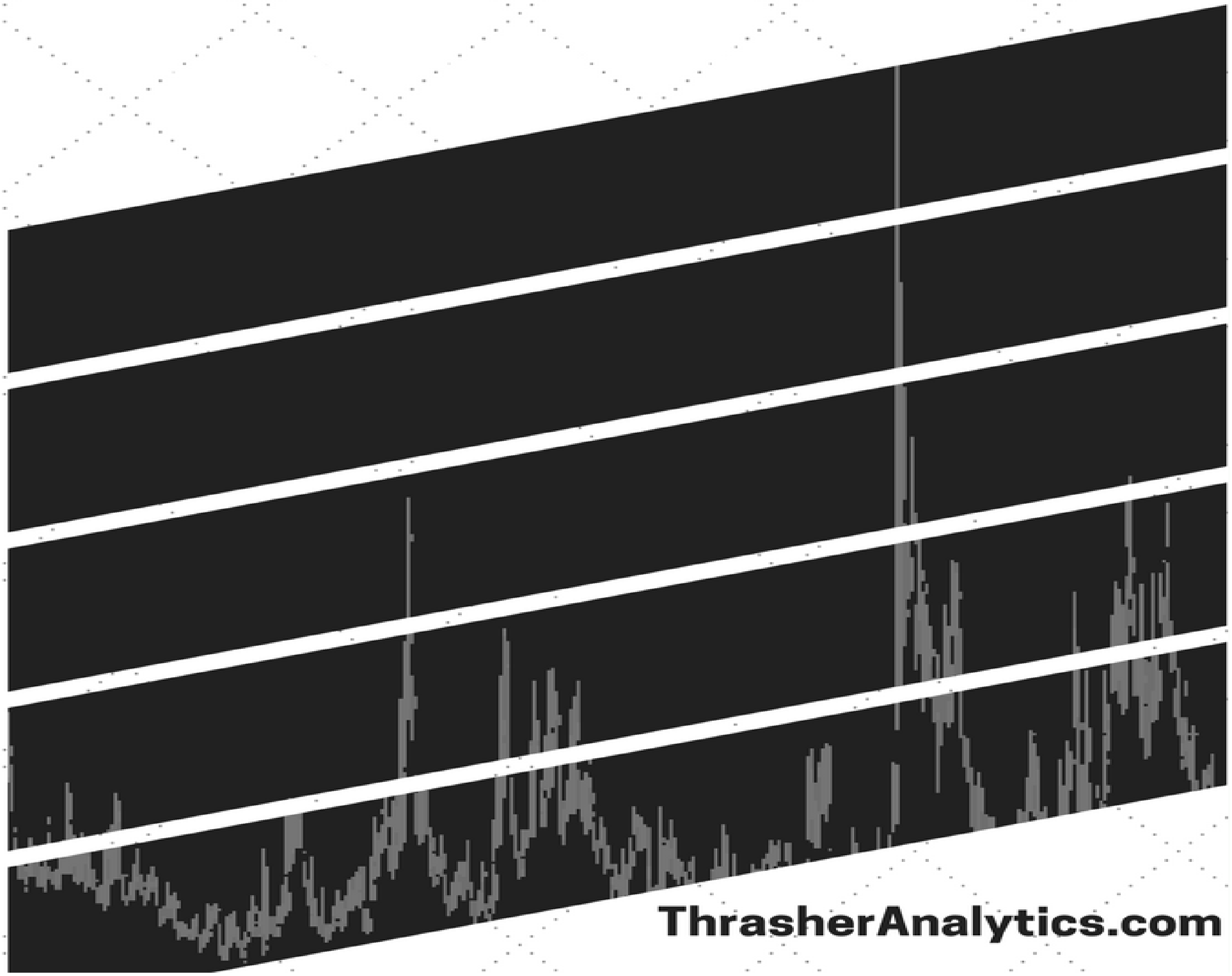
THRASHER ANALYTICS

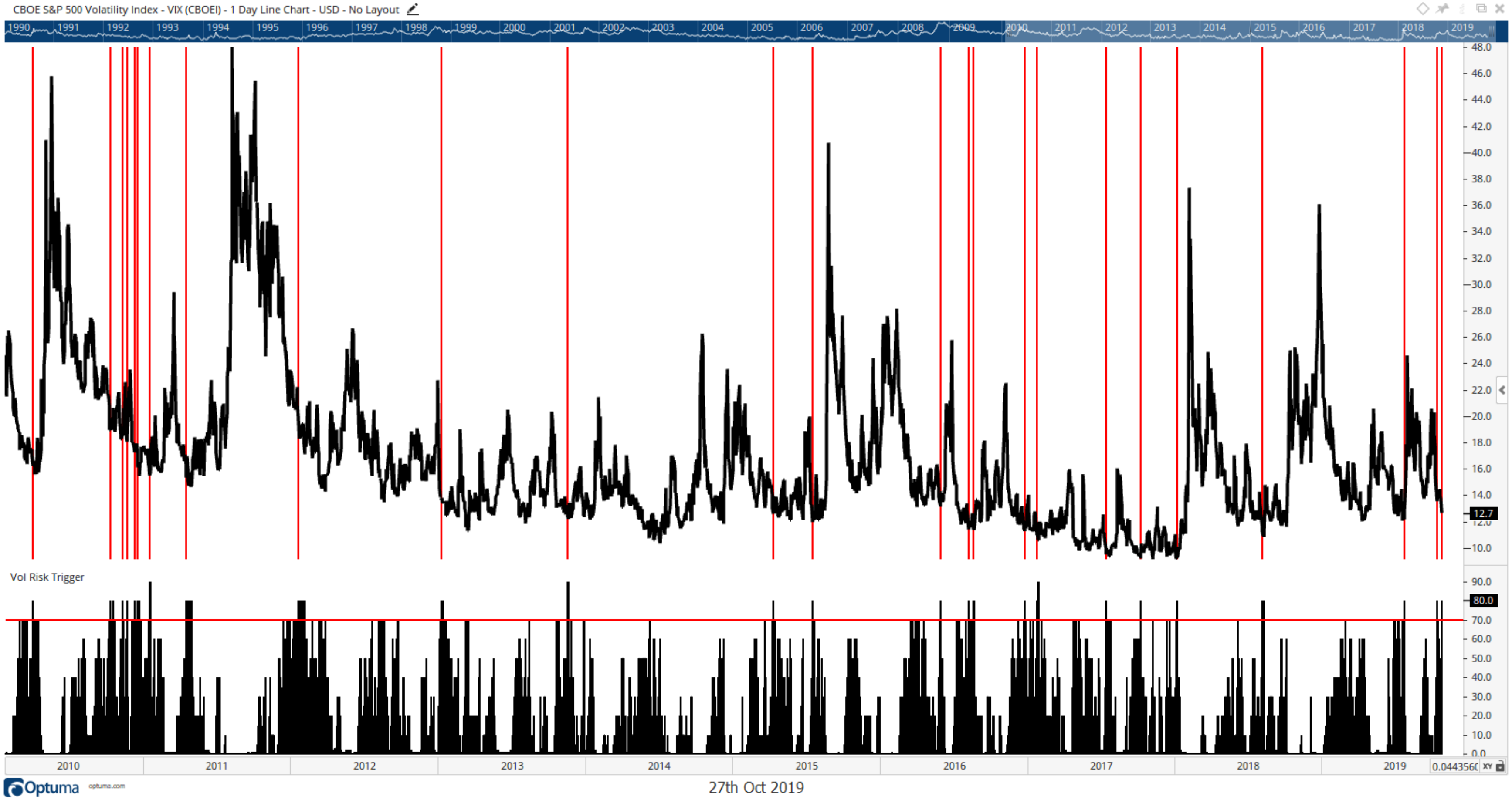
BI-WEEKLY RESEARCH & ANALYSIS



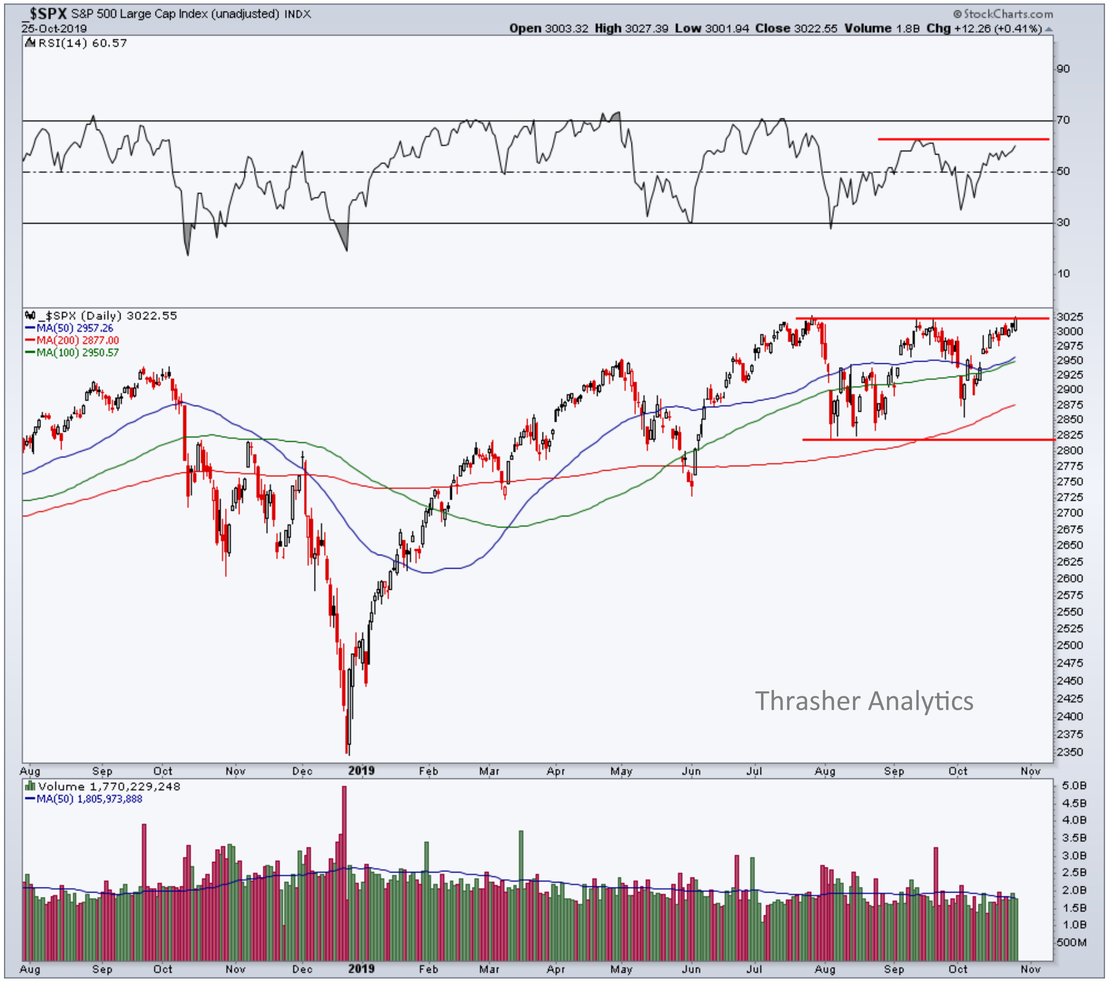
ThrasherAnalytics.com

Sector	> 50MA	> 200MA	1wk Perf	1mo Perf	3mo Perf	12mo Perf
SPDR Technology Select Sector Fund ETF	True	True	2.48%	2.78%	0.62%	19.34%
SPDR Health Care Select Sector Fund ETF	True	True	0.33%	2.03%	0.35%	4.12%
SPDR Financial Select Sector Fund ETF	True	True	1.89%	1.96%	0.92%	11.74%
SPDR Industrial Select Sector Fund ETF	True	True	2.16%	1.13%	-0.09%	12.62%
SPDR Real Estate Select Sector Fund ETF	True	True	-1.05%	0.82%	6.93%	22.18%
SPDR Materials Select Sector Fund ETF	True	True	1.3%	0.45%	-1.24%	13.88%
SPDR Consumer Staples Select Sector Fund ETF	True	True	0.58%	0.39%	2.33%	11.32%
SPDR Consumer Discretionary Select Sector Fund ETF	True	True	-0.91%	0.37%	-1.57%	13.43%
SPDR Communication Services Select Sector ETF	True	True	0.04%	0.00	0.08%	9.77%
SPDR Utilities Select Sector Fund ETF	True	True	0.53%	-0.67%	7.36%	18.01%
SPDR Energy Select Sector Fund ETF	True	False	4.37%	-1.51%	-5.18%	-11.14%

The best performing sector last week was Energy which has been the worst performing sector over the last month with the best performing sector for the last month being Technology.

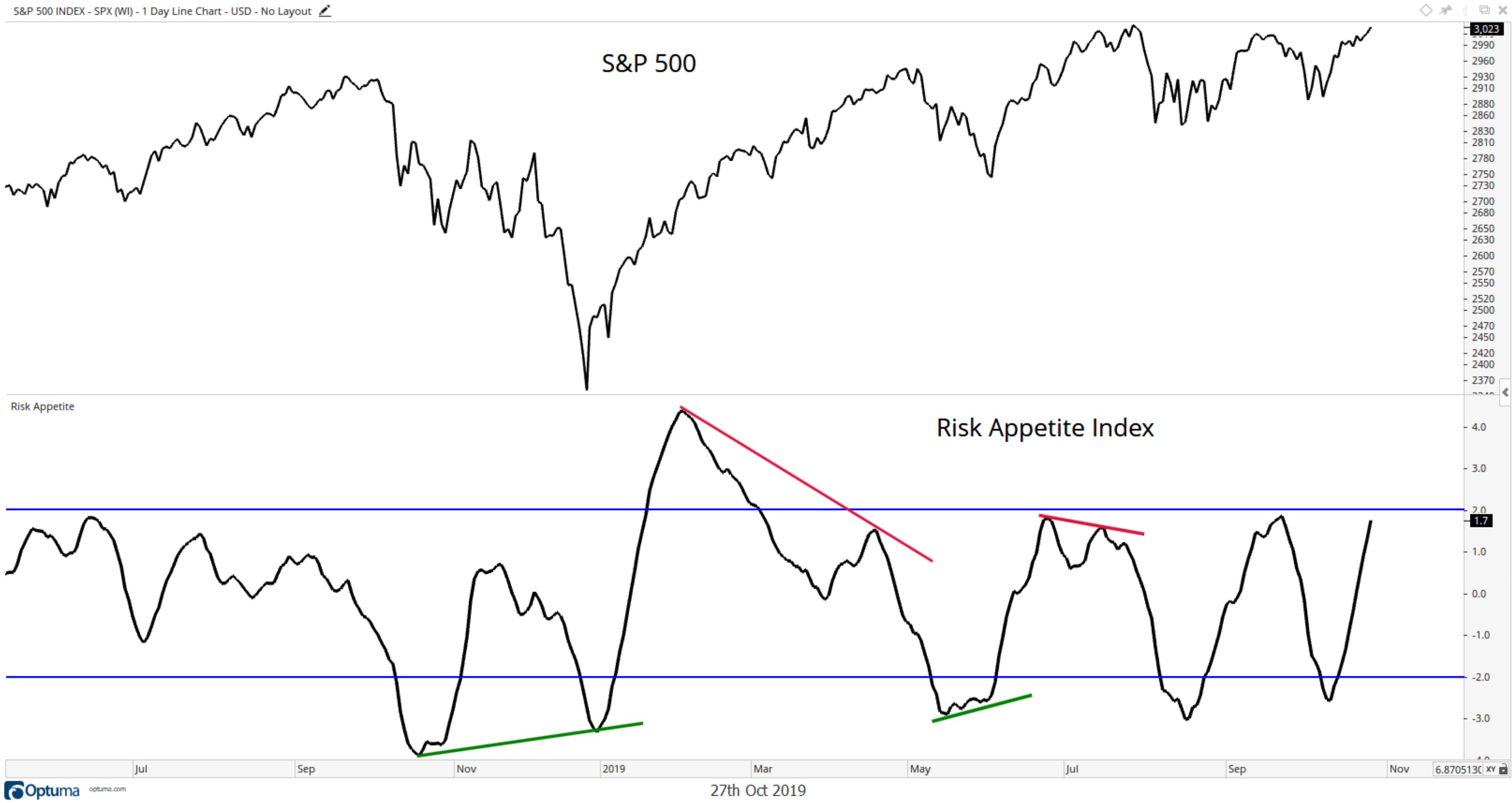


As I mentioned in my last volatility update email, the VRT has produced a signal, which was repeated earlier this week as well. The VRT only needs to reach a score of 70 to signal but both these last two have breached 80. So I've shown the red lines on the chart above when the VRT has been 80, something we don't see very often. The last time was just before the spike in volatility earlier this year and around this time last year before volatility continued to consolidate ahead of the large spike in Q4 '18. I continue to believe, and will share more data why, that volatility is preparing to rise and is extremely undervalued (so to speak) with spot VIX being sub-13. There's plenty of potential catalysts approach with Apple earnings, FOMC, and jobs data all set to be announced throughout this week. I'm not arguing that one of these will send VIX back to 30 but the sentiment in the market right now is overly bullish and I don't believe traders are currently prepped for an increase in volatility if we do get a surprise from one of these events.

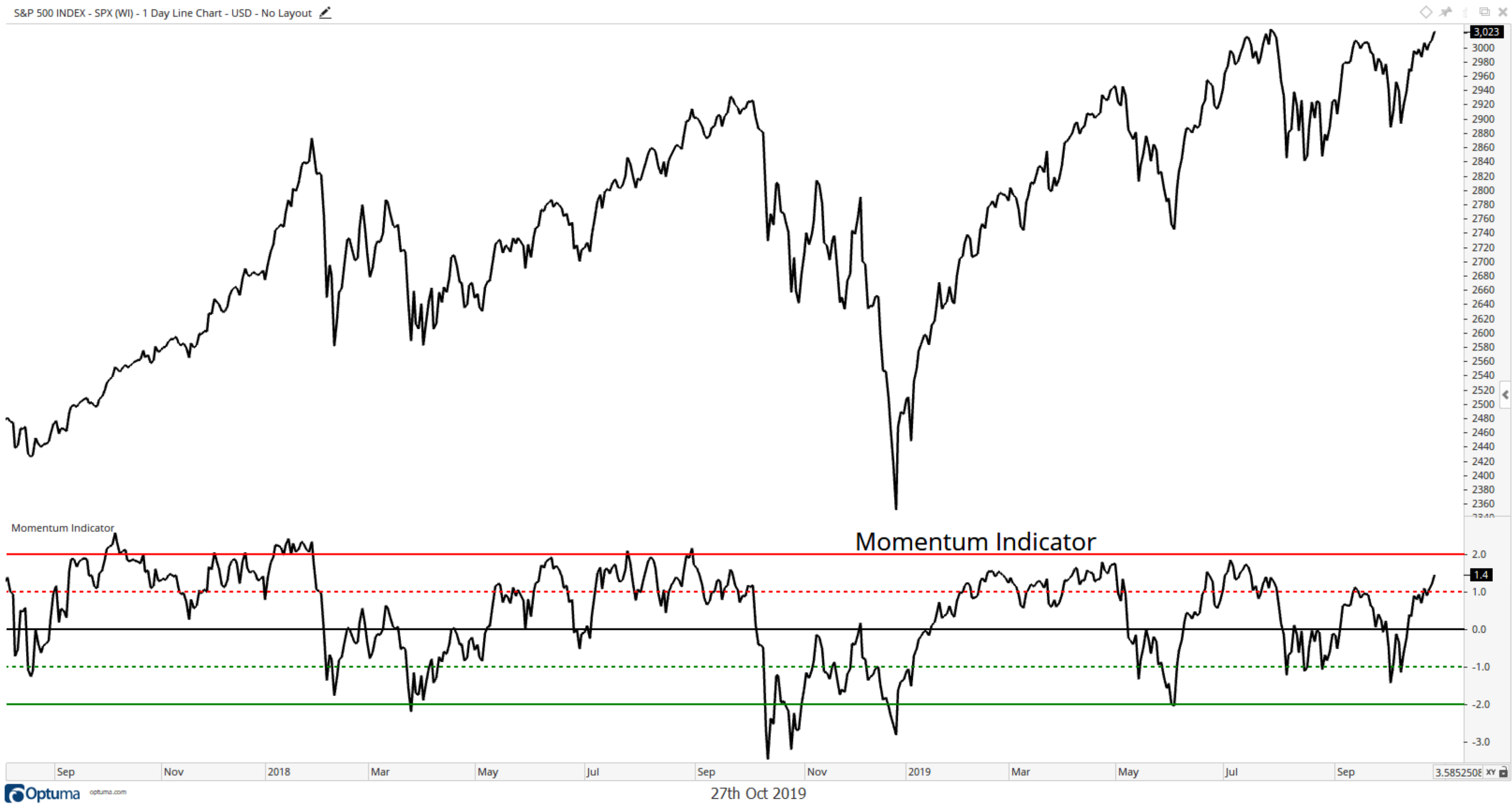


The S&P 500 closed out last week just a kiss below the prior closing high. Along with the rest of The Street, I'm watching for a breakout in price here. However, I'm also keeping an eye on the daily RSI, which is still below its prior September level, threatening to make yet another lower high - which has been the theme thus far this summer.

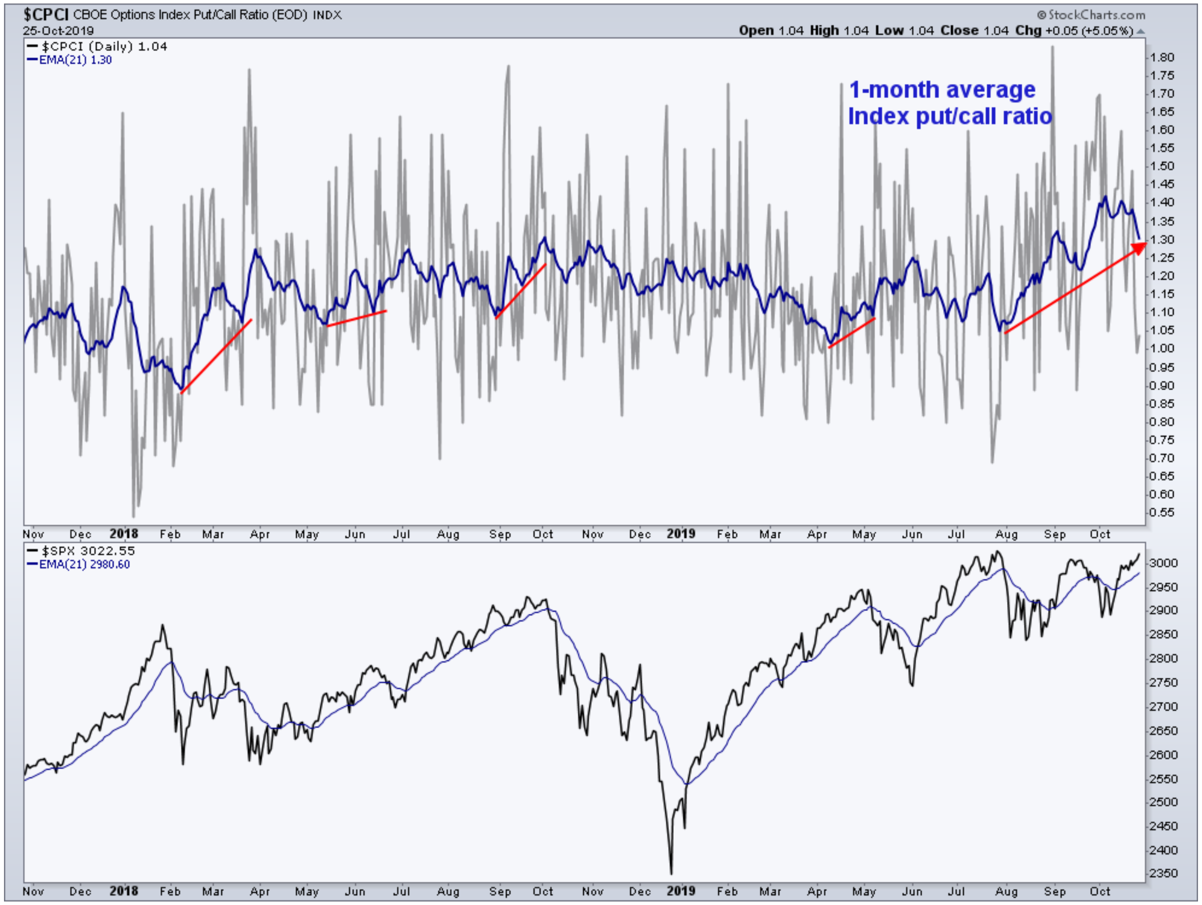
I shared this chart a few weeks ago, showing the relationship between growth and value. After the large swing last quarter, value has continued to plod along in relative performance against growth. But until last week, we hadn't seen the ratio breach the 1.8 level, which had been important over the last ten or so years. We saw this level break last week but momentum still remains above its prior range low. I want to see momentum confirm the breakdown in the ratio to get fully aboard the idea that we're seeing a longer-term rotation from growth to value.



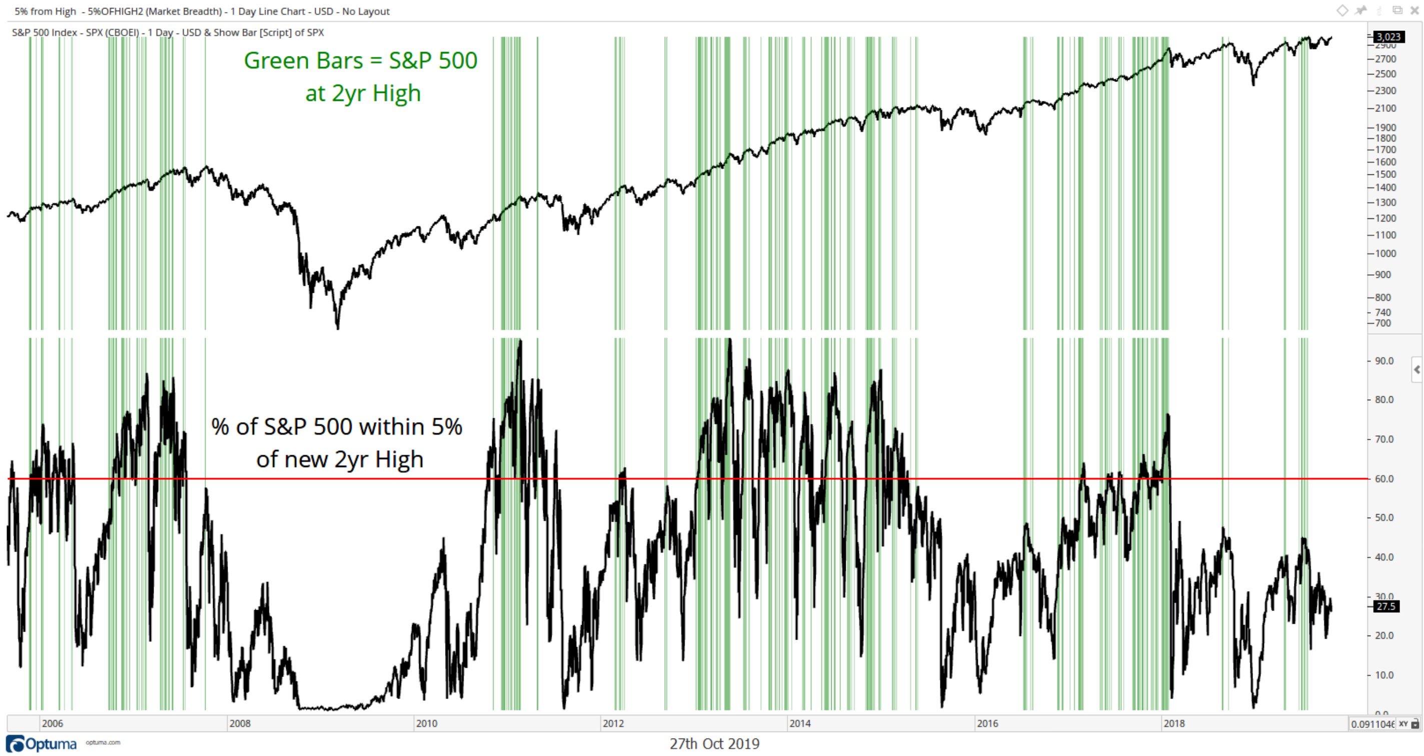
The Risk Appetite Index has continued to rise along with price, with its current level being approx. equal to its September high. Ideally I like to look for divergences in the RAI, like we saw coming into May and August of this year, as signs that risk appetite is potentially breaking down. We don't have a divergence just yet, so I'm not overly concerned with the RAI chart at the moment.



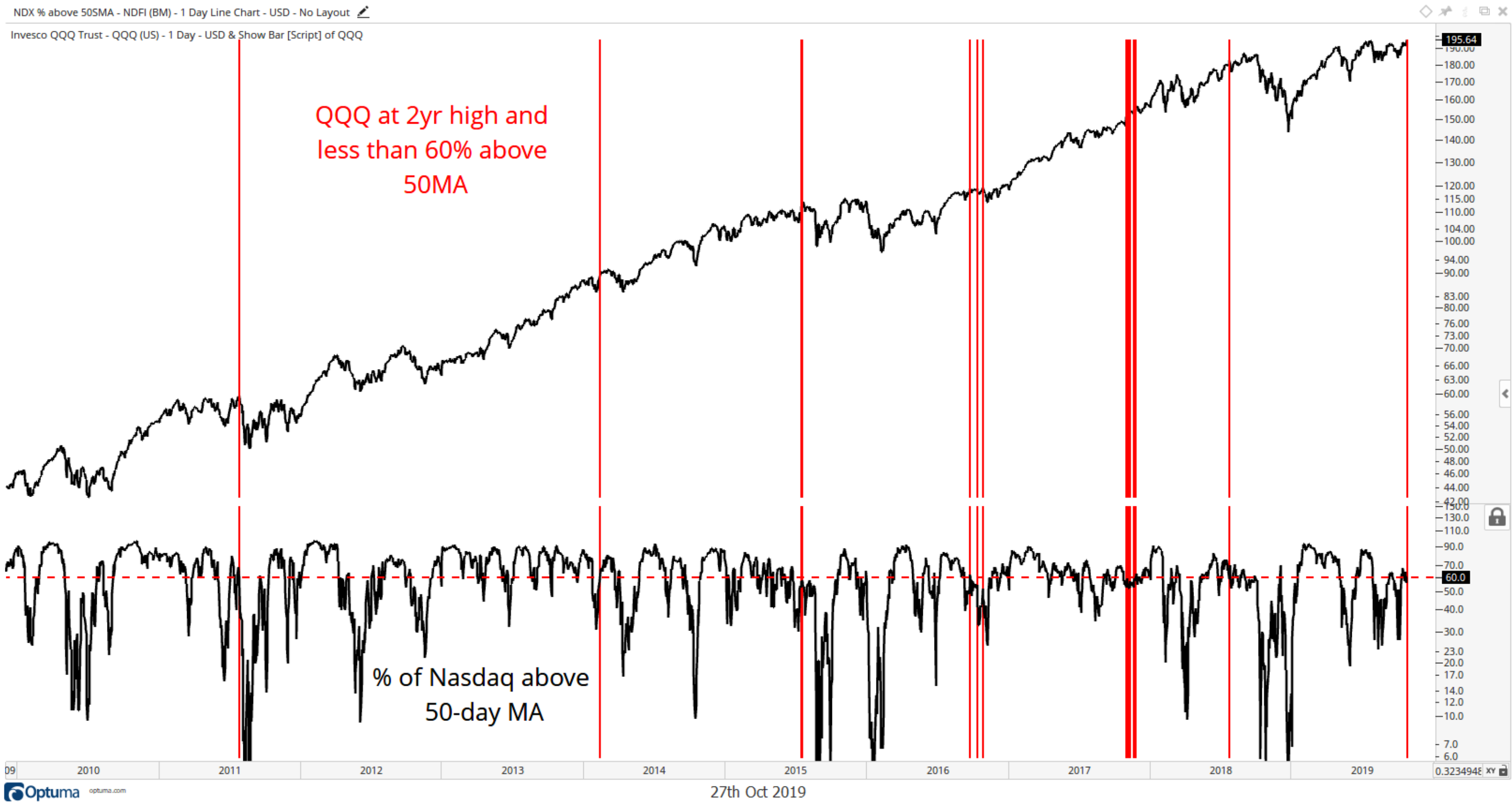
Above is my proprietary momentum indicator and the S&P 500. As price has risen, so has the momentum indicator, in fact its breached its first 'overbought' level at '1' but still remains below its more critical second solid red line level at '2'. Like the RAI, there isn't a divergence yet on in momentum as its now above the prior September high. Momentum is elevated but not at major risk levels quite yet.



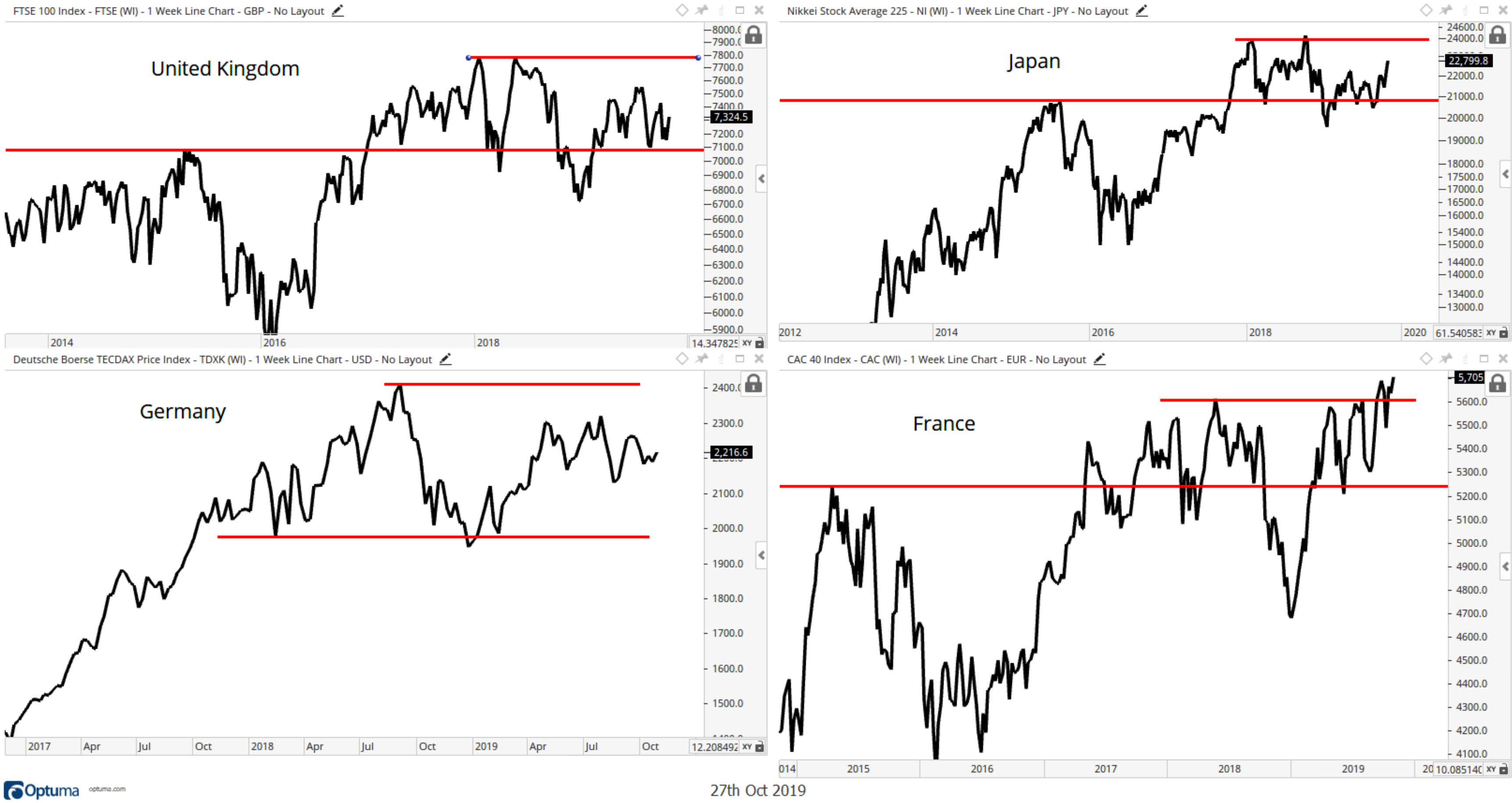
Even with the broad equity market approaching a new high, traders still seem very concerned as measured by the 1-month Index Put/Call ratio. Typically we see the trend in the Put/Call ratio track the index, rising and falling with price but during this latest trend higher in the SPX, the 1-month average of the P/C is still well above the prior July and September lows when SPX was at/near its current level. This is a sign that more trader are being active in the put market, potentially hedging their equity portfolios out of fear the breakout doesn't hold. This degree of bearishness is not found in other measures of sentiment, which I'll be discussing later.



The chart above looks at the S&P 500 in the top panel and the percentage of individual SPX stocks that are within 5% of a new 2-year high. This measure of breadth has been uncharacteristically weak lately considering the SPX is close to breaking out to new all-time highs. The green vertical bars show when the S&P 500 has broken out to its own 2-year high, as you can see typically at least 60% of the underlying stocks are also within 5% of their own 2-year high. Where do we sit today? Less than 30% of S&P 500 stocks are within 5% of a 2-year high, a very low sign of bullish trend participation.

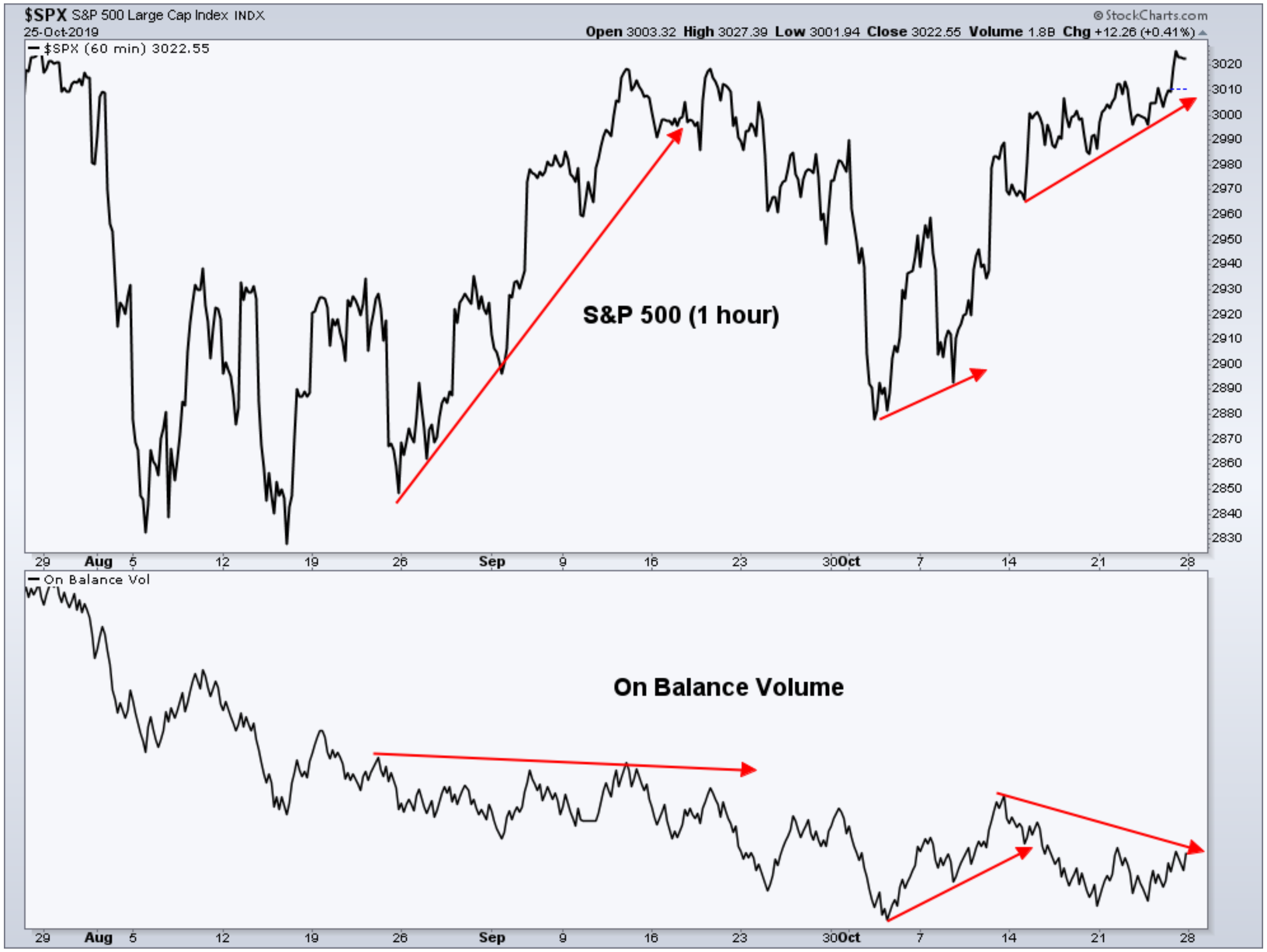


The chart above looks at the Nasdaq 100 and the percentage of Nasdaq stocks trading above their 50-day Moving Average. Ideally we see at leat 60-70% of stocks trading in intermediate uptrends (as measured by the 50-day MA). Right now we are at exactly 60%. I've drawn red lines when breadth has been 60% or below when the QQQ was at a 2-year high, something we haven't seen happen very often since 2010. Hopefully this week we can see more Nasdaq stocks cross over their respective 50-MA, maybe Apple's earnings will be that catalyst. We'll see.



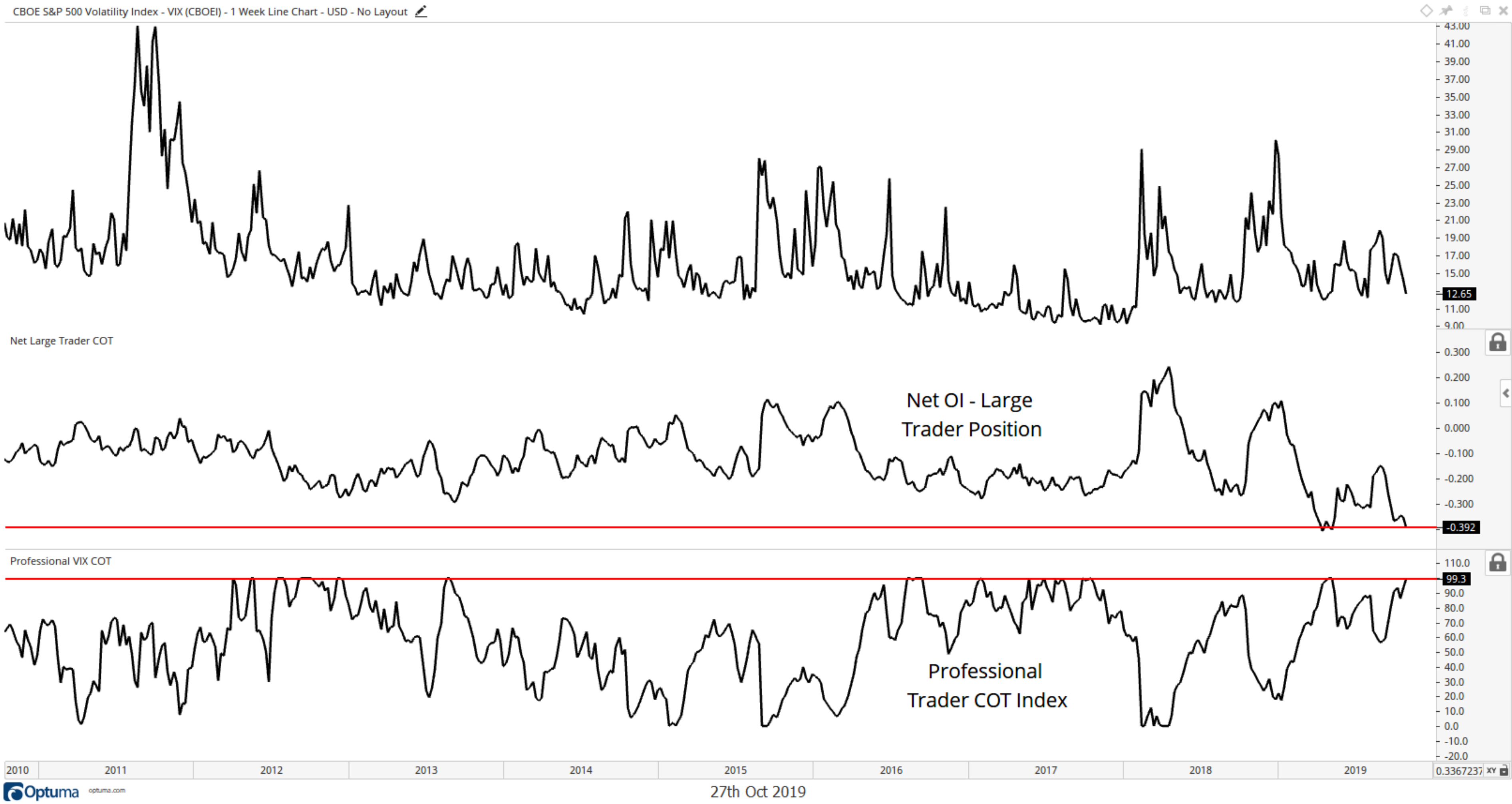
Above are the four major markets that make up the MSCI EAFE Index. France is clearly the strongest of the four, having broken out to a new high. The remaining three continue to consolidation under their prior highs but their overall trends are positive and the price action has more or less been bullish.

The Semiconductors are one of the most important markets I watch each day as a sign of market health for the tech sector and for the market as a whole. The semis are also one of the most bullish charts we have right now as the group broke out in relative performance against the S&P 500 last week. Both the SMH (Semiconductor ETF) and SOX (Semiconductor Index) saw new highs, which is a positive sign for tech and for the broad market. Going forward to we want to see semis continue to show relative strength and I'd hate to see them create a false breakout this week, falling back below their prior high (red horizonal line).



The volume profile for the S&P 500 has not been great as of late. While the S&P 500 ha bas been rising since mid-October, On Balance Volume has not been showing signs of confirmation. The same type of action has been found in the Nasdaq, and I wrote a blog post discussing the volume in the Nasdaq 100 in more detail last week. While price has been moving to its prior high, its not being pushed by a great deal of bullish volume, a short-term concern.

Volatility COT Chart



The COT data for the VIX has become overly bearish. Large Traders, which typically are hedge funds/CTAs are holding a very low level of net position as measured by Open Interest. We haven't seen them this light in VIX contracts since earlier this year. Look at the 'professional trader' group, they on the other hand have loaded up volatility exposure, taking their net-long exposure to levels that mirror 2017.

1 Day - Watch List - No Layout

Market	% Bullish	History
VIX DSI	17	
Swiss Franc DSI	17	
Coffee DSI	24	
Orange Juice DSI	26.00	
Australian Dollar DSI	28.00	
Euro DSI	30.00	
British Pound DSI	32.00	
10Y DSI	36.00	
New Zealand Dollar DSI	40.00	
Corn DSI	40.00	
5YR DSI	42.00	
Gold DSI	47.00	
Mexican Peso DSI	50.00	
Copper DSI	50.00	
Lean Hog DSI	52.00	
EuroDollar DSI	53.00	

1 Day - Watch List - No Layout

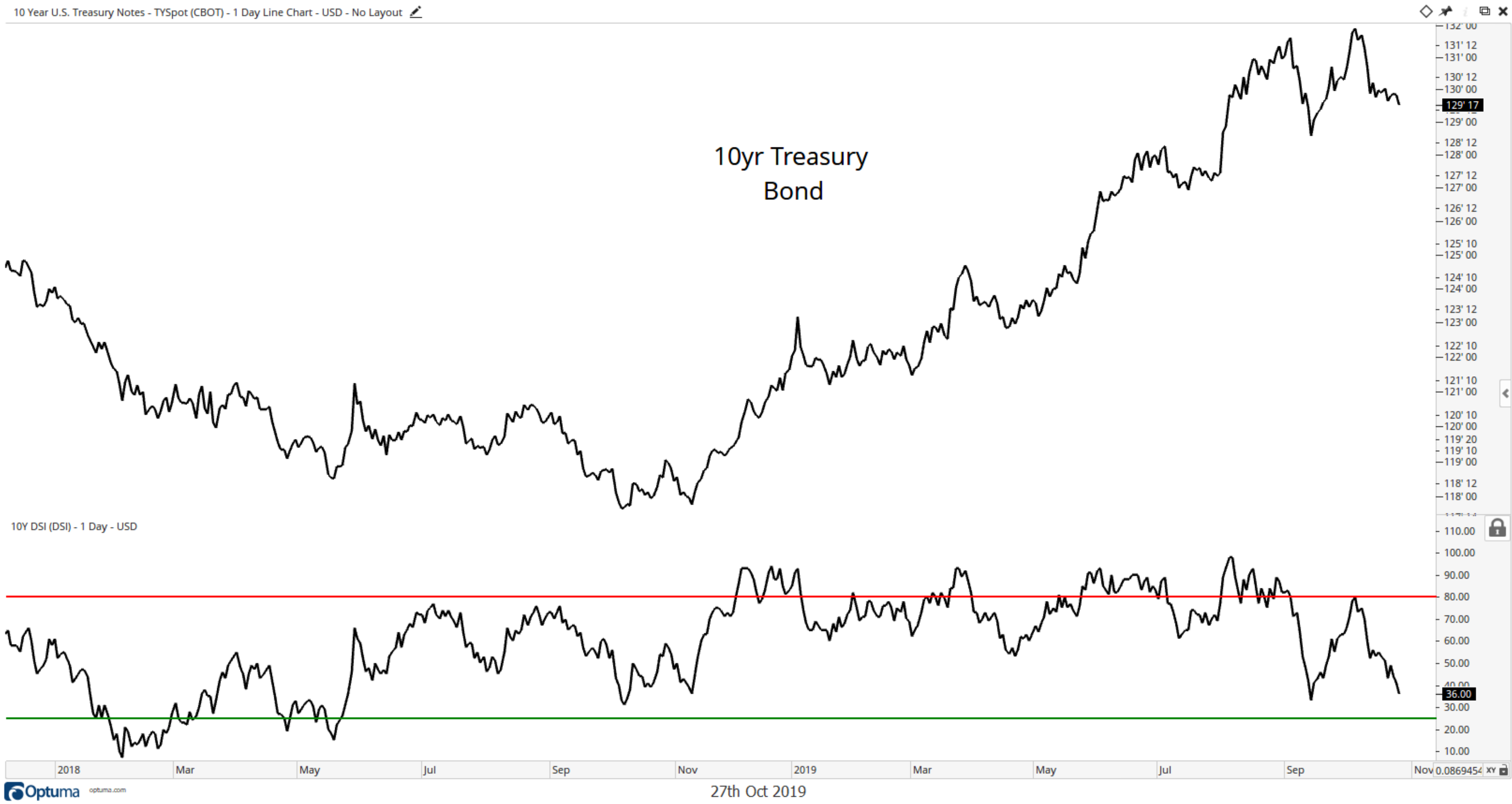
Code	% Bullish	History
EuroDollar DSI	53.00	
Lumber DSI	55.00	
Platinum DSI	58.00	
US Dollar DSI	59.00	
Sugar DSI	64.00	
CRB Index DSI	64.00	
Natural Gas DSI	66.00	
Heating Oil DSI	66.00	
Cotton DSI	66.00	
Crude Oil DSI	67.00	
Cocoa DSI	69.00	
Silver DSI	70.00	
Wheat DSI	72.00	
SPX DSI	72.00	
Gasoline DSI	73.00	
Palladium DSI	77.00	
Nasdaq DSI	77.00	
Cattle DSI	84	
Nikkei DSI	88	

I'm excited to announce that I'll be including a new piece of data in the Thrasher Analytics letter going forward, the Daily Sentiment Index (DSI). The DSI is a sentiment tool that's used by some of the top money managers and hedge funds in the industry. Updated daily (hints the name) the DSI provides keen insight into the sentiment of the futures market through its proprietary survey and data scraping of non-professional traders. Like other types of sentiment data, the Daily Sentiment Index can be a useful tool when at extreme levels. The DSI measures the percentage of traders (primarily retail) that are bullish. So when this figure is north of 80%, that's a sign of overly bullish sentiment and when below 25%, a sign of overly bearish sentiment.

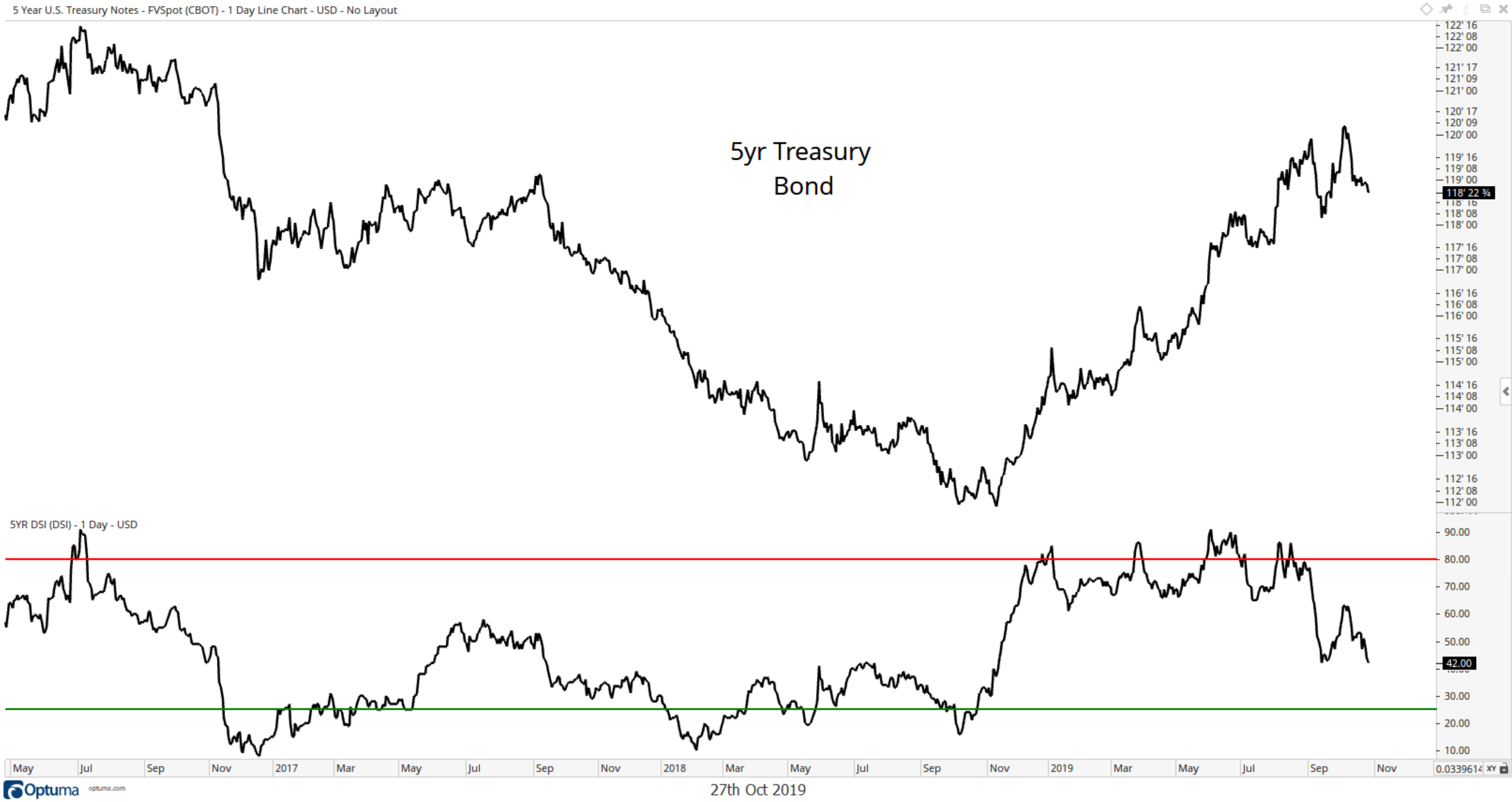
Going forward I'll be sharing the above dashboard of all the individual futures markets tracked by the DSI as well as indiv. Charts of some of the main markets such as bonds, stocks, volatility, gold, the U.S. dollar, and any other market that I think you should be paying special attention to.

When paired with other tools, such as momentum divergences, trend changes, etc., the DSI can provide excellent insight into the futures market and takes the level of analaysis I'm able to provide you up by a major notch!

Daily Sentiment Index 10-year Treasury



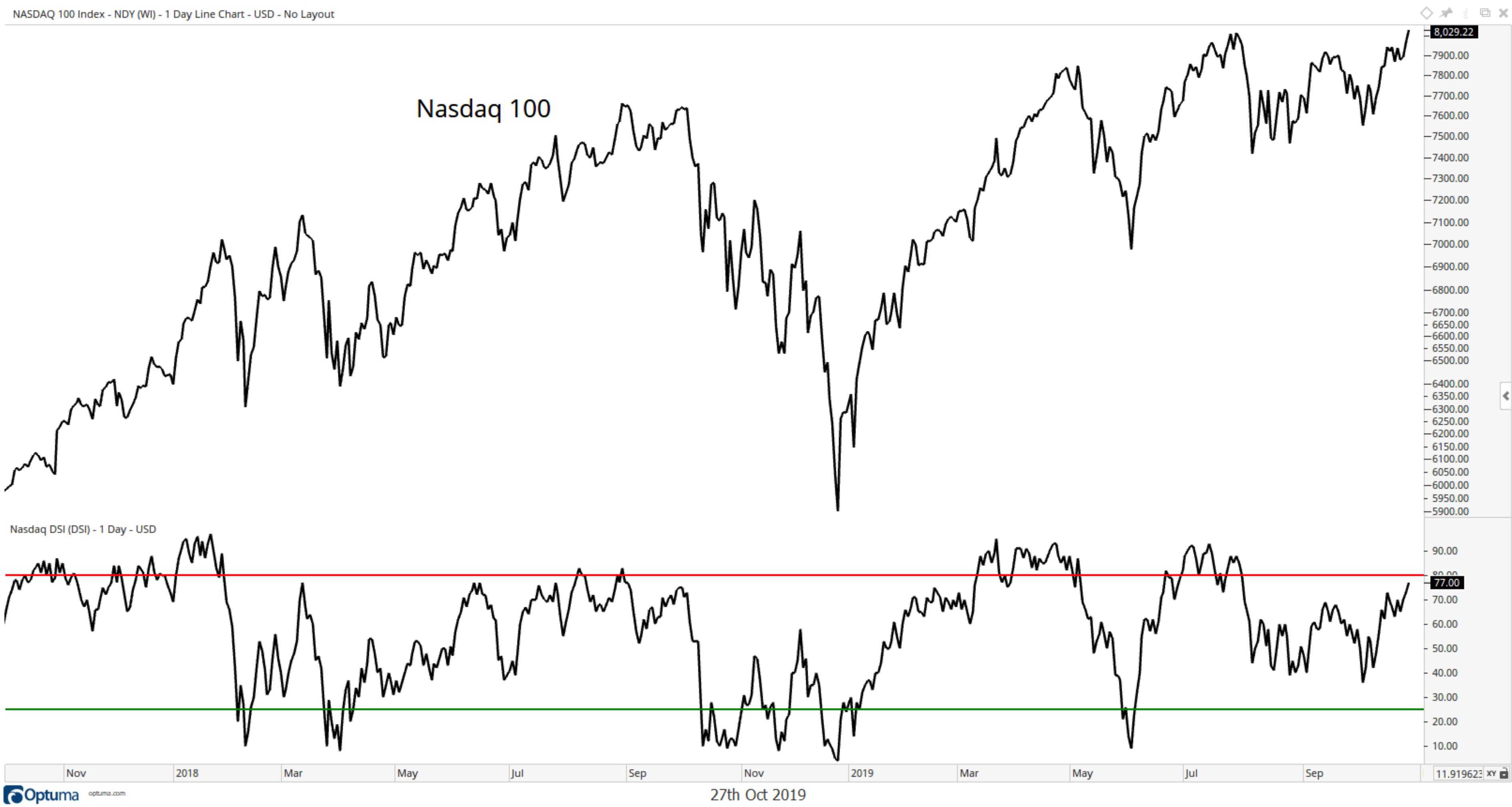
Daily Sentiment Index 5-year Treasury

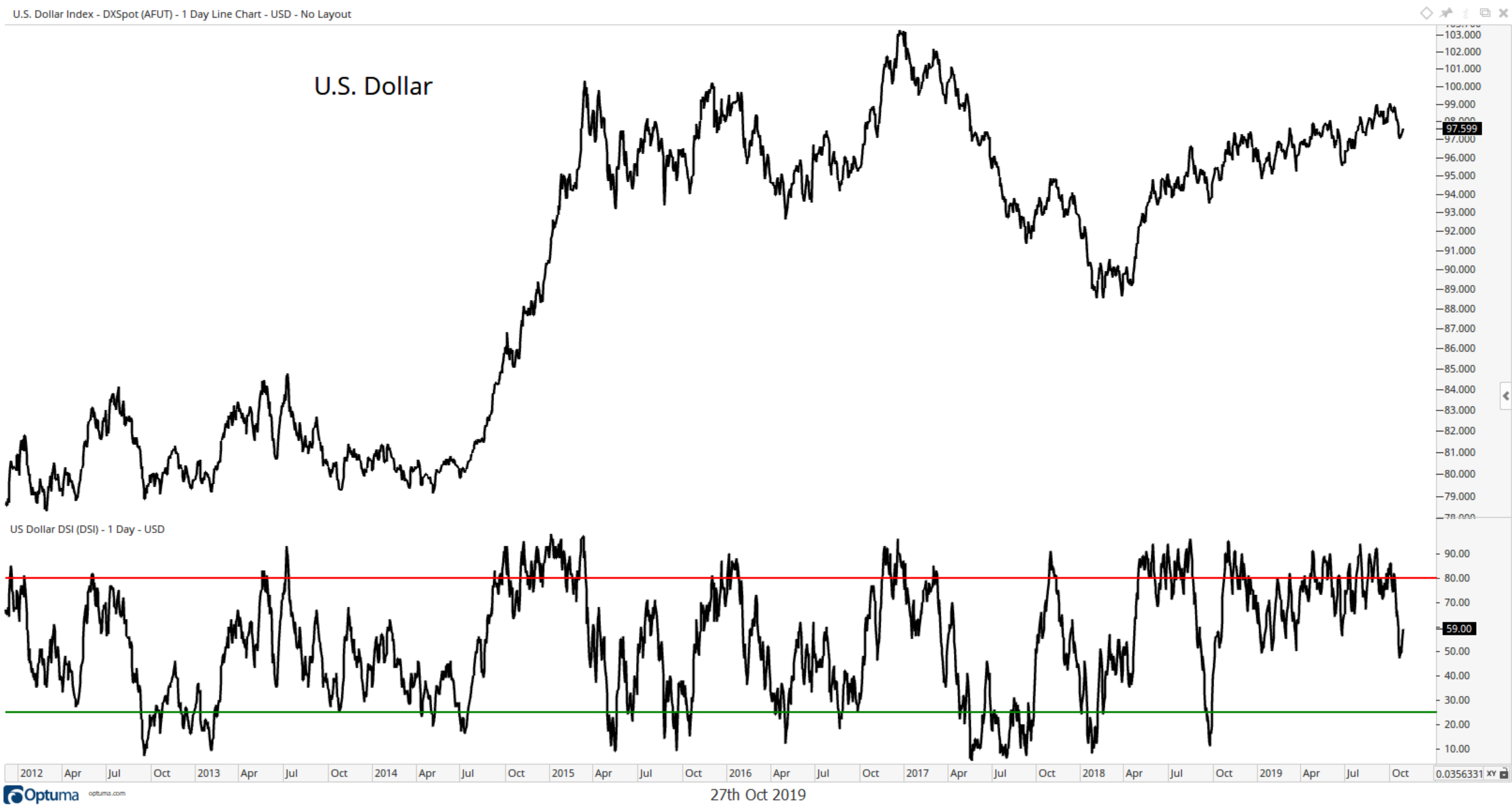


S&P 500 INDEX - SPX (WI) - 1 Day Line Chart - USD - No Layout
S&P 500
3,022.55
SPX DSI (DSI) - 1 Day - USD
72.00
2018
2019
27th Oct 2019


Gold Futures - GCSpot (NYMEX) - 1 Day Line Chart - USD - No Layout
Gold
1,505.30
Gold DSI (DSI) - 1 Day - USD
47.00
2017
Mar
May
Jul
Sep
Nov
2018
2019
Optuma
27th Oct 2019

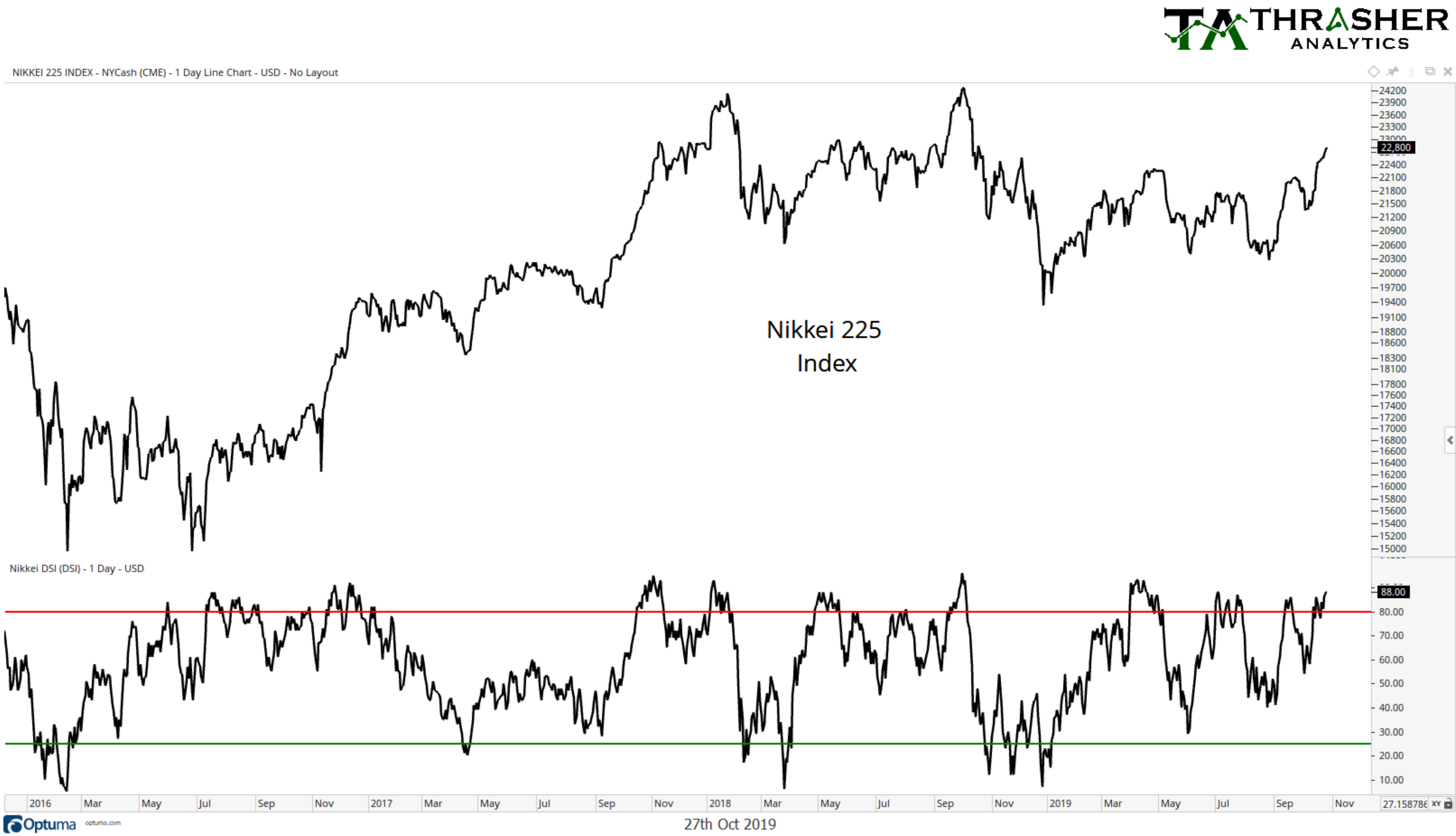
Daily Sentiment Index Nasdaq 100

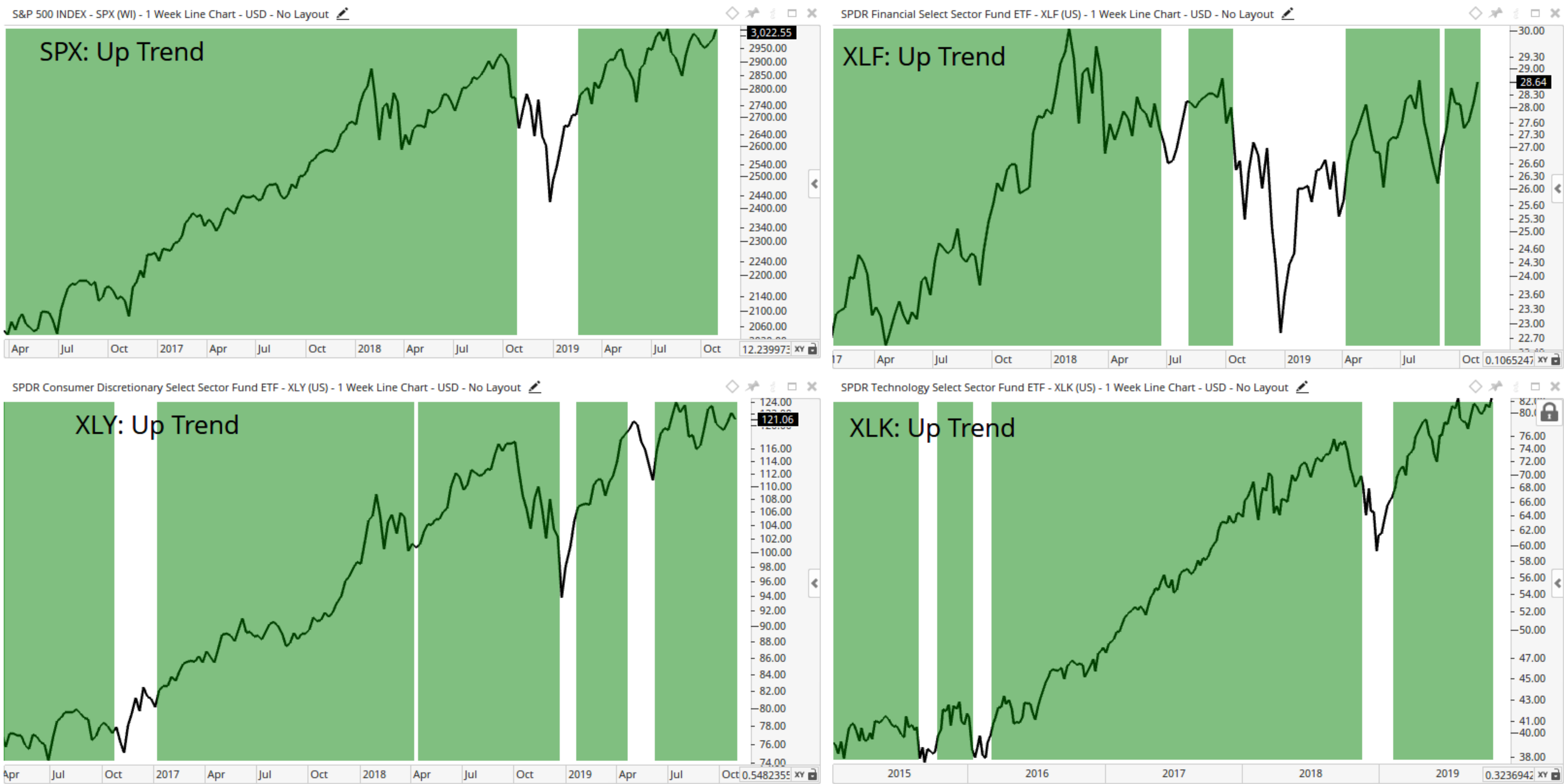



U.S. Dollar Index - DXSpot (AFUT) - 1 Day Line Chart - USD - No Layout
U.S. Dollar
97.599
US Dollar DSI (DSI) - 1 Day - USD
59.00
27th Oct 2019
Optuma

27th Oct 2019

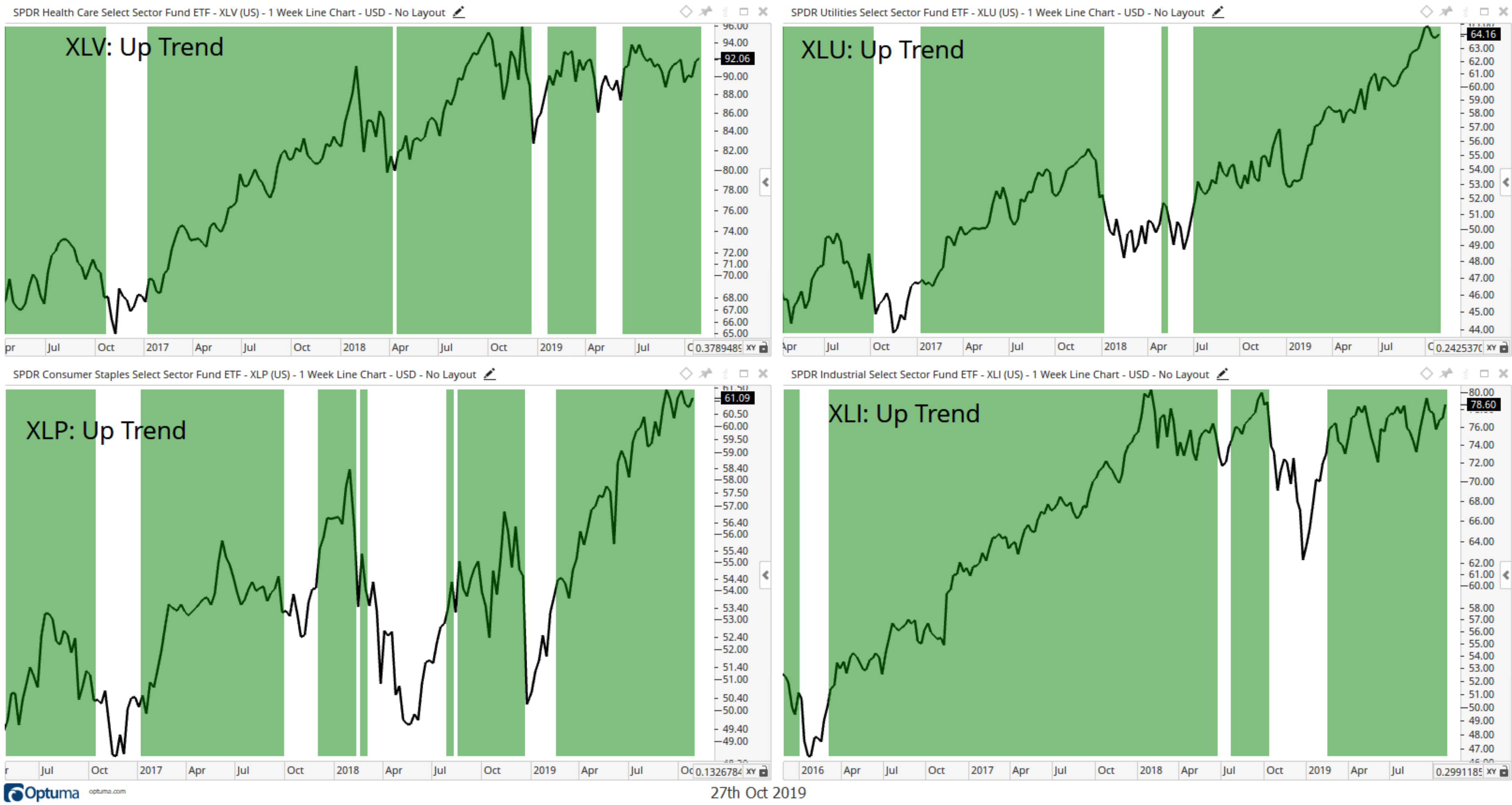
Daily Sentiment Index Nikkei 225



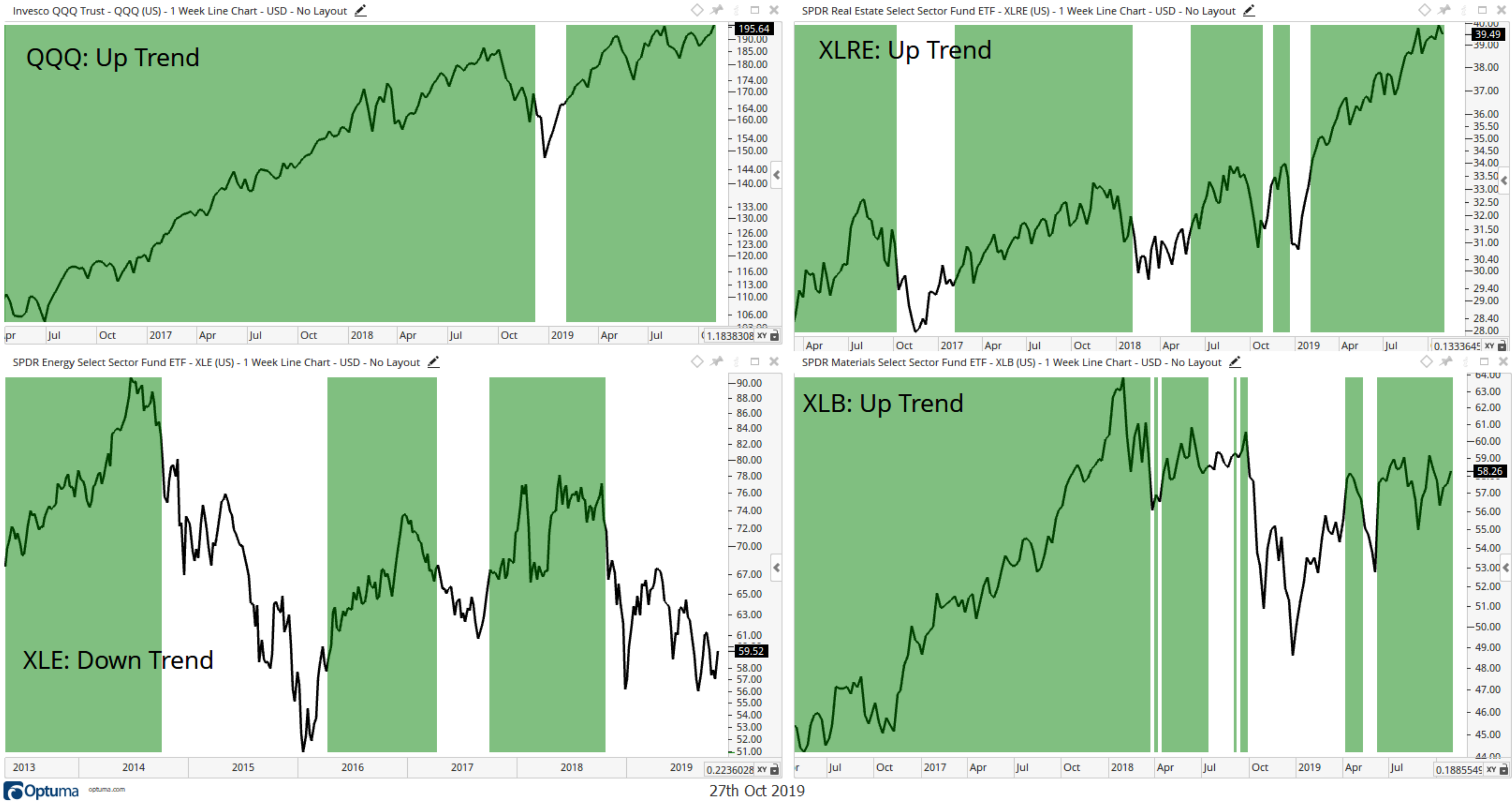


27th Oct 2019

SPX, XLF, XLY, and XLK are all in up trends.



XLV, XLU, XLP, and XLI are all in up trends.

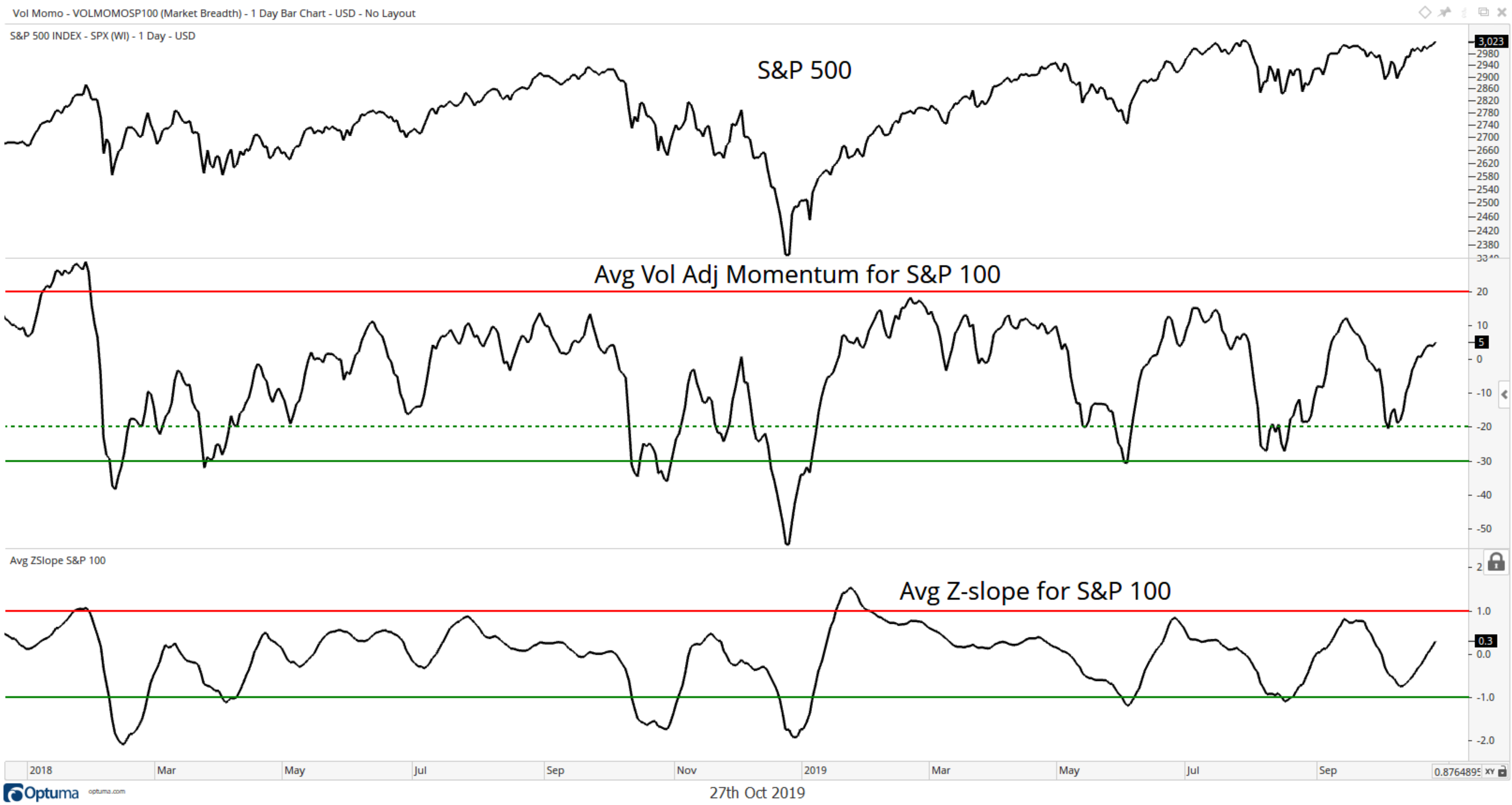


QQQ, XLRE, and XLB are in up trends. XLE is in a down tred.

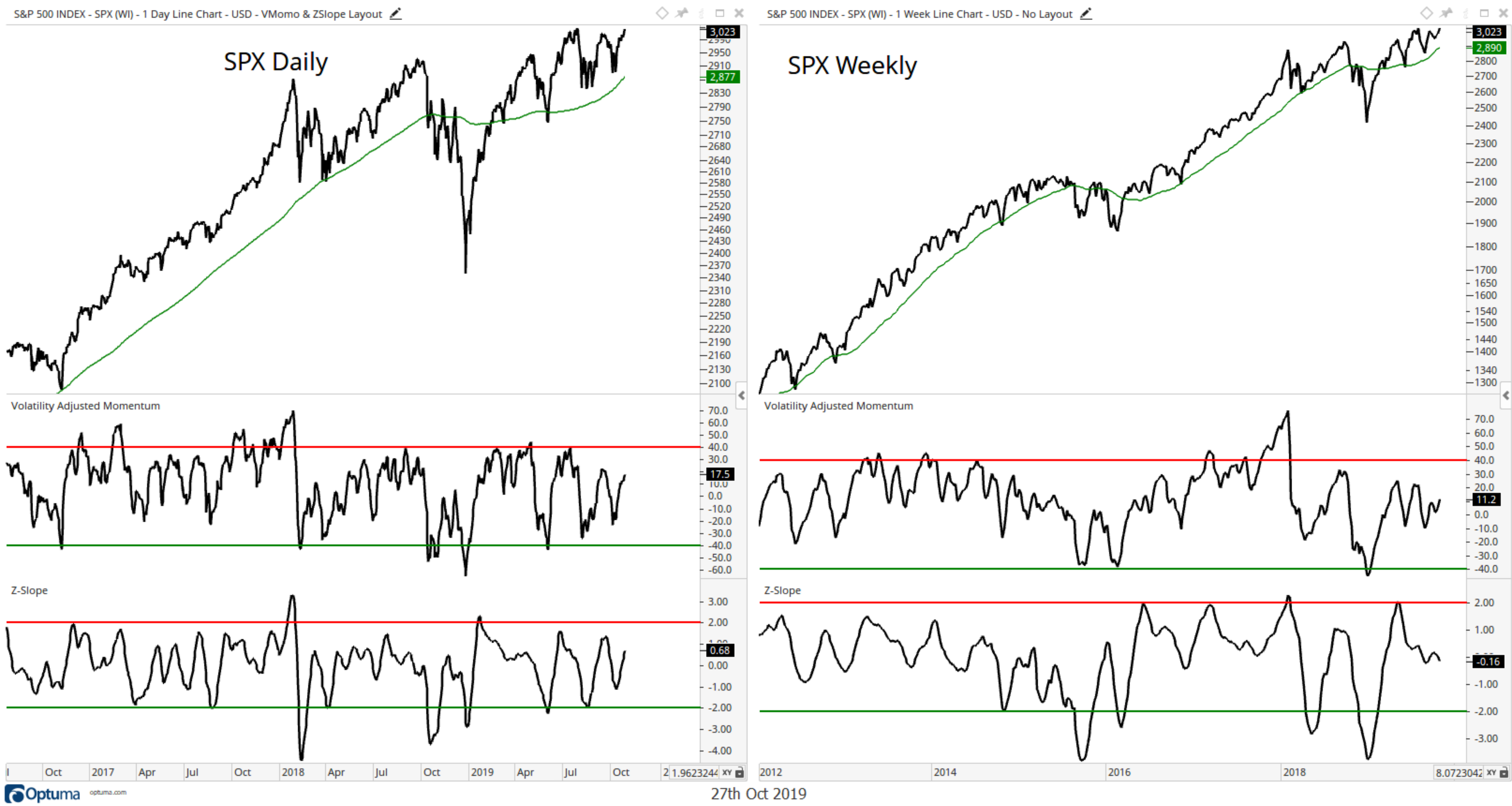
The following charts will become a regular installment for this, and future letters. Each page will include a daily and weekly chart with two indicators that are unique to Thrasher Analytics. With a focus on risk mitigation, the focus of these charts is on potential mean-reversion of each asset through the analysis of the two indicators described below.

Volatility-Adjusted Momentum (VaM: This is a spin on the traditional measures of momentum, taking into account the volatility of the underlying asset into the calculation. By adjusting for volatility we can get a better look at potential mean-reversion signals when risk/reward becomes unbalanced towards 40 as 'overbought' or –40 as 'oversold.'

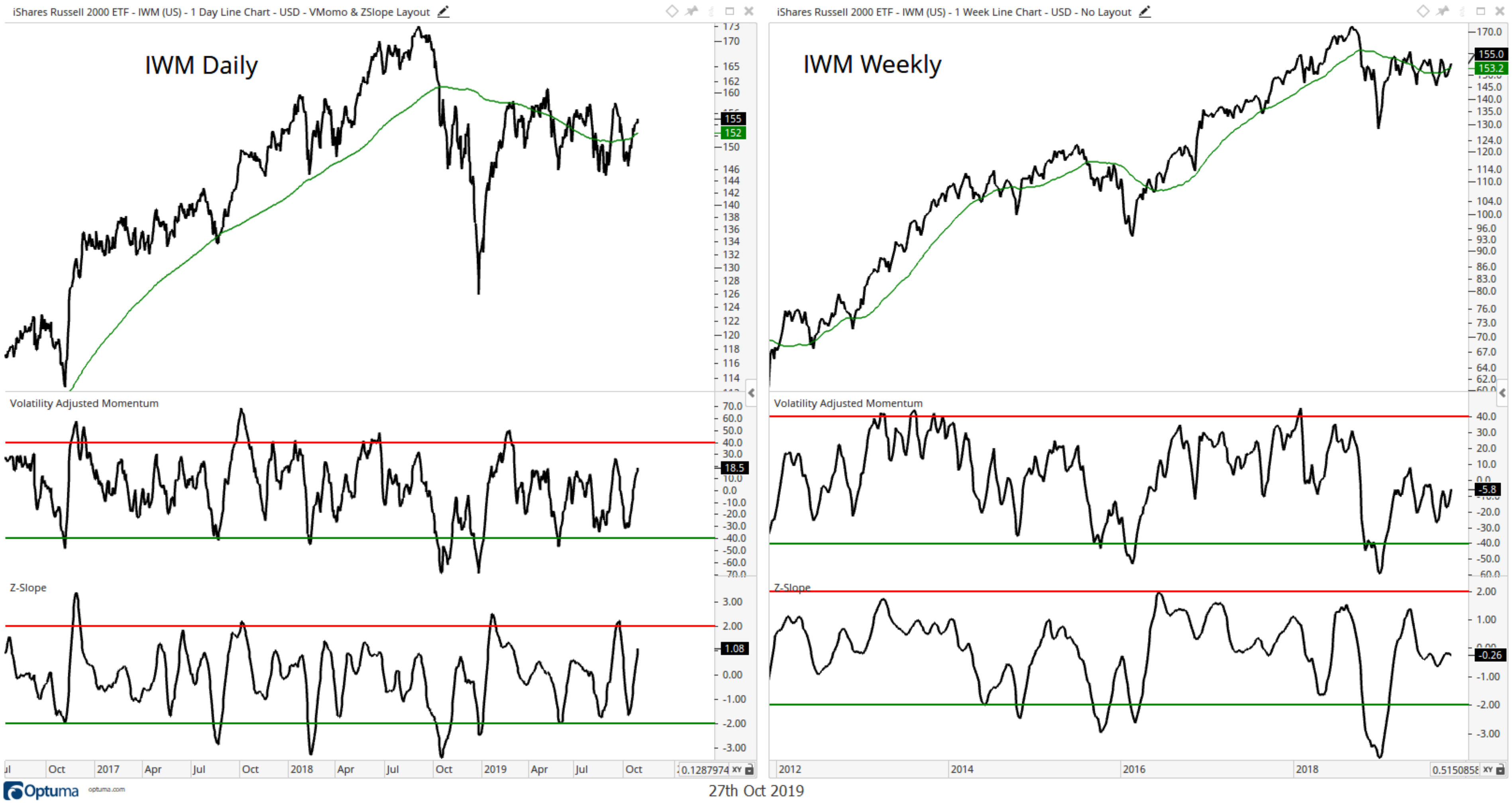
Z-Slope: This indicator takes two lookback periods, one long and one short, for calculating the slope and evaluates the z-score of the difference. This provides insight into whether the current slope of the trend fits within the long-term price history of the security. If a z-score breaks above 2, then the slope has gotten to upward sloping compared to its history. And the opposite is true when we get readings below –2, that the downward sloping trend has gotten 'oversold' compared to the asset's price history.



Above are the average Volatility Adjusted Momentum Indicator (VaM) and Z-slope scores for the S&P 100. I've shown just the S&P 100 because they are the most impactful to the overall S&P 500 index. Both, VaM and Z-Slope have begun to recover and strengthened over the last week.



Daily Z-Slope and VaM both are neutral.



27th Oct 2019

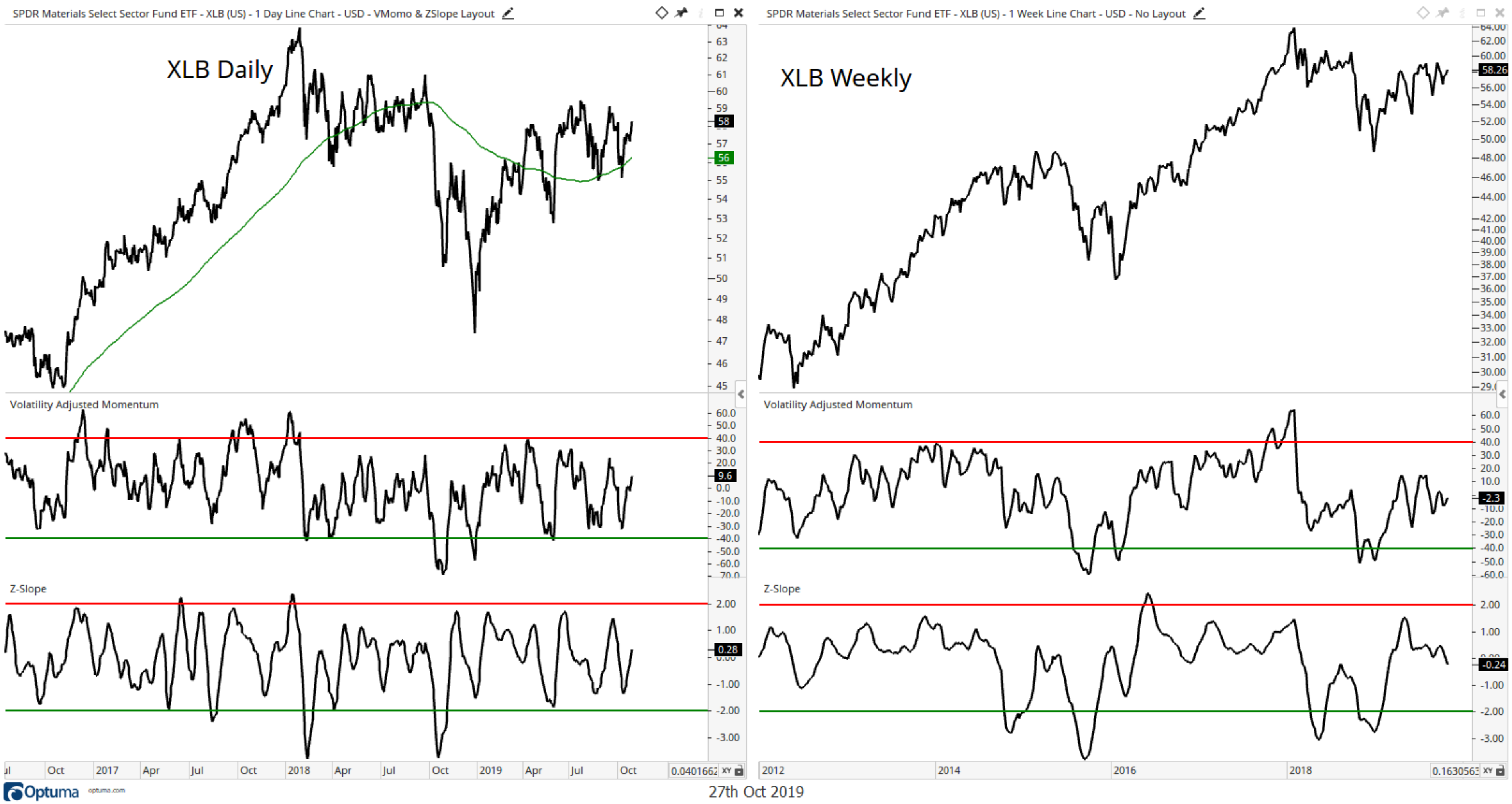
Neutral readings for both VaM and Z-slope.

Optuma

27th Oct 2019

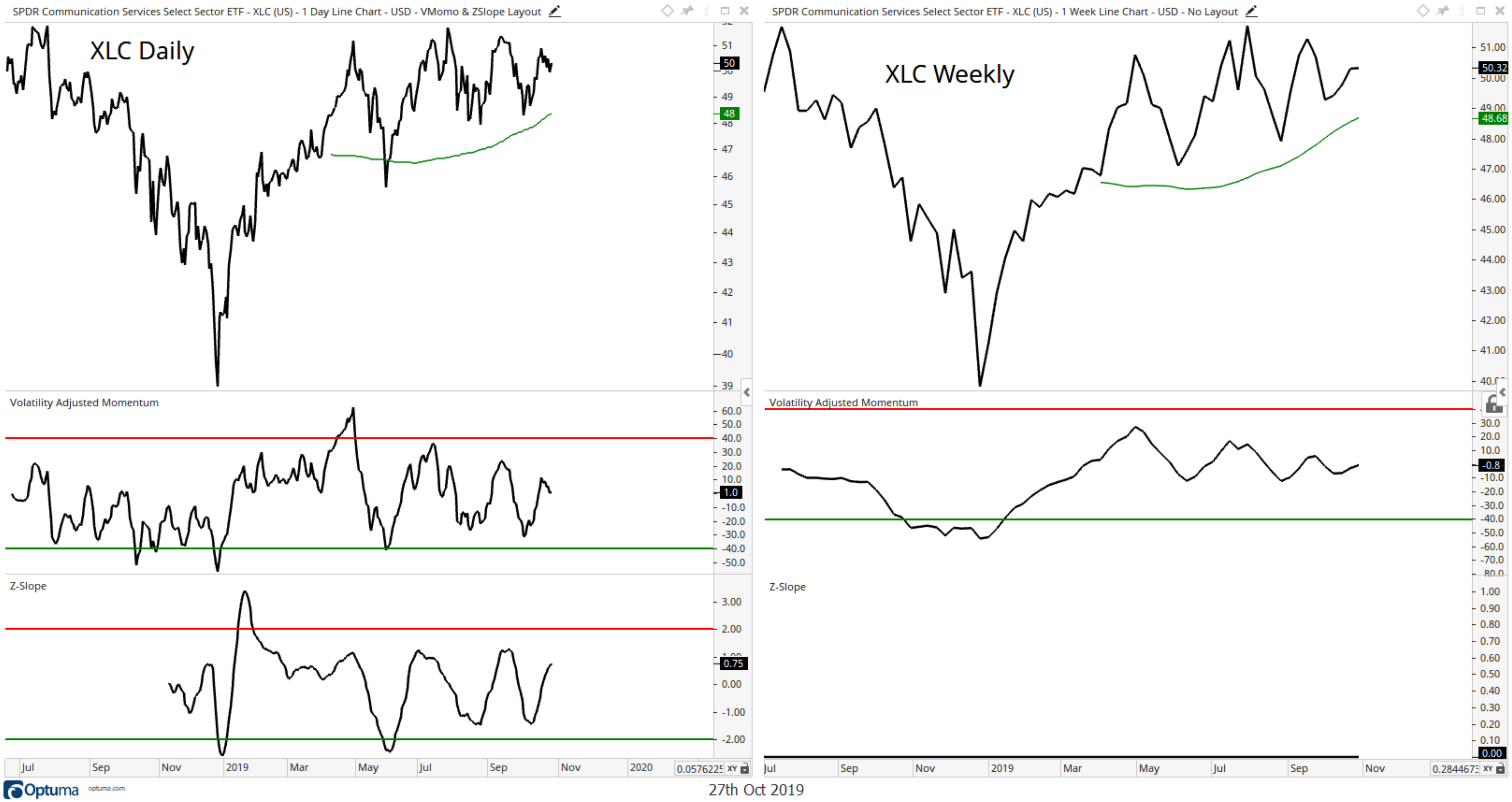
Neutral readings for both VaM and Z-slope.

XLB

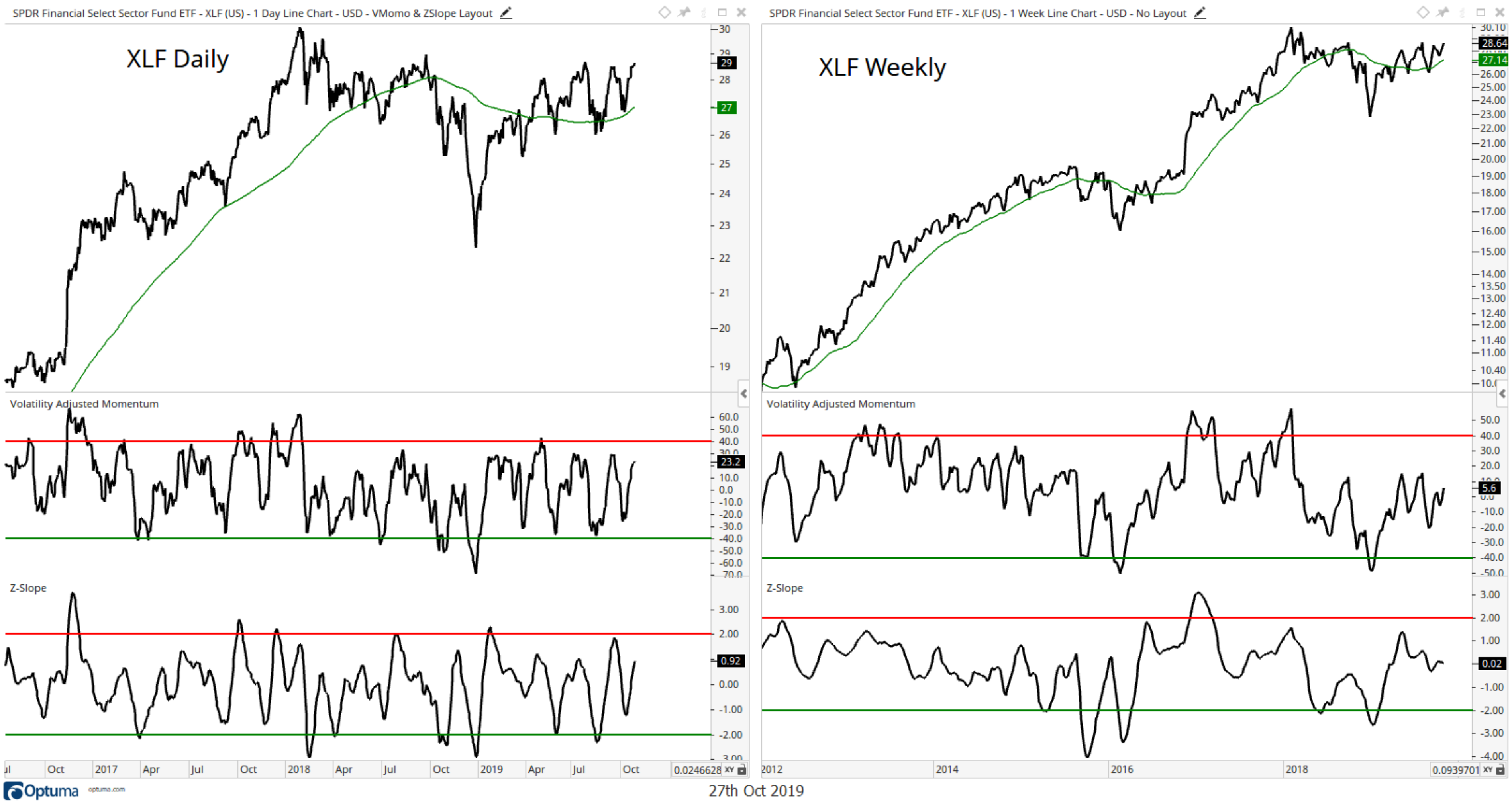


Neutral readings for both VaM and Z-slope.

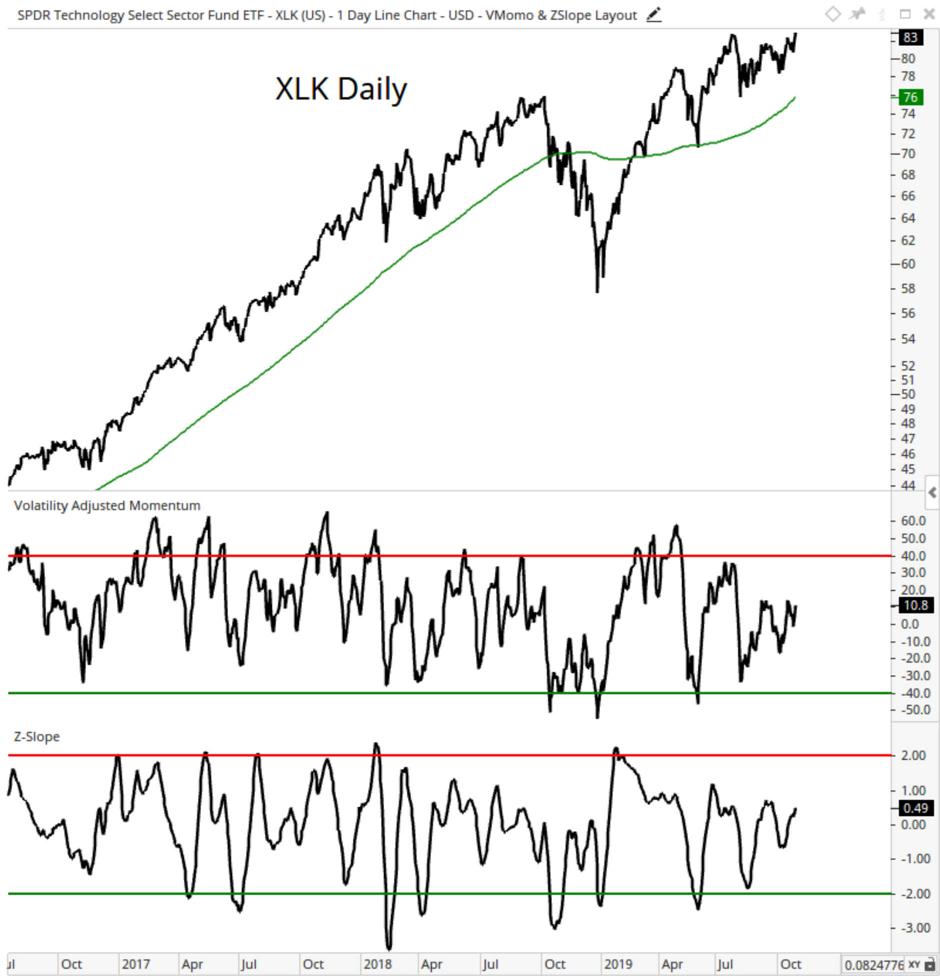
Neutral readings for both VaM and Z-slope.



Neutral readings for both VaM and Z-Score.



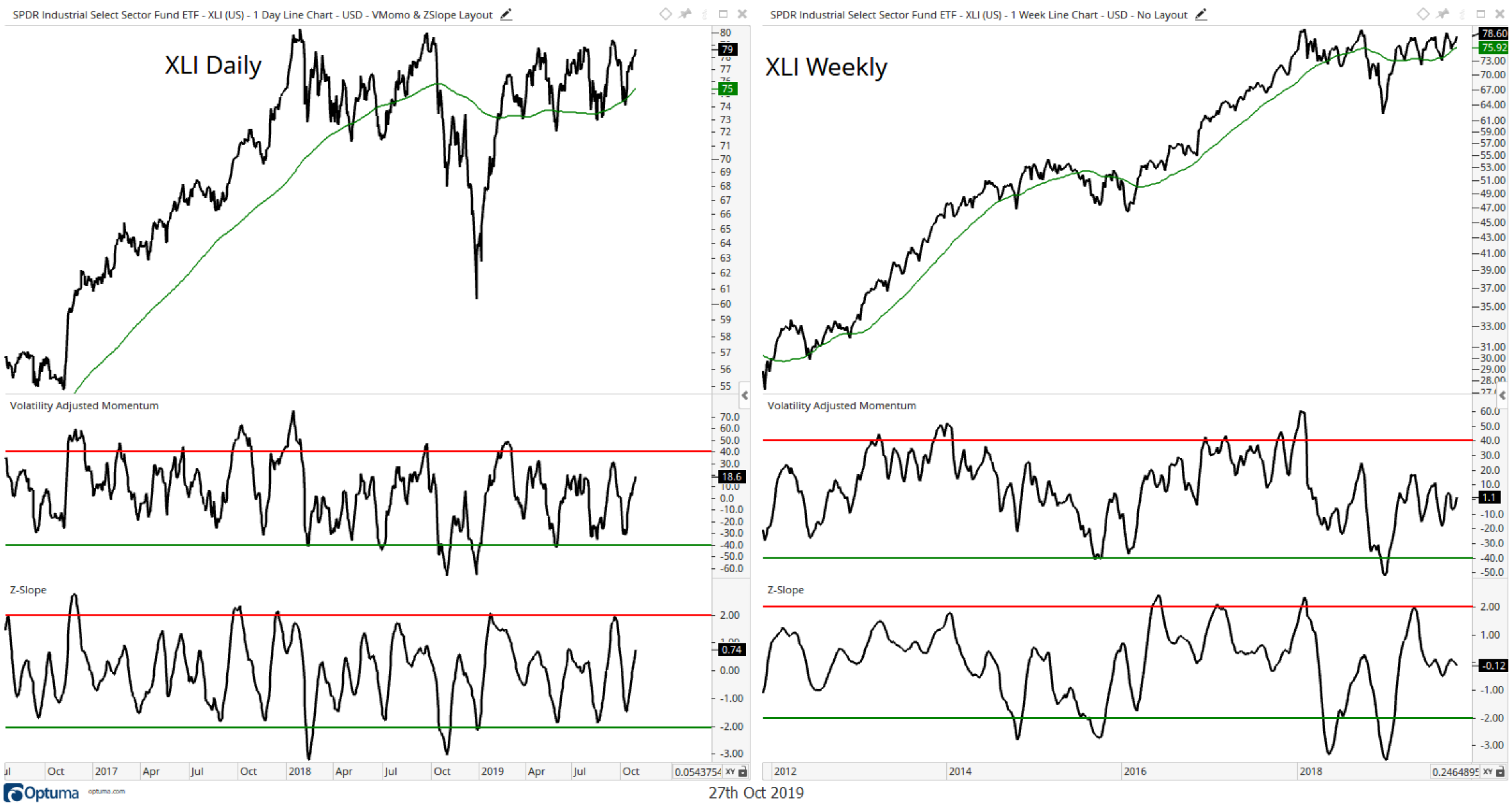
Neutral readings for both VaM and Z-slope.



Optuma

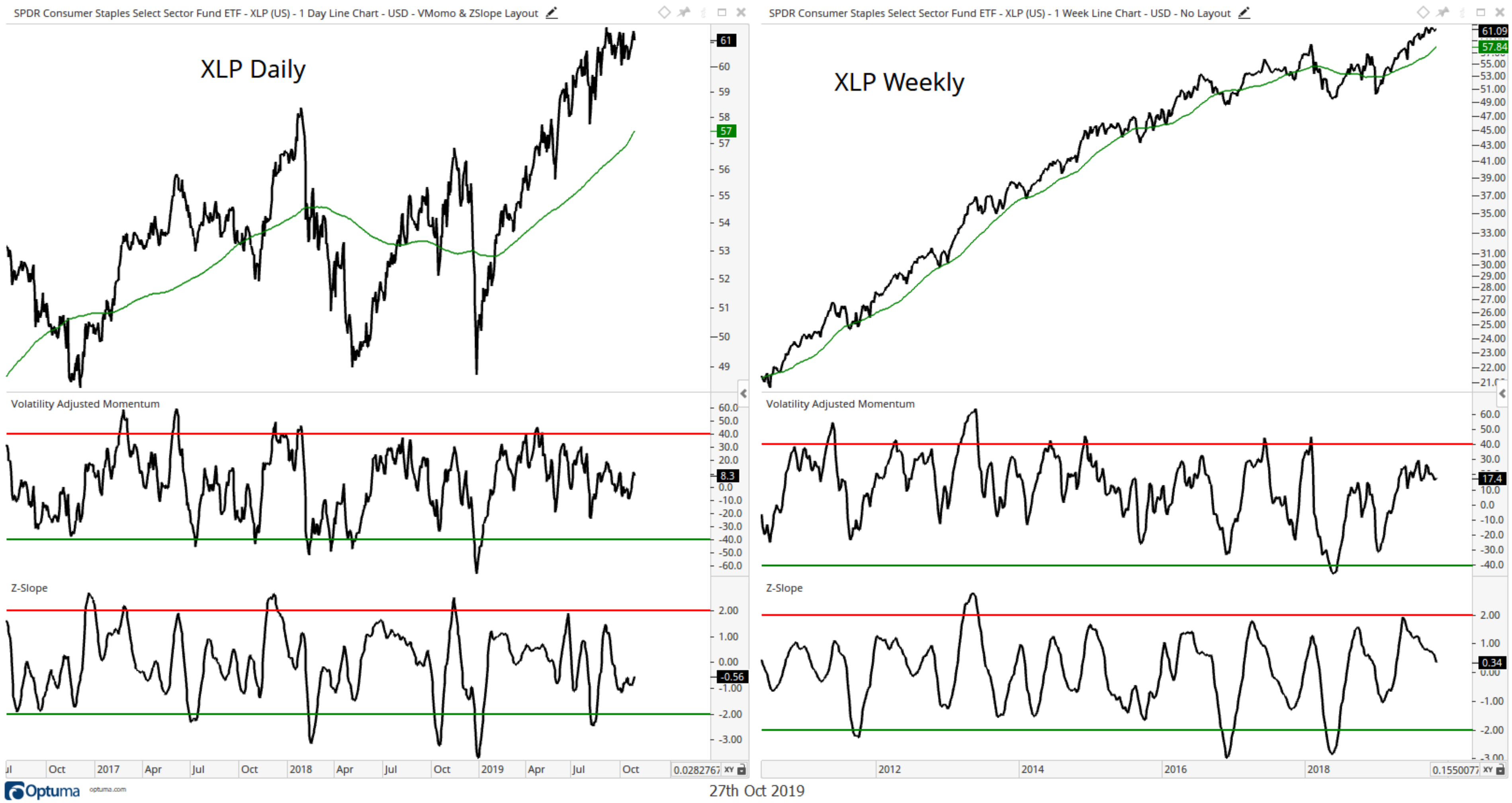
27th Oct 2019

Neutral readings for both VaM and Z-slope.



27th Oct 2019

Neutral readings for both VaM and Z-slope.



Neutral readings for both VaM and Z-slope.

XLRE

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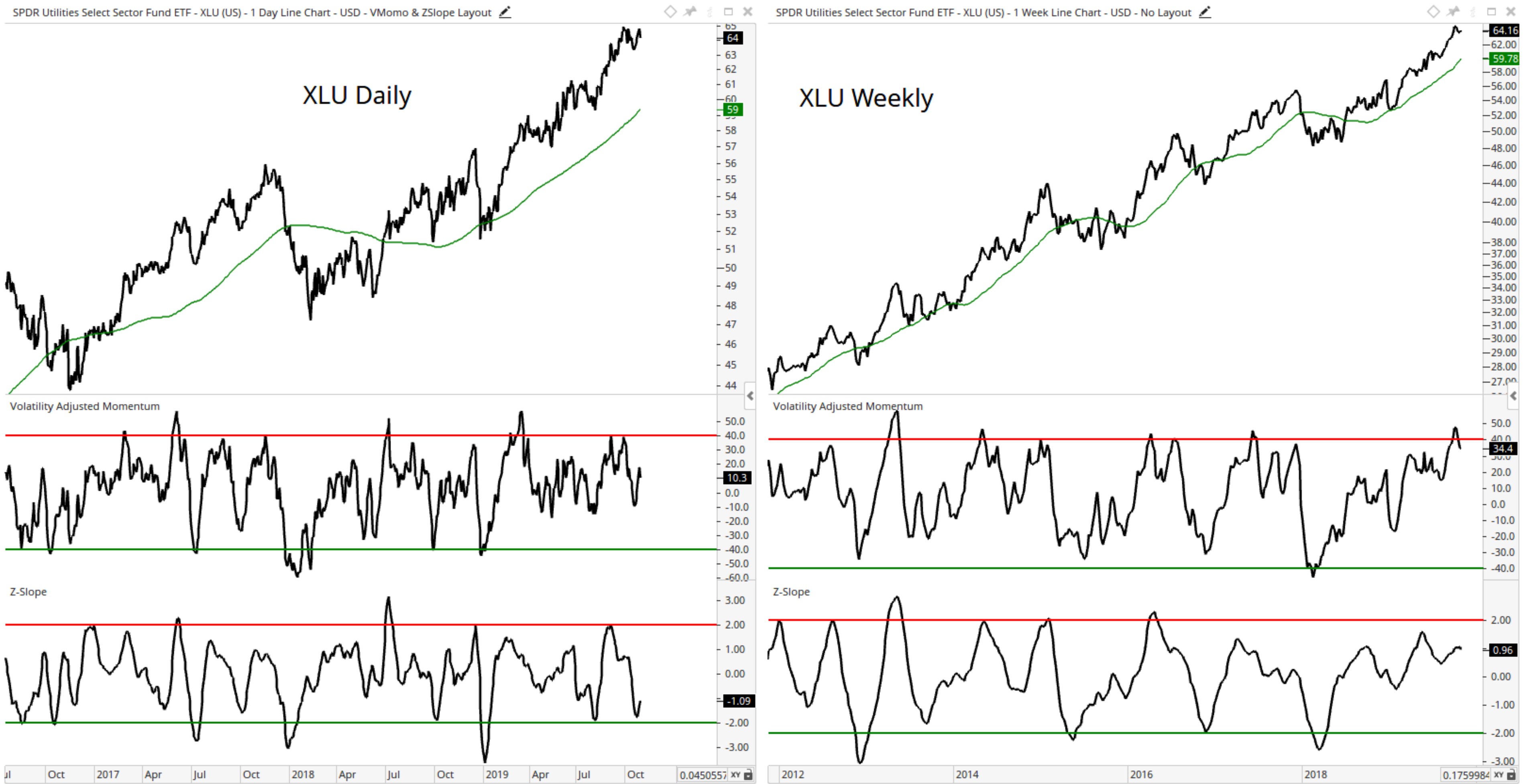
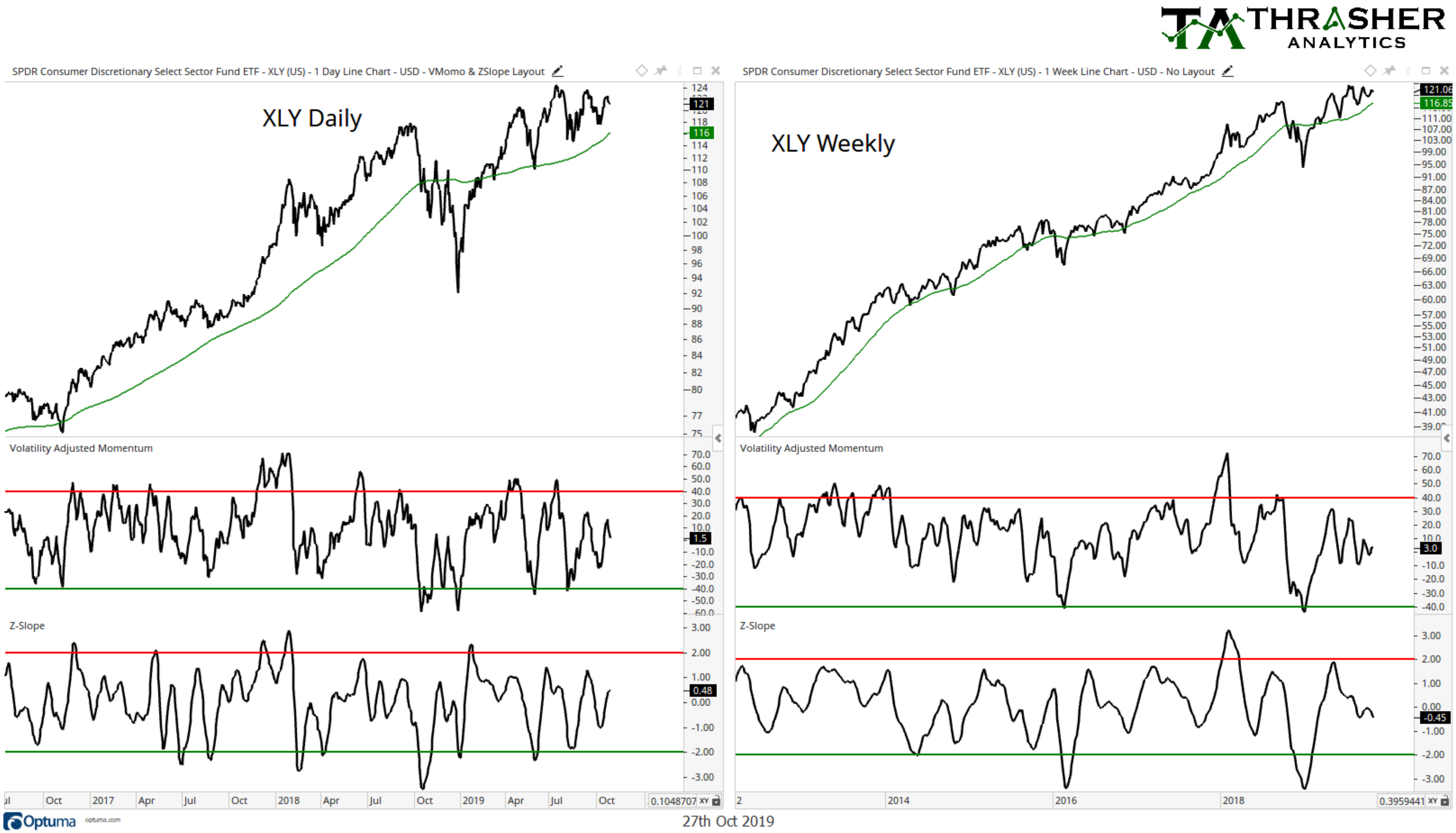
Neutral readings for both VaM and Z-slope.

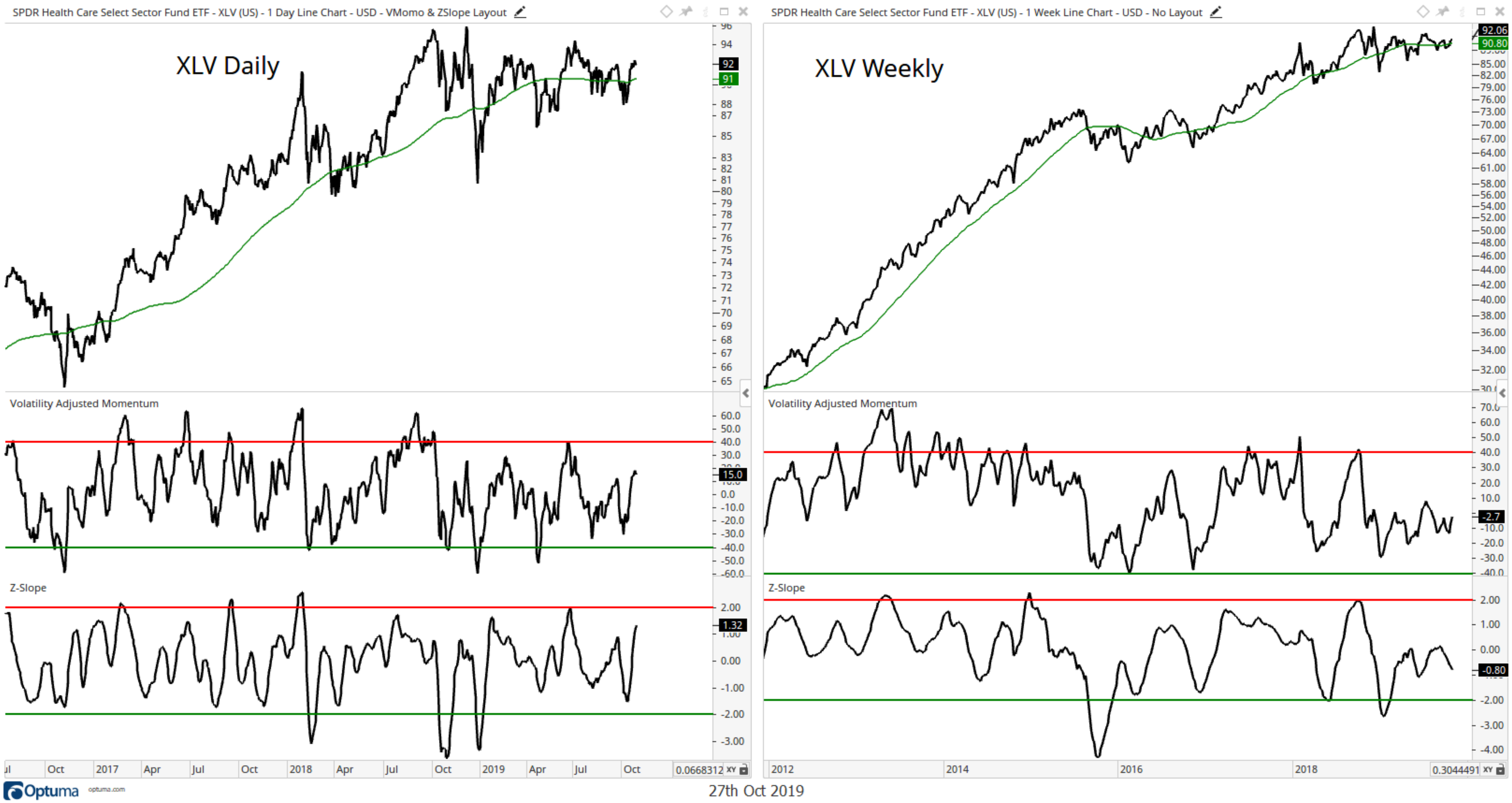


27th Oct 2019

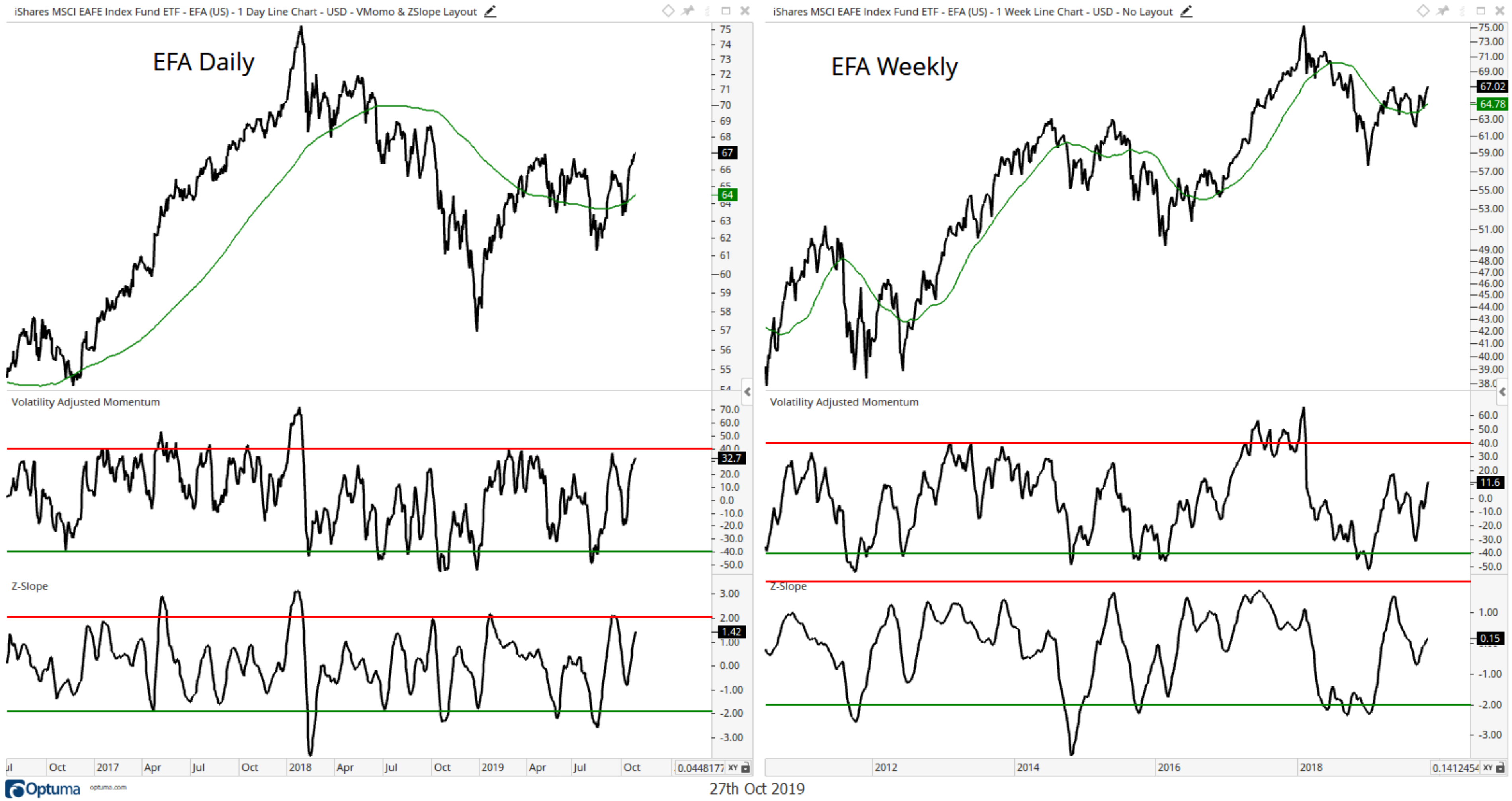
Neutral readings for both VaM and Z-slope.



Neutral readings for both VaM and Z-slope.

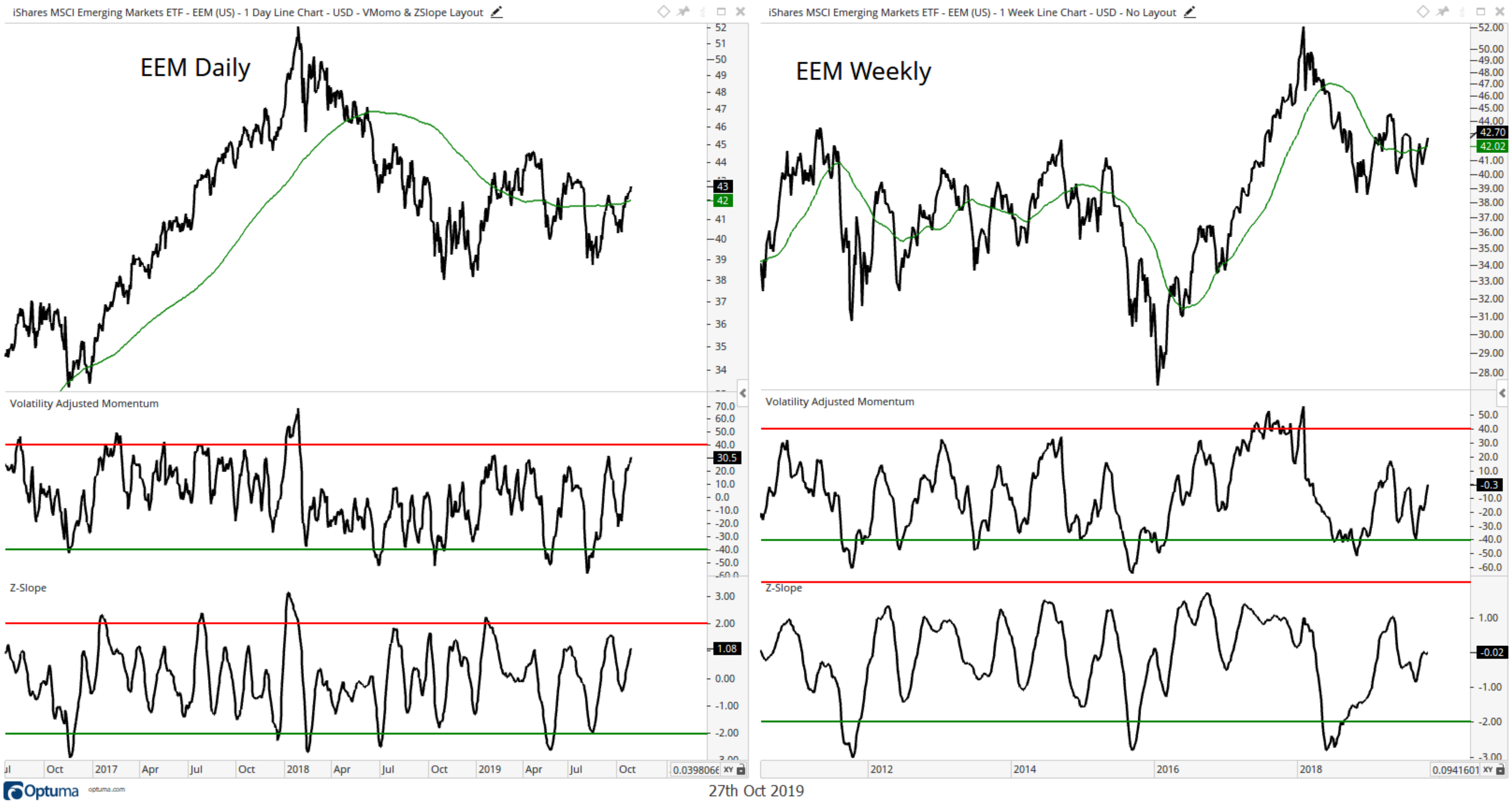


Neutral readings for both VaM and Z-slope.

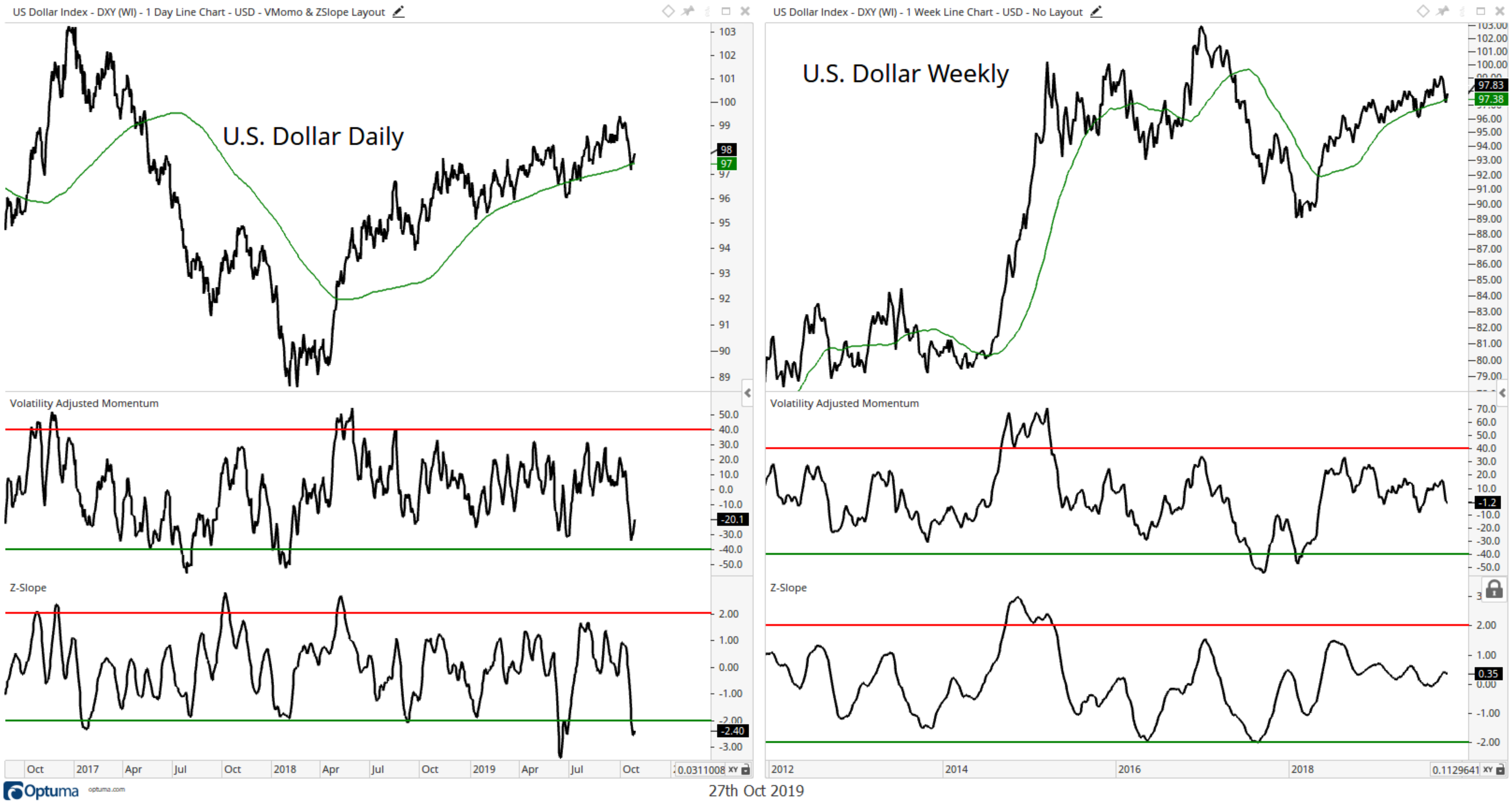


27th Oct 2019

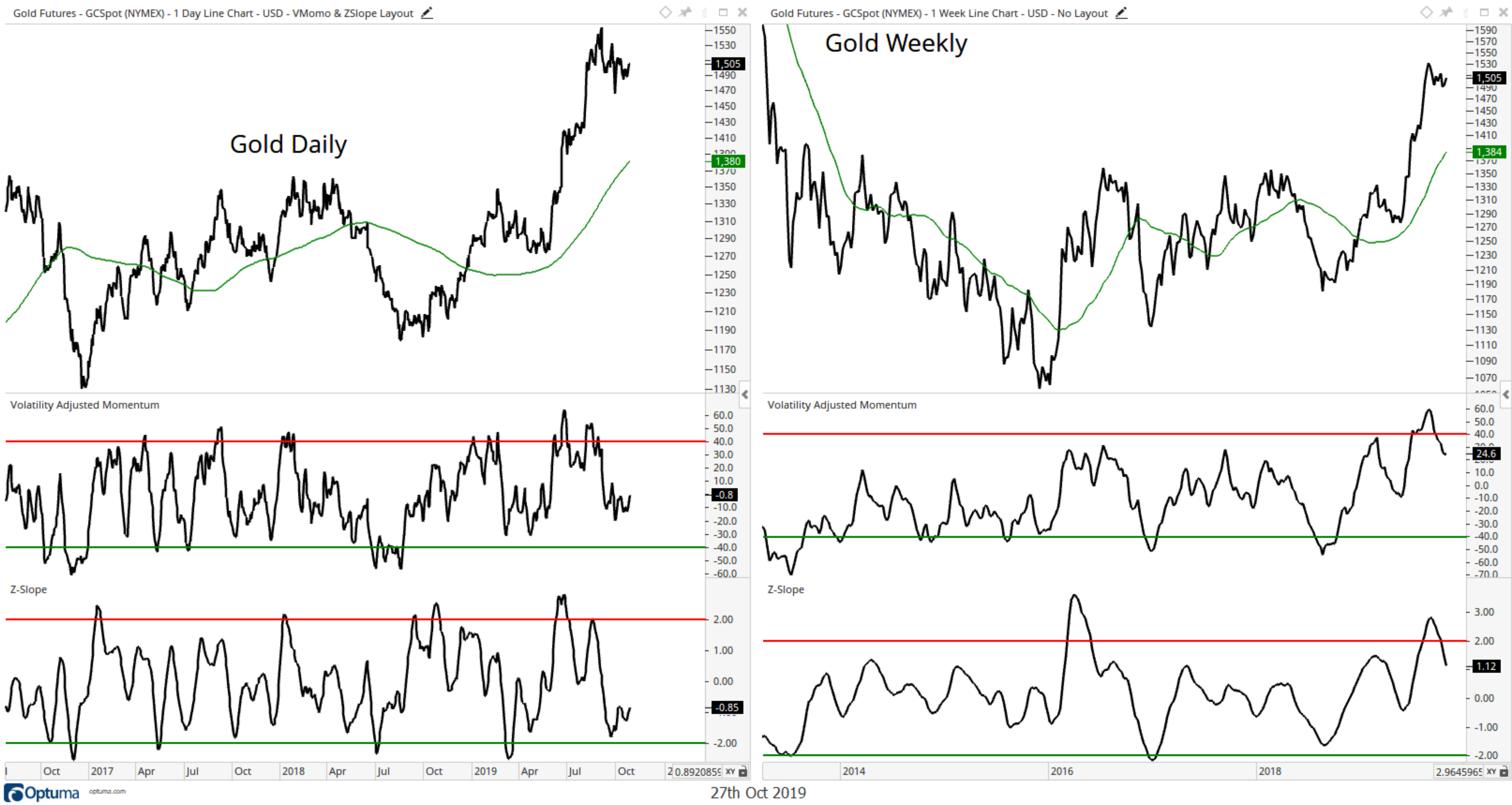
Neutral readings for both VaM and Z-slope.



Neutral readings for both VaM and Z-slope.



Neutral readings VaM while Z-slope is ‘oversold’.



Neutral readings for both VaM and Z-slope with weekly VaM and Z-slope coming off ‘overbought’ level.

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Neutral readings for both VaM and Z-slope.

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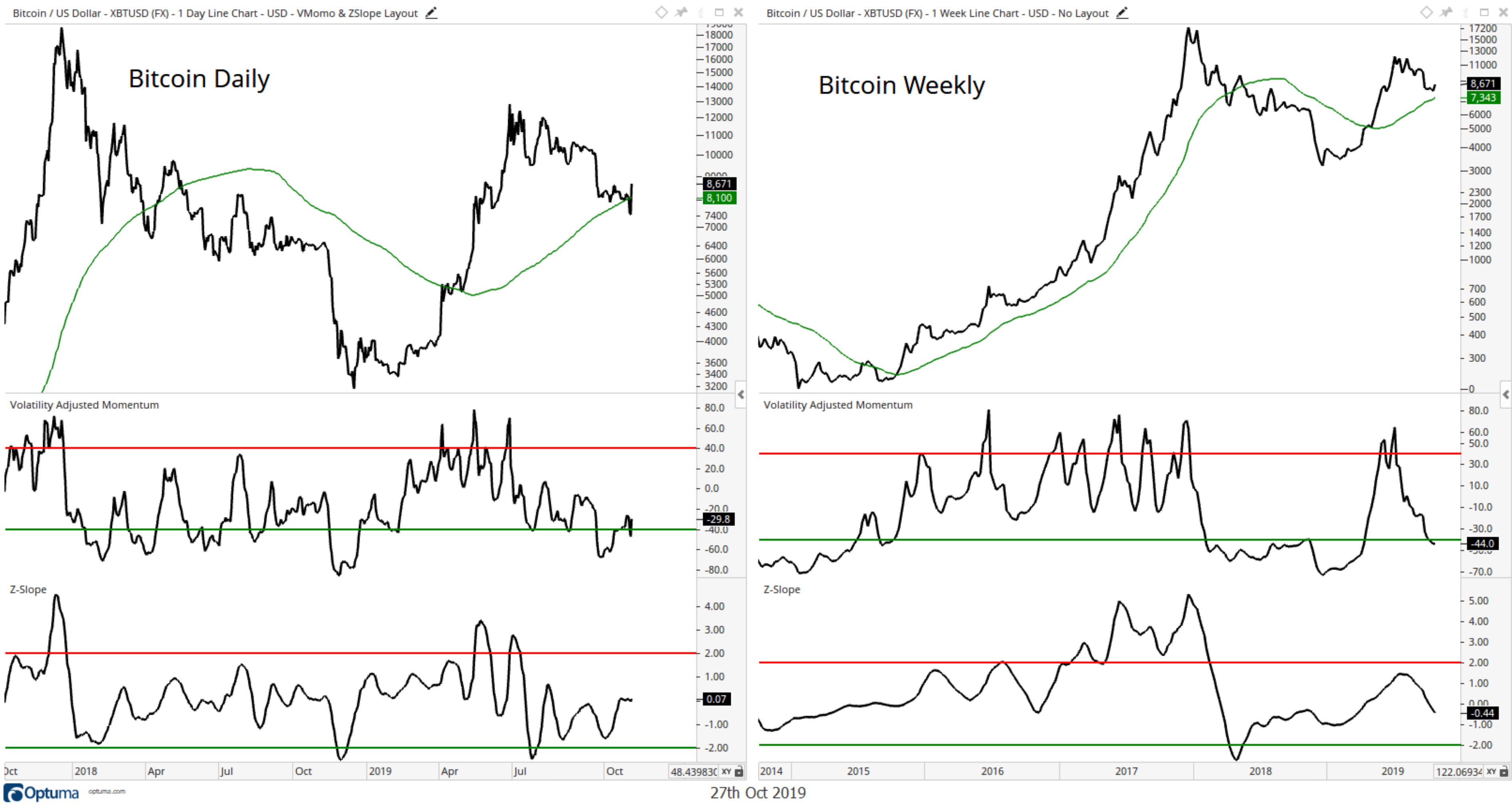
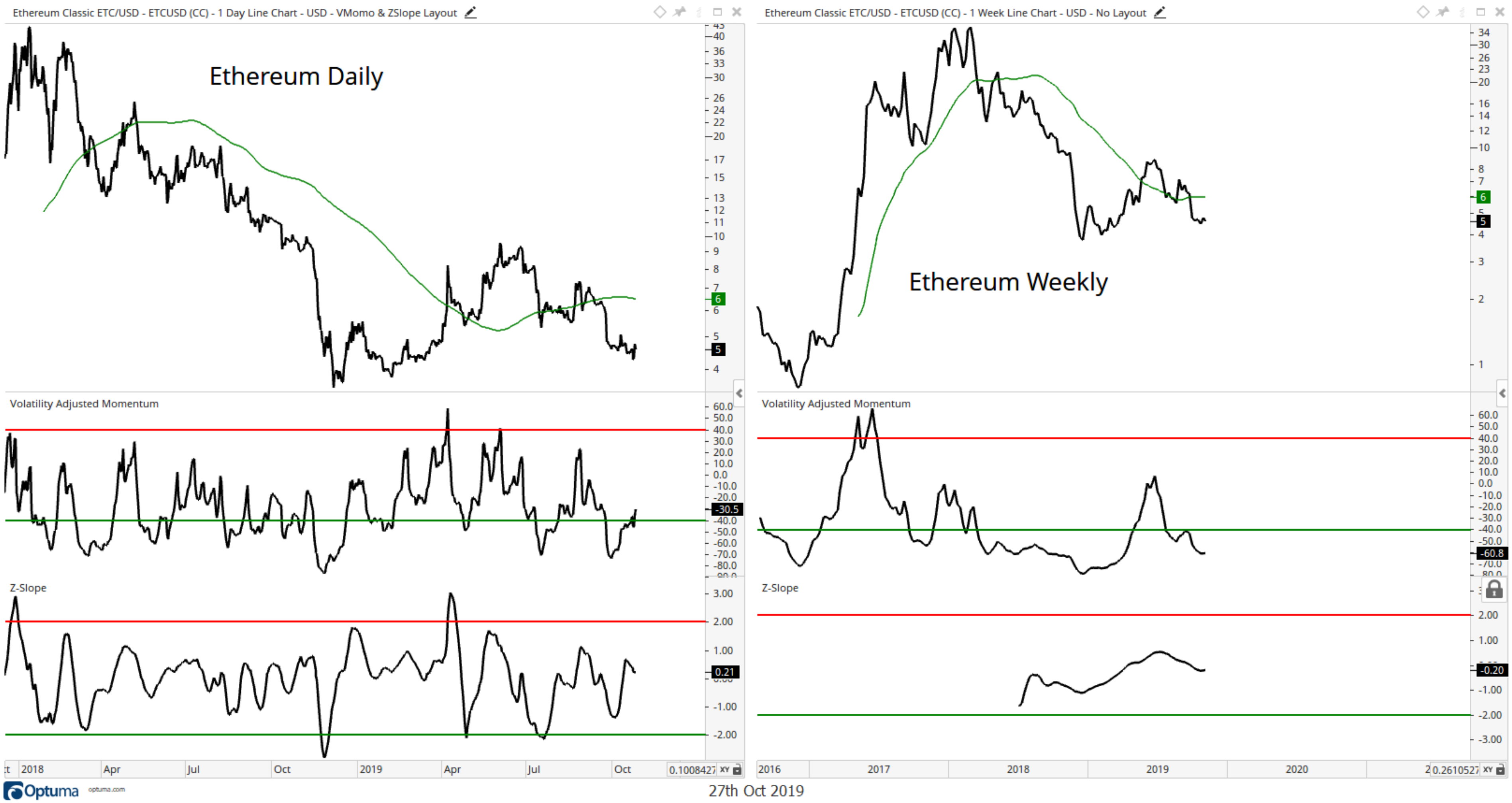
Neutral readings for both VaM and Z-slope.



Daily VaM is 'oversold'.

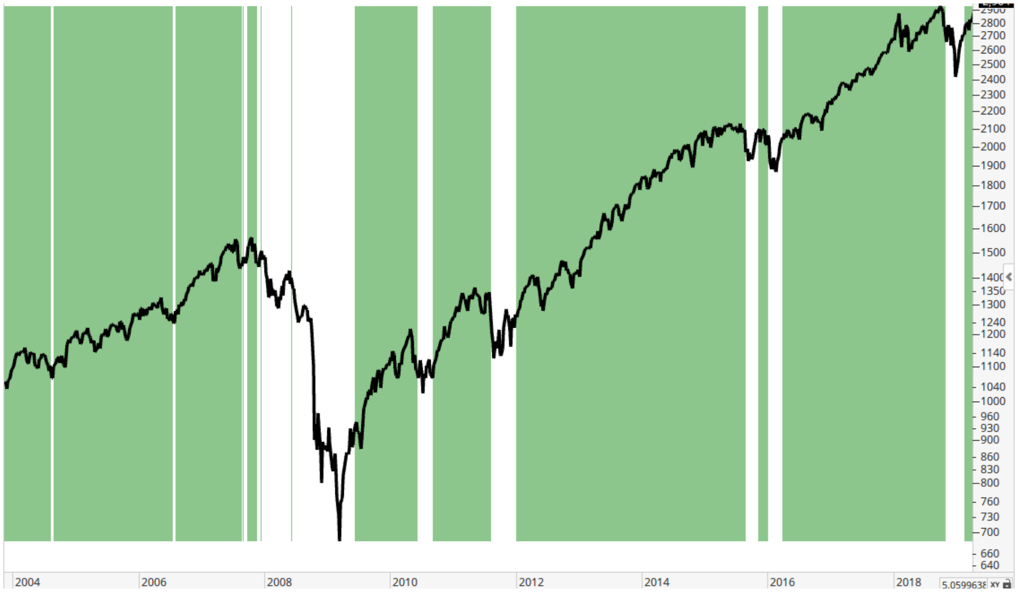


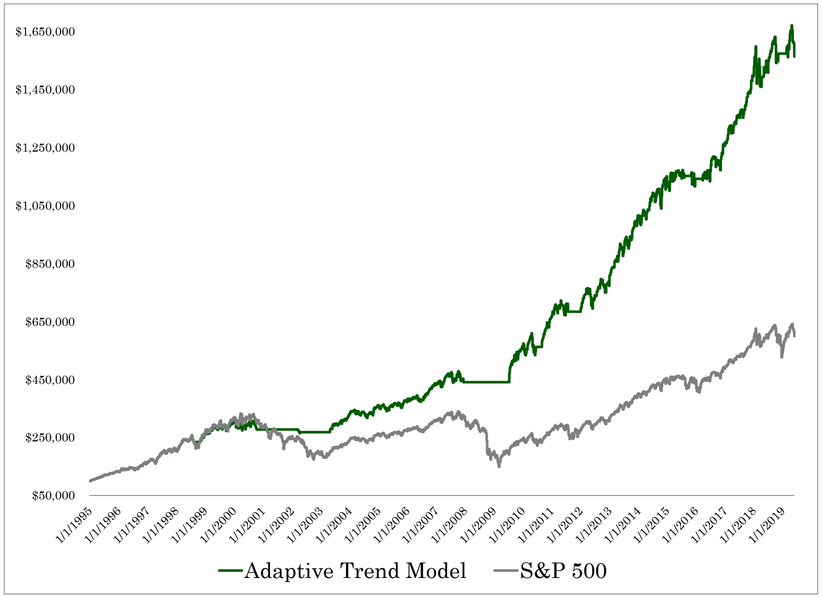
27th Oct 2019

Neutral readings for both VaM and Z-slope.

Trend-based analysis is a process built on the idea of enduring minor pullbacks in the anticipating of avoiding protracted drawdowns in financial markets. With a focus on stepping out of the market during large down trends, the Thrasher Analytics Adaptive Trend Model (TAATM) pursues to minimize the "whipsaws" of signals during highly volatile periods of market activity. To accomplish this, TAATM incorporates multiple look-back time periods and incorporates volatility gauges in its evaluation of the equity market's overall trend.

Thrasher Analytics analysis concludes the market's trend is led by the resulting trend of its individual stocks. This means, if the majority of stocks are trending in one direction, then the broad index will be persuaded to follow that trend as well. By incorporating the individual stock trends, volatility, and multiple time periods, the TAATM provides a data-focused look at the overall trend of the U.S. equity market.



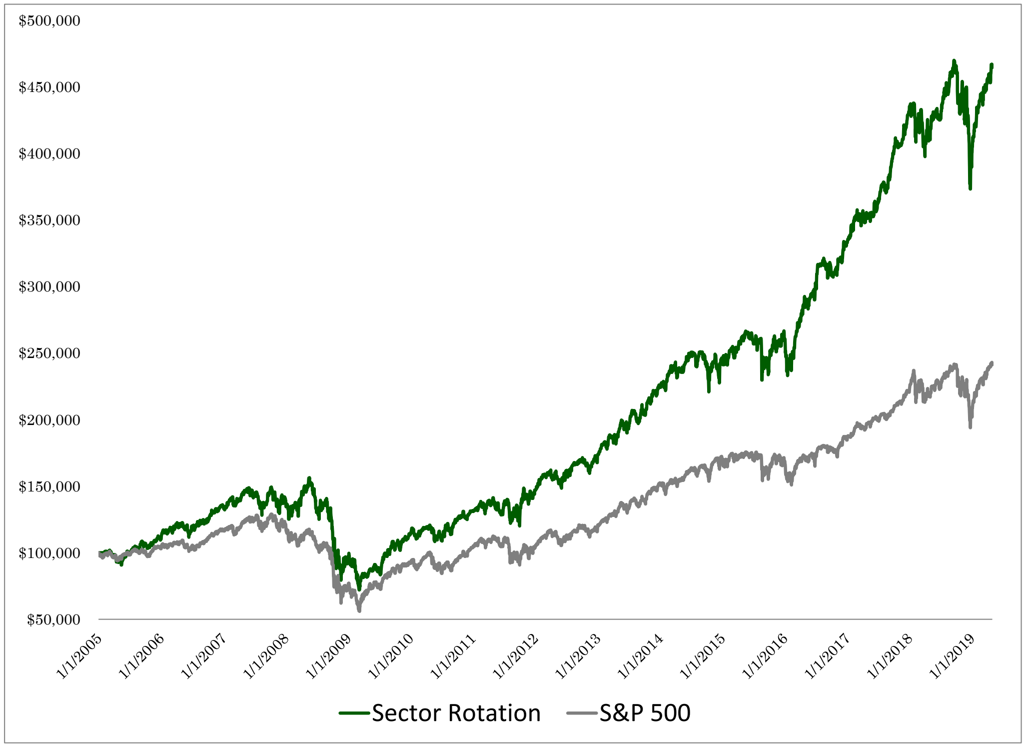


	Annualized Return	Annualized Volatility	Beta	Sharpe	Maximum Drawdown
Adaptive	12.5%	10.3%	0.47	0.97	14.1%
S&P 500	8.9%	15.3%	1	0.42	56.6%

Provided charts, data, and descriptions are a result of a back test using historical market data. No representation is being made that the use of this strategy or any system or data will generate profits. The results do not represent actual results and actual results may significantly differ from the theoretical returns being presented.

Please see complete disclosure for additional information.

Thrasher Analytics holds the belief, resulted from an in-depth examination of the performance of the primary S&P sectors, that they historically cycle through periods of strength and weakness. In order to move towards capturing the alpha from this rotation, a mean-reversion model is deployed with a monthly rebalance of the lowest scoring sectors. Using proprietary methods of systematic technical analysis, Thrasher Analytics sector rotation model focuses on equity sectors that are most heavily showing signs of volatility and trend exhaustion and likely to be exposed to a positive shift in investor sentiment. By pairing this mean reversion approach towards sectors with the Adaptive Trend Model for the broad index, a layer of risk management can be achieved through strategy diversification.



	Annualized Return	Annualized Volatility	Beta	Sharpe	Maximum Drawdown
Sector	12.7%	15.9%	0.96	0.64	53.9%
S&P 500	7.5%	14.8%	1	0.34	56.6%

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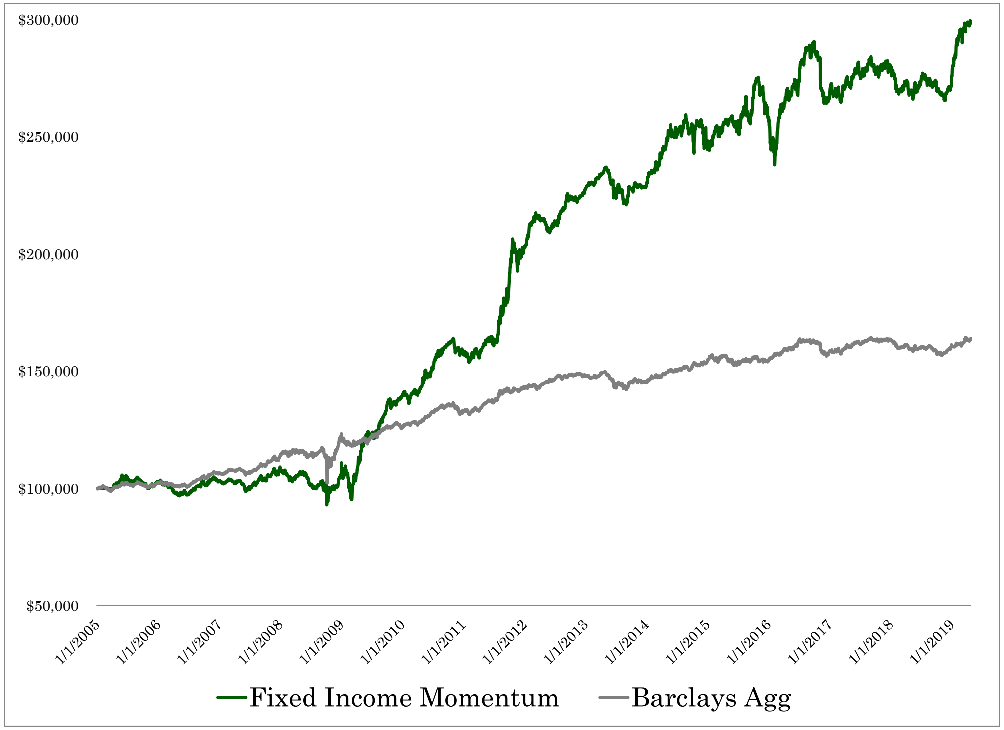
If equities are the speedboats in the sea of financial markets then fixed income securities are the tanker ships. While stocks can move violently in both directions, Thrasher Analytics research has shown that fixed income markets historically show consistent trends. Because of the tanker-like movements displayed by bonds, a quarterly rebalance method is used for the Thrasher Analytics Fixed Income Momentum Model, with a pursuit focusing on the strongest performing corners of the fixed income market. By evaluating the risk adjusted momentum of both long- and short-term momentum, the Fixed Income Momentum Model also incorporates a proprietary indicator that acts as a throttle of the momentum score of each fixed income ETF. This indicator penalizes those ETFs that have moved too high and too fast in short-term trading while still allowing overall positive momentum to be the guiding principle of the model.



	Annualized Return	Annualized Volatility	Beta	Sharpe	Maximum Drawdown
Fixed Income	8.3%	8.2%	1.04	0.7	14.9%
Barclays Agg	3.6%	3.7%	1	0.29	11.0%

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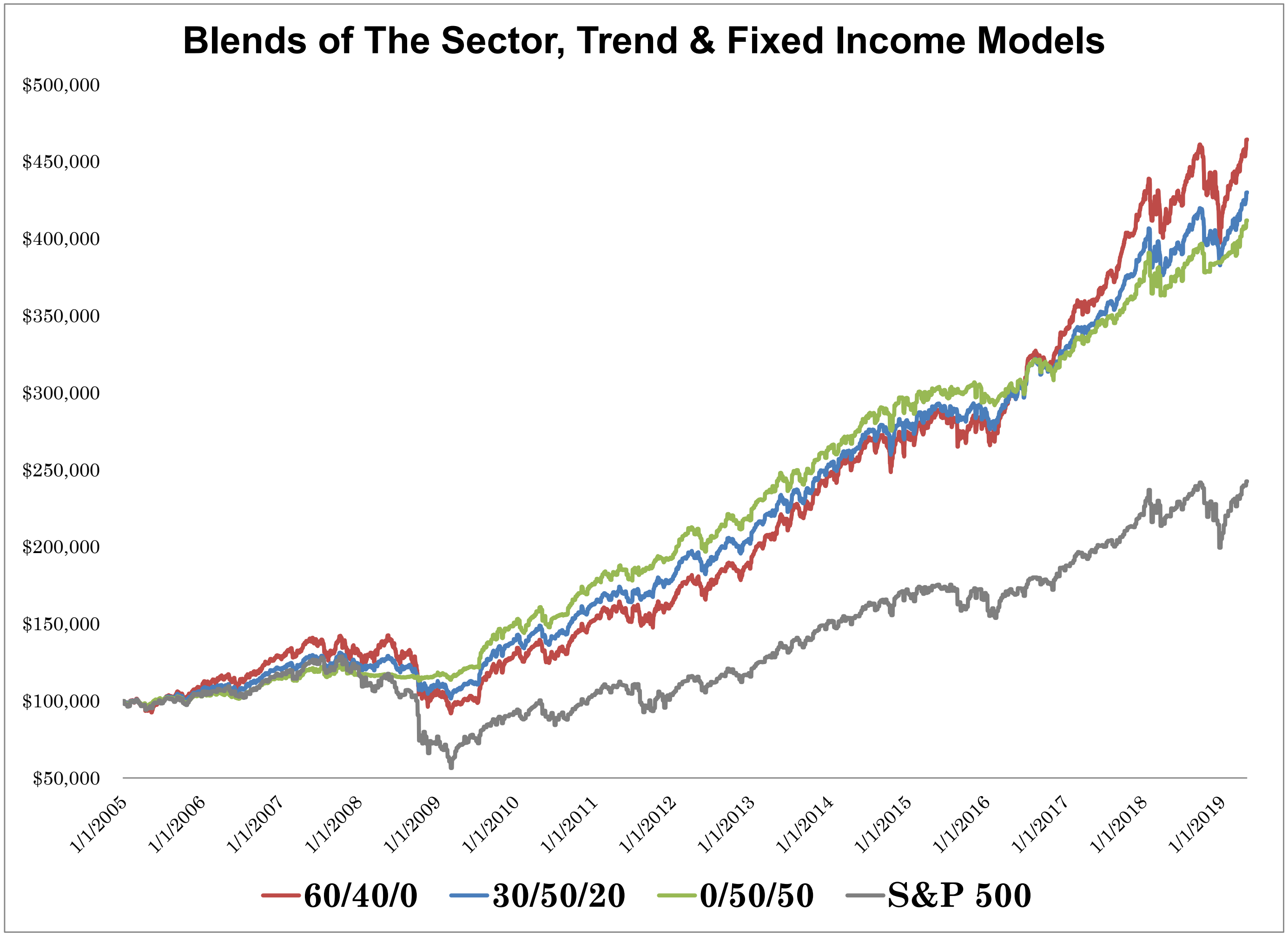
The concept of diversification is not new to financial markets. While many market participants focus on the diversification of the underlying holdings. This procedure is can be vastly skewed during periods of high market turmoil, in which correlations across asset classes tend to historically rise. Thrasher Analytics believes in diversifying in strategy styles. By using multiple investment philosophies, specifically trend following, mean-reversion, and momentum, a blended model is created that has the ability to adapt to changing market environments and volatility. For example, when equity markets show a strong trend preference, the adaptive S&P 500 trend following component benefits but if there's a shift favoring a range-bound market the sector rotation strategy based on mean-reversion should provide favorable performance.



The above chart shows examples of blending the sector, trend, and fixed income models . Ranging from an all equity approach of 60% in sector rotation, 40% trend and 0% in fixed income; 30% in sector rotation, 50% in trend, and 20% in fixed income; 0% in sector rotation, 50% in trend, and 50% in fixed income.

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Trend (weekly)	Sector Rotation (monthly)	Fixed Income Momentum (quarterly)
Positive	XLRE	JNK
	XLK	AGG
	XLP	

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None of the content published by Thrasher Analytics LLC constitutes a recommendation that any particular security, portfolio of securities, transaction or investment strategy is suitable for any specific person. No representation is being made that the use of this strategy or any system or trading methodology will generate profits and no offer to buy or sell securities is being made.

Back tested performance is NOT an indicator of future actual results. The results reflect performance of a strategy not [historically] offered to investors and do NOT represent returns that any investor actually attained. Back tested results are calculated by the retroactive application of a model constructed on the basis of historical data and based on assumptions integral to the model which may or may not be testable and are subject to losses.

Back tested performance is developed with the benefit of hindsight and has inherent limitations. Specifically, back tested results do not reflect actual trading or the effect of material economic and market factors on the decision-making process. Since trades have not actually been executed, results may have under- or over-compensated for the impact, if any, of certain market factors, such as lack of liquidity, and may not reflect the impact that certain economic or market factors may have had on the decision-making process. Further, back testing allows the security selection methodology to be adjusted until past returns are maximized. Actual performance may differ significantly from back tested performance.

The models, results, and data shown assumes that the markets were sufficiently liquid to permit the types of trading used in the model. A $6.95 per trade transaction fee was assumed during the back tested period but the results give no consideration to the effect of taxes of any kind. Because the trades assumed in Thrasher Analytics' presentations have not actually been executed, the results shown may have under- or over-compensated for the impact, if any, of certain market factors such as lack of liquidity or the ability to obtain the execution prices that have been assumed. The models developed and presented by Thrasher Analytics LLC require an historical period of data for parameter estimation prior to the actual commencement of the period shown in the model and in the back tested results. No representation is being made that any account will or is likely to achieve profit or loss similar to those shown in this or any other content produced by Thrasher Analytics LLC.

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