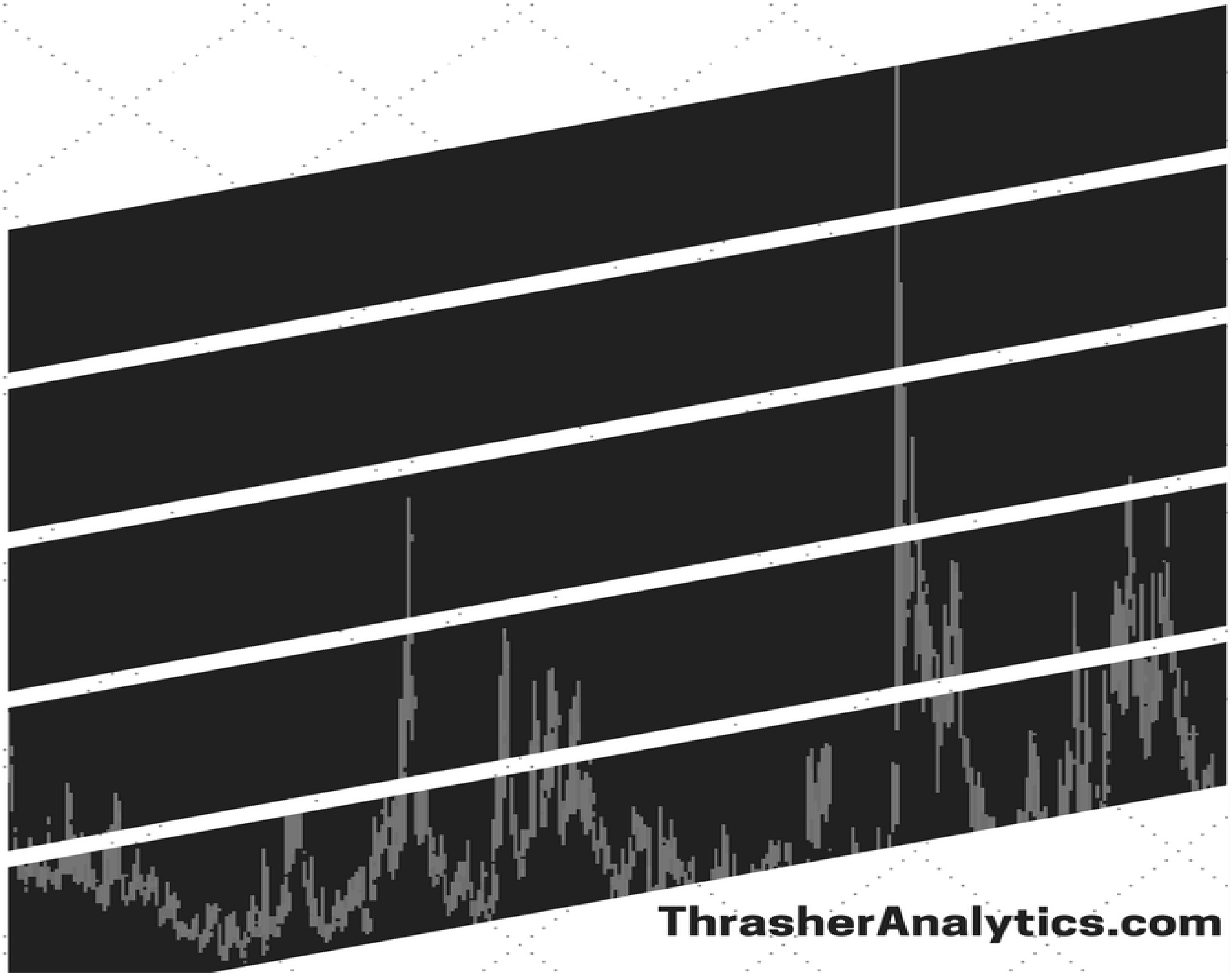
THRASHER ANALYTICS

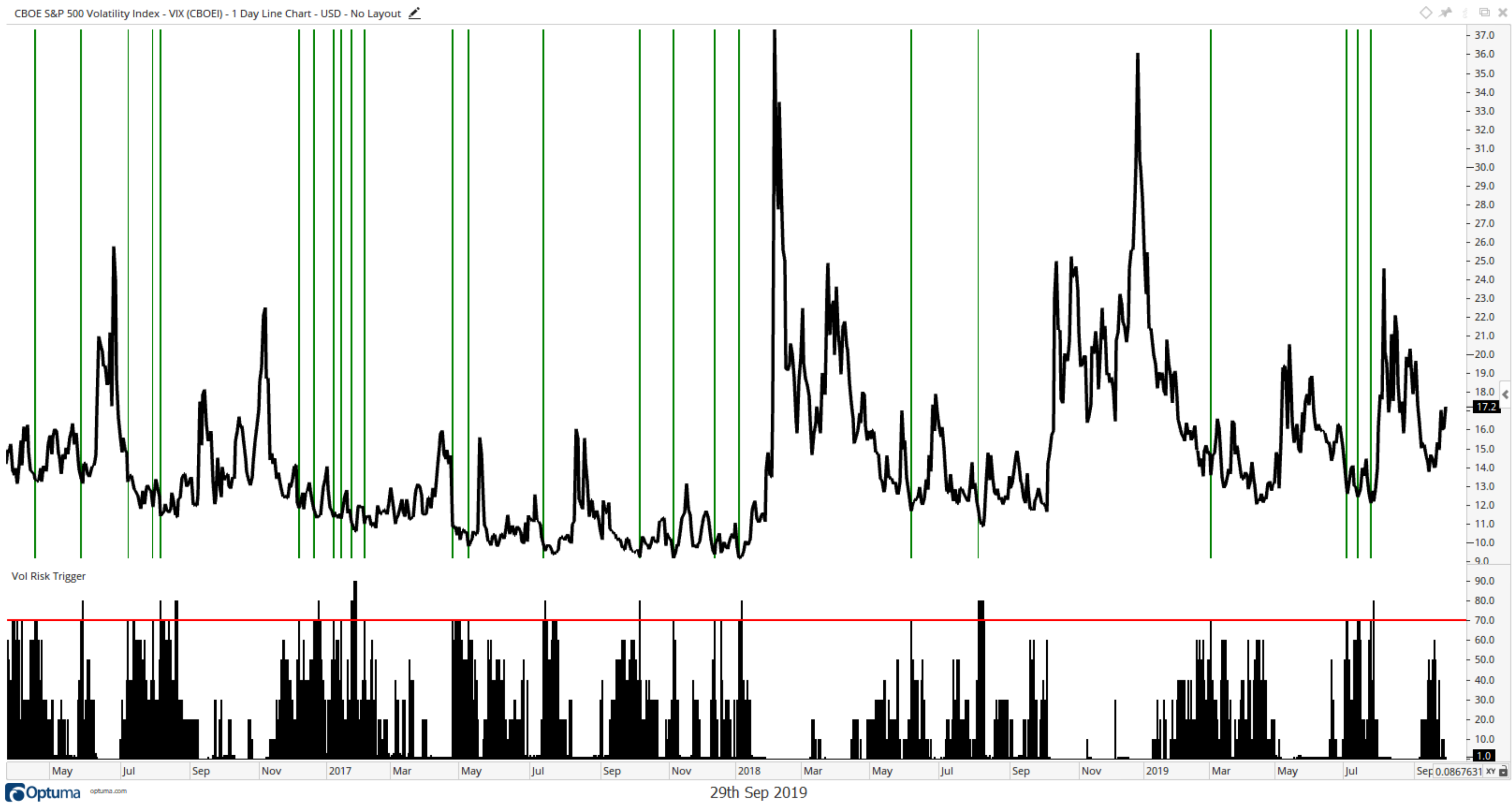
BI-WEEKLY RESEARCH & ANALYSIS



Sector	> 50MA	> 200MA	1wk Perf	1mo Perf	3mo Perf	12mo Perf
SPDR Consumer Staples Select Sector Fund ETF	True	True	1.33%	1.55%	5.18%	13.5%
SPDR Utilities Select Sector Fund ETF	True	True	1.3%	3.85%	8.92%	24.69%
SPDR Real Estate Select Sector Fund ETF	True	True	0.43%	1.24%	7.2%	21.98%
SPDR Financial Select Sector Fund ETF	True	True	-0.04%	7.18%	3.16%	0.72%
SPDR Industrial Select Sector Fund ETF	True	True	-0.37%	5.79%	1.19%	-1.19%
SPDR Consumer Discretionary Select Sector Fund ETF	False	True	-0.6%	2.23%	0.68%	2%
SPDR Technology Select Sector Fund ETF	False	True	-0.71%	2.01%	2.1%	6.18%
SPDR Materials Select Sector Fund ETF	True	True	-1.08%	4.60%	-0.52%	-1.01%
SPDR Energy Select Sector Fund ETF	False	False	-2.69%	6.77%	-5.32%	-21.49%
SPDR Communication Services Select Sector ETF	False	True	-2.8%	1.15%	1.07%	0.18%
SPDR Health Care Select Sector Fund ETF	False	False	-2.9%	0.19%	-3.25%	-5.83%

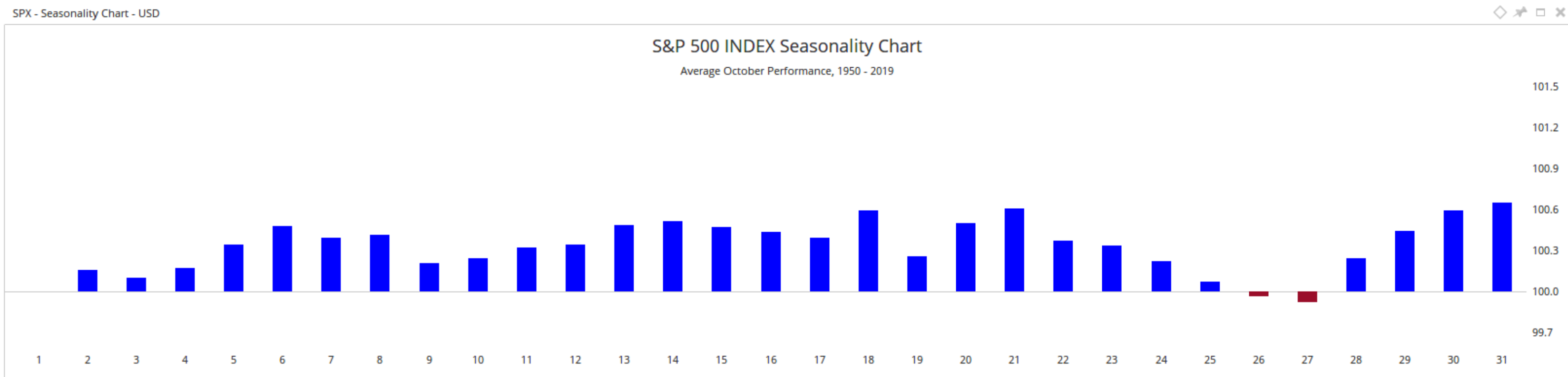
The best performing sectors last week were consumer staples, utilities, and real estate which is what you'd expect to see during a period of risk-off trading as investors showed a greater preference for the defensive sectors. Just two sectors currently sit below their respective 200-day moving average: energy and health care.

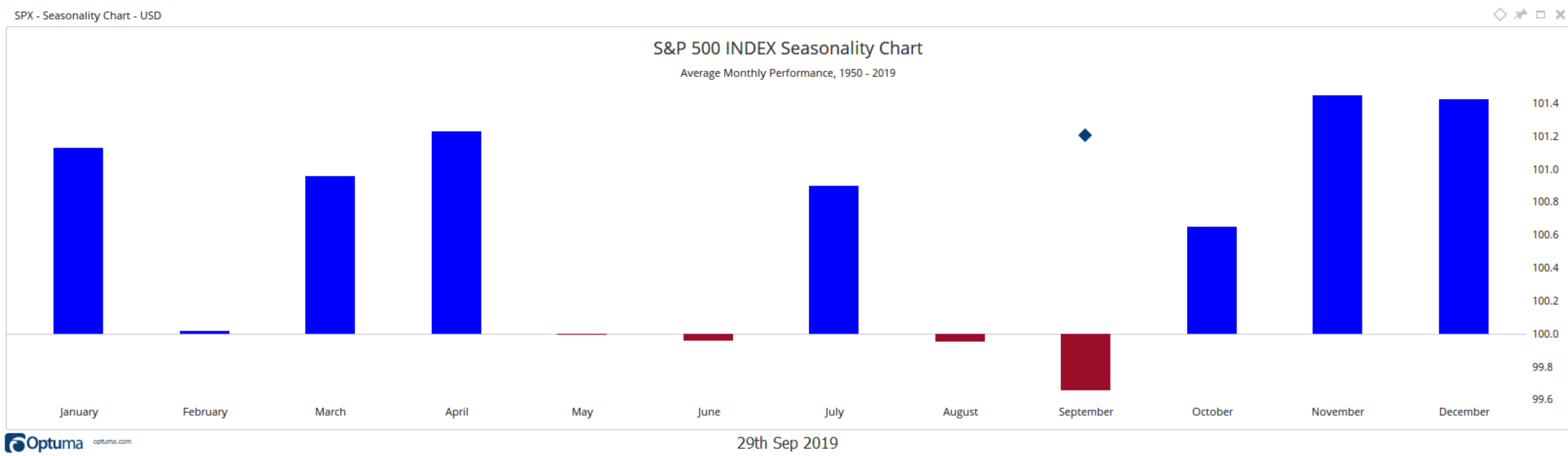
VOLATILITY RISK TRIGGER (VRT)



I wrote in my last two updates that the VRT had been moving closer to its threshold to produce a signal as it got within spitting distance of triggering. Volatility began moving ahead of its appreciation as the VIX advanced from just under 14 to close out the week near its high at 17.2. Many of the U.S. equity indices are still showing narrowing trends in volatility consolidation which lends to the belief that we could still be setting up for a materially higher level of volatility in the future if this continues. I’ll of course keep you updated with that progress.

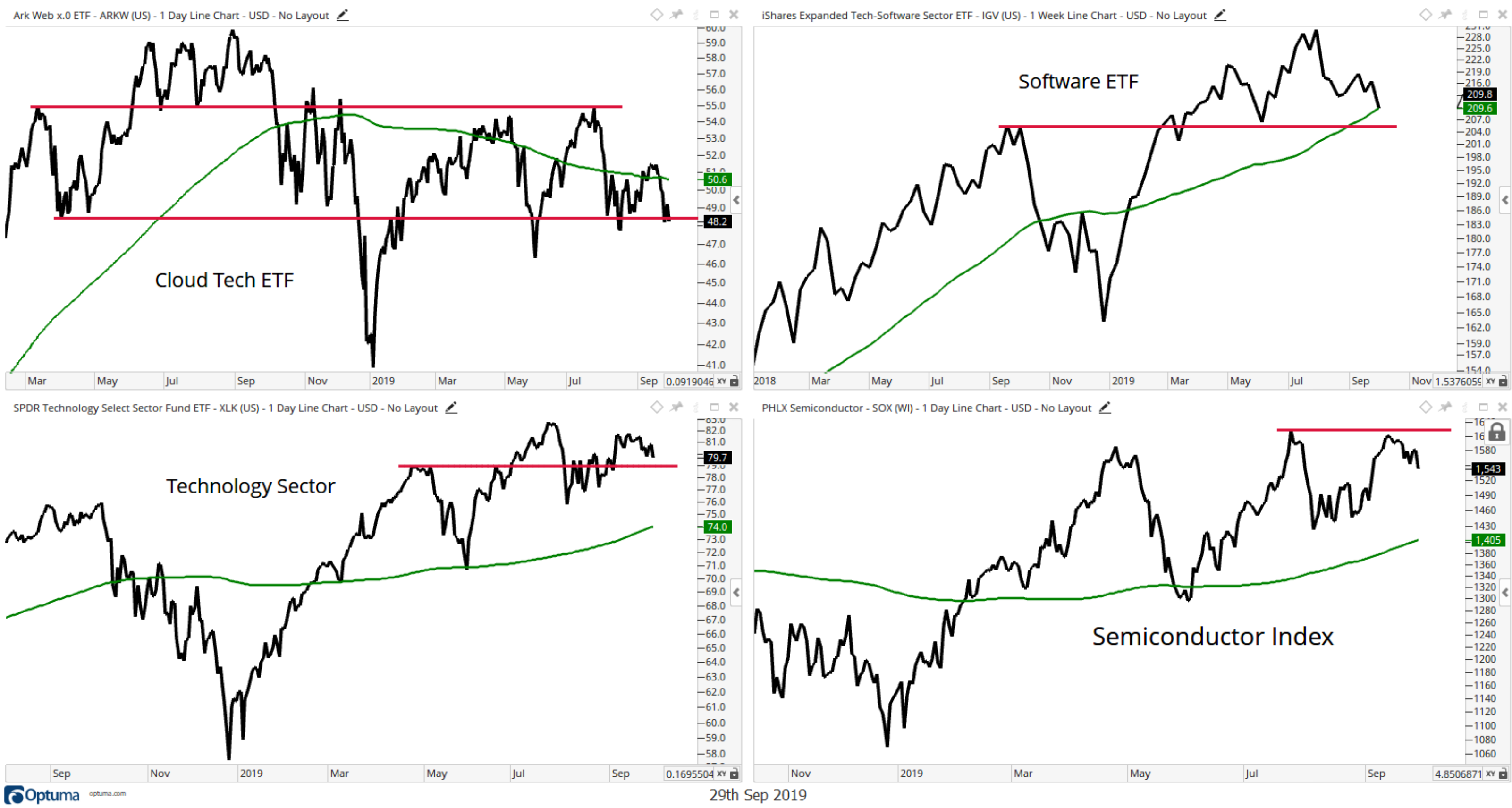
The S&P 500 got within a few points of its prior all-time high but was unable to get enough buyers to push it across the goal line. Instead, we've seen a bit of selling in equities with the broad index testing its 50-day moving average. Volume was below-average which is a positive sign that there wasn't an increase in institutional level selling on any of the days last week. If the SPX can hold above its 50-day then we could see a shift higher as seasonality turns the corner in October. I'll touch on seasonality on the next page.



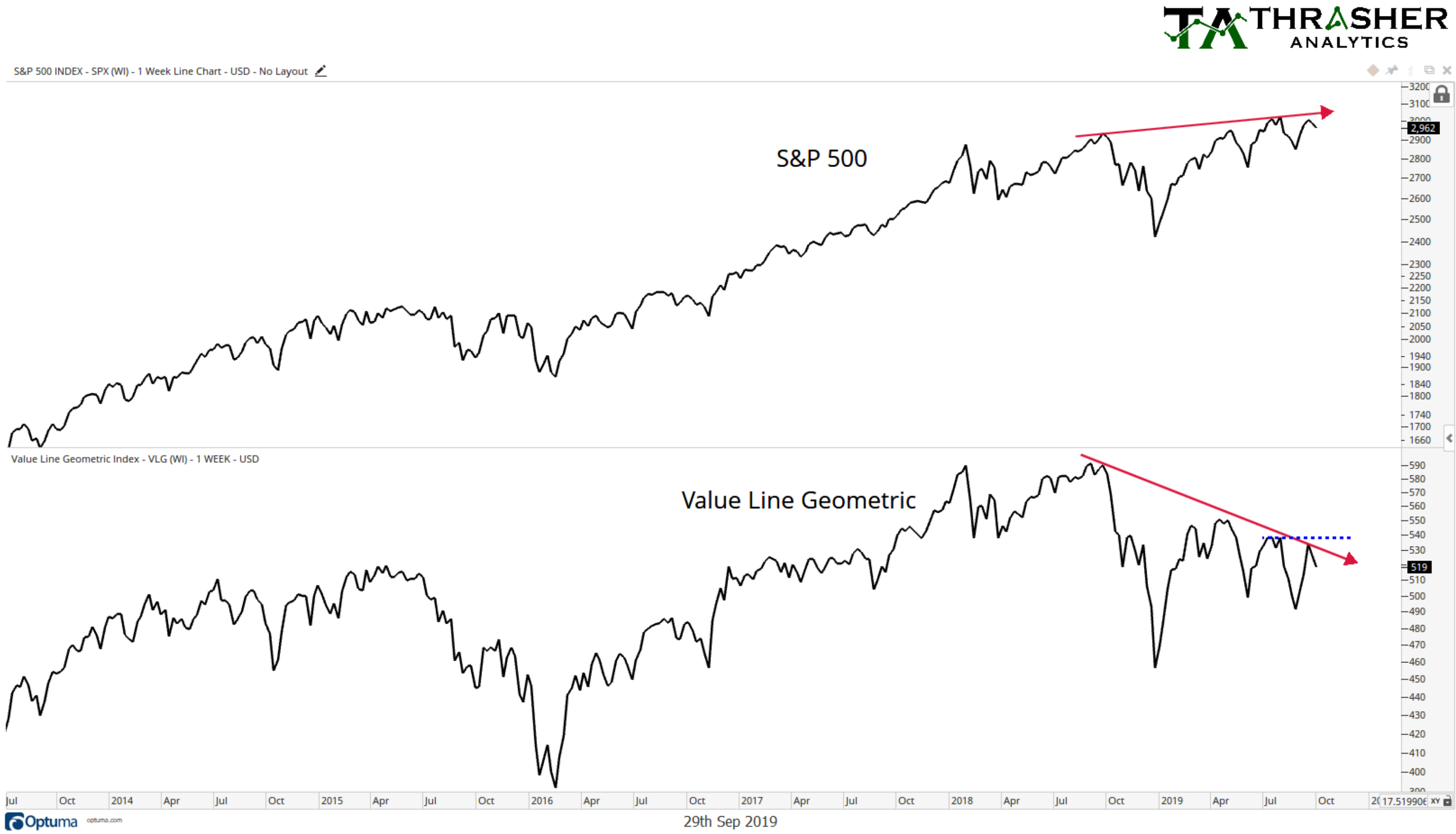


Above are two charts of the seasonal patterns for the S&P 500 since 1950. On top is the daily seasonality for October and on bottom is monthly. As you can see, historically equities have done fairly well in October as they move into the bullish season time of the year. The average daily performance has been positive on all but two days for the month, setting up for the potential for equities to move back near their prior highs outside of other bearish developments.

Above we have the composite relative performance of offense vs. defense sectors. What stands out to me on this chart is that while the S&P 500 made a short-term lower low on Friday, offensive sectors were able to hold up as a group relative to defensive sectors. On a whole, the week's (which I discussed on page two) best performing sectors were from the defensive camp but there was still enough strength from the likes of financials and the weakness in health care that kept the indicator above its prior September low.

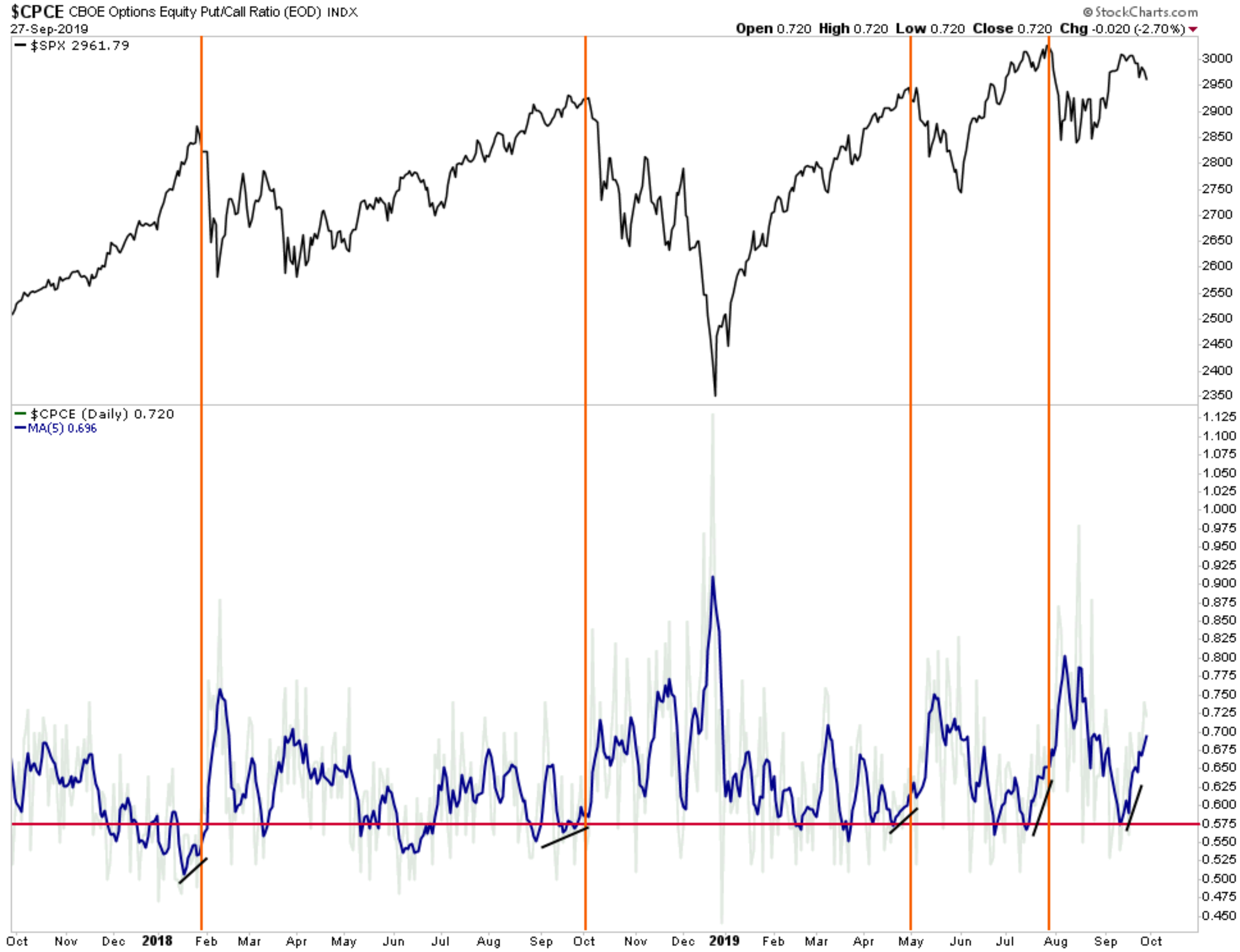


I think the tech sector is a barometer for the market right now as it's what showed strong leadership for the first half of '19 with focus on the software space. Above are four charts to represent the tech sector, cloud tech, software, the XLK ETF, and the semiconductor index. Cloud tech has struggled in recent months as it was unable to rally with the rest of the market back near prior highs. Nor did software stocks show much strength out of the summer low, quickly rolling over during the shift from growth to value in the early part of September. Semiconductors provide a great read-through to tech and we'd like to see leadership in relative performance here but it's also been unable to hit its prior July high. I'll be watching for continued weakness from these charts as signs that the broad market may begin to struggle as well as its bellwether sector needs to perform for the broad market to gain confidence.



I wrote about this in my last letter and did a [blog post]() on the subject as well. I still believe this is one of the most important charts right now. The Value Line Geometric Index (VLG) shows us what the 'average' stock is doing. It doesn't have a weight towards large cap or small cap stocks and encompasses over 1,600 securities, providing good insight into the broad market without a large cap bias like the S&P 500 would have.

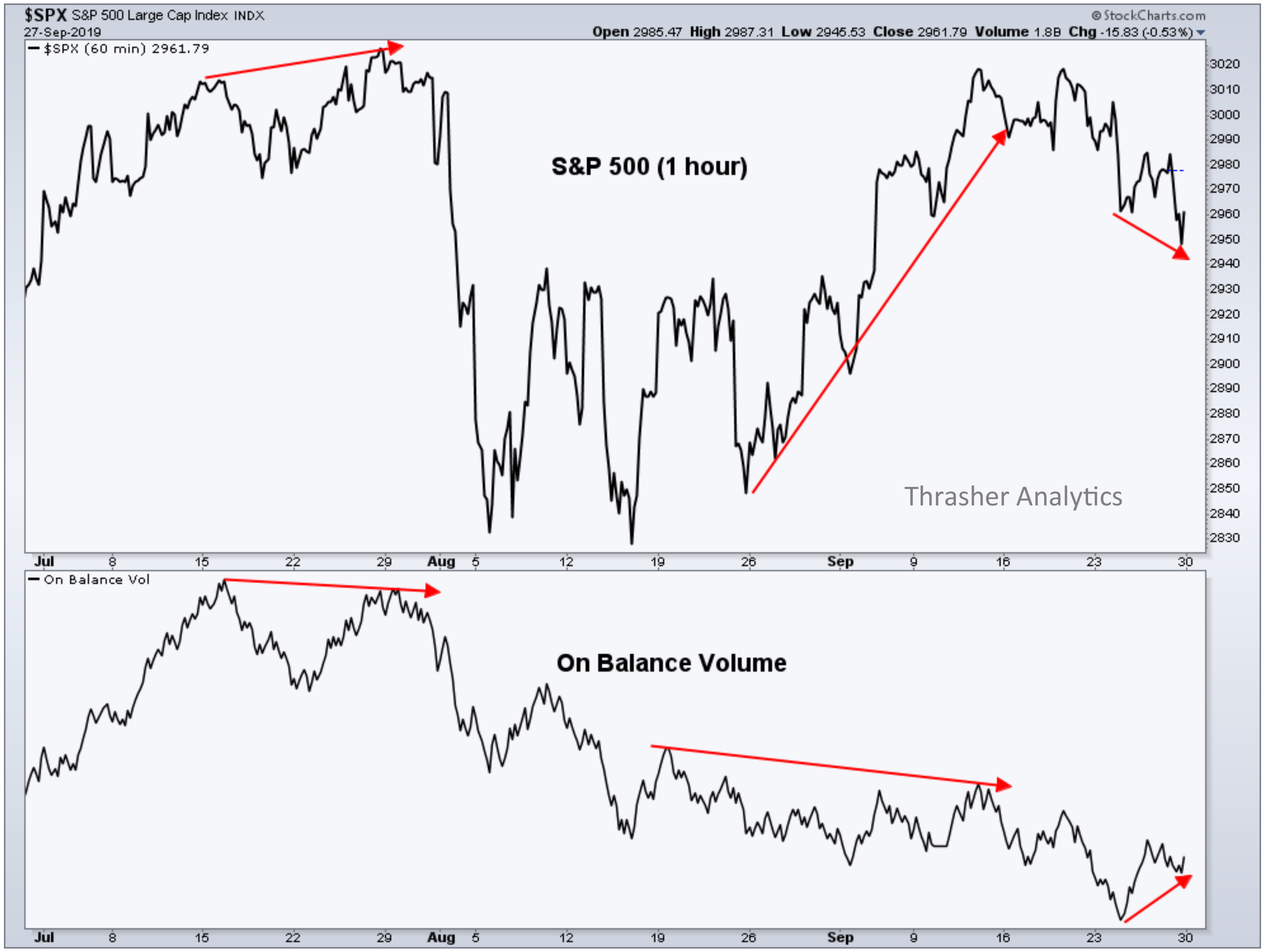
What has me so concerned is the degree that the VLG is diverging. We haven't seen a higher-high this entire year. That's not normal! As I wrote previously in this letter and in the blog post, we've had two major divergences in the past: one led to the '07 high and one was corrected through time in 2012 with VLG eventually 'catching up' to the SPX to confirm the up trend. What I want to see is the VLG break above its prior July high (dotted blue line) and begin correcting this divergence. Last week we saw VLG under-perform the S&P 500 by 55 basis points, that's not the progress we want to see!



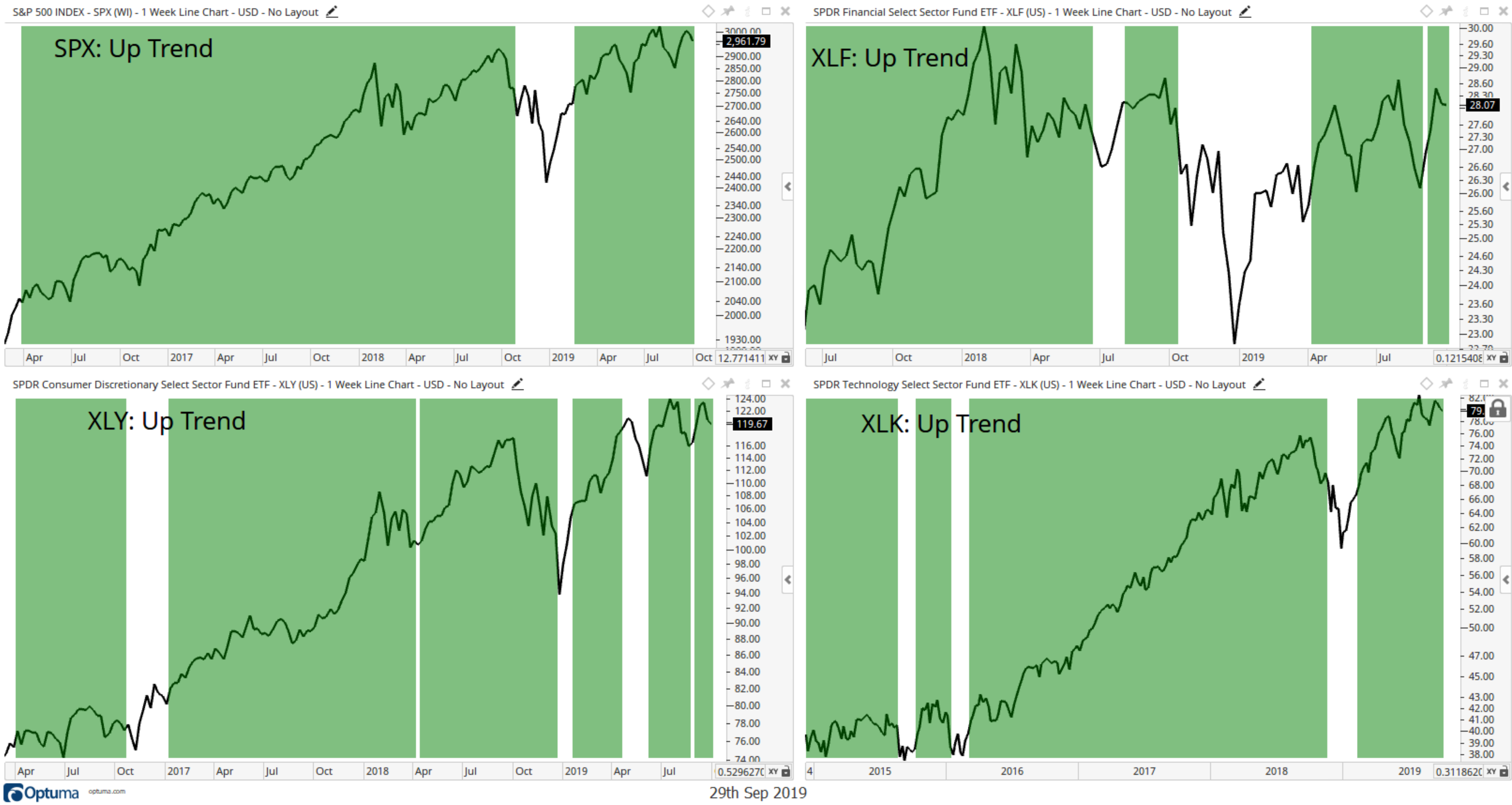
I've focused on the put/call ratio because it was providing sentiment insight into the latest up trend in stocks as investors got overly bullish with their option activity. As I've mentioned, it's not just a depressed put/call ratio that be concerning but instead its when that ratio reverses while equities are still trending higher. That's exactly what we saw over the last two weeks. The 5-day average of the equity put/call ratio began rising, just like it has off previous equity peaks (orange lines) and quickly we saw stocks reverse while puts became popular again as investors began to hedge.

Equity Risk Appetite

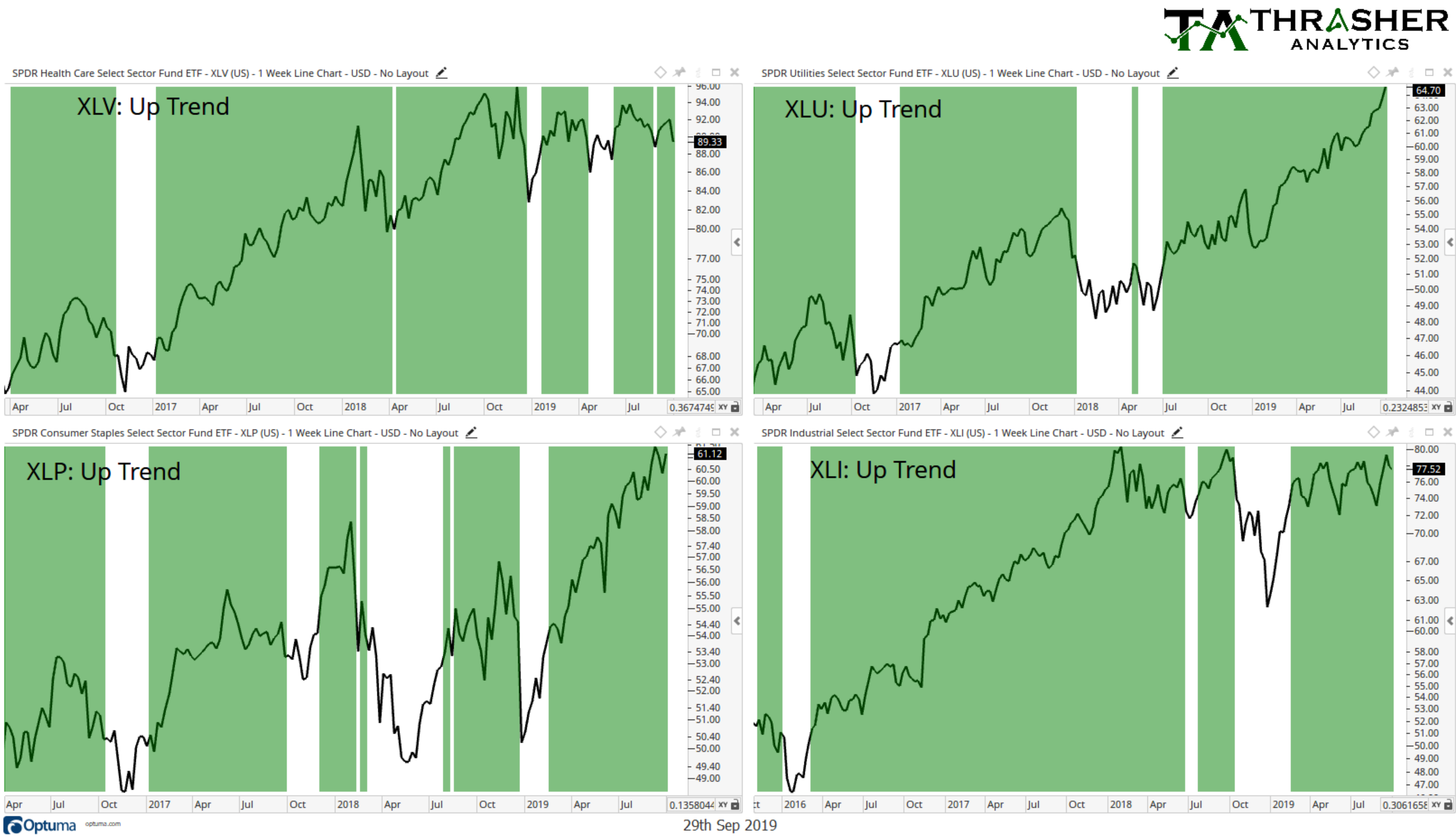
This chart has the breakdown of the four risk appetite ratios I follow closely. With the move lower in the S&P 500 we saw a shift in risk appetite as well in three of the four. Interestingly, equal weight actually flattened out in relative performance last week, not taking a leg lower like the rest of the ratios. However, we still saw a clear risk-off pasture with high beta, small cap, and high yield all moving lower.



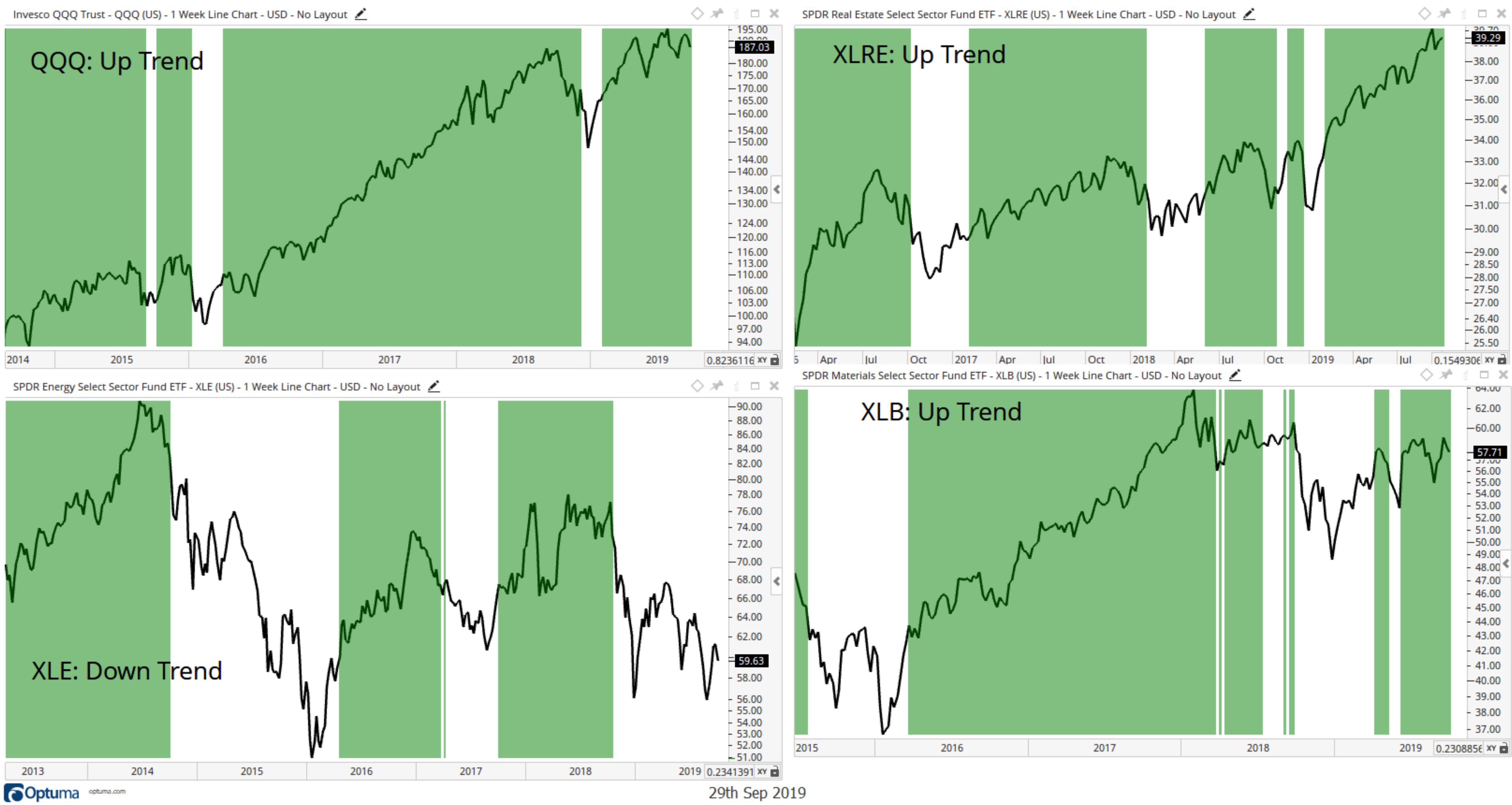
The volume profile for the S&P 500 was showing a bearish bias during the leg up in short-term trend for U.S. equities. There just wasn't a heavy amount of trading on up ticks and the net volume was negatively diverging from price. We then saw a confirmation of the volume profile as equities took a step lower. However, on Friday as SPX made an lower-low, net volume in fact made a higher low with more shares being traded on upticks. This is a bullish short-term development and one we'd want to of course see price begin to confirm.



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



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

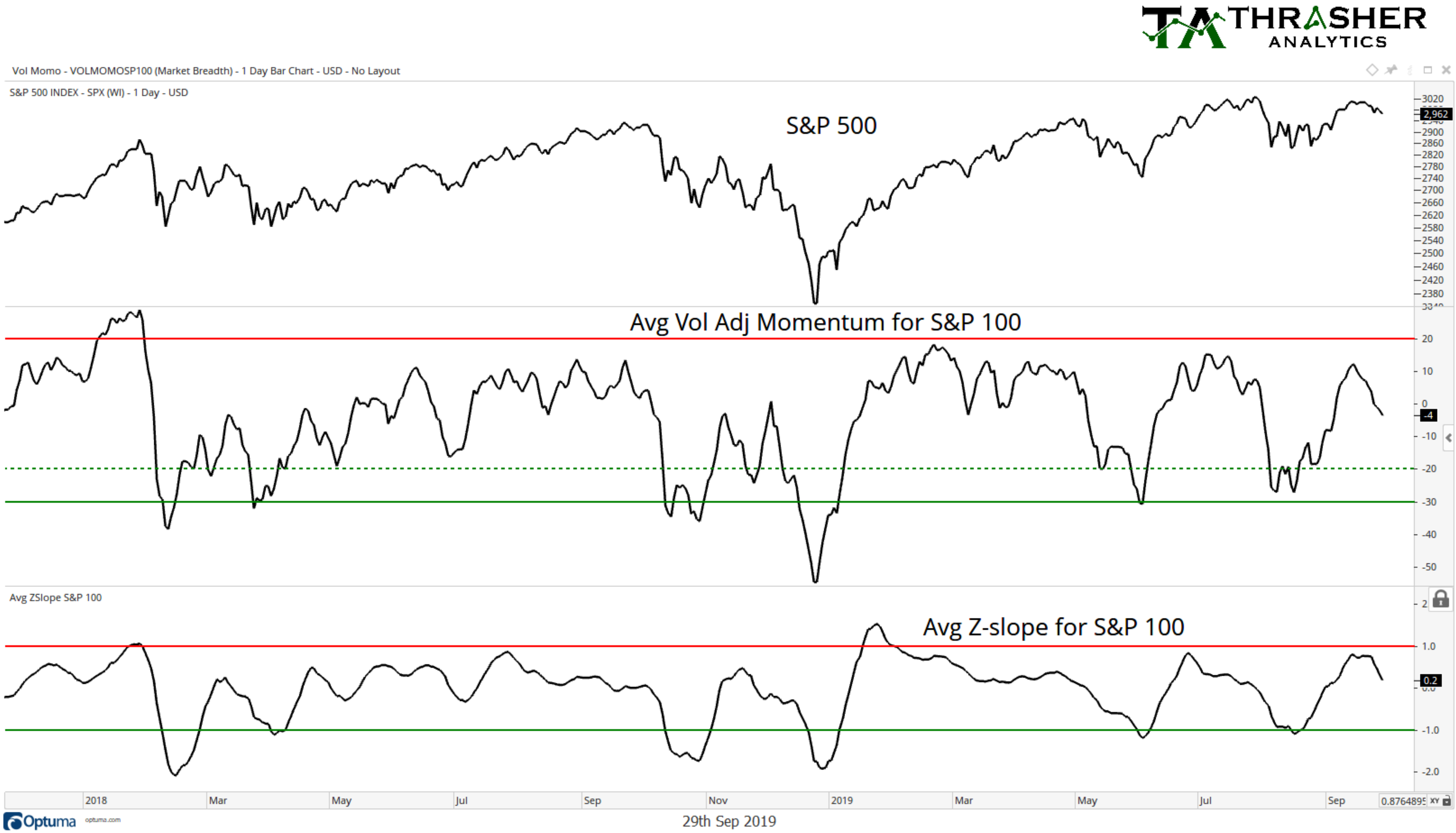


QQQ, XLRE, and XLB are in up trends and XLE is in a down trend.

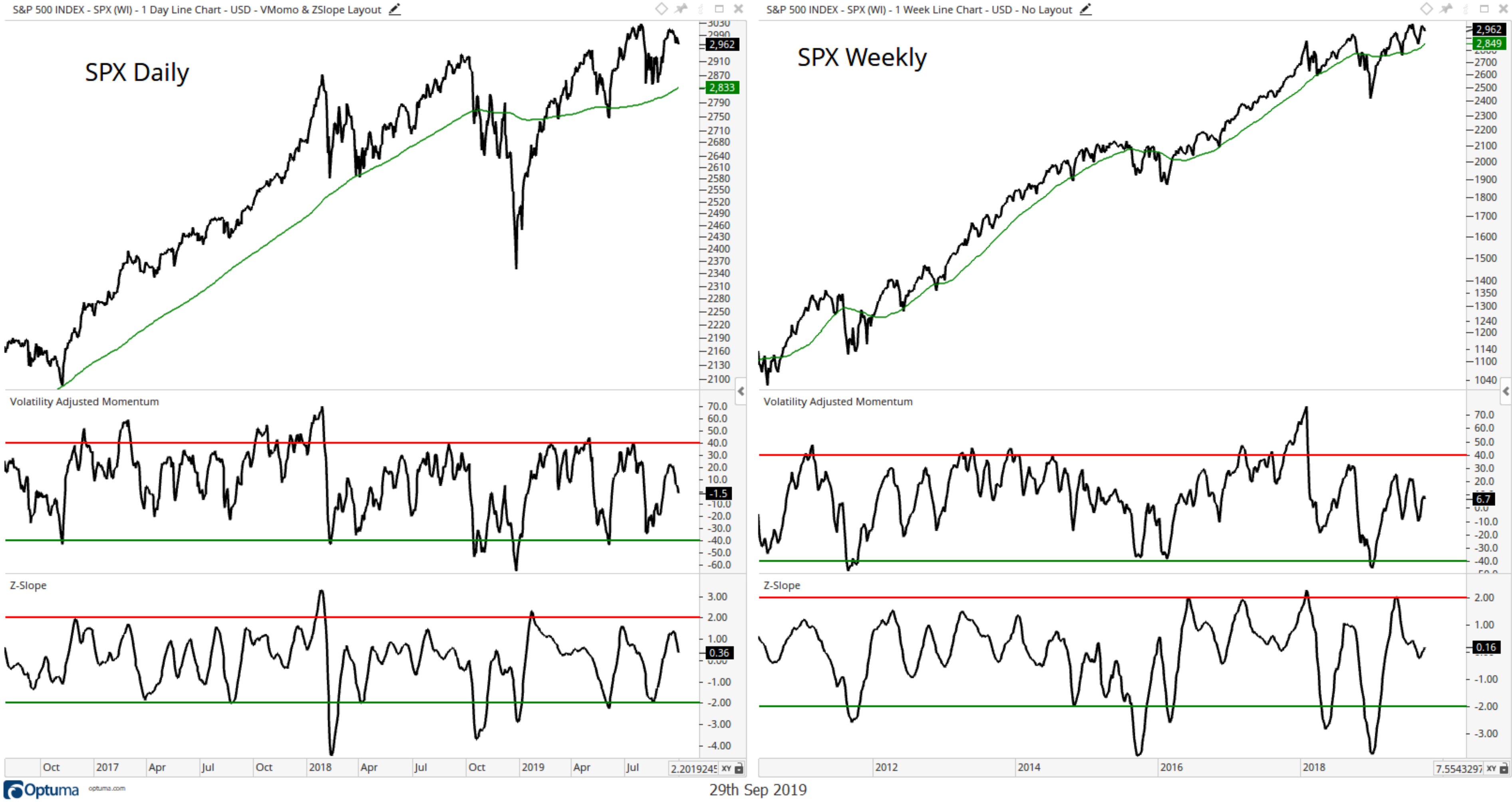
The following charts will become a regular installment for this, and future letters. Each page will include a daily and weekly chart with two indicators that are unique to Thrasher Analytics. With a focus on risk mitigation, the focus of these charts is on potential mean-reversion of each asset through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

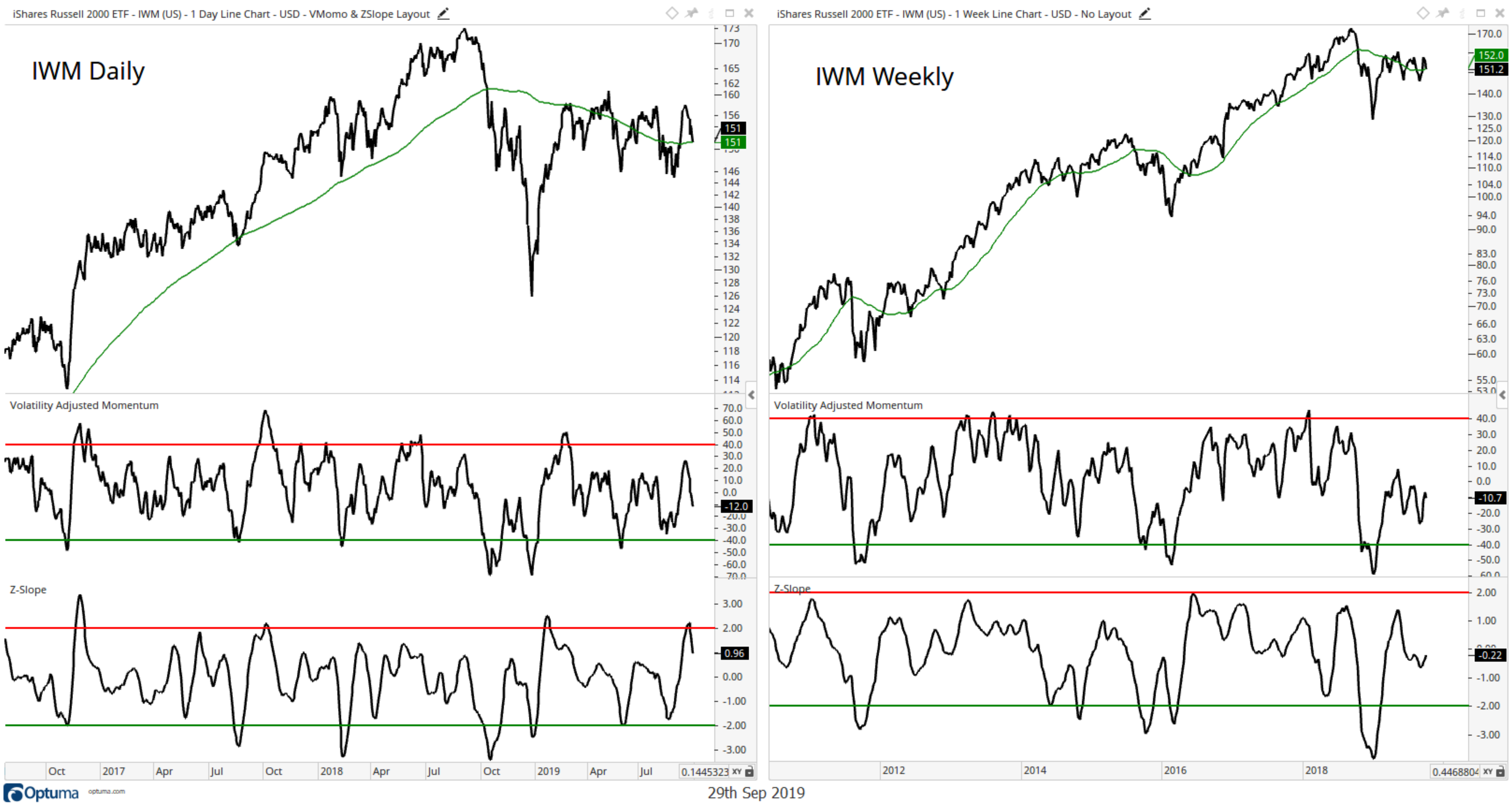
Z-Slope: This indicator takes two lookback periods, one long and one short, for calculating the slope and evaluates the z-score of the difference. This provides insight into whether the current slope of the trend fits within the long-term price history of the security. If a z-score breaks above 2, then 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 rollover, confirming the recent weakness in equity prices.

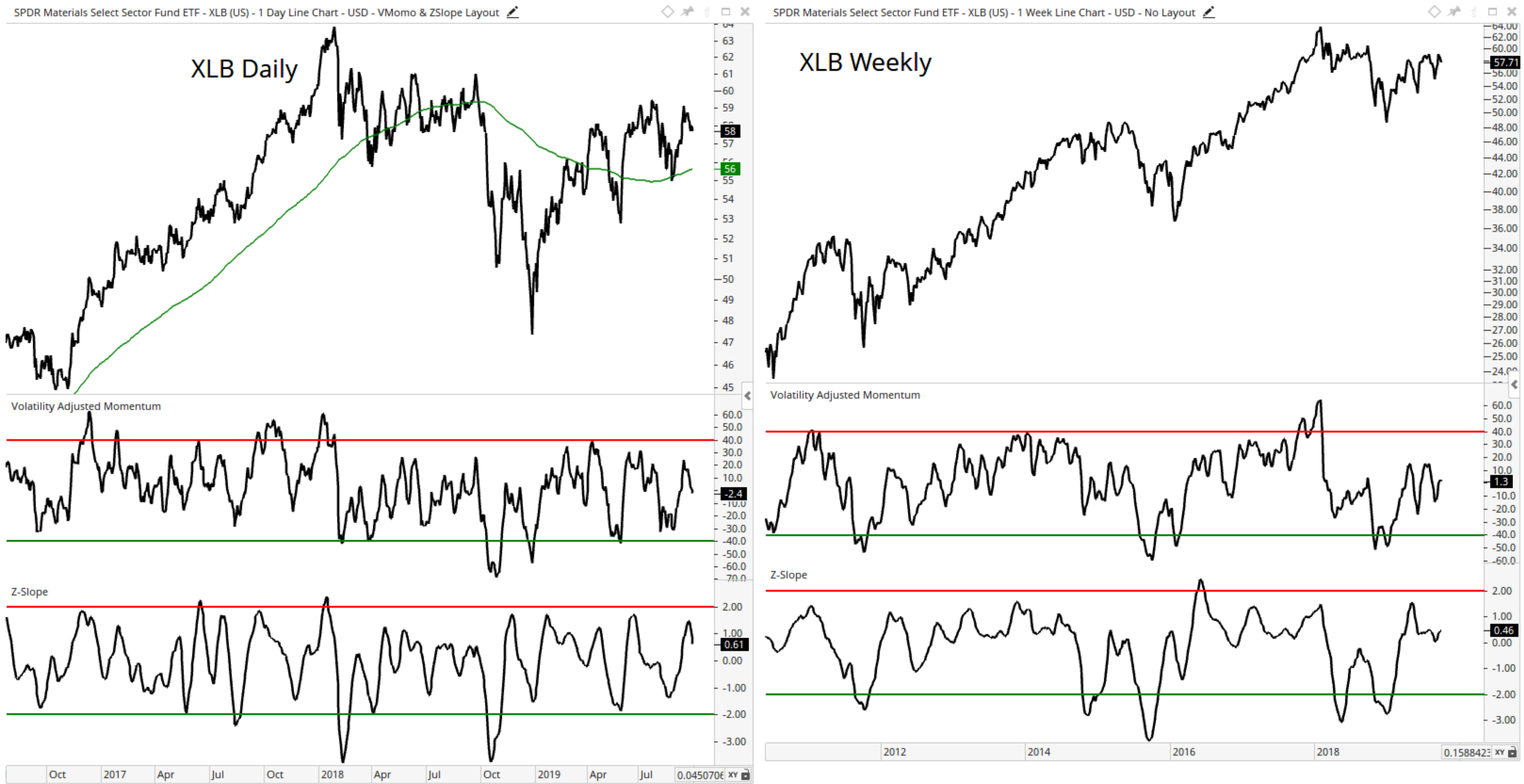


Daily Z-Slope and VaM both are neutral.



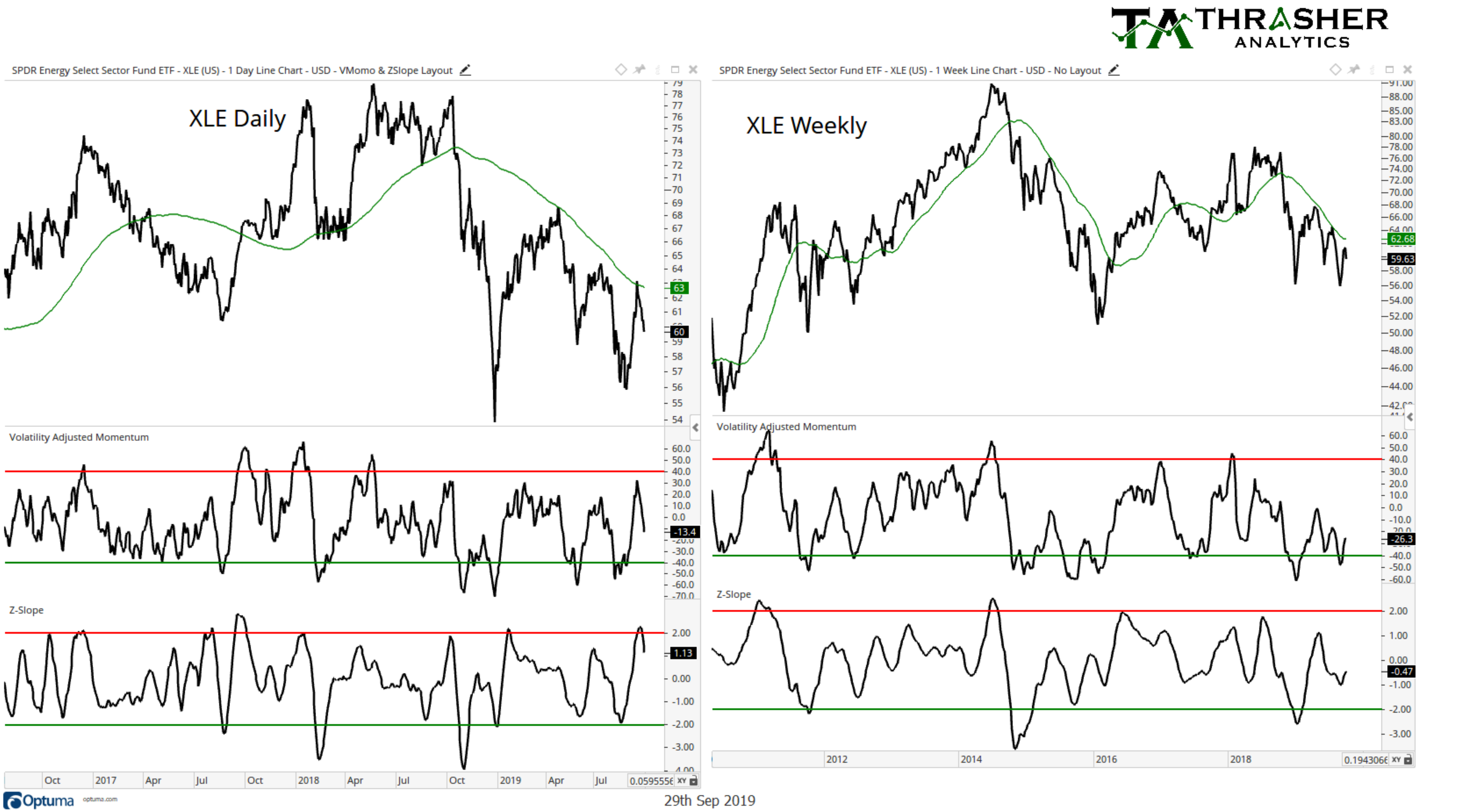
Neutral readings for both VaM and Z-slope as z-slope has moved off 'overbought' status.

Neutral readings for both VaM and Z-slope.

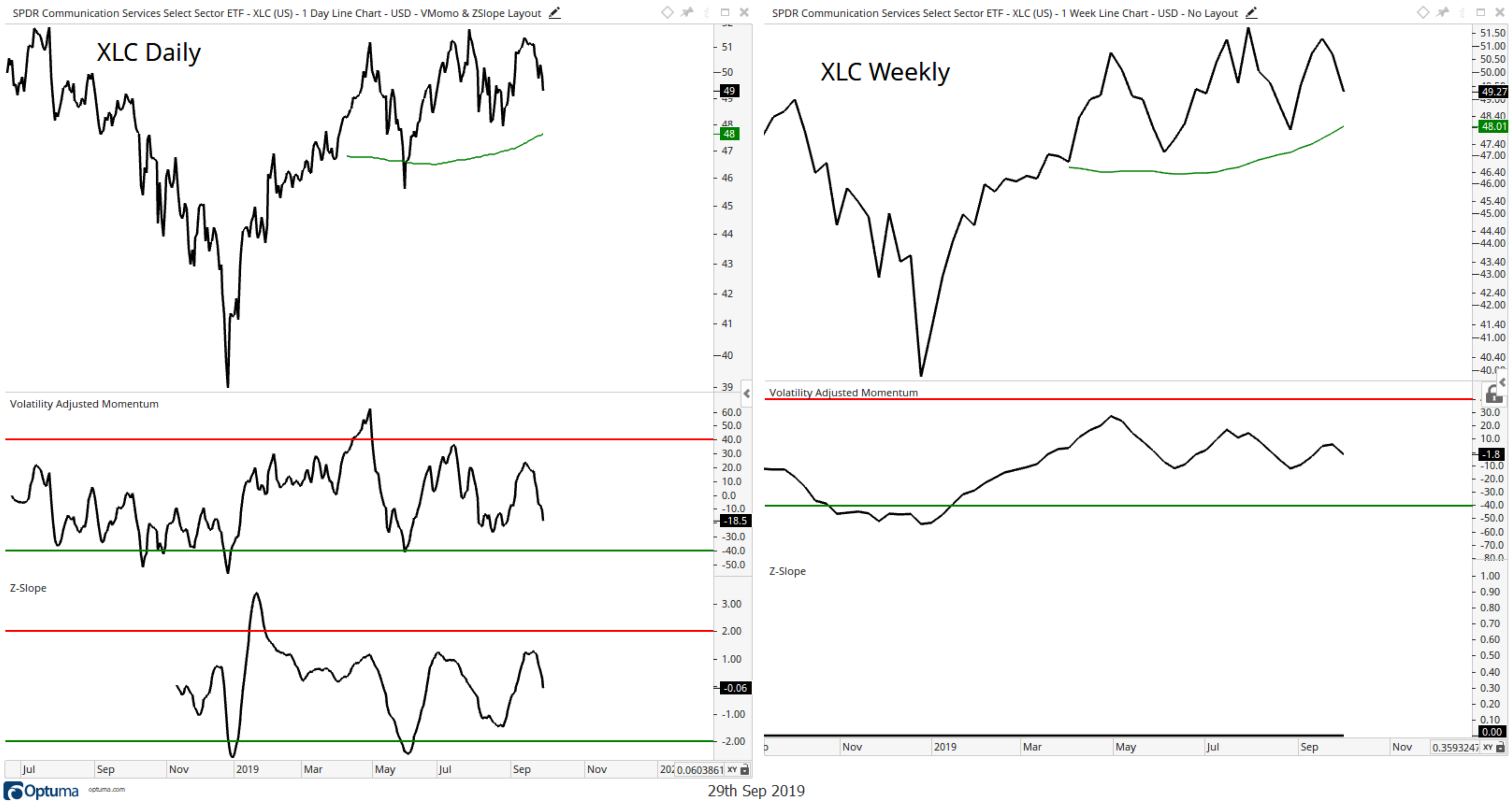


29th Sep 2019

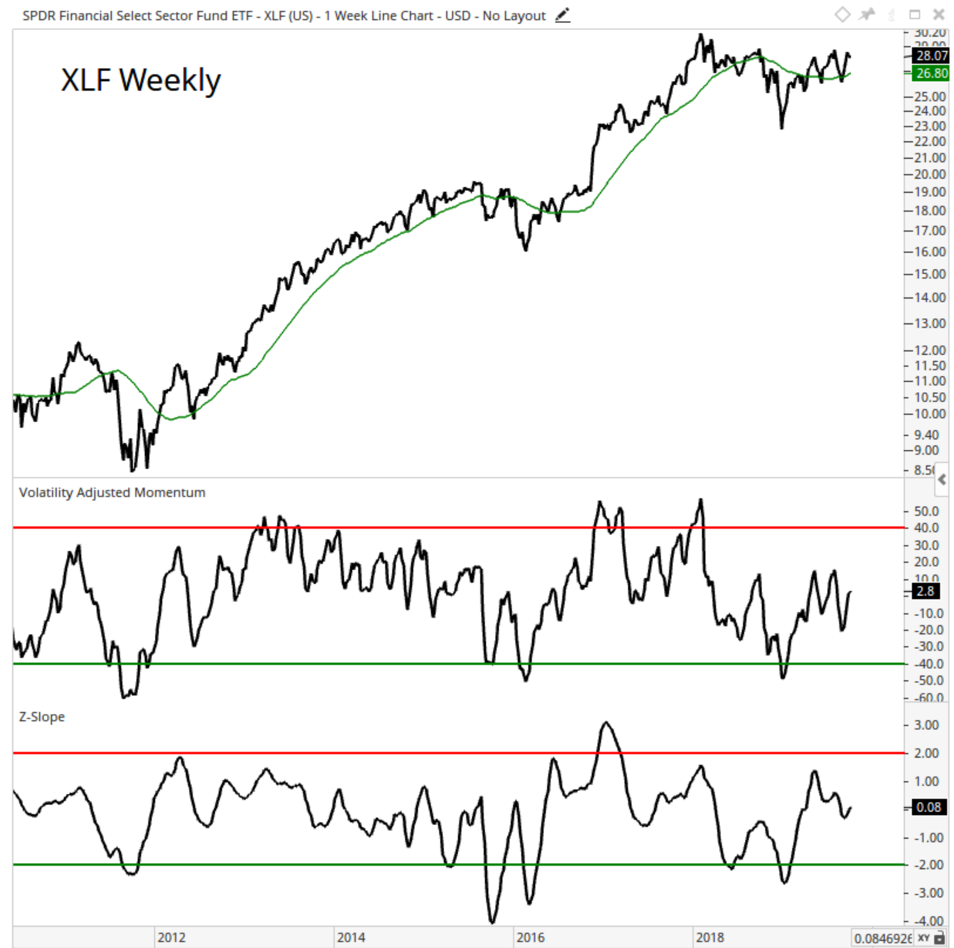
Neutral readings for both VaM and Z-slope.



Neutral readings for both VaM and Z-slope with z-slope coming off ‘overbought’ status as price fails at the moving average.



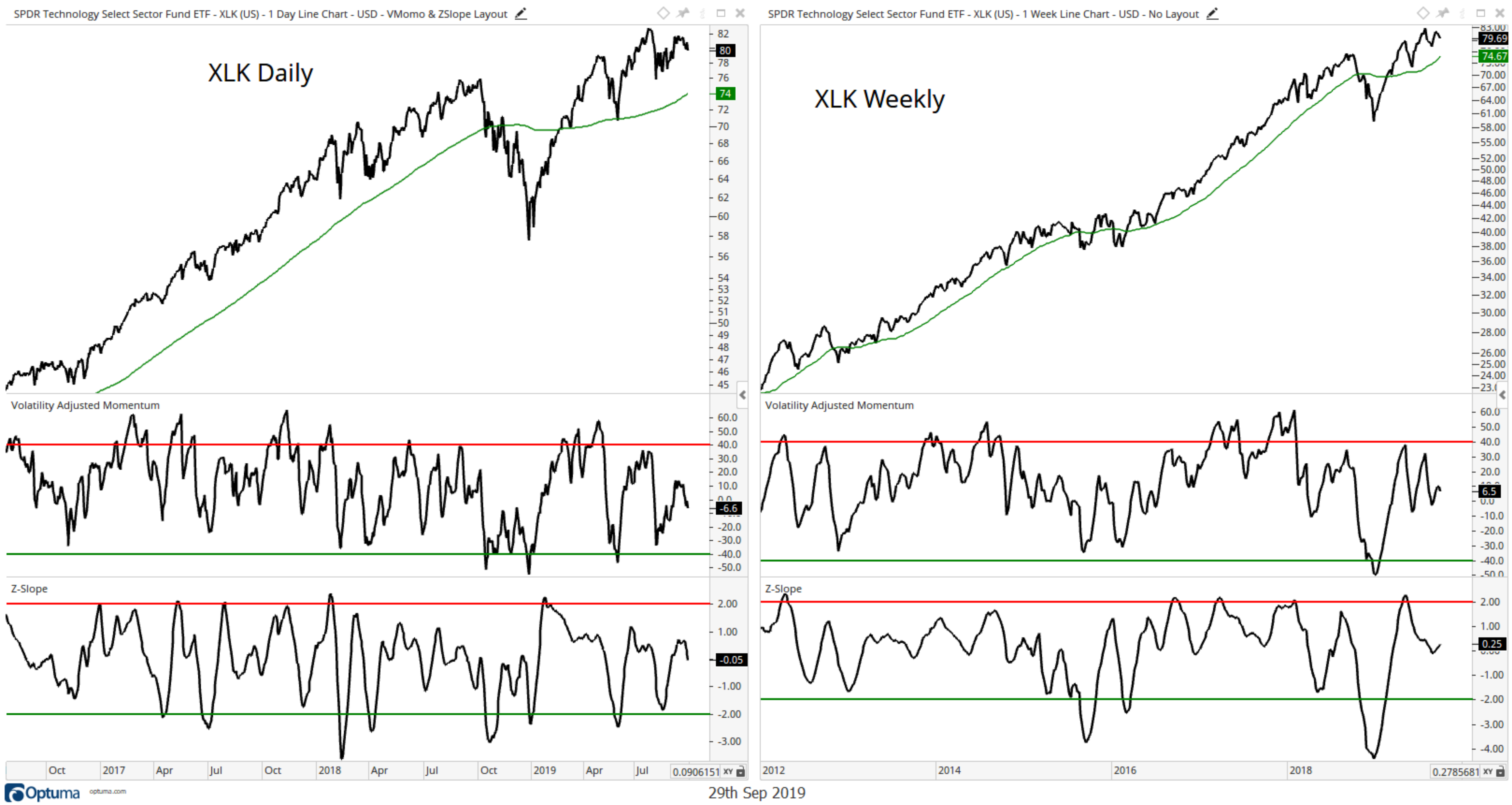
Neutral readings for both VaM and Z-Score.



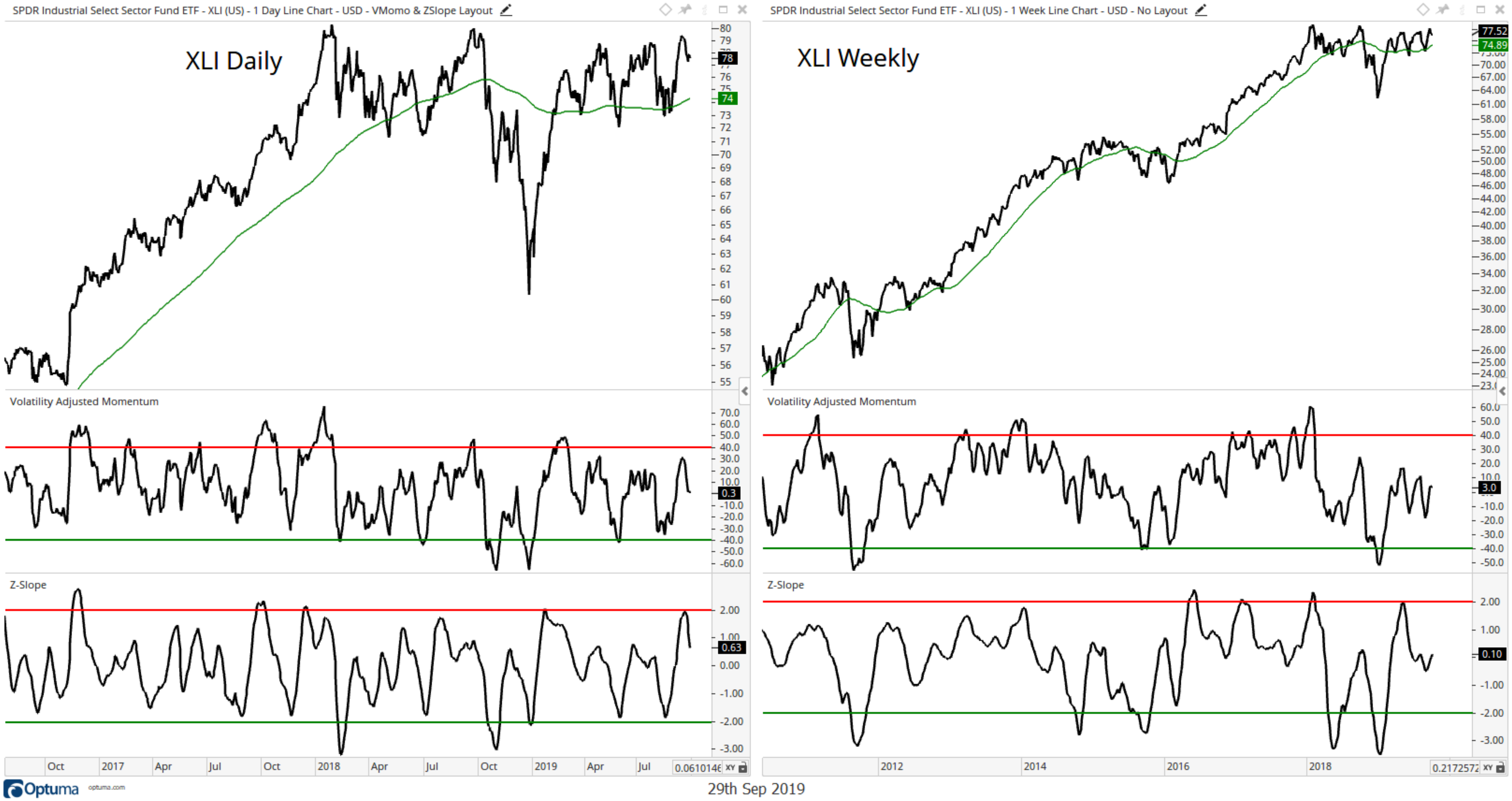
Optuma

29th Sep 2019

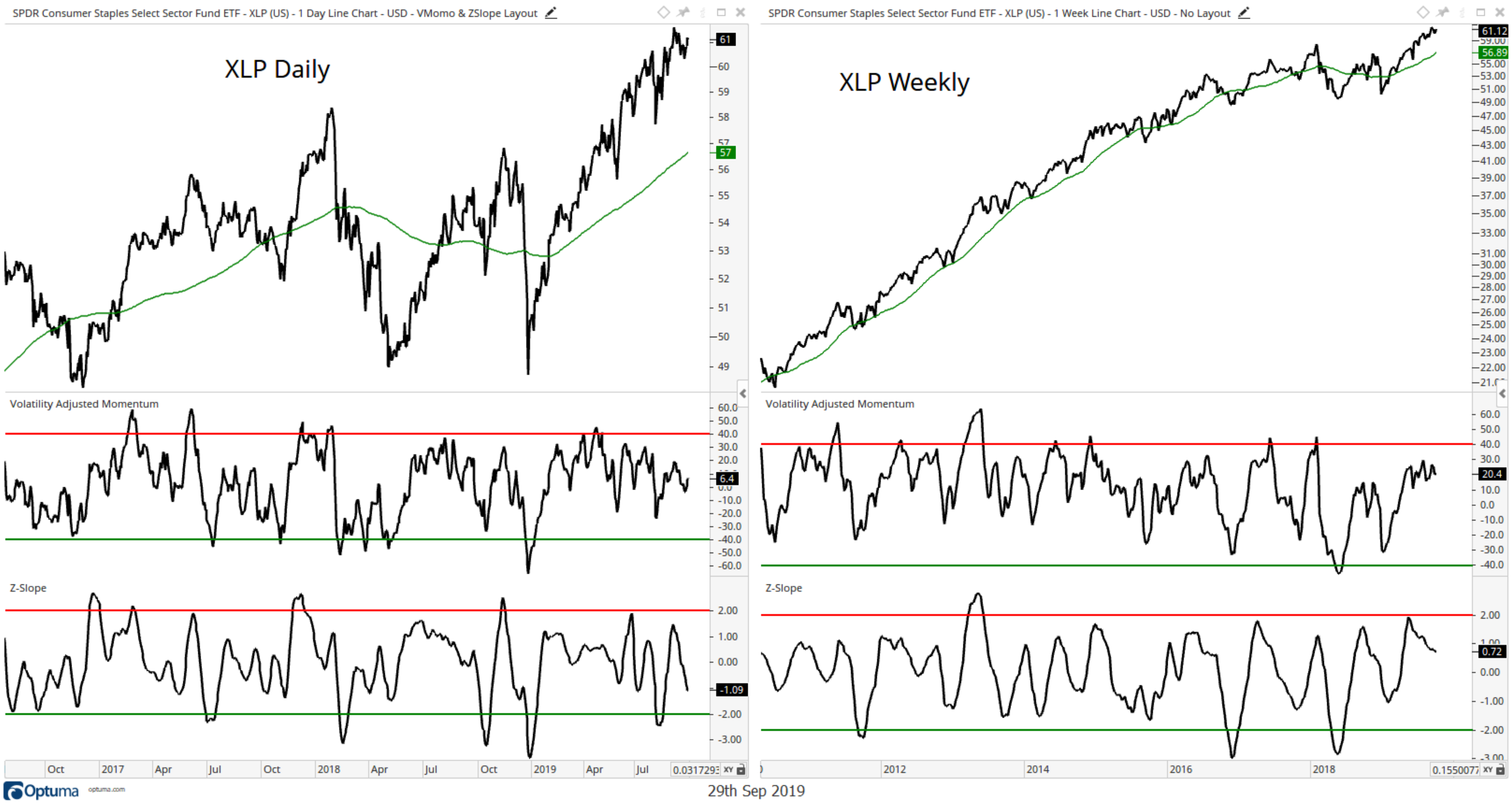
Neutral readings for both VaM and Z-slope.



Neutral readings for both VaM and Z-slope.



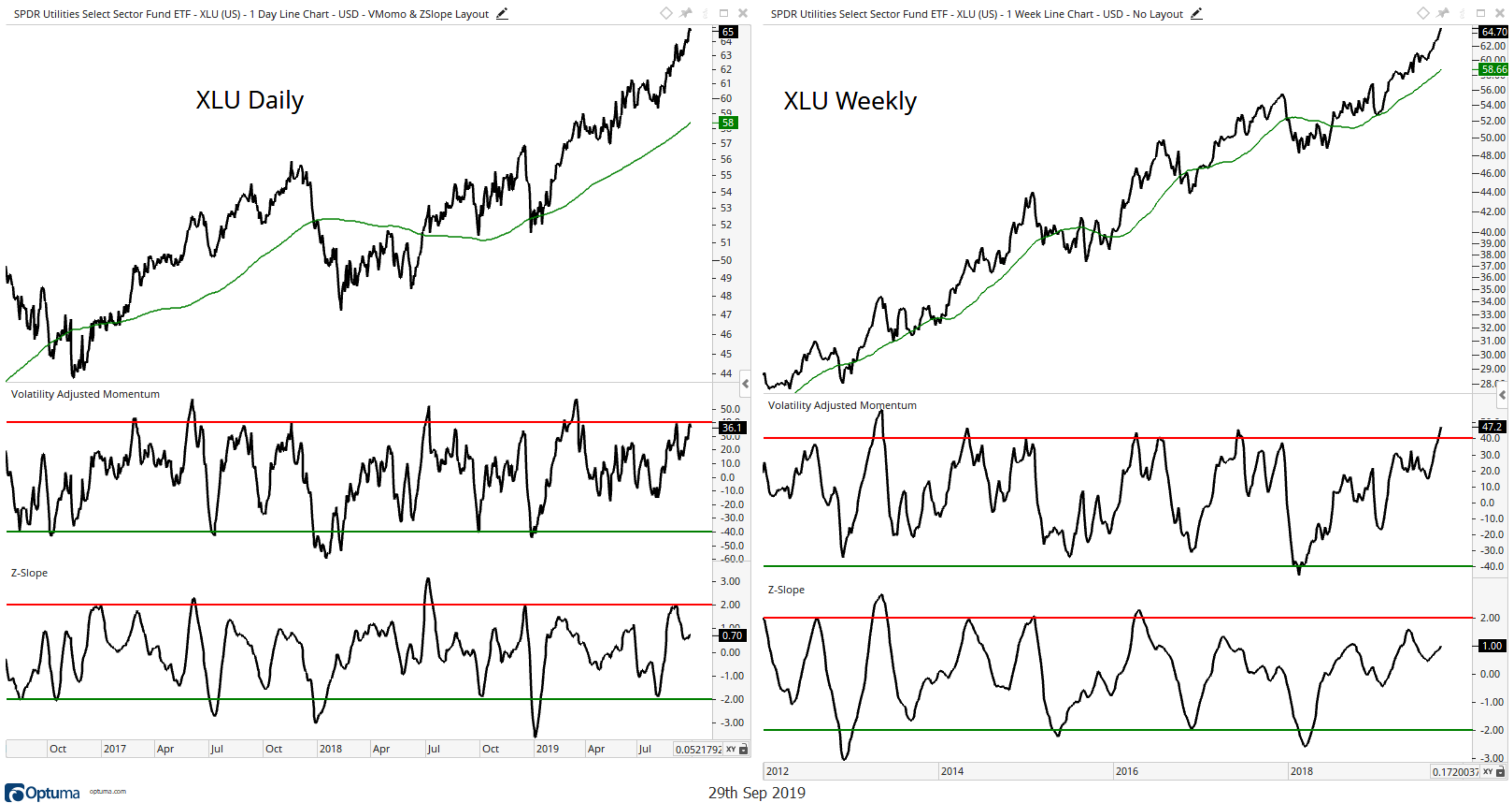
Neutral readings for both VaM and Z-slope but the daily's are moving closer to being 'overbought.'



Neutral readings for both VaM and Z-slope.

Neutral readings for both VaM and Z-slope.

XLU



Daily VaM is just under its ‘overbought’ level with weekly VaM now ‘overbought’. Utilities have become extended on the daily and weekly time frames and are at risk of rolling over.

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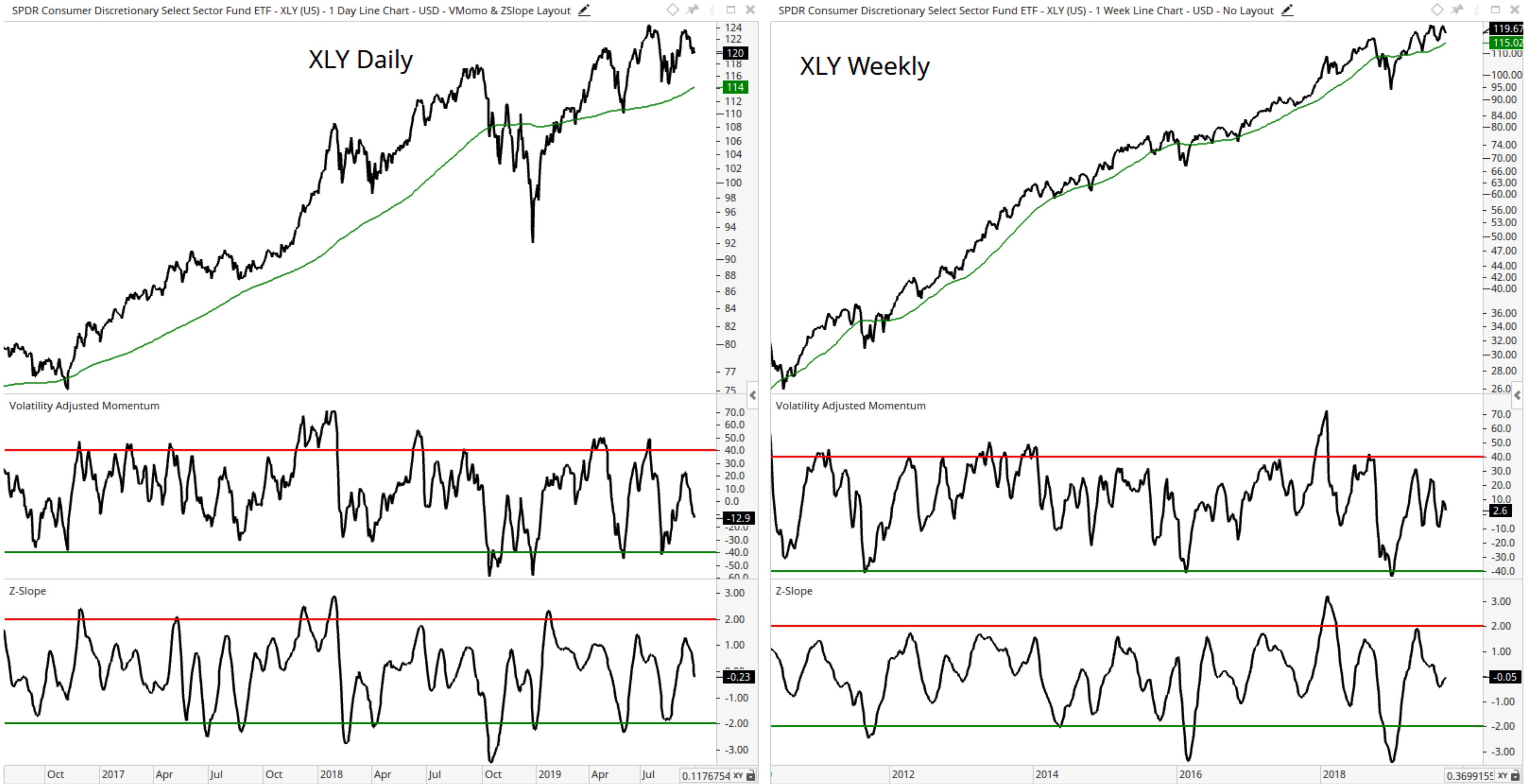
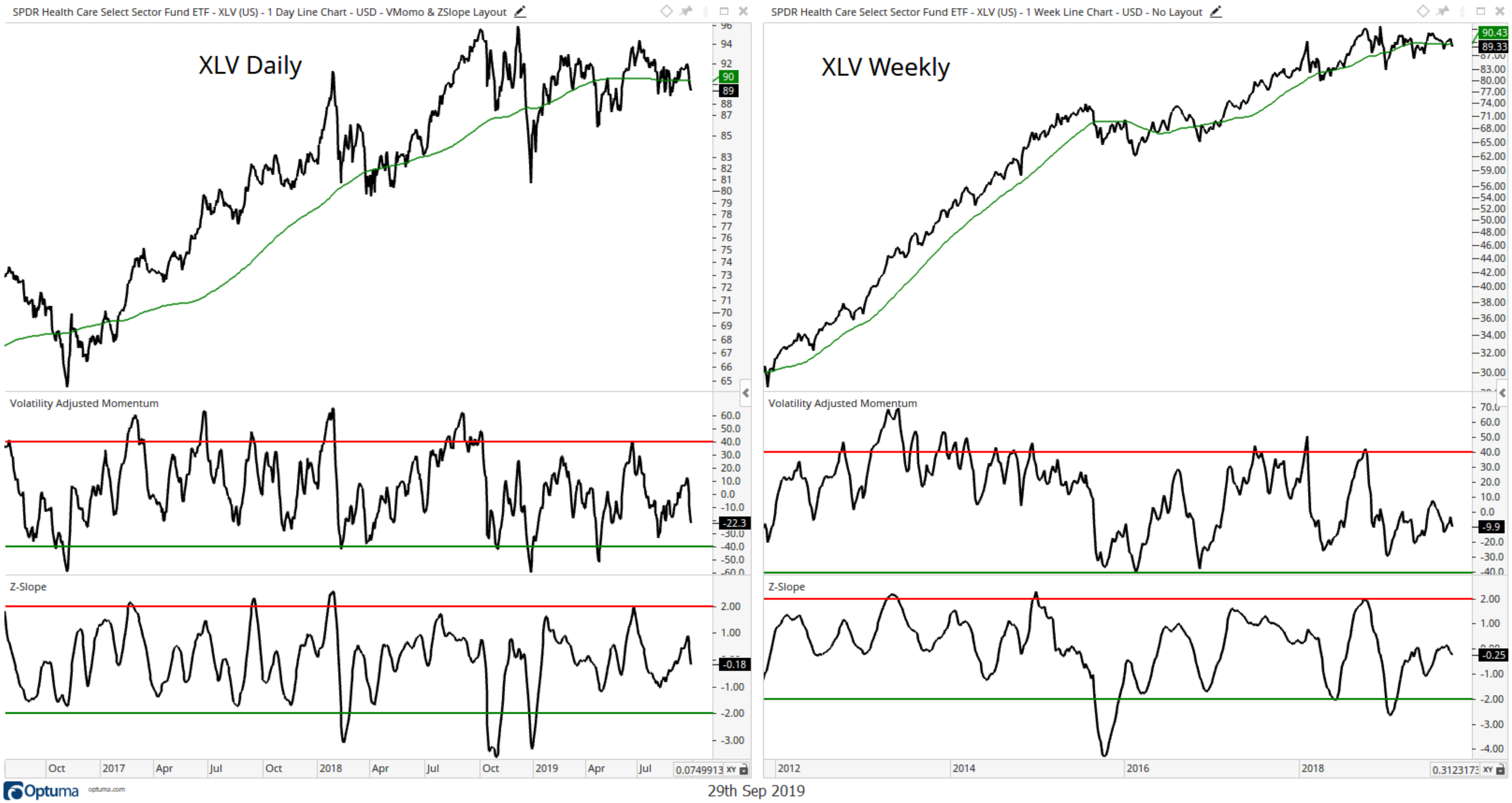
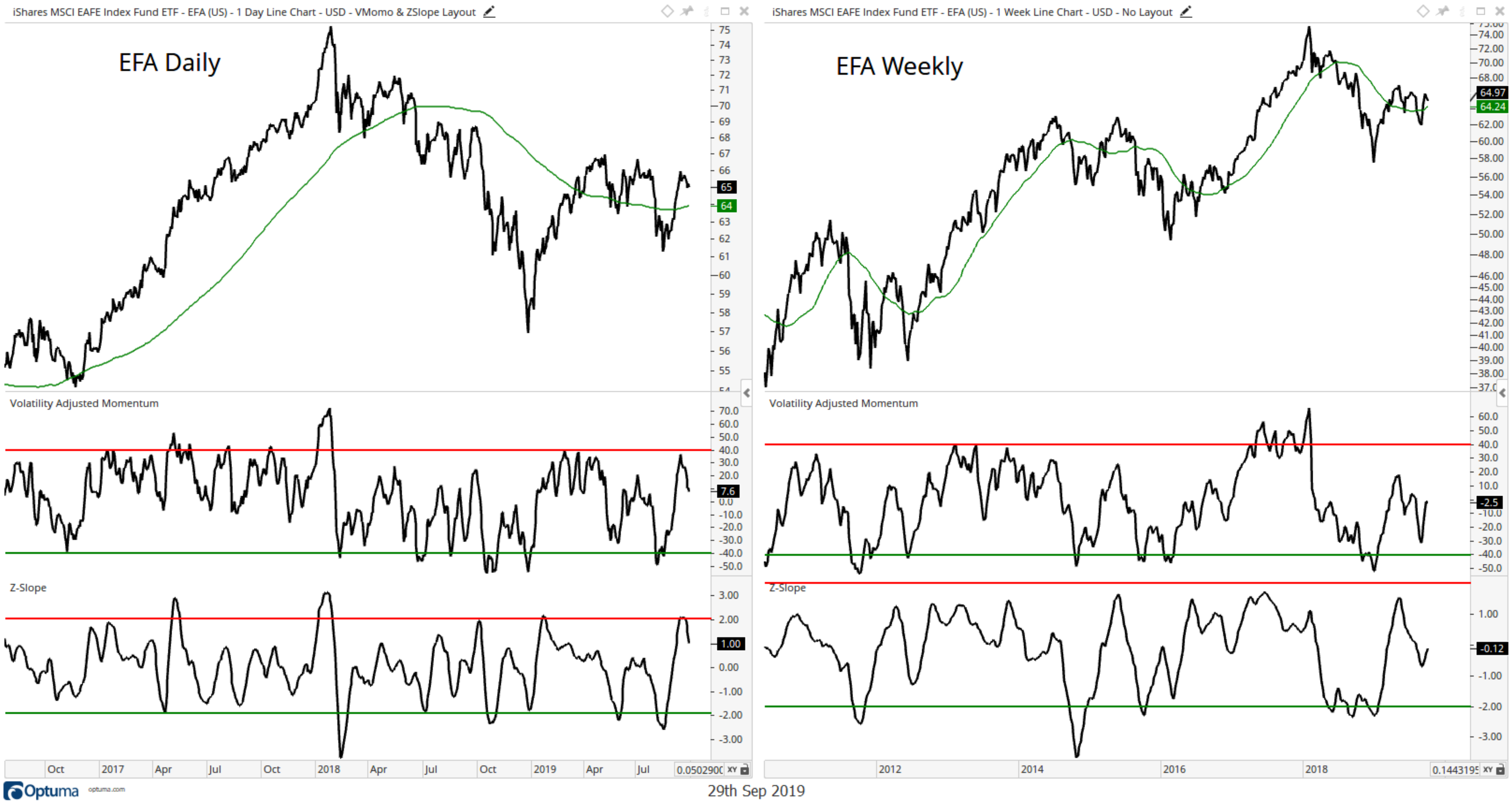


29th Sep 2019

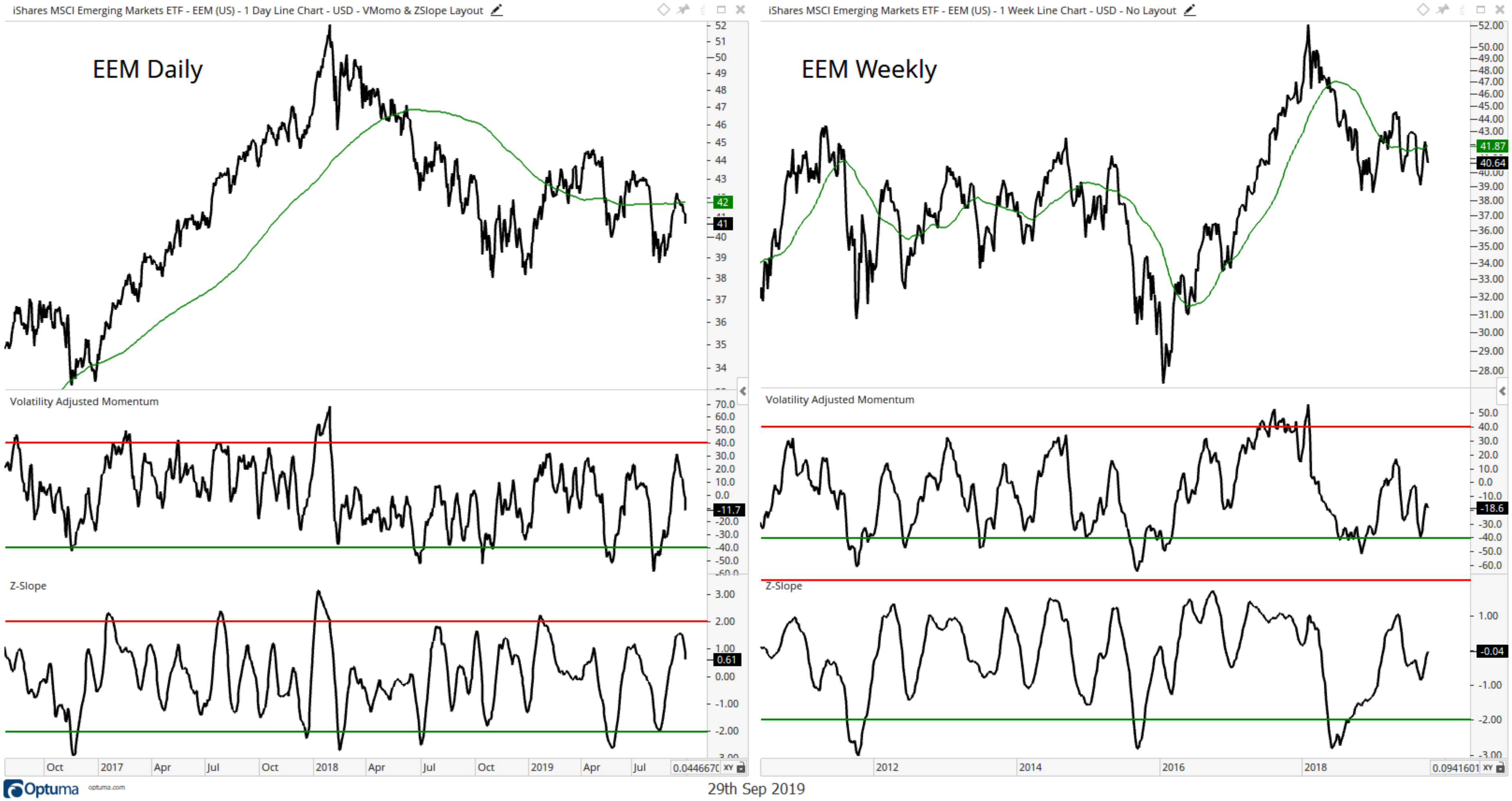
Neutral readings for both VaM and Z-slope.



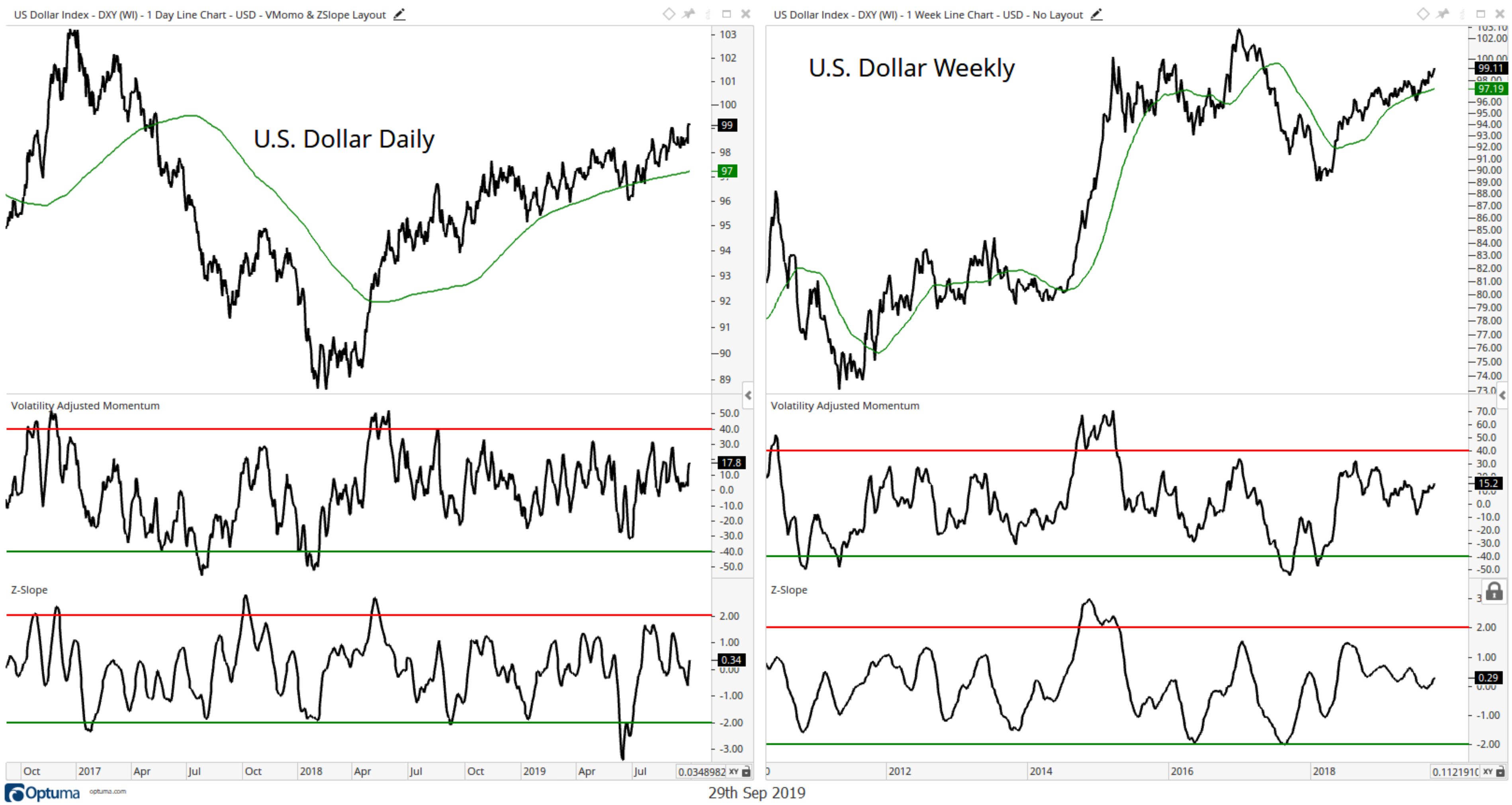
Neutral readings for both VaM and Z-slope.



Neutral readings for both VaM and Z-slope after coming off 'overbought' status.



Neutral readings for both VaM and Z-slope.



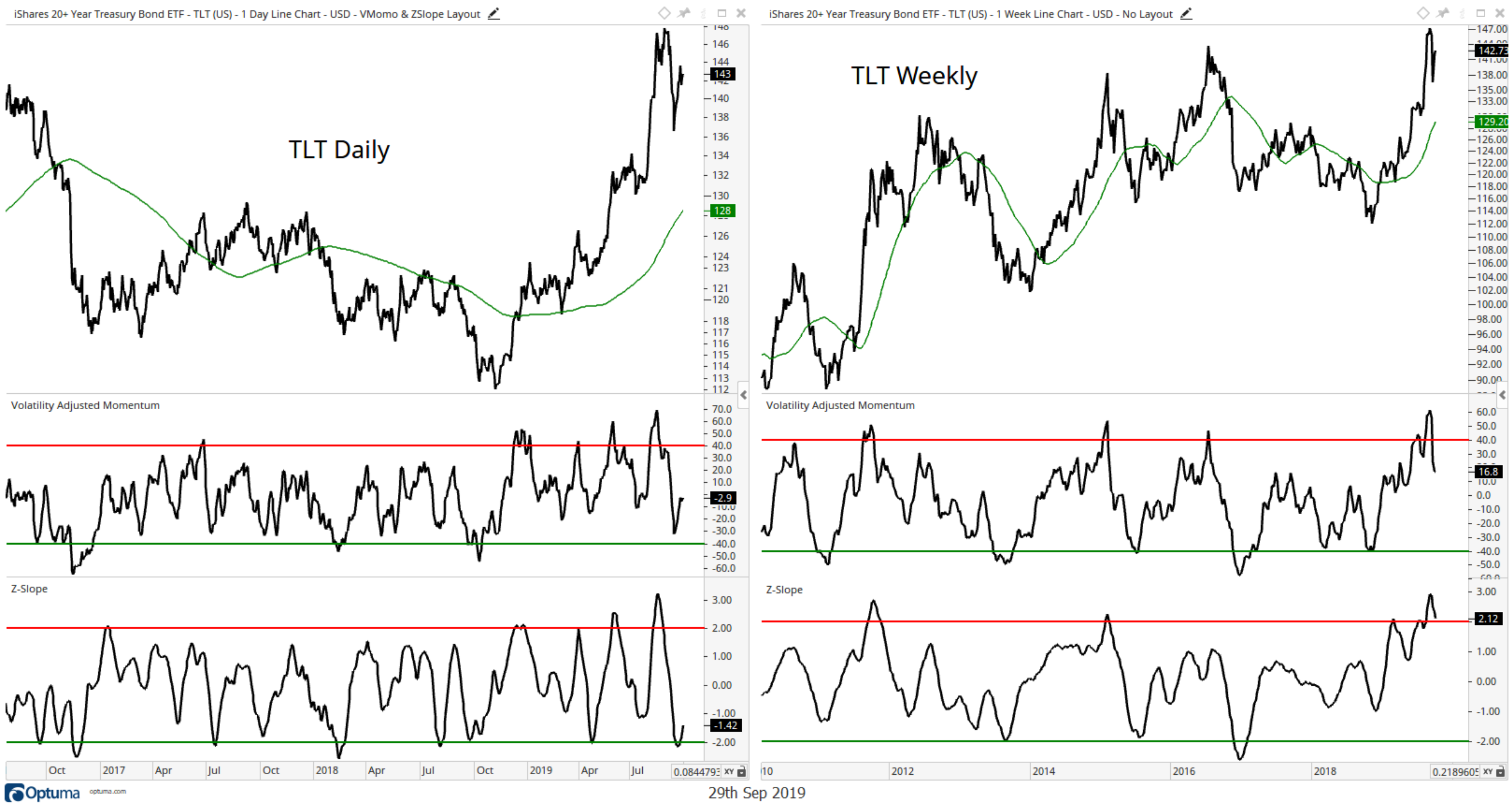
Neutral readings for both VaM and Z-slope.

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

Optuma

29th Sep 2019

Neutral readings for both VaM and Z-slope.



Daily Z-slope has come off ‘oversold’ status however weekly VaM and weekly z-slope are both still very elevated.

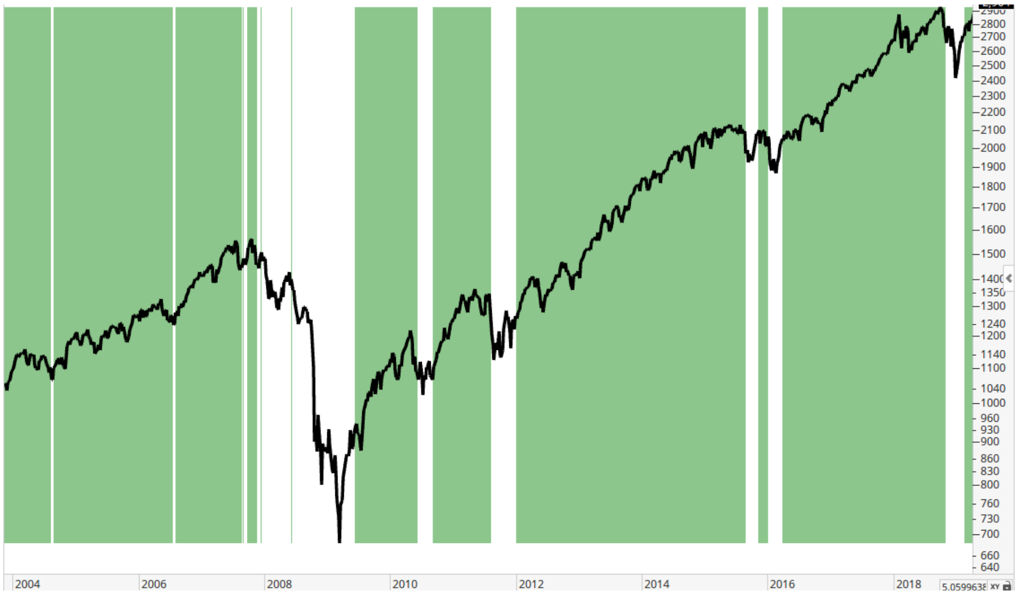
29th Sep 2019

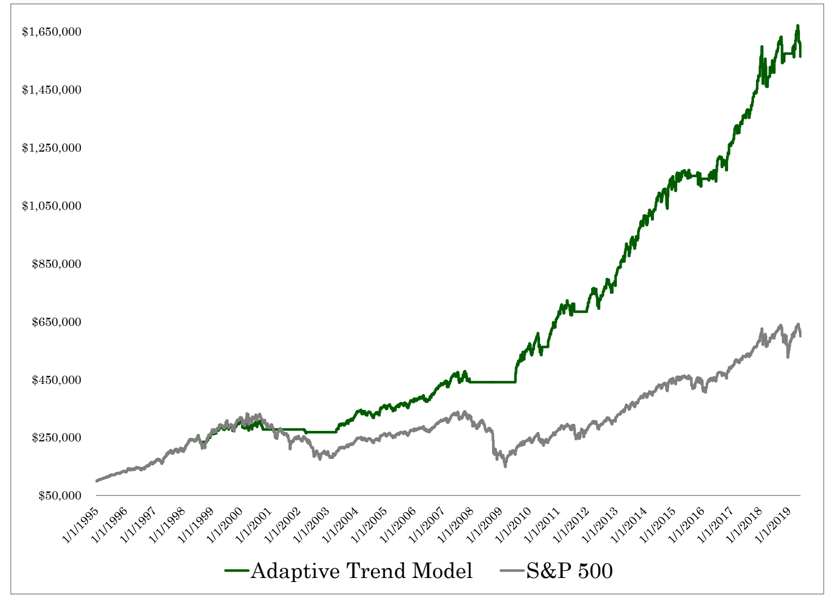
Daily VaM is 'oversold'.

Daily and weekly VaM are ‘oversold’.

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.



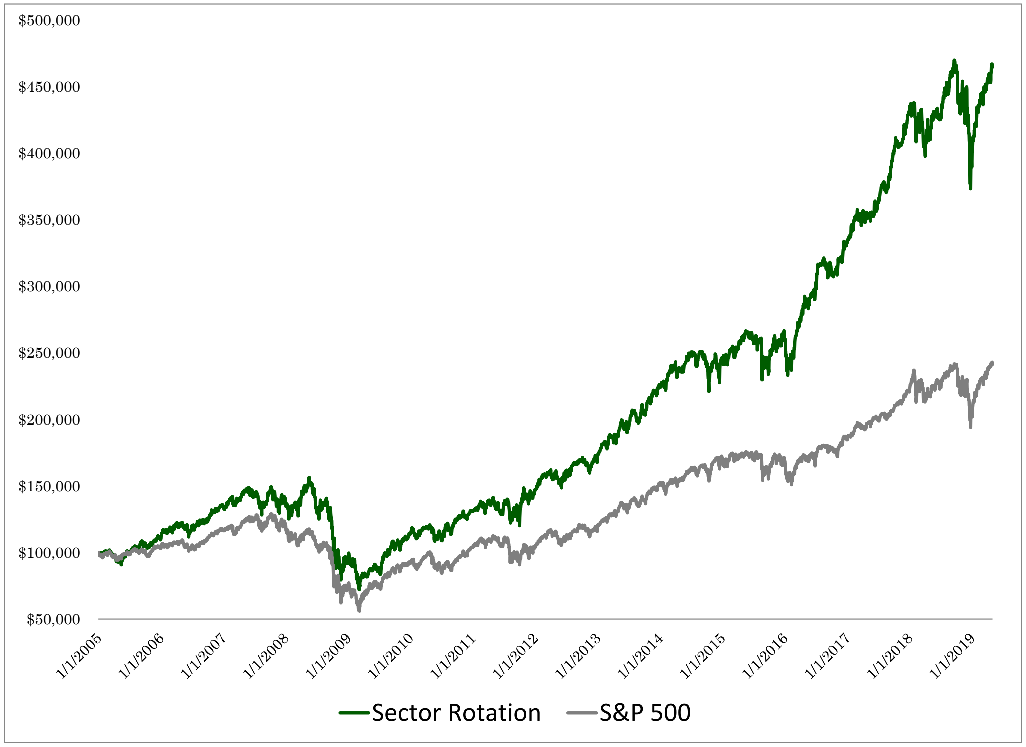


	Annualized Return	Annualized Volatility	Beta	Sharpe Ratio	Maximum Drawdown
Adaptive Trend	12.5%	10.3%	0.47	0.97	14.1%
S&P 500	8.9%	15.3%	1	0.42	56.6%

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 Ratio	Maximum Drawdown
Sector Rotation	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.

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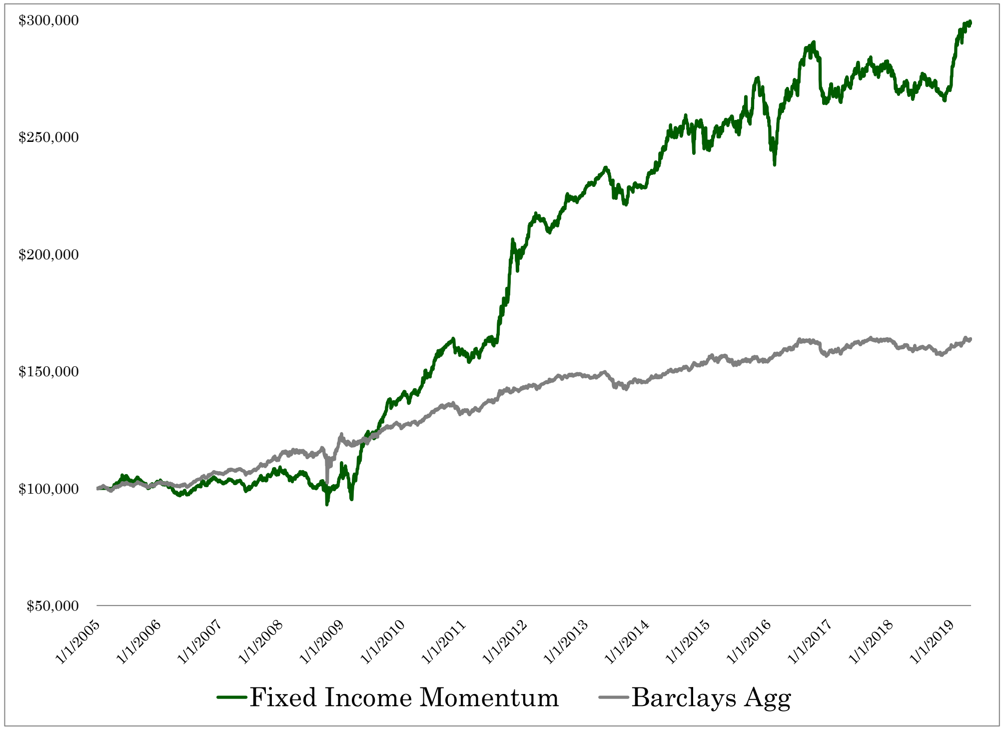

	Annualized Return	Annualized Volatility	Beta	Sharpe Ratio	Maximum Drawdown
Fixed Income Momentum	8.3%	8.2%	1.04	0.7	14.9%
Barclays Agg	3.6%	3.7%	1	0.29	11.0%

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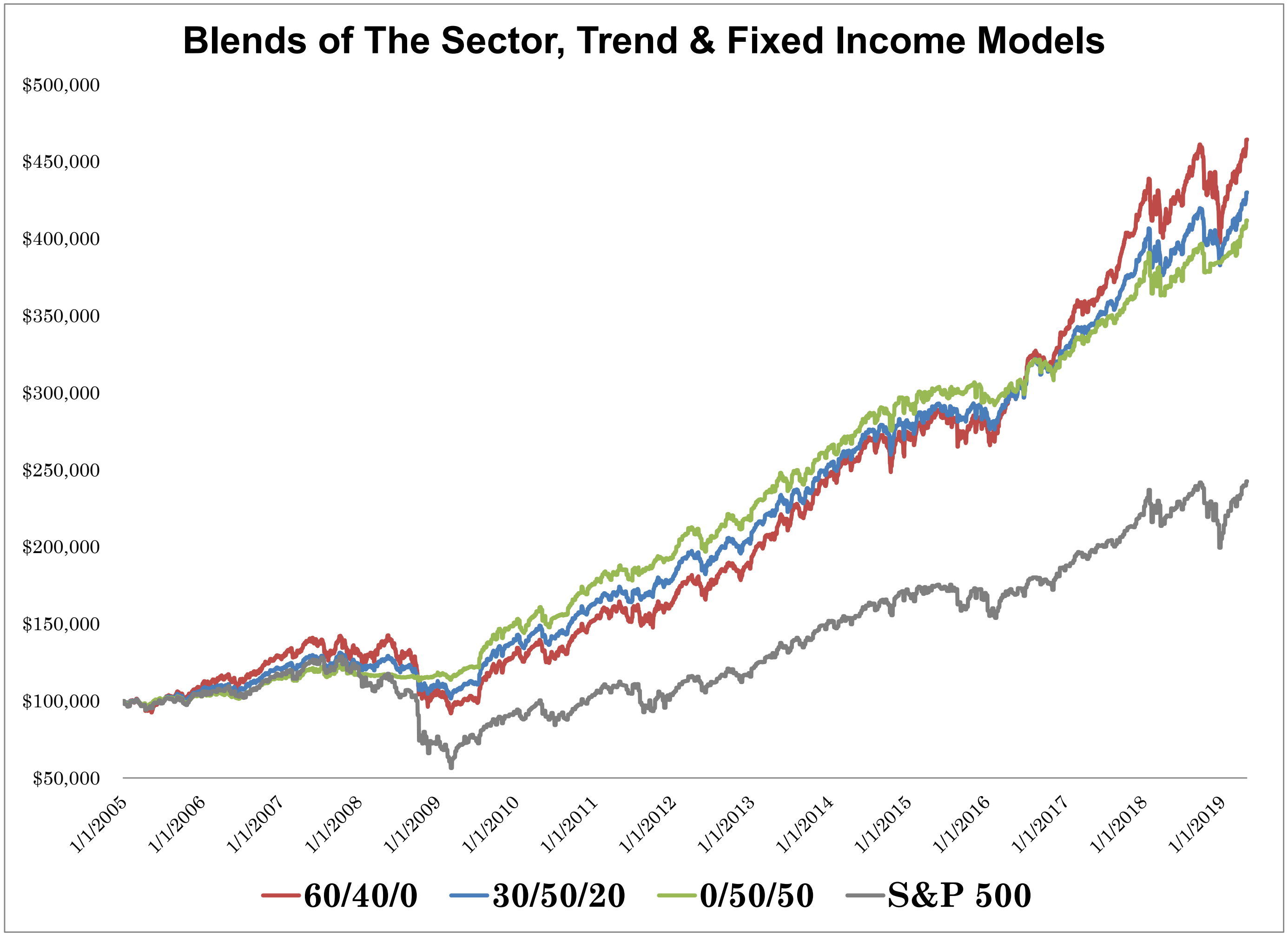
The concept of diversification is not new to financial markets. While many market participants focus on the diversification of the underlying holdings. This procedure is can be vastly skewed during periods of high market turmoil, in which correlations across asset classes tend to historically rise. Thrasher 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	Fixed Income Momentum
Positive	XLRE	JNK
	XLK	AGG
	XLP	

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Back Test Disclaimer:

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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