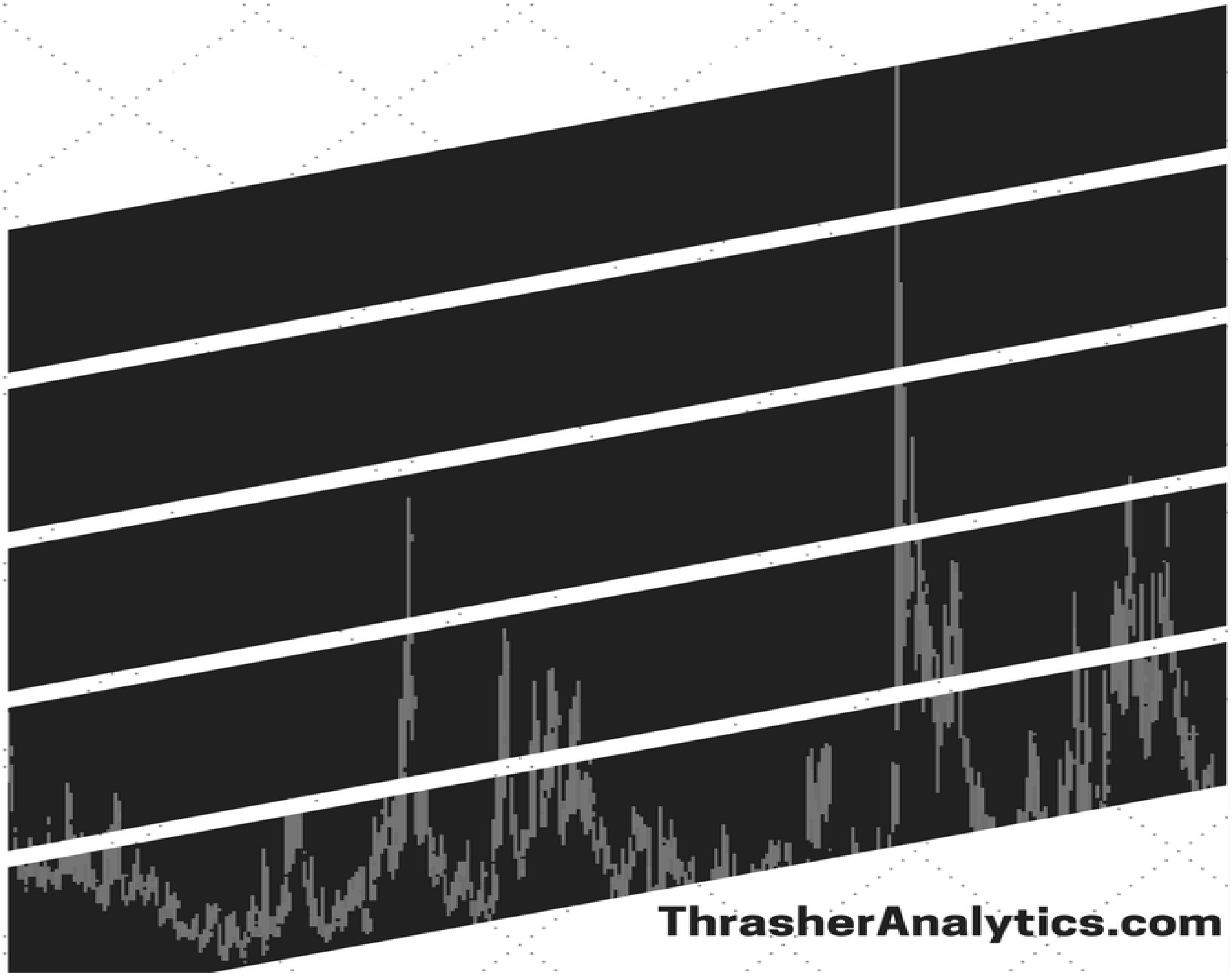
THRASHER ANALYTICS

BI-WEEKLY RESEARCH & ANALYSIS



ThrasherAnalytics.com

THRASHER ANALYTICS MARKET DASHBOARD

THRASHER ANALYTICS

Sector Rotation: January	
Financial	XLF
Technology	XLK
Communications	XLC

Fixed Income Rotation: Q1	
20+ Treasury	TLT
Aggr Bond	AGG

Index & Sector Adaptive Trend Models	Up Trend	Down Trend
SPX	X	
QQQ	X	
IWM	X	
XLF	X	
XLY	X	
XLK	X	
XLV	X	
XLU	X	
XLP	X	
XLI	X	
XLRE	X	
XLE	X	
XLB	X	

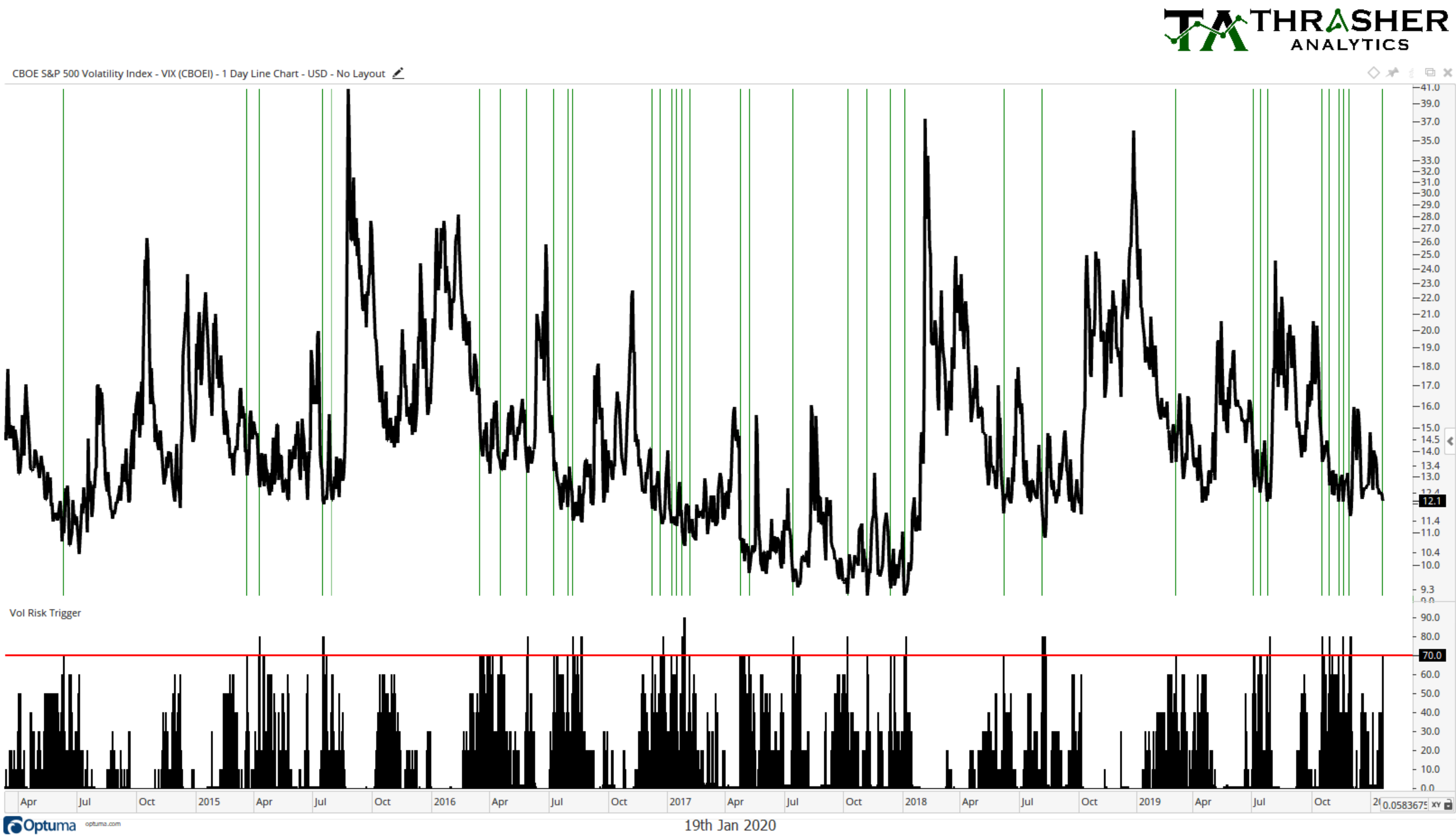
Daily Sentiment Index	% Bullish	5-day MA
S&P 500	90%	89%
Nasdaq 100	93%	90%
Nikkei	87%	87%
VIX	8%	9%
10yr Treasury	40%	42%
5yr Treasury	40%	41%
CRB Index	58%	54%
Gold	81%	76%
U.S. Dollar	63%	59%

*Green<25% Red>80%

Notable Breadth Data:	
SPX >50MA	79.41%
SPX >200MA	79.60%
Nasdaq >50MA	83.50%
Nasdaq >200MA	80.58%

Sector	> 50MA	> 200MA	1wk Perf	1mo Perf	3mo Perf	12mo Perf
SPDR Utilities Select Sector Fund ETF	True	True	3.66%	3.71%	4.95%	25.77%
SPDR Technology Select Sector Fund ETF	True	True	2.94%	7.82%	18.89%	50.88%
SPDR Communication Services Select Sector ETF	True	True	2.76%	6.88%	11.38%	27.06%
SPDR Materials Select Sector Fund ETF	True	True	2.62%	0.58%	6.13%	16.15%
SPDR Real Estate Select Sector Fund ETF	True	True	2.46%	5.66%	0.15%	21.67%
SPDR Industrial Select Sector Fund ETF	True	True	2.01%	3.46%	8.76%	22.55%
S & P 500 Stock Index	True	True	1.97%	4.29%	11.06%	26.32%
SPDR Consumer Staples Select Sector Fund ETF	True	True	1.85%	1.46%	5.28%	23.13%
SPDR Health Care Select Sector Fund ETF	True	True	1.64%	2.58%	13.45%	17.38%
SPDR Consumer Discretionary Select Sector Fund ETF	True	True	1.31%	3.00%	4.56%	21.49%
SPDR Financial Select Sector Fund ETF	True	True	1.11%	0.29%	10.66%	21.4%
SPDR Energy Select Sector Fund ETF	False	False	-1.15%	-3.34%	3.12%	-5.51%

The best performing sectors over the last week was utilities, technology and communications. That first one probably surprised you a little with how ’risk on’ the price action in the major indices has been didn’t it? The worst performing sector was energy.



As of Friday, the VRT has now produced its first signal of 2020. I do believe that we are ripe for a move higher in volatility but I'm not completely convinced it'll happen ASAP. The other data for the market remains strong, and I'd like (in a perfect world!) see some of it break down (will discuss more on this later I the letter) first. But I do respect the fact that the door has now been opened for a bottom to be in place for volatility. We could see vol bid higher and see it start to correlate with SPX or see the 'pressure' released immediately, I think the former is more likely than the latter but this will be a topic I'll watch slowly this week and update you as needed this week.

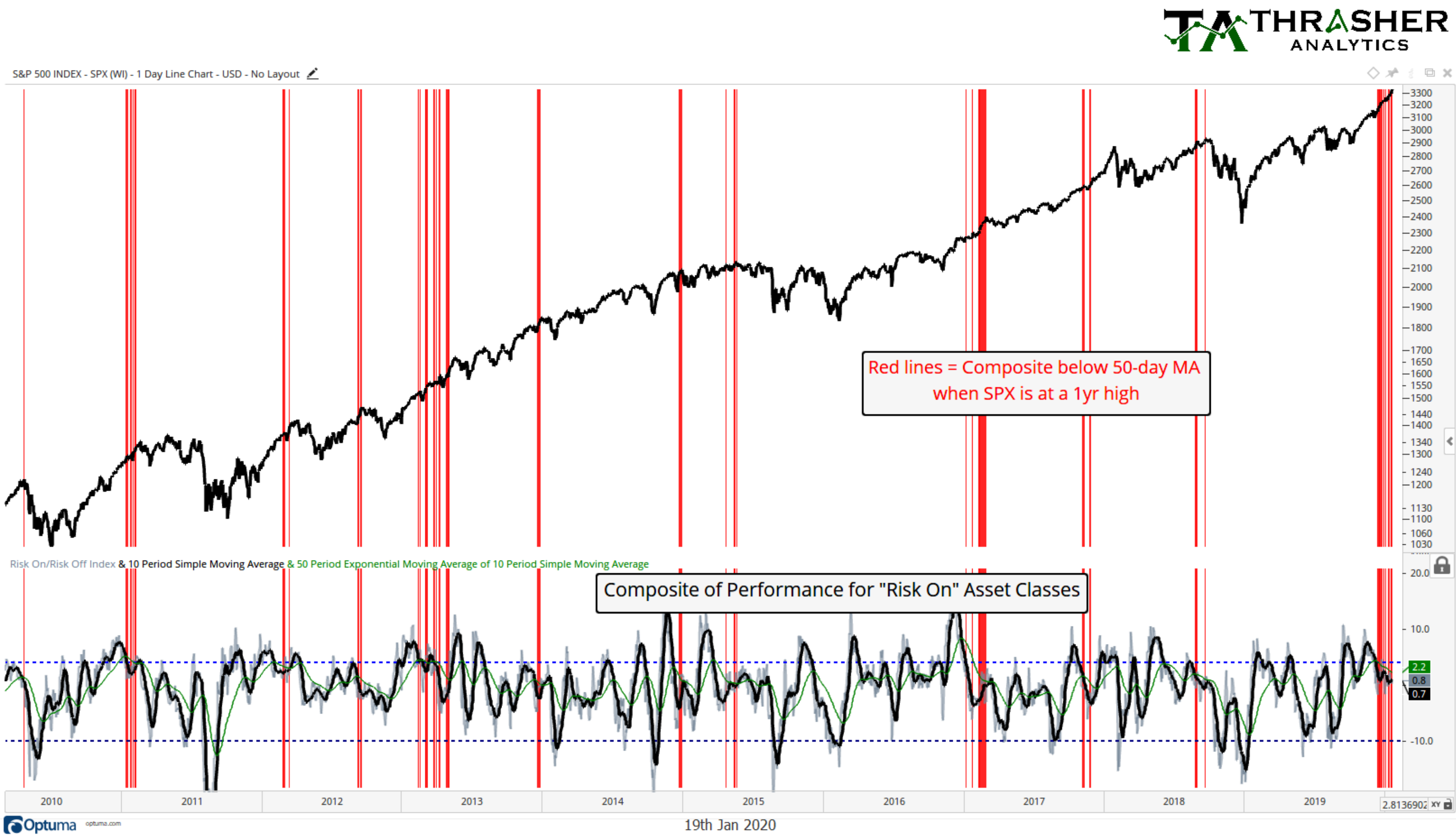
The S&P 500 remains in a solid up trend, holding above short-term support with momentum still in a bullish range. We haven't seen the 14-day RSI test its 50 level since late-November. While momentum is 'overbought' this is more a short-term concern and a long-term positive. I'd be more concerned if we had a lower-high under 70 in the RSI, but that's not the case with Friday's print at 76. The price action has been impressive and fortunately the level of participation of individual stocks has continued to look bullish.

There's no arguing the S&P 500 is in a confirmed up trend. This trend is being confirmed by half of the four ratios I show almost each letter. The market has continued to show a distain for small cap stocks (bottom panel) I addressed some of the potential reasons for this in my bulleted letter last week, so reference that if there's any questions.

What's interesting is the under-performance in equal weight SPX. These companies SHOULD share in the benefits of the mega caps for the most part and with breadth being as strong as it's been, it's very odd that equal weigh still is lacking.

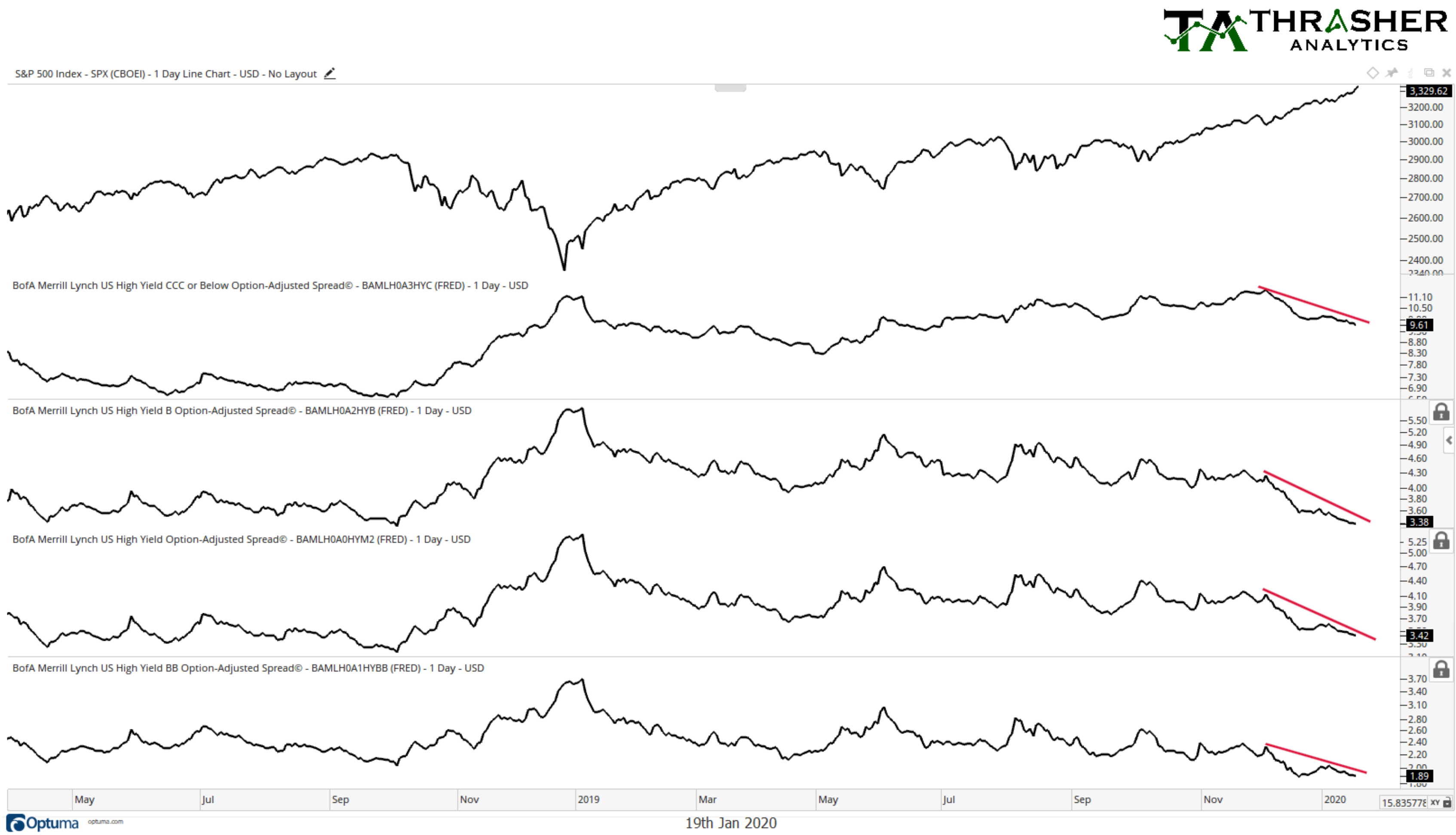
On the other side of the coin, high yield and high beta both are showing some consolidation in relative performance, meaning they are moving in-line with the index, a positive sign.

The sector performance still remains in the bullish camp. The offensive sectors still are leading the defensive sectors. Although I will note the best performer last week was utilities, but broadly speaking the market is still showing a preference for offensive sectors, a bullish sign long-term for stocks.

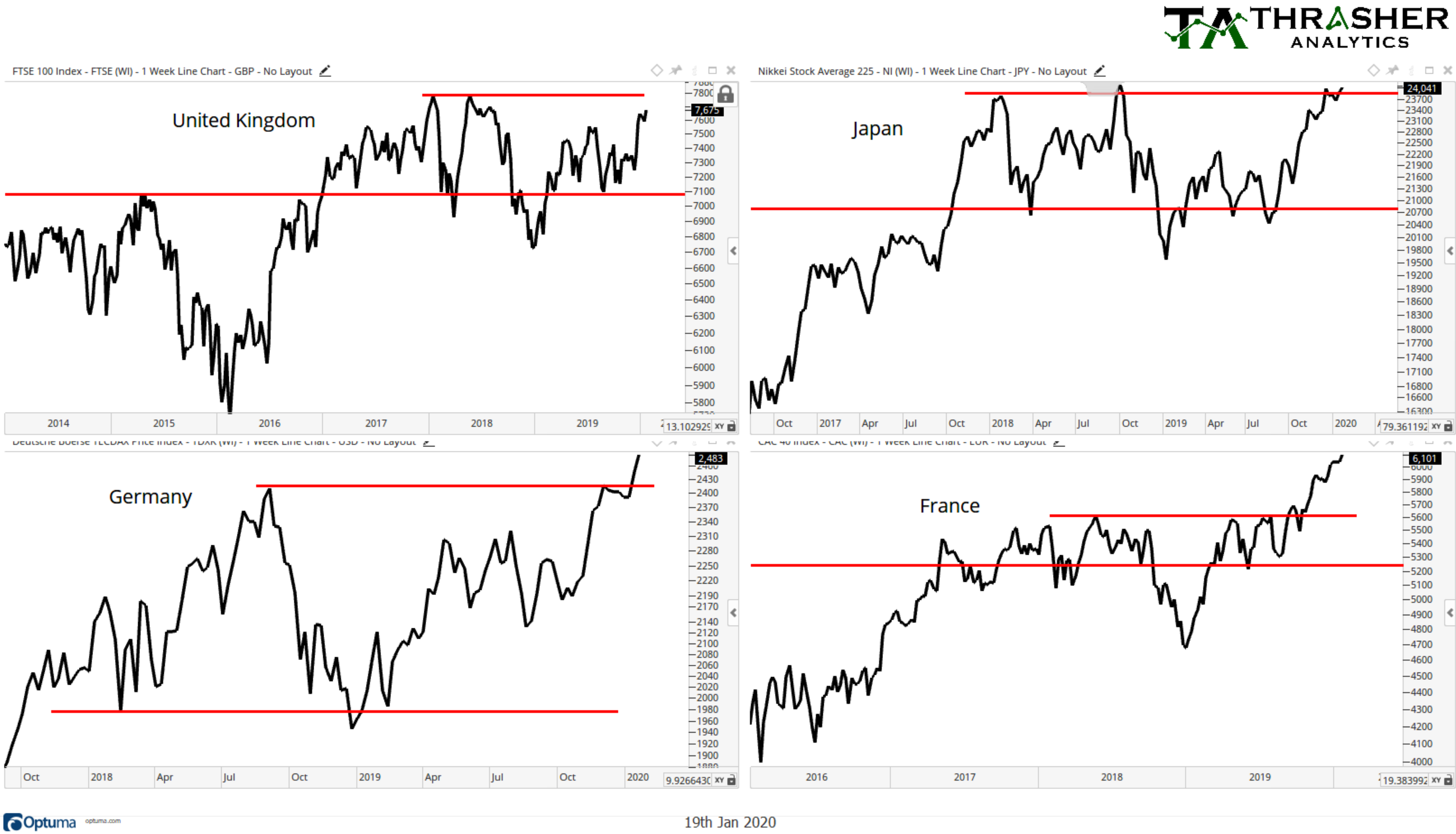


While from a sector perspective (last page) offensive has retained control, I'm not seeing the same type of risk appetite from an asset class perspective. The composite of 'risk on' asset classes remains to trend lower. Part of this is the small cap component, but that alone wouldn't be enough to drag the whole composite.

One index that doesn't get discussed very often is the Global Dow Index. This index is made up of 150 global companies with a sector weight of 19% financial, 14% industrial, and 13% tech and country weighting of 33% U.S., 8% UK, 4% Switzerland, and 2% South Korea. While it has a heavy U.S. weighting, the Global Dow has yet to break out above its 2018 high but it's getting close. I'm watching to see if this index can join the growing crowd of indices breaking higher. Historically we have often seen the Global Dow give early warning signs for U.S. large caps, so a break out here would be bullish for SPX but a fall would not.

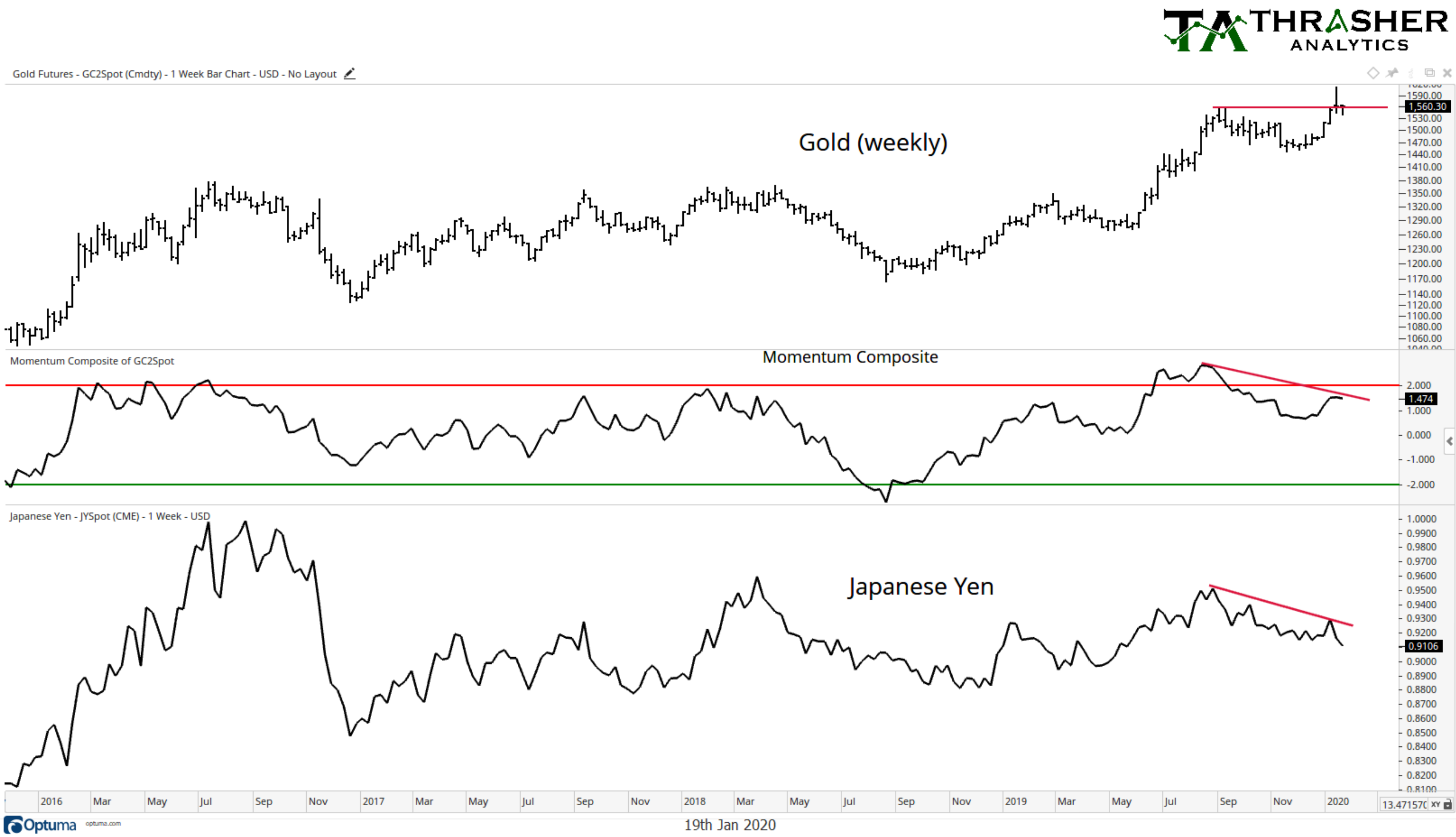


Still no alarm bells going off from the high yield corporate bond market. All the major credit rating spreads are trending lower, a positive sign that fixed income land isn't demanding higher premiums for junk debt.



I last highlighted the potential break or false break in Germany. Since then, Germany has in fact broken higher, breaching its 2018 high along with Japan with France continuing to move further to the upside. This leaves just the UK left to breach its prior high, being plagued with Brexit drama, traders have been less enthused to take British stocks higher.

The Nasdaq 100 is approximately 100 days off its October low, and the slope of the trend is extremely impressive. In fact, there's only two other 100-day periods that have seen the slope exceed its current level—1999 and 2017. While 2017 ended with the quick drop in stocks, 1999 saw the trend continue higher for a few more months before coming to an end. I share this chart to put in better context what kind of market we are in right now, we don't have much of a sample size to compare this kind of trend strength.

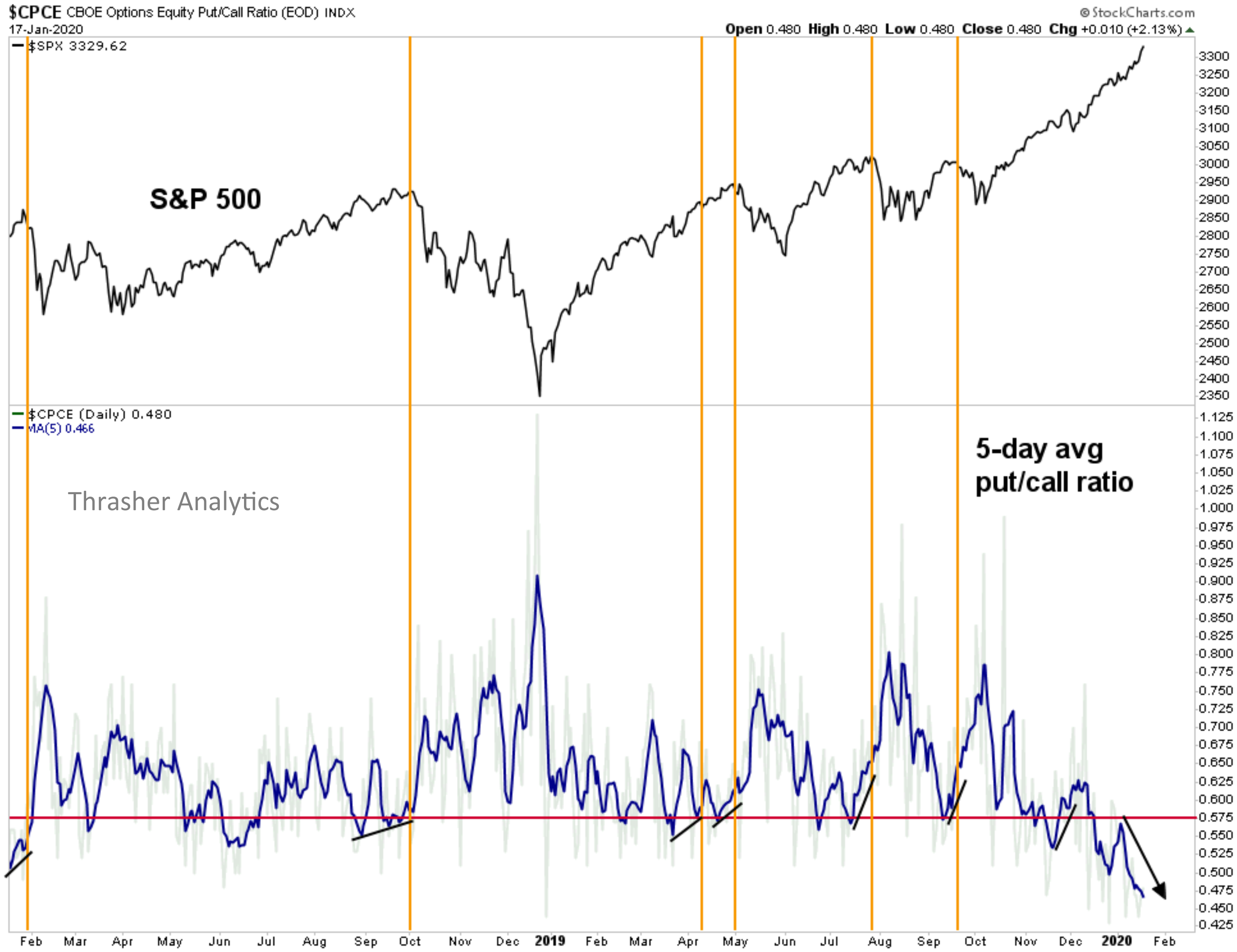


Above is a weekly chart of Gold along with my momentum composite indicator (think of it as any other kind of momentum-type indicator, but on steroids) along with the Yen. I've often discussed gold in terms of the trend in yen, which often leads the precious metal. Interestingly, I've seen a couple of other traders pick up on this pair recently, I guess the secret's out. Anyway, with gold's latest attempt at breaching its prior high, a bearish divergence as developed in momentum and yen as weakened considerably. This isn't a bullish picture for gold, which as you'll see in the DSI section, has a frothy sentiment score of 81% bullish right now. There's a lot of discussion that gold is bullish because of its breakout last year, but things have gotten a little too ahead of itself recently and without yen confirming the move up, I'm not a fan of gold at this point, especially if it fails to hold the prior 2019 high.

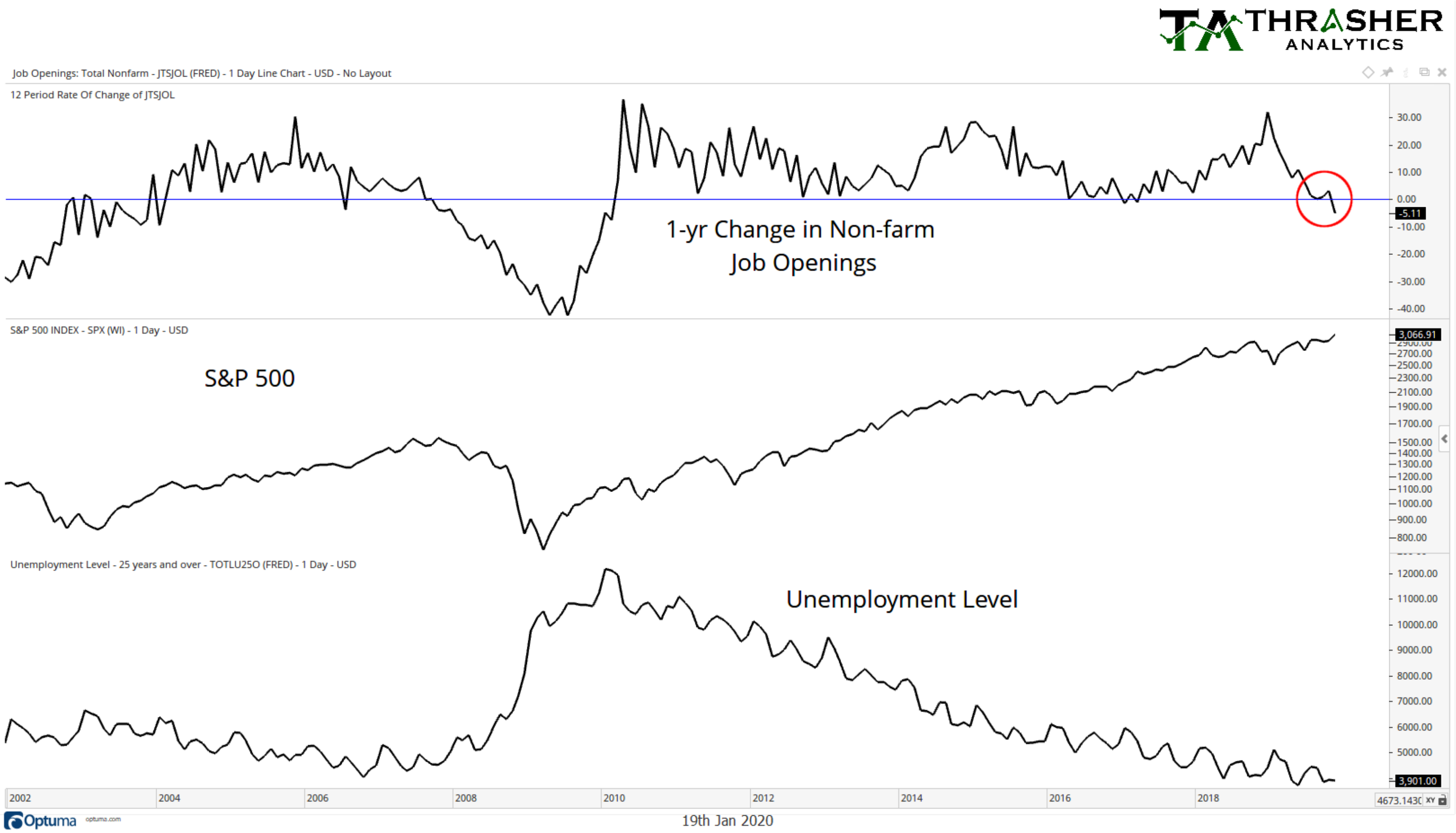
Treasury Yield Rounding Lower

It appears the 10-year yield is starting to roll over and it's getting confirmation. Both the small caps vs. utilities and copper vs. gold ratios are also making some rounding top patterns.

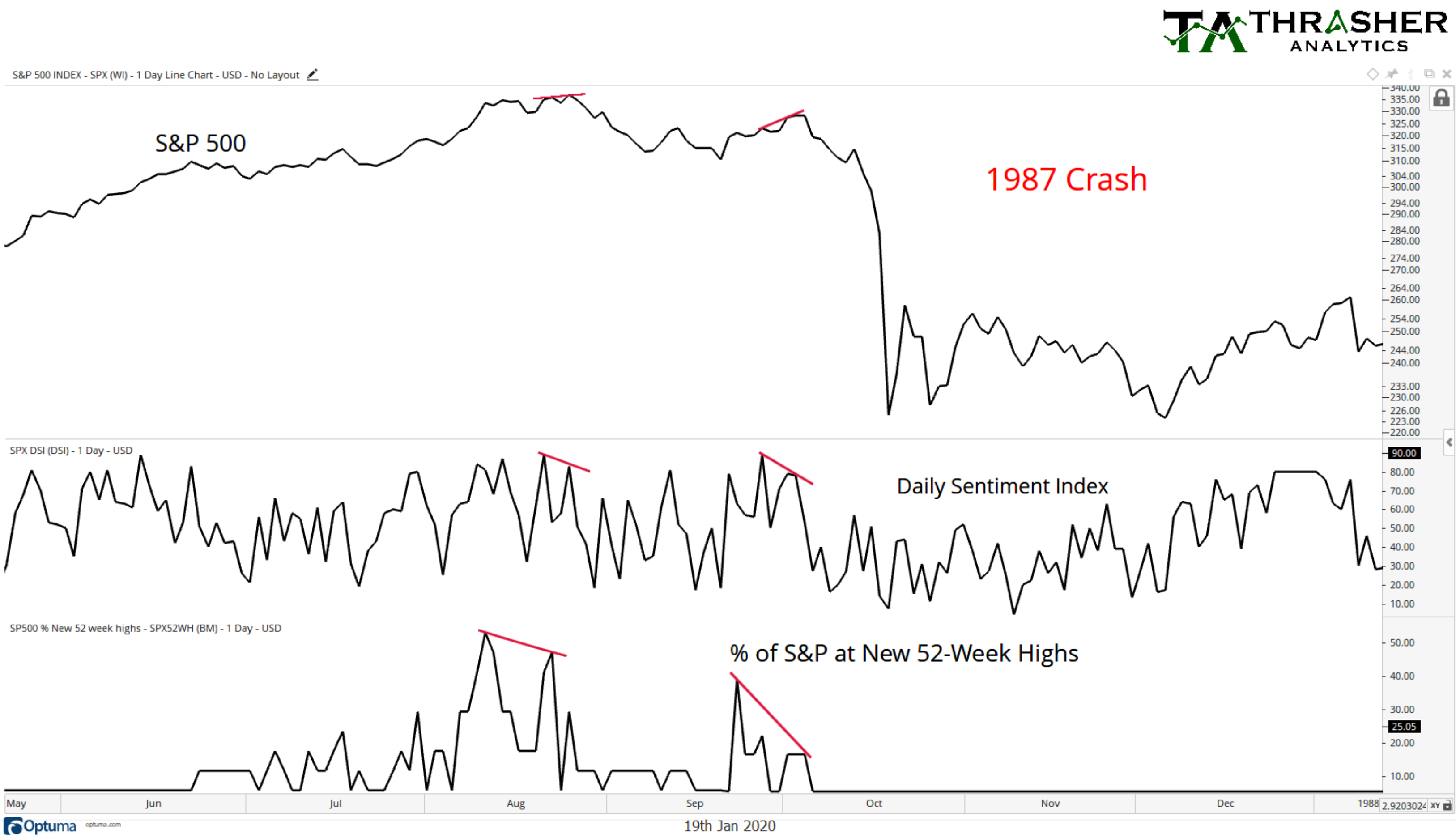
These two ratios often lead the 10-yr yield, so if small caps can't keep up with utilities and gold leads copper then it could forecast a move higher in bond pries (and yield lower)



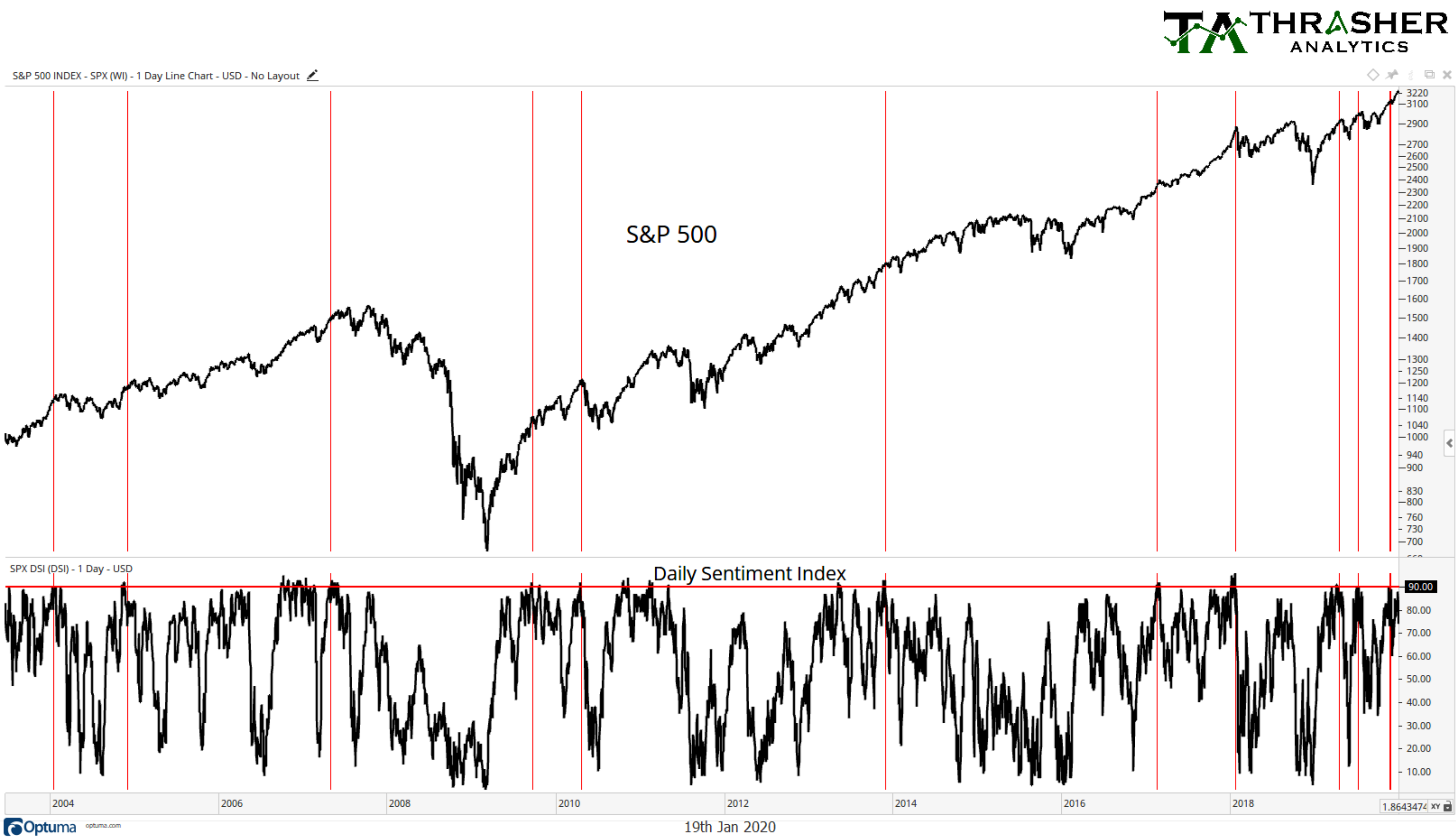
The trend lower in the smoothed equity put/call ratio continues to head south, almost as if its trying to go to Florida with all the other snow birds. The idea that owning puts is almost being treated as a crime at this point, no one wants to own puts, but as I've said several times, this isn't an issue until it trends back higher. The yellow lines show market peaks, each occurring after the put/call ratio had trended higher. We started to see the ratio strengthen in Nov./Dec. but that was resolved to the downside with more calls getting gobbled up.



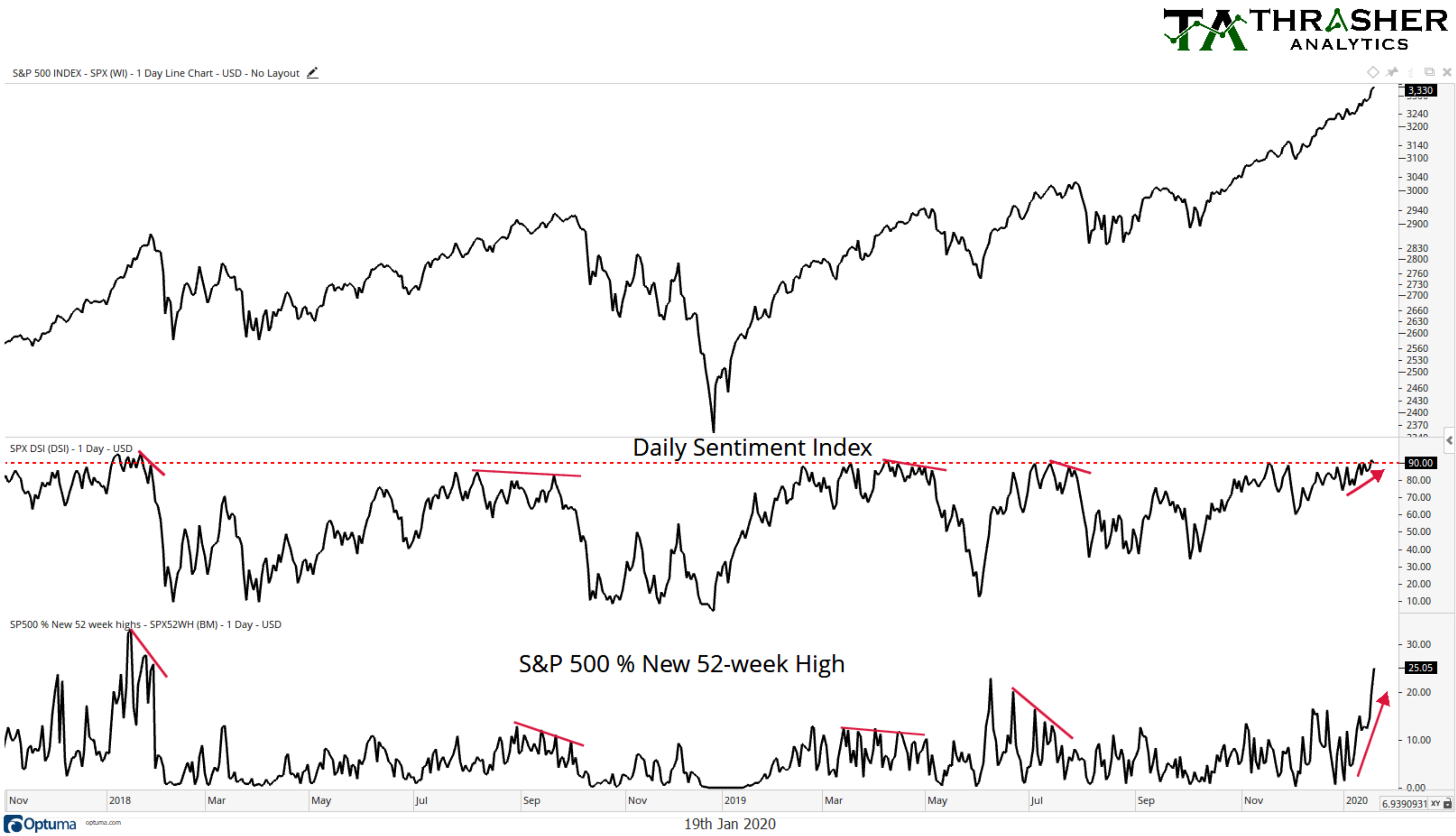
Above is the 1-year change in the job openings for the U.S. labor market, which has recently turned negative, falling 5% YoY for the first time since 2007. It's a bit troubling to see job openings weaken like this. As to be expected, job openings often lead the overall labor market, with employers pulling back the number of jobs they are trying to fill ahead of laying off staff and ultimately sending the unemployment level higher. I will point out that in 2006 we saw a quick dip in the YoY figure that was recovered with no harm no foul. That dip wasn't as much as we have right now, but if the next report shows encouraging improvement, maybe we see a repeat of that 2006 instance and we can move on with out disturbing the labor market. But it's important to be aware of this development as the consumer has been the one bright spot to the U.S. economy and not a leg of the stool we want to see kicked.



I shared this chart on Twitter over the weekend as an example (albeit extreme) that even back in 1987 before Black Monday, sentiment and breadth were sending warning signs for price. Both the DSI and the % of 52-week highs were diverging lower. Obviously anyone looking at this type of chart had no idea what kind of resulting price action would follow, but at least they could have been warned that SOME kind of down turn was to be expected.



Here's a chart of DSI from 2004-2019. The red lines show when the DSI for the S&P 500 has gone from over 90% bullish to under 90% while the index was at a 1-year high, essentially when sentiment has turned lower when price was making a new high. As you can see, this doesn't happen a lot but when it does we often see price move lower or at least consolidate. Now lets look at today...



I've added back the % at 52-week Highs like in the 1987 chart. As of Friday, the DSI for the S&P 500 finished at 90%, 2 ticks down from Thursday's 92%, but still riding that 90% line. I've noted a few divergences over the last couple of years when DSI and breadth have moved lower and price was going higher. It happened ahead of the Q1 '18 drop and the more severe Q4 decline. We also saw it before the smaller corrections last year. However, today we have breadth continuing to expand, we have the most stocks at a 52-week high since January '18 and sentiment still is holding up.

What this does is gives us a target to shoot for (so to speak). Now that we have a breach of 90% on the DSI, I'll be watching closely if price continues to go higher but sentiment and breadth begin to struggle. If we see a couple points fall off DSI, say to 87-85% with SPX at another new high, that's the type of confirmation I'd be looking for to match what the VRT is signaling for volatility. We'll see what the market throws at us.

One of the strongest parts of the market has been semiconductors. I've been writing a long time about the importance of semis as a barometer for U.S. equities. As the char to the left shows, semiconductor relative performance often leads equities. Over the last two years that leadership has been to the upside.

Recently semis have begun to struggle in relative performance to the S&P 500. Since we rung in 2020 they haven't been showing the same kind of strength, consolidating over the last 1-2 months. They haven't broken down entirely, so I don't see them suggesting SPX will turn lower, but this consolidation needs to resolve to the upside and not see a break below the prior '19 high (red horizonal lines)

Daily Sentiment Index Dashboard

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1 Day - Watch List - No Layout

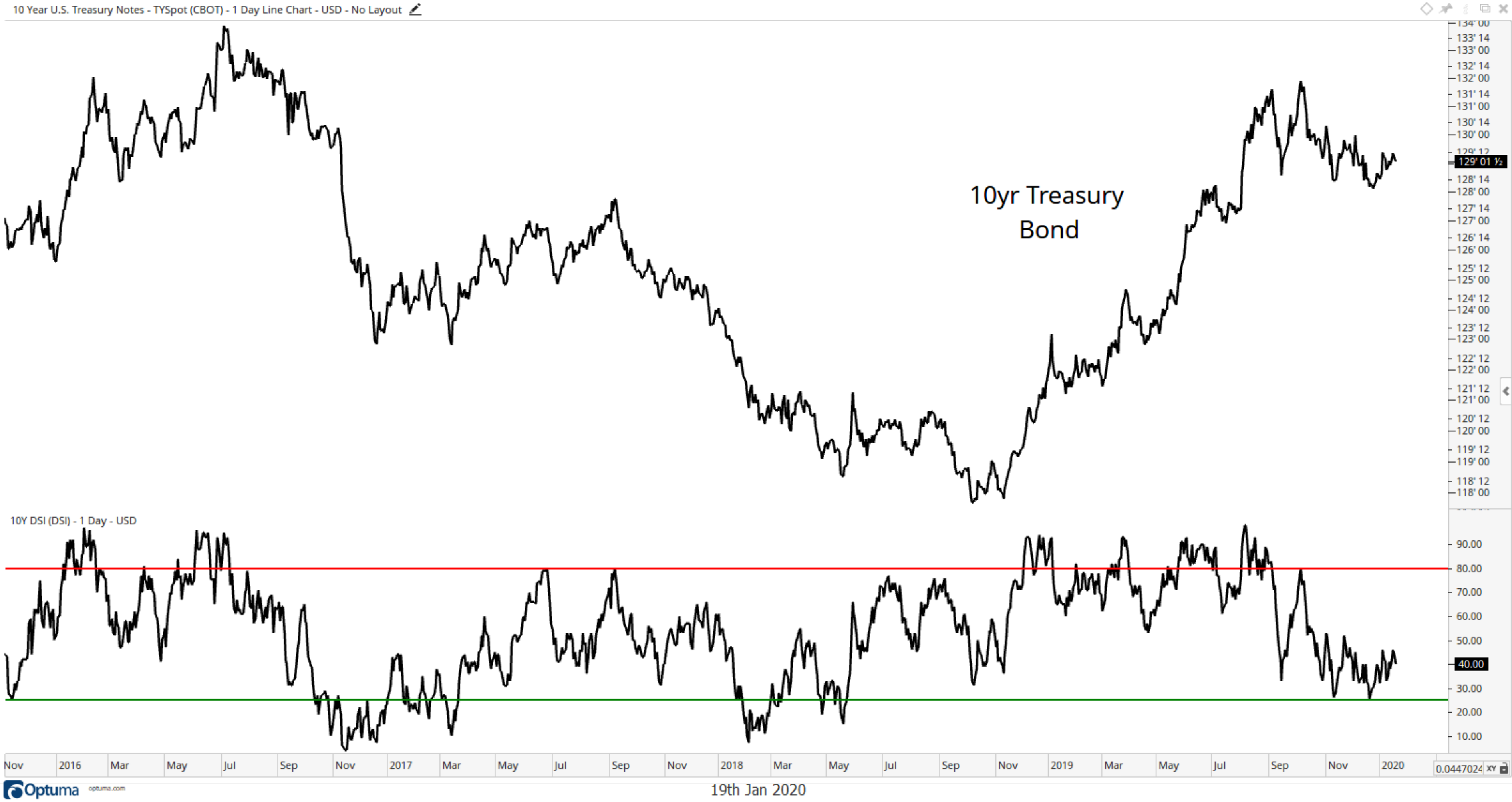
Market	% Bullish	5MA	History
VIX DSI	8	9.4	
Orange Juice DSI	17	16.6	
Lean Hog DSI	26.00	24.2	
Corn DSI	26.00	24	
Natural Gas DSI	28.00	37.40	
British Pound DSI	30.00	29.2	
Euro DSI	33.00	38.40	
Australian Dollar DSI	35.00	39.60	
10Y DSI	40.00	41.80	
5YR DSI	40.00	40.80	
Swiss Franc DSI	42.00	44.80	
Coffee DSI	42.00	46.80	
Heating Oil DSI	53.00	54.80	
Cattle DSI	57.00	60.60	
CRB Index DSI	58.00	53.80	
EuroDollar DSI	62.00	62.00	

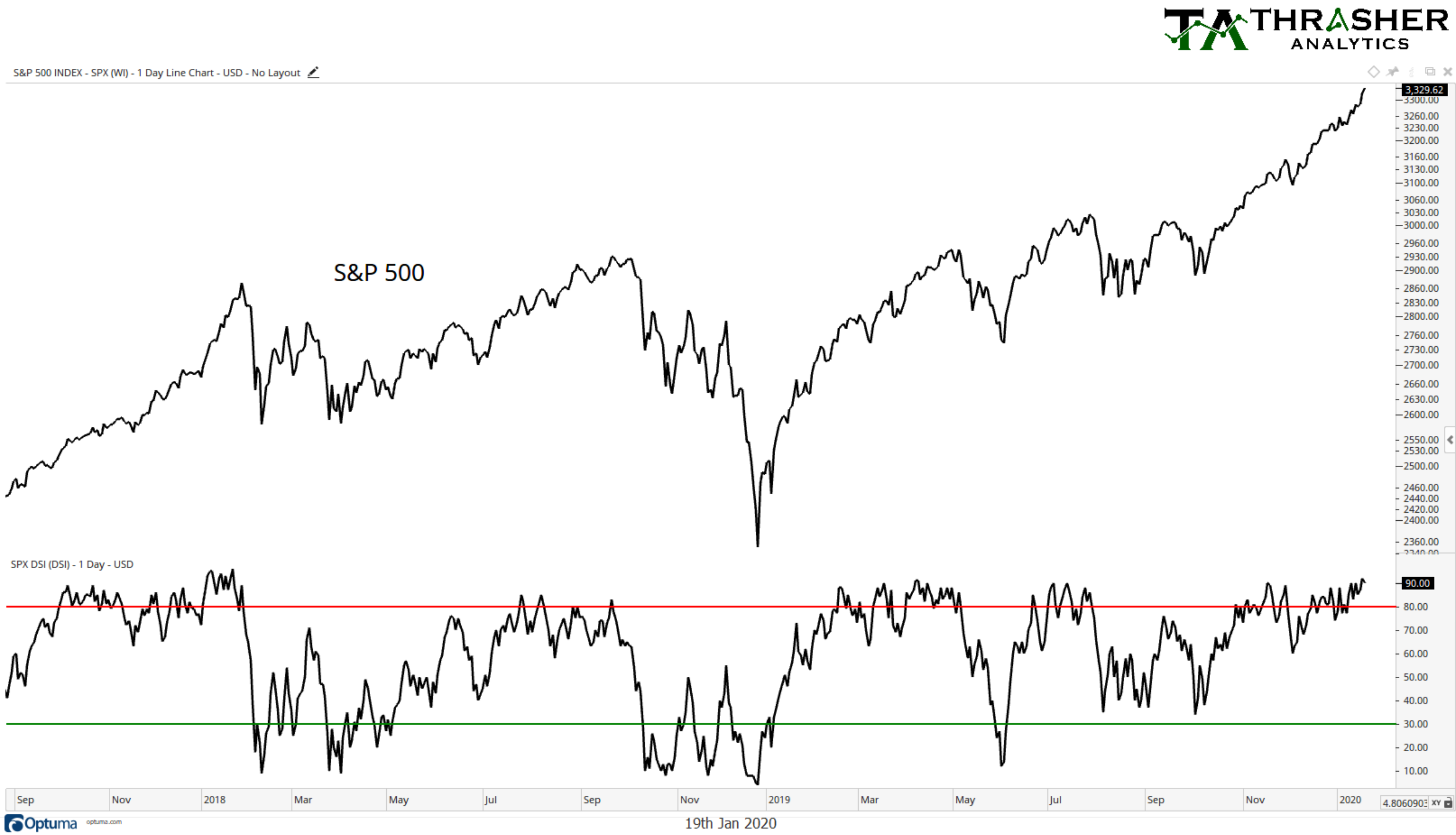
1 Day - Watch List - No Layout

Code	% Bullish	5MA	History
US Dollar DSI	63.00	58.60	
Crude Oil DSI	63.00	58.20	
Cocoa DSI	66.00	52.40	
Silver DSI	67.00	64.60	
Lumber DSI	67.00	59.80	
Gasoline DSI	67.00	68.40	
Copper DSI	69.00	73.80	
New Zealand Dollar DSI	70.00	68.80	
Cotton DSI	78.00	76.40	
Mexican Peso DSI	79.00	80	
Wheat DSI	80	77.00	
Gold DSI	81	76.00	
Sugar DSI	83	80.2	
Platinum DSI	86	81.2	
Nikkei DSI	87	87.2	
SPX DSI	90	88.8	
Nasdaq DSI	93	90	
Palladium DSI	95	92.6	

Above is the DSI score for each of the futures markets.

Daily Sentiment Index 10-year Treasury




S&P 500 INDEX - SPX (WI) - 1 Day Line Chart - USD - No Layout
S&P 500
3,329.62
SPX DSI (DSI) - 1 Day - USD
90.00
Sep
Nov
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Mar
May
Jul
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2019
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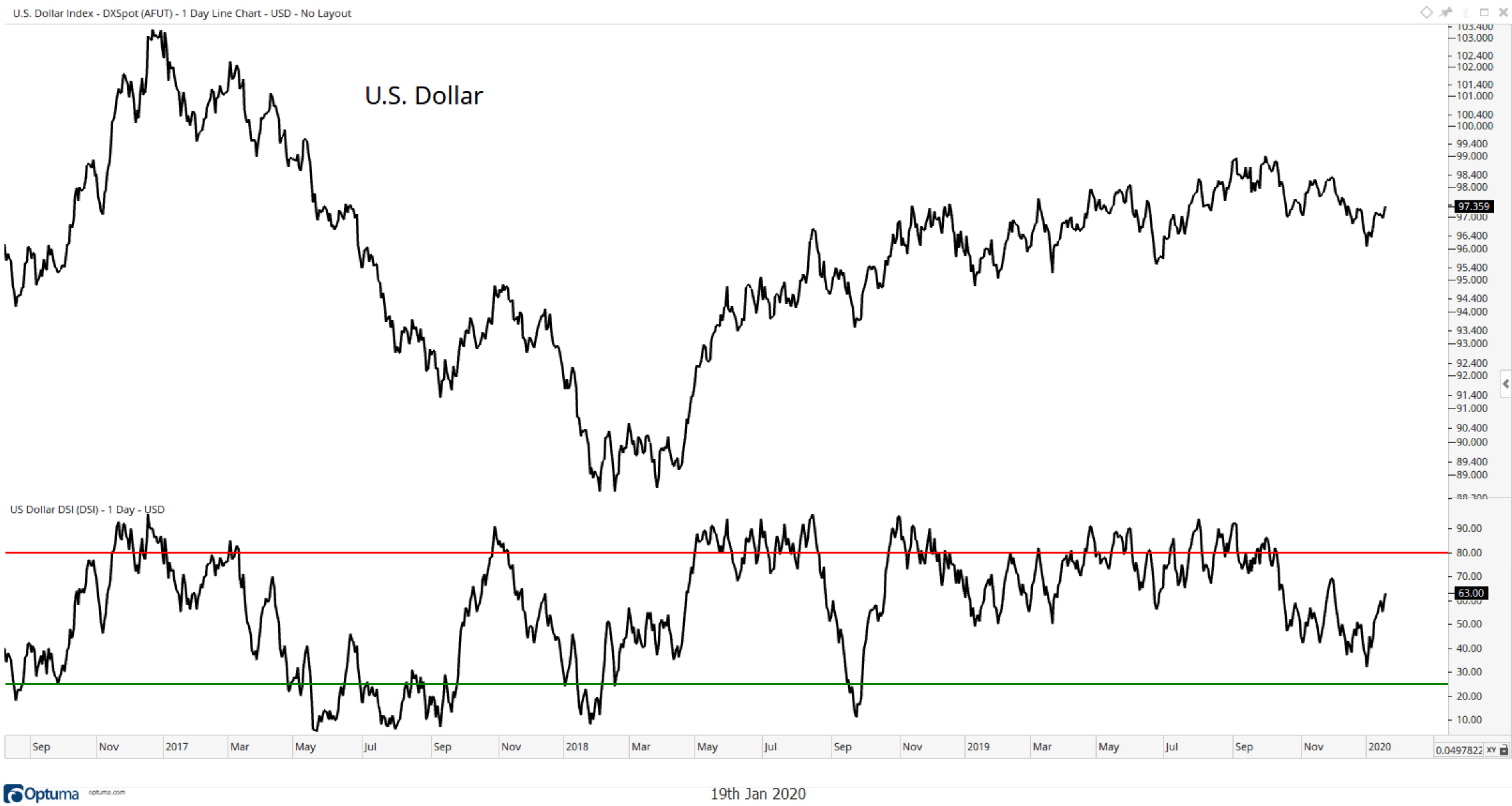
Nov
2020
19th Jan 2020
Optuma

Daily Sentiment Index Nasdaq 100

Daily Sentiment Index Gold

19th Jan 2020

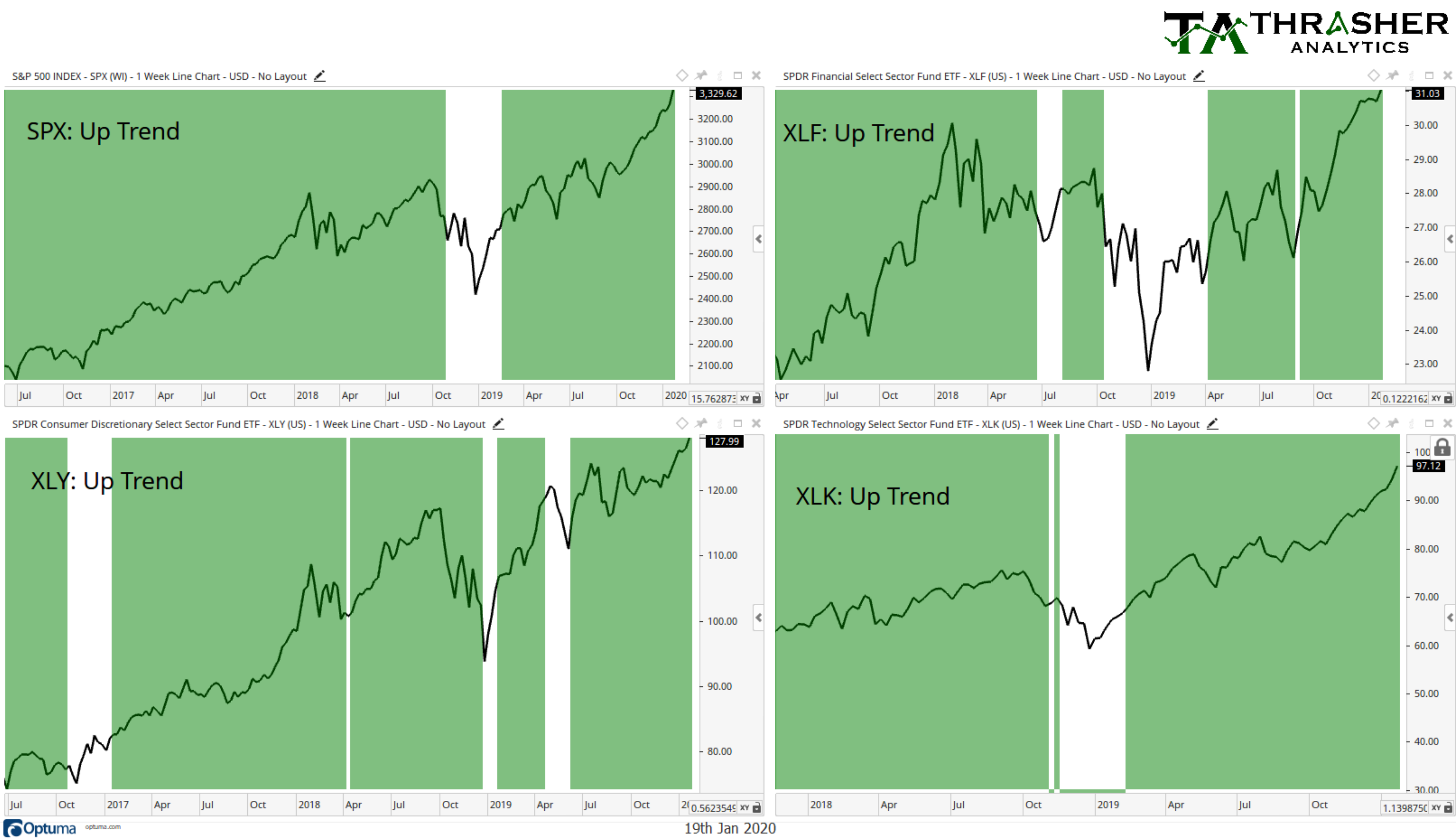


19th Jan 2020

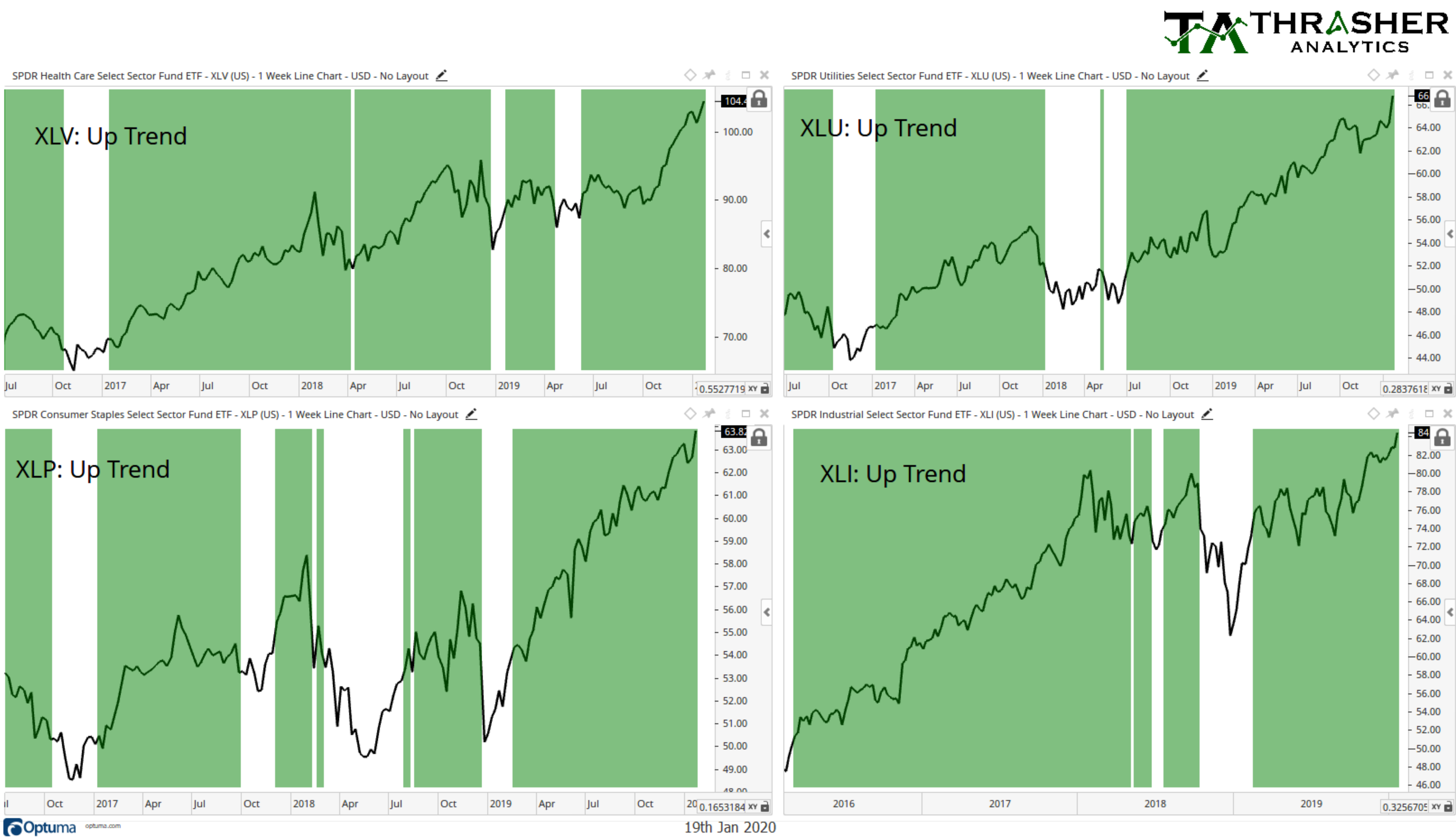
Daily Sentiment Index VIX

19th Jan 2020

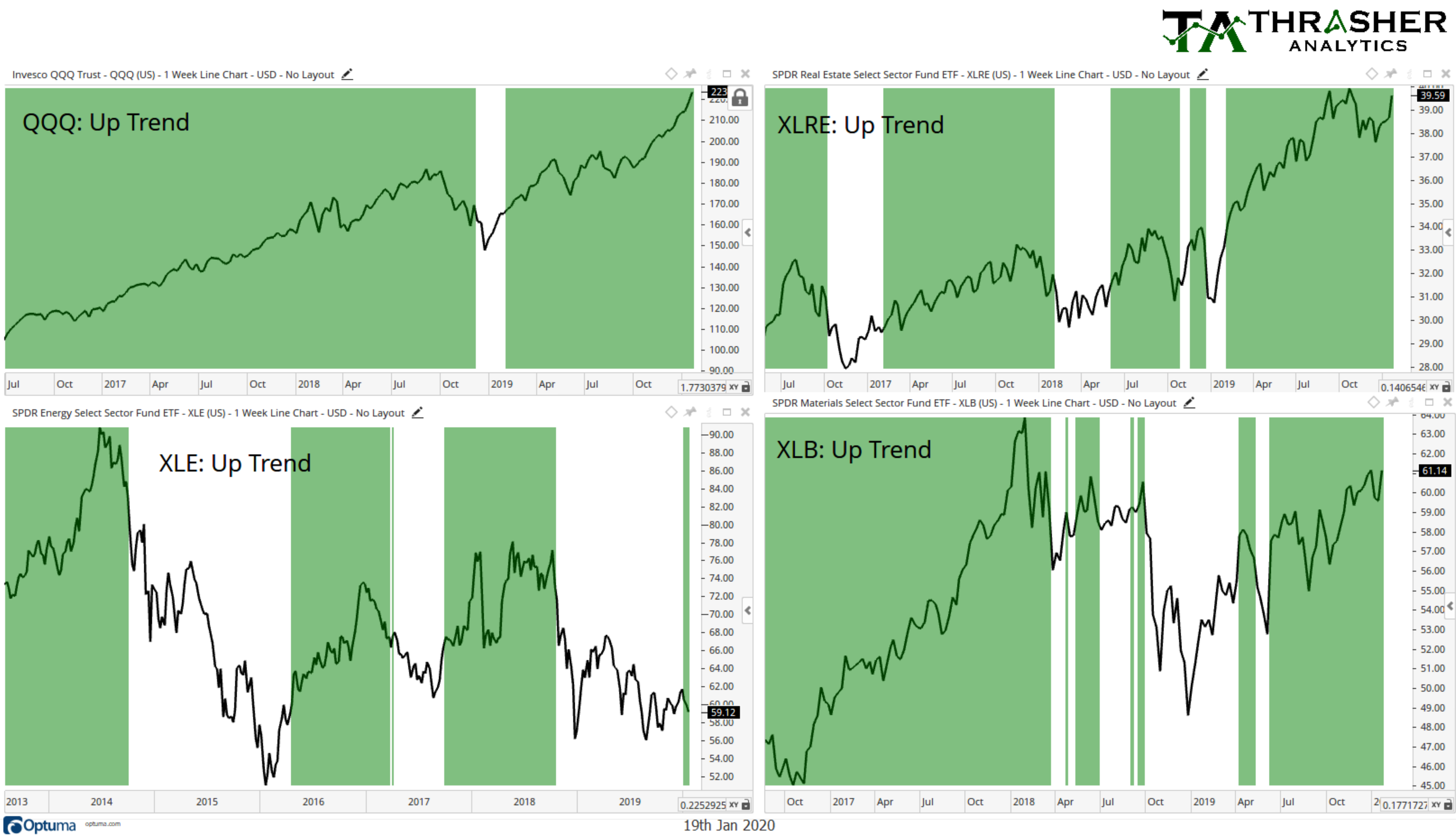
Daily Sentiment Index Nikkei 225



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



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

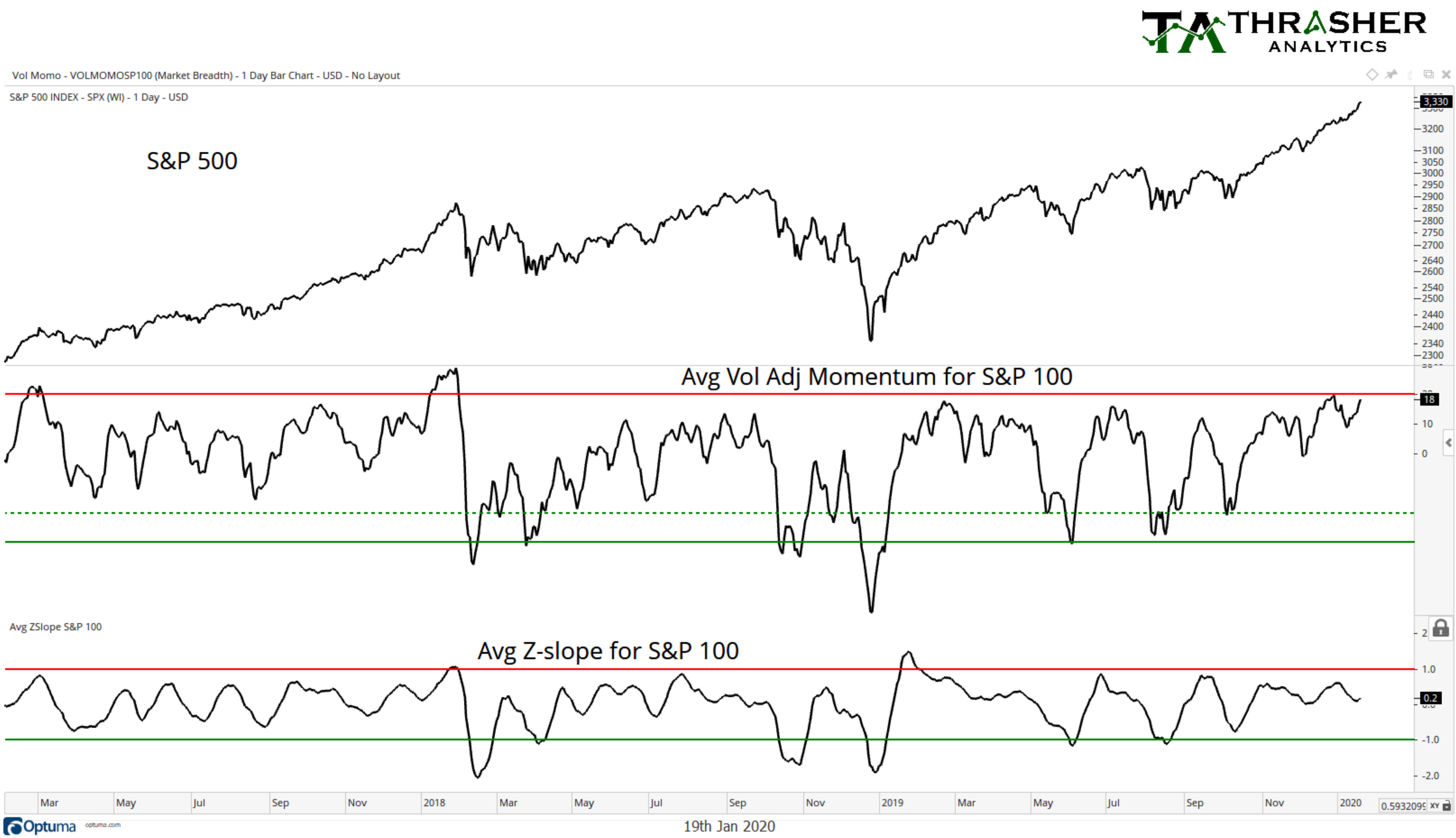


QQQ, XLRE, XLB , and XLE are in up trends. XLE has a new positive trend reading, hopefully we see it hold on.

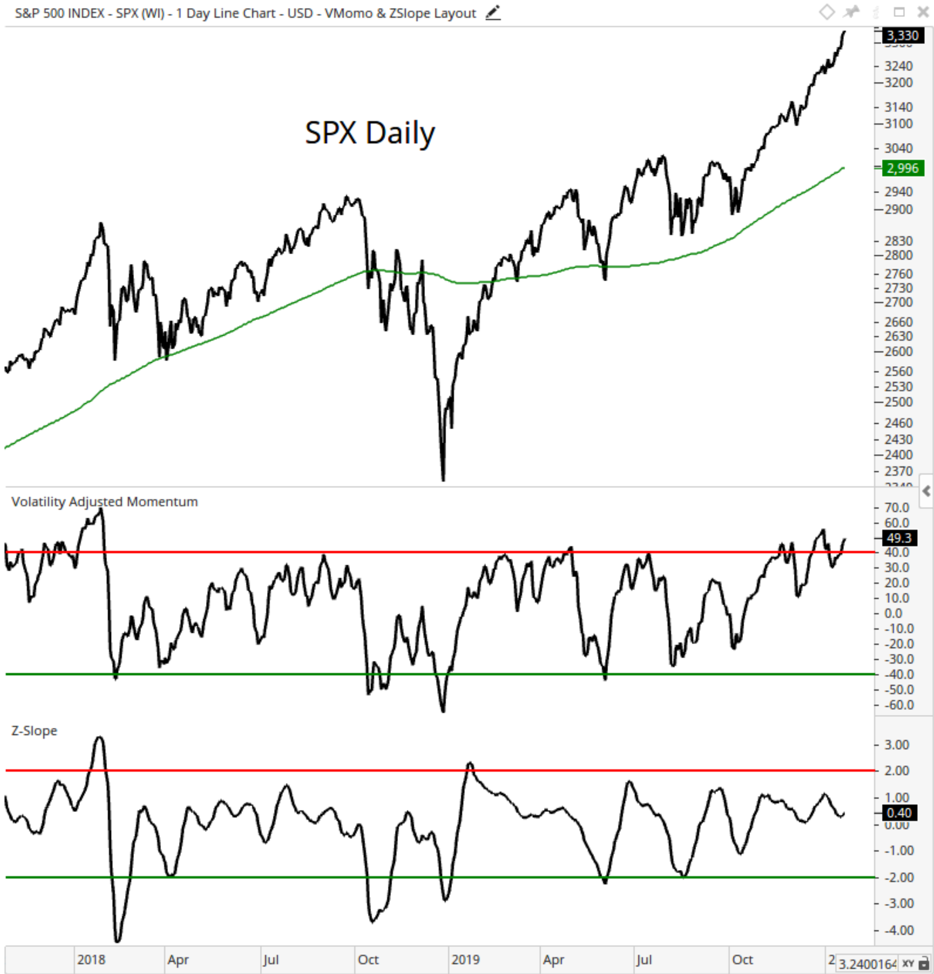
The following charts will become a regular installment for this, and future letters. Each page will include a daily and weekly chart with two indicators that are unique to Thrasher Analytics. With a focus on risk mitigation, the focus of these charts is on potential mean-reversion of each asset through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



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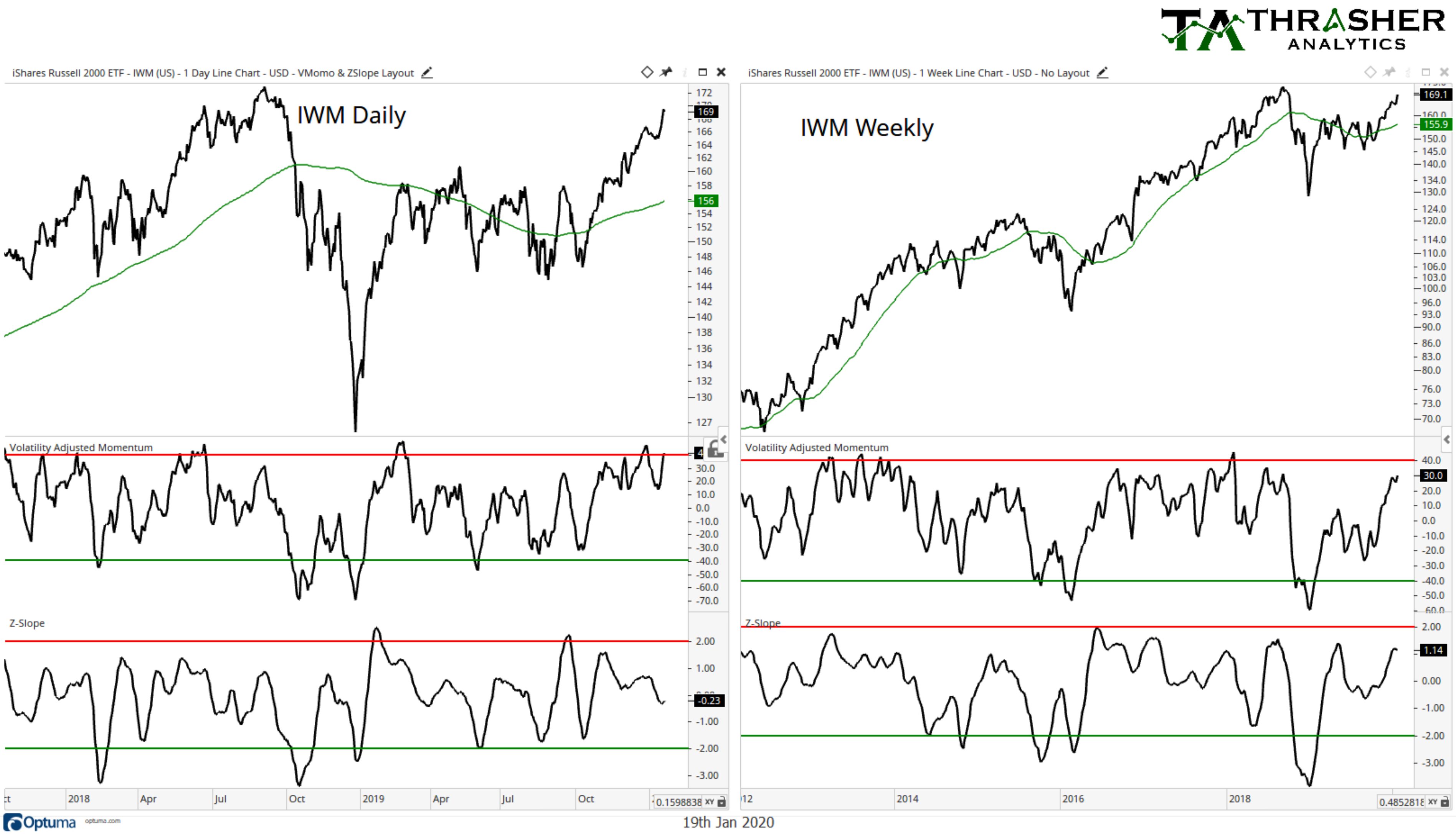
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iShares Russell 2000 ETF - IWM (US) - 1 Day Line Chart - USD - VMomo & ZSlope Layout
IWM Daily
Volatility Adjusted Momentum
Z-Slope
iShares Russell 2000 ETF - IWM (US) - 1 Week Line Chart - USD - No Layout
IWM Weekly
Volatility Adjusted Momentum
Z-Slope
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19th Jan 2020

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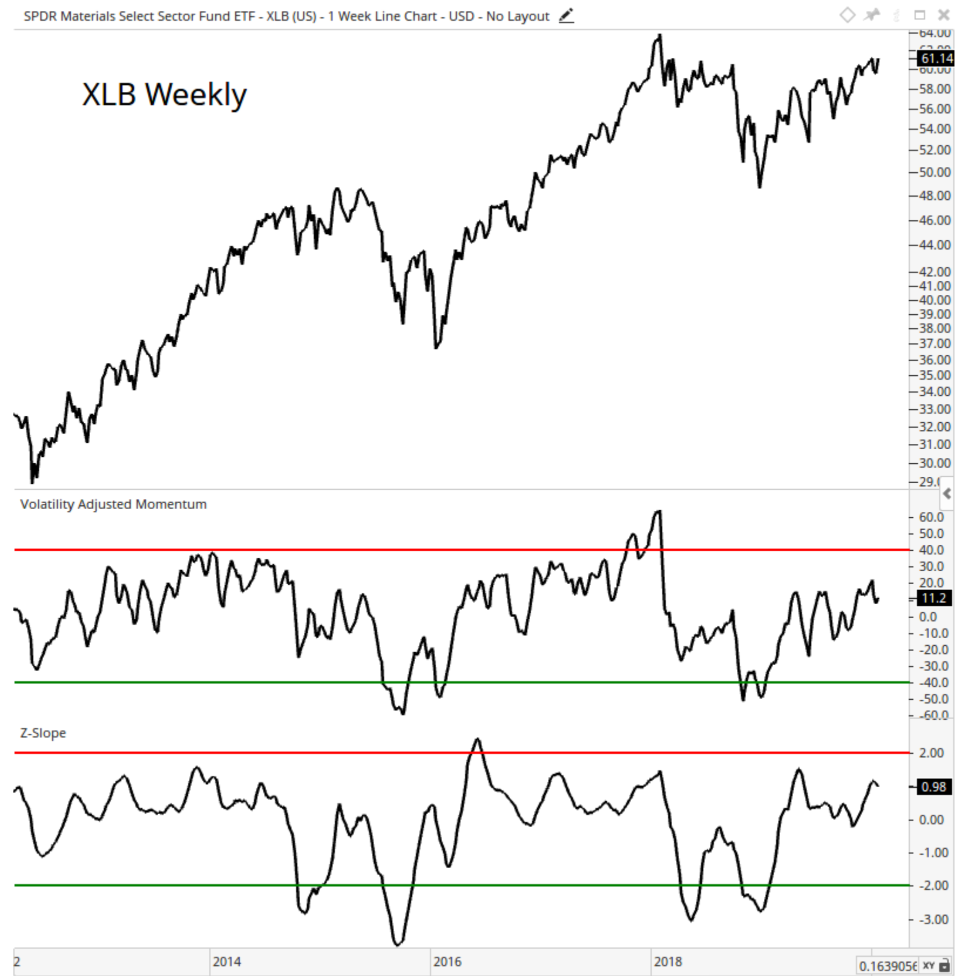

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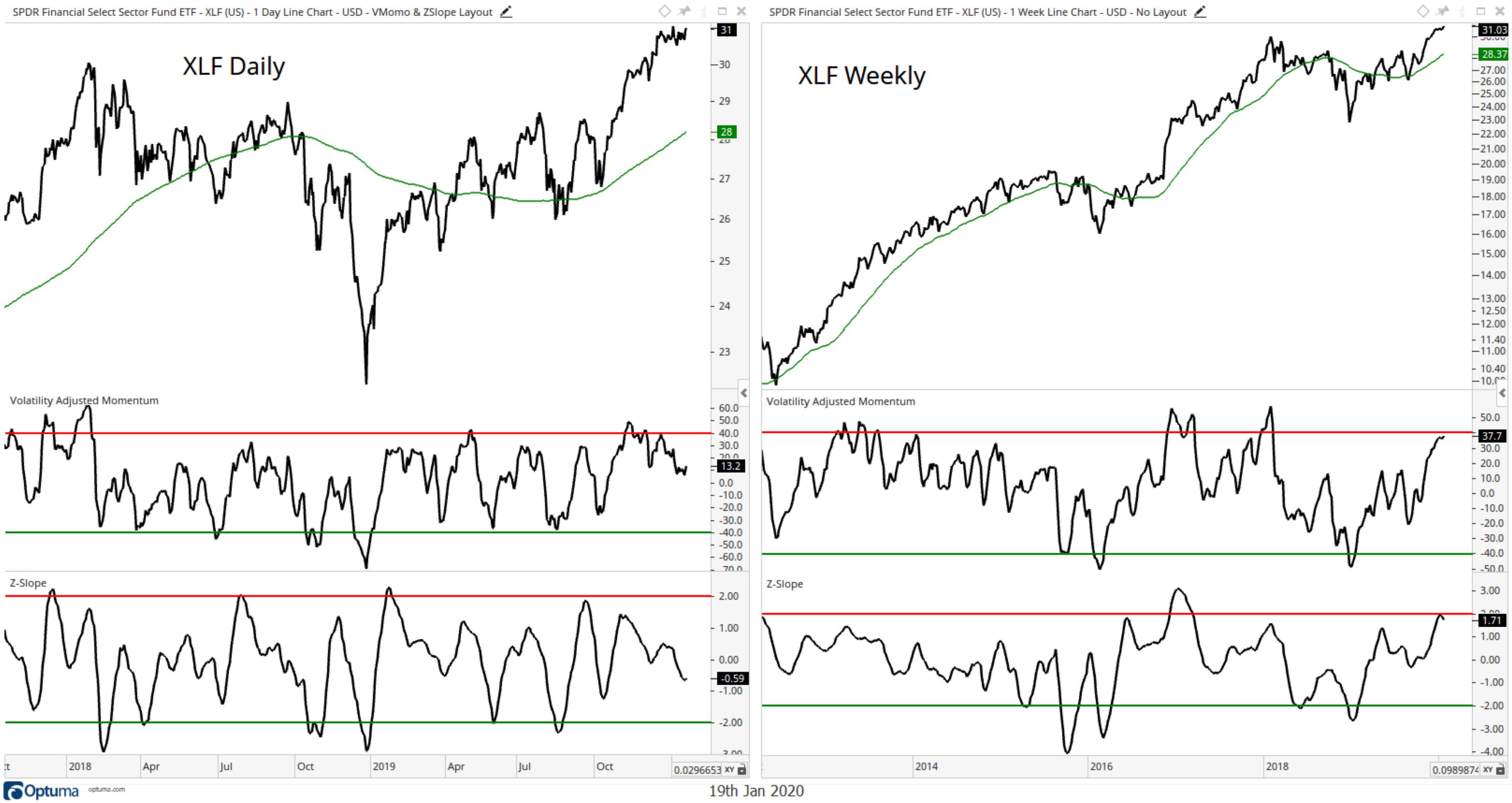

19th Jan 2020


SPDR Technology Select Sector Fund ETF - XLK (US) - 1 Day Line Chart - USD - VMomo & ZSlope Layout
XLK Daily
Volatility Adjusted Momentum
Z-Slope
SPDR Technology Select Sector Fund ETF - XLK (US) - 1 Week Line Chart - USD - No Layout
XLK Weekly
Volatility Adjusted Momentum
Z-Slope
2018
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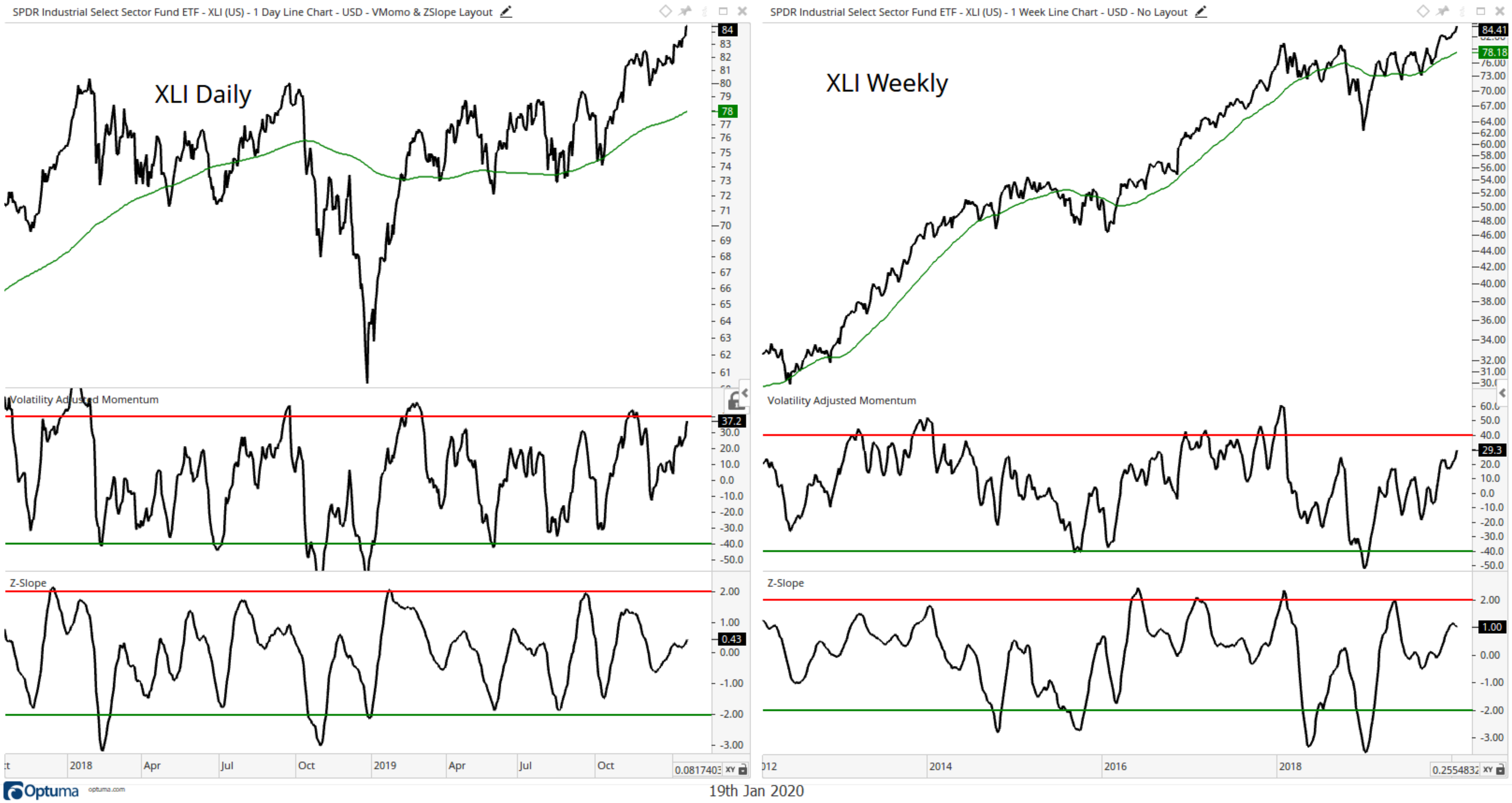
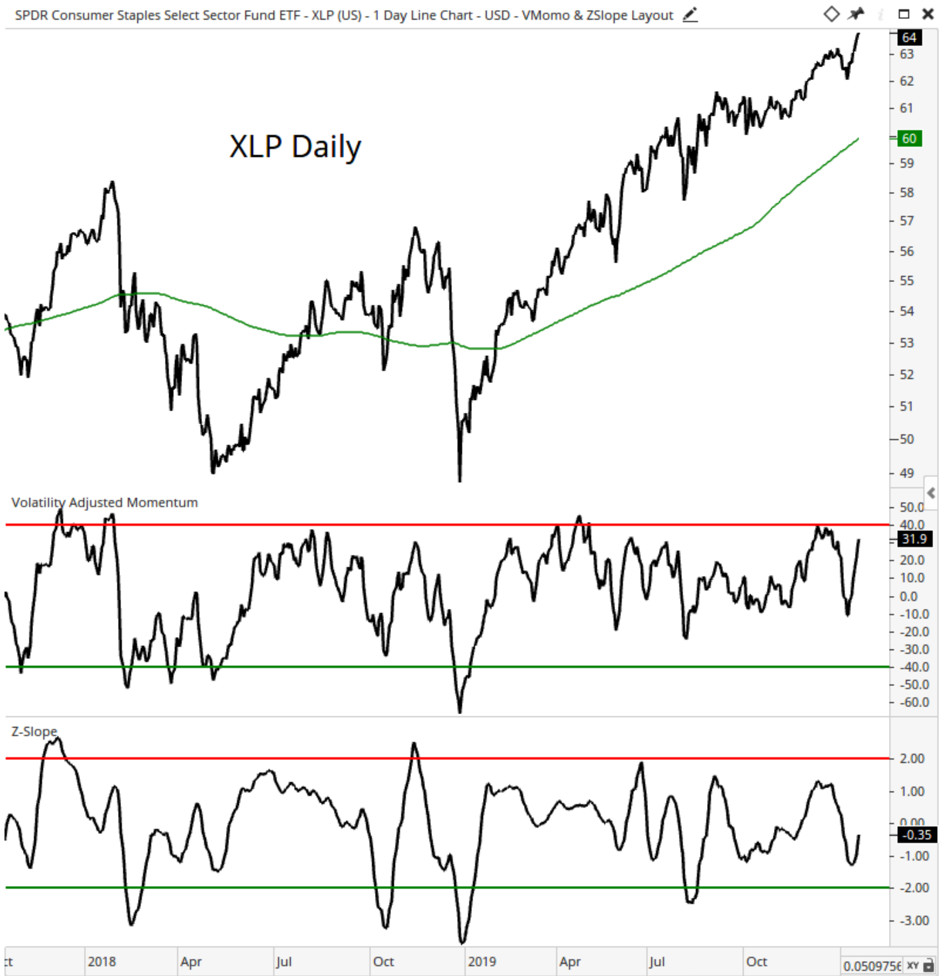
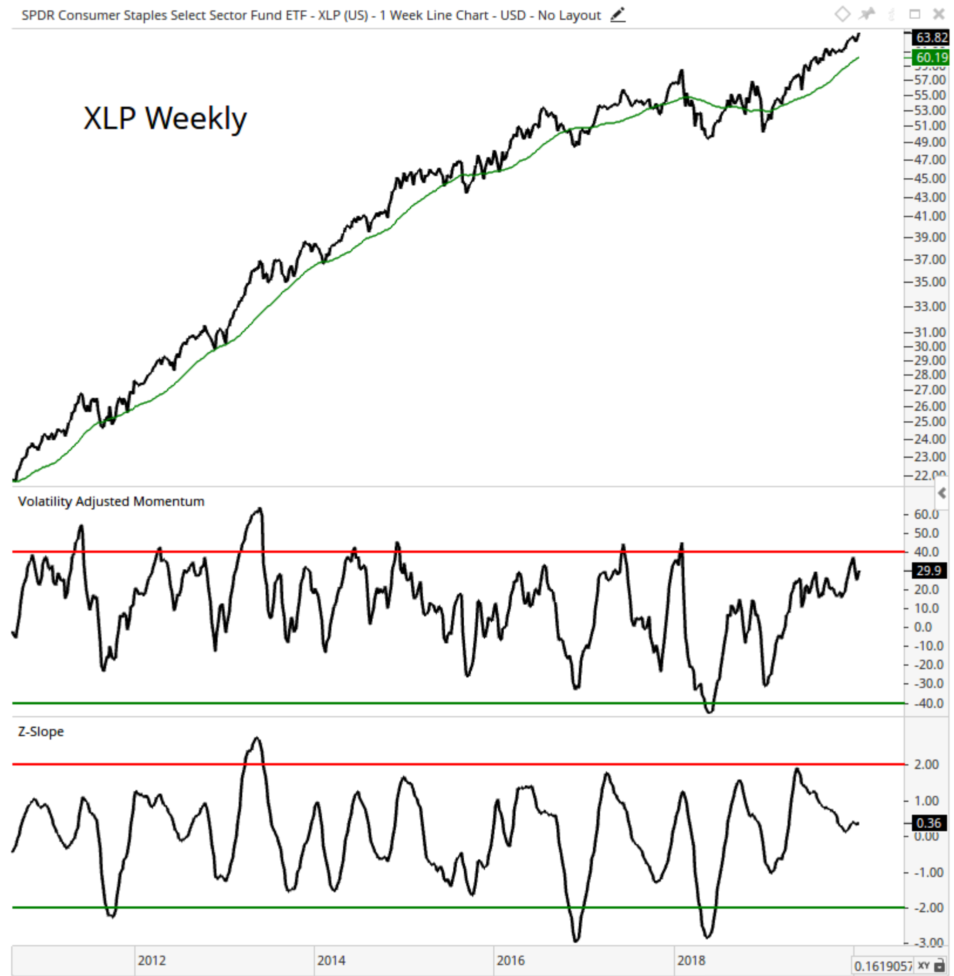
Optuma
19th Jan 2020


SPDR Industrial Select Sector Fund ETF - XLI (US) - 1 Day Line Chart - USD - VMomo & ZSlope Layout
XLI Daily
Volatility Adjusted Momentum
Z-Slope
SPDR Industrial Select Sector Fund ETF - XLI (US) - 1 Week Line Chart - USD - No Layout
XLI Weekly
Volatility Adjusted Momentum
Z-Slope
19th Jan 2020

XLP





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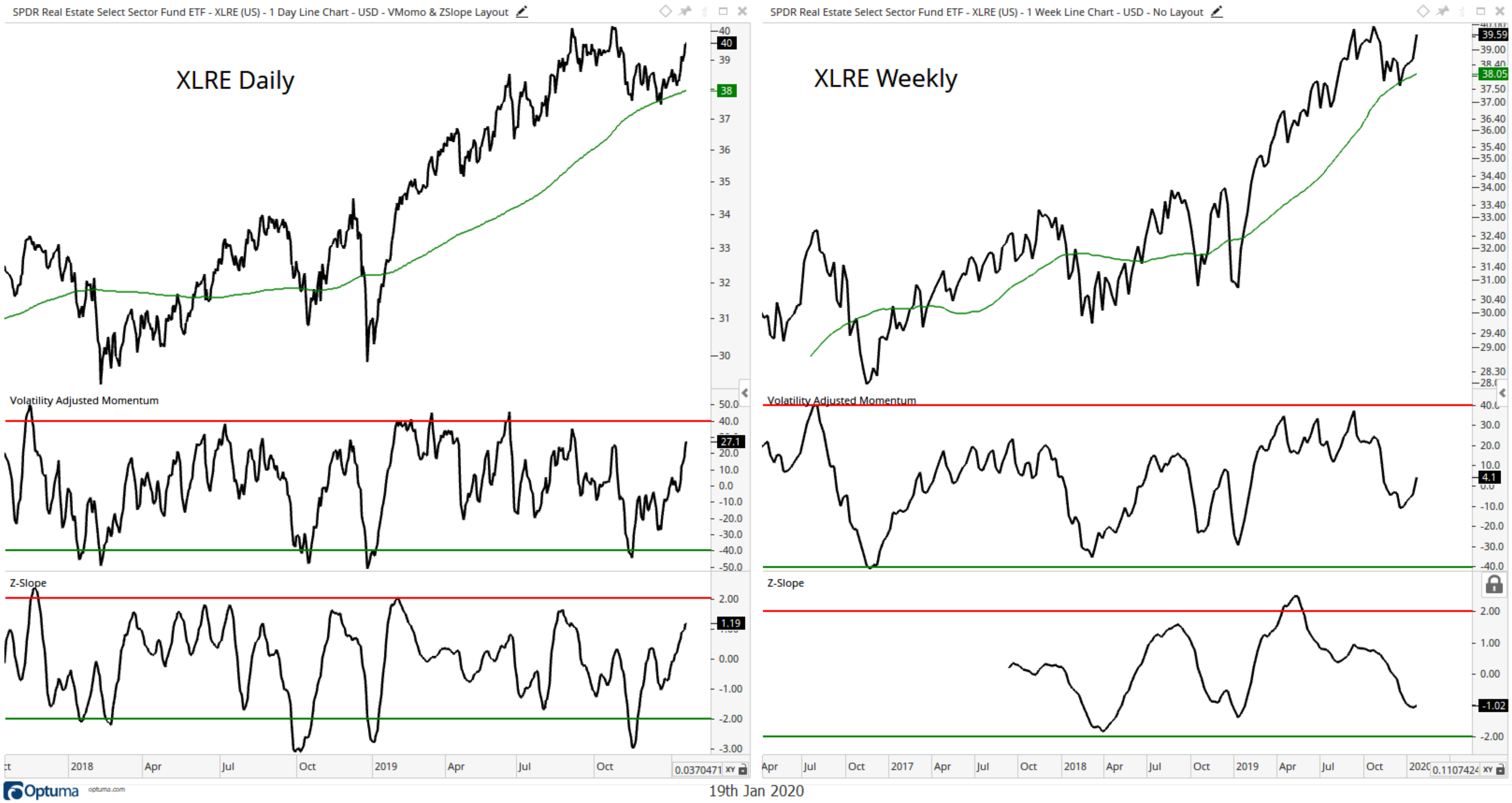
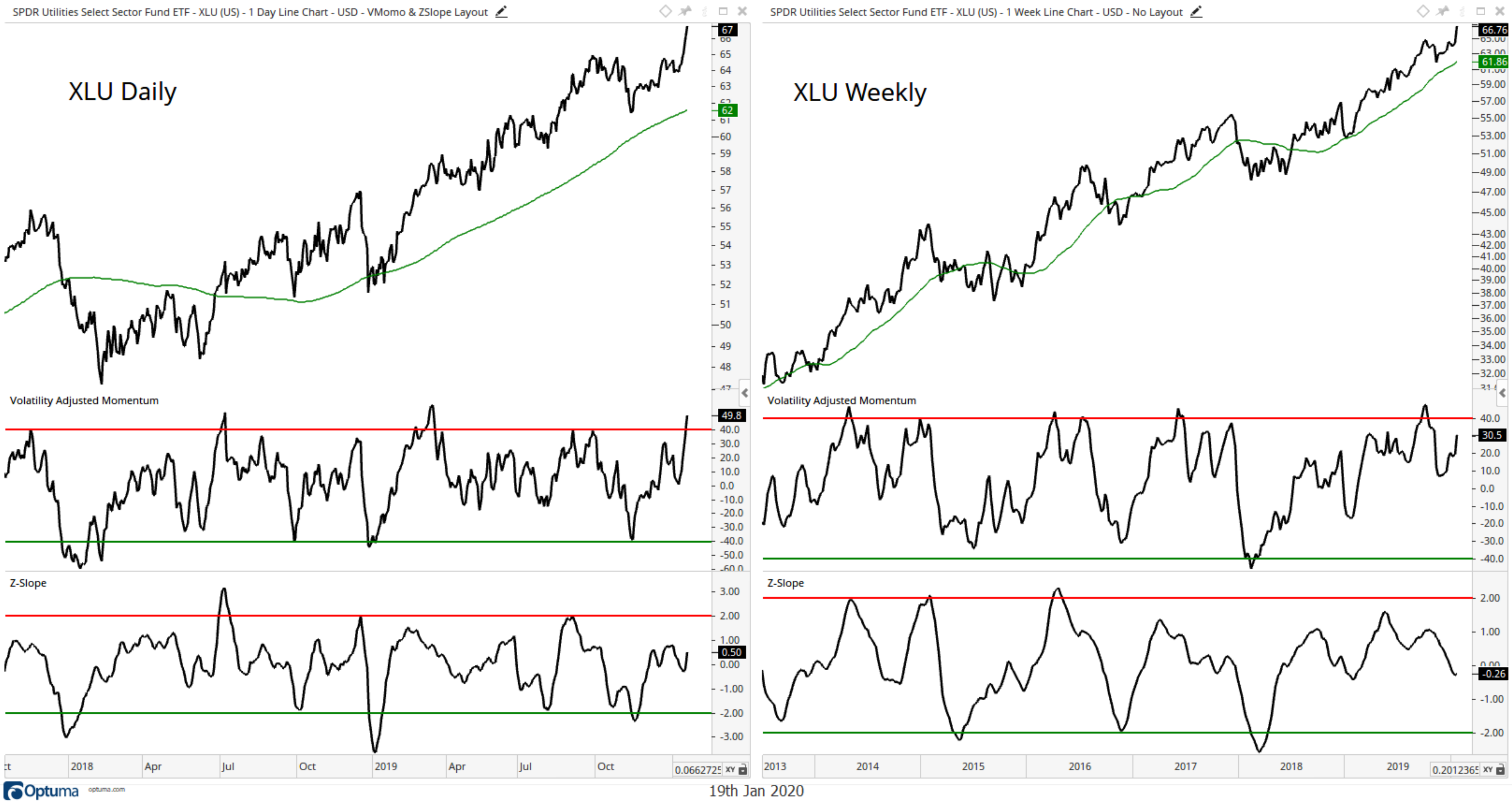

SPDR Real Estate Select Sector Fund ETF - XLRE (US) - 1 Day Line Chart - USD - VMomo & ZSlope Layout
XLRE Daily
Volatility Adjusted Momentum
Z-Slope
SPDR Real Estate Select Sector Fund ETF - XLRE (US) - 1 Week Line Chart - USD - No Layout
XLRE Weekly
Volatility Adjusted Momentum
Z-Slope
Optuma
19th Jan 2020


SPDR Utilities Select Sector Fund ETF - XLU (US) - 1 Day Line Chart - USD - VMomo & ZSlope Layout
XLU Daily
Volatility Adjusted Momentum
Z-Slope
2018
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2019
Apr
Jul
Oct
SPDR Utilities Select Sector Fund ETF - XLU (US) - 1 Week Line Chart - USD - No Layout
XLU Weekly
Volatility Adjusted Momentum
Z-Slope
2013
2014
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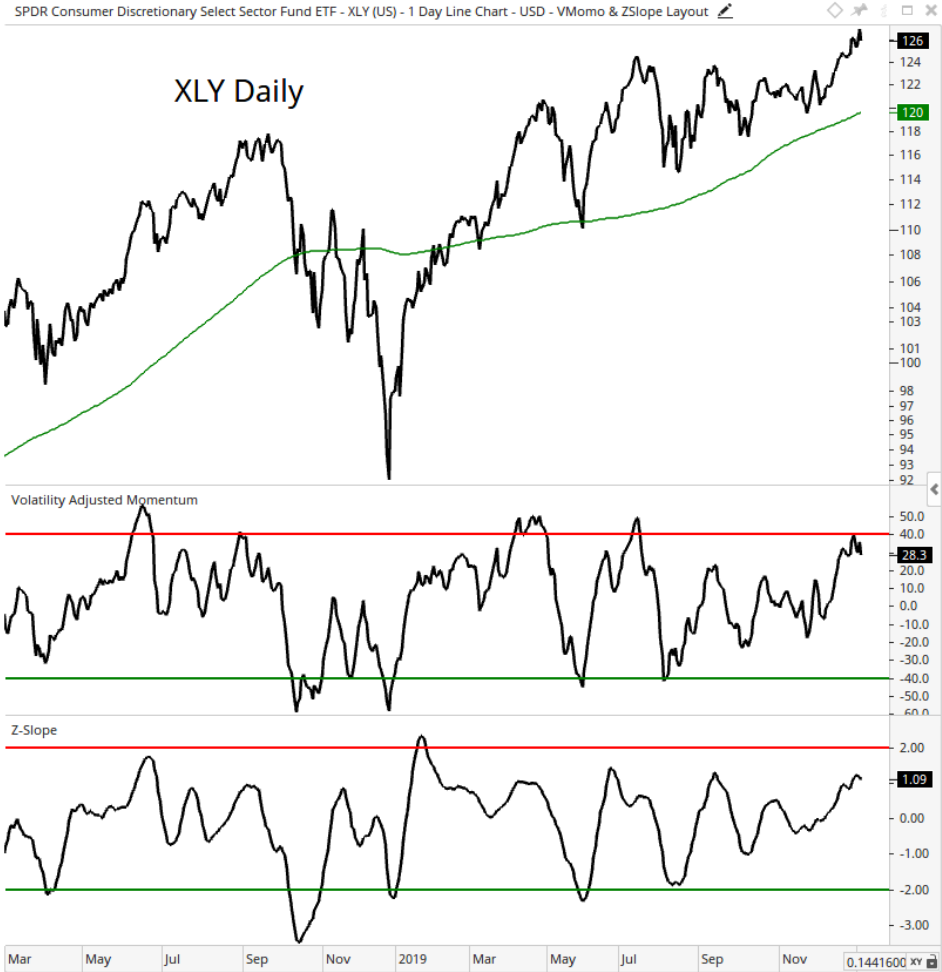
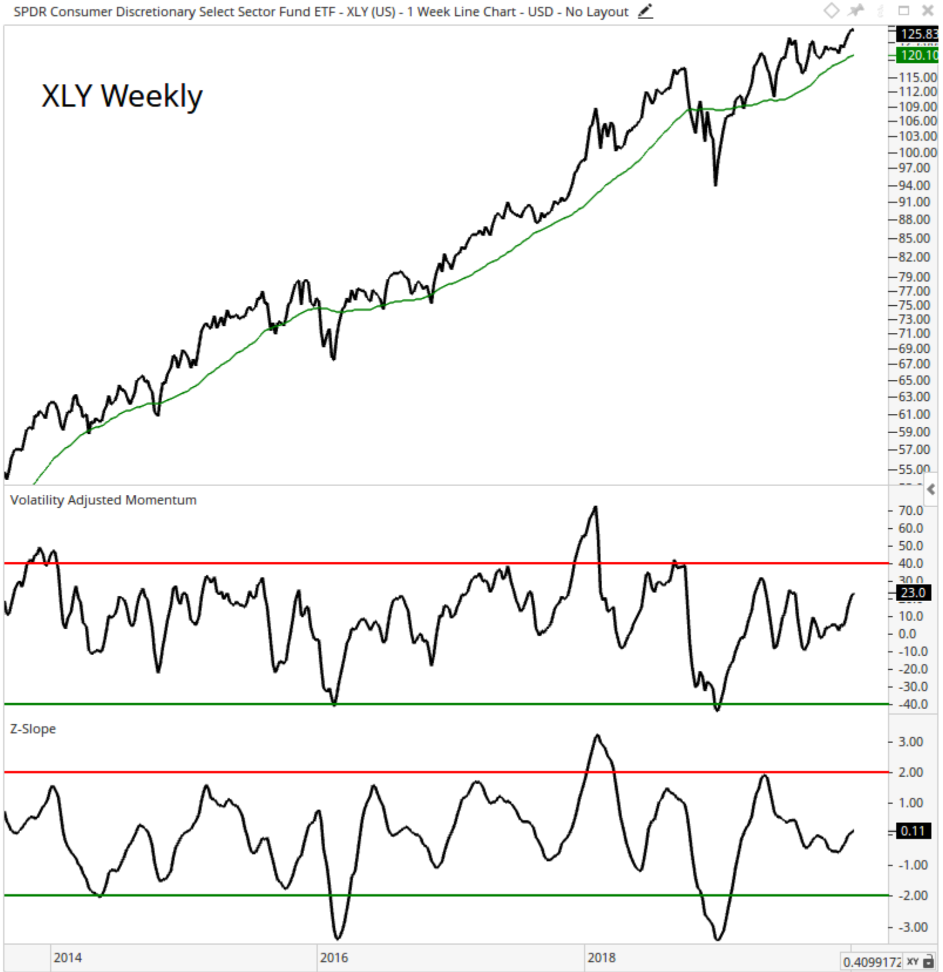
2019
Optuma
19th Jan 2020

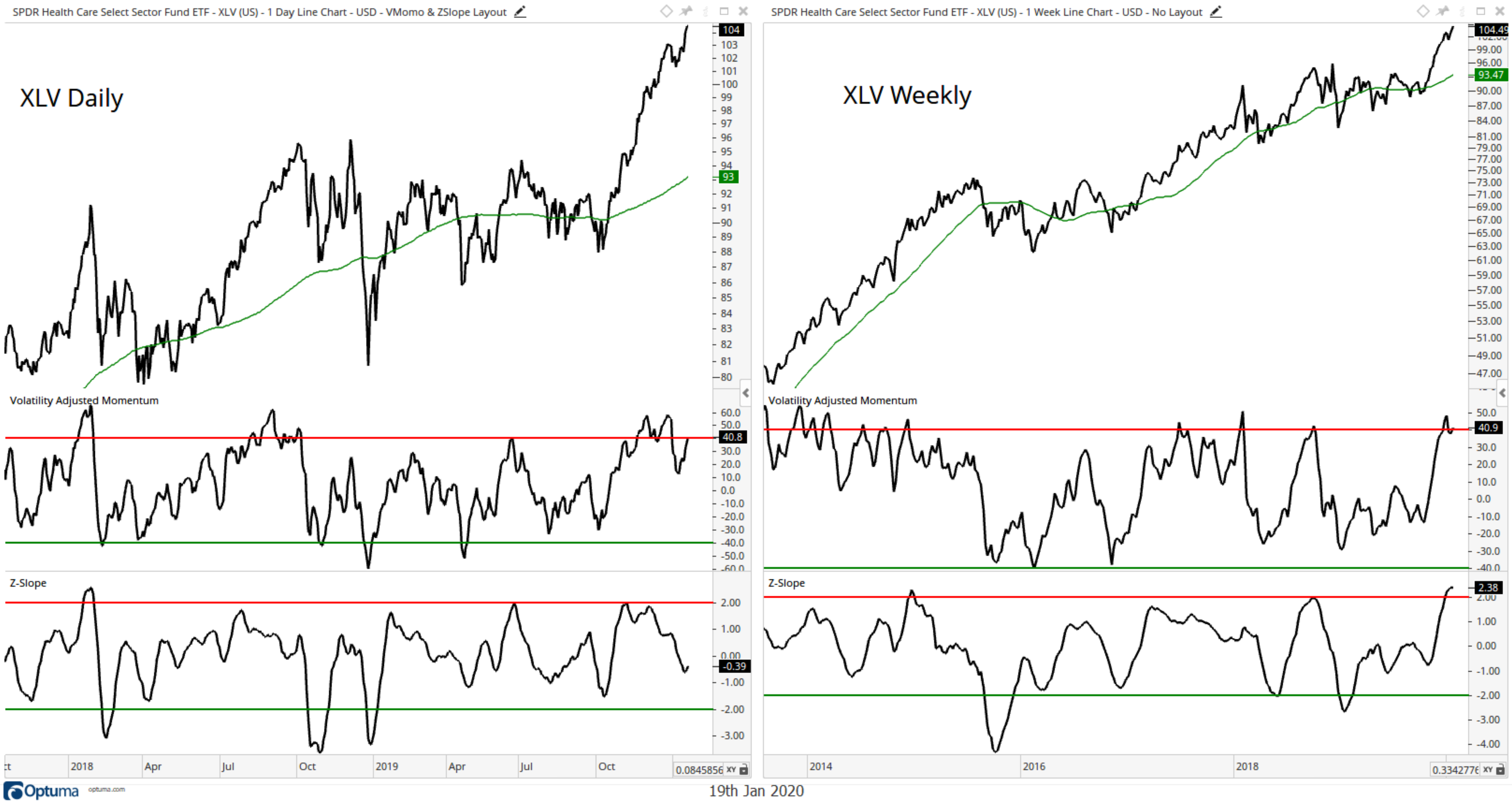




Optuma

5th Jan 2020

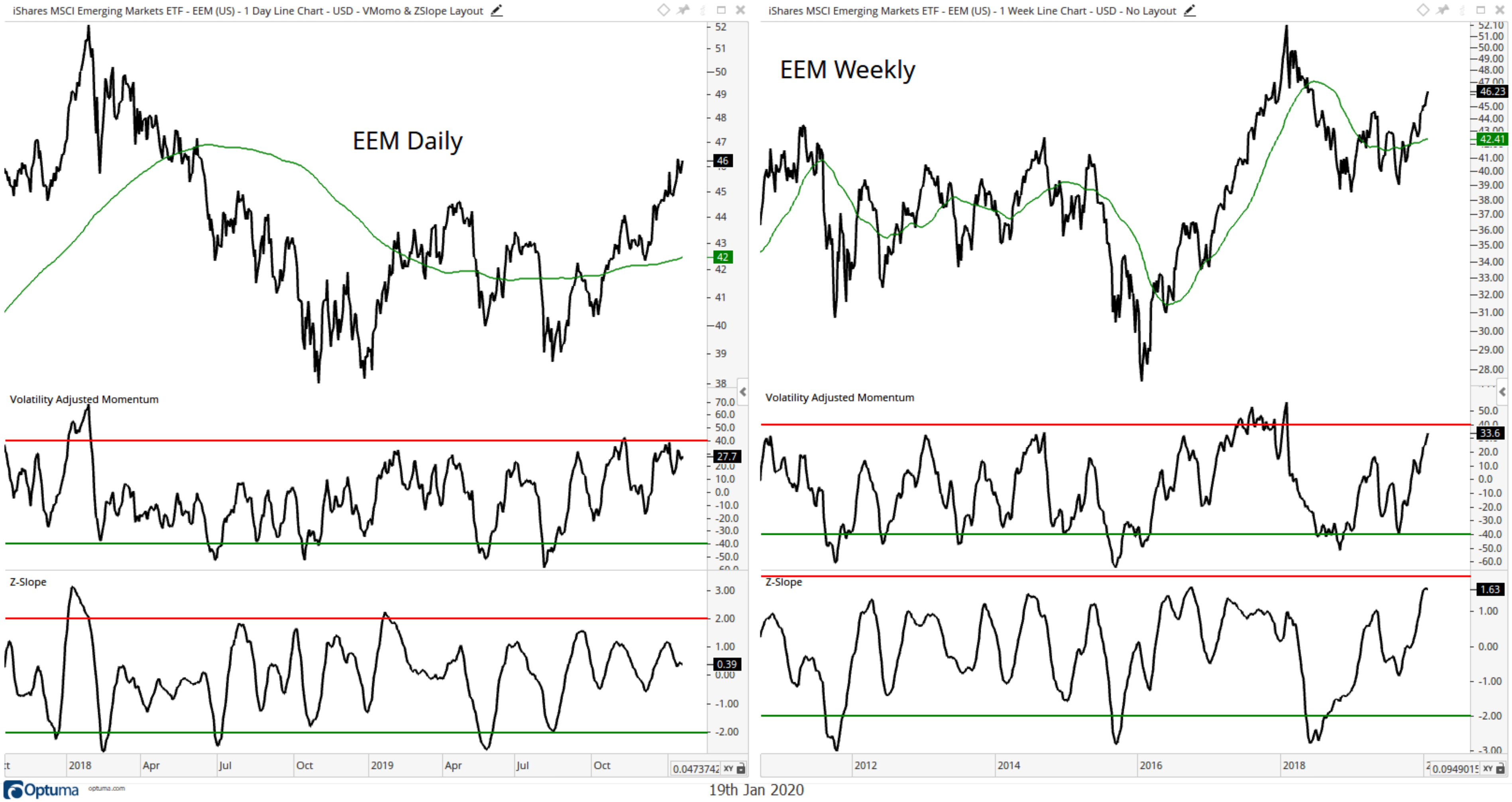
XLV


SPDR Health Care Select Sector Fund ETF - XLV (US) - 1 Day Line Chart - USD - VMomo & ZSlope Layout
XLV Daily
Volatility Adjusted Momentum
Z-Slope
2018
Apr
Jul
Oct
2019
Apr
Jul
Oct
SPDR Health Care Select Sector Fund ETF - XLV (US) - 1 Week Line Chart - USD - No Layout
XLV Weekly
Volatility Adjusted Momentum
Z-Slope
2014
2016
2018
Optuma
19th Jan 2020

THRASHER ANALYTICS

Optuma

19th Jan 2020



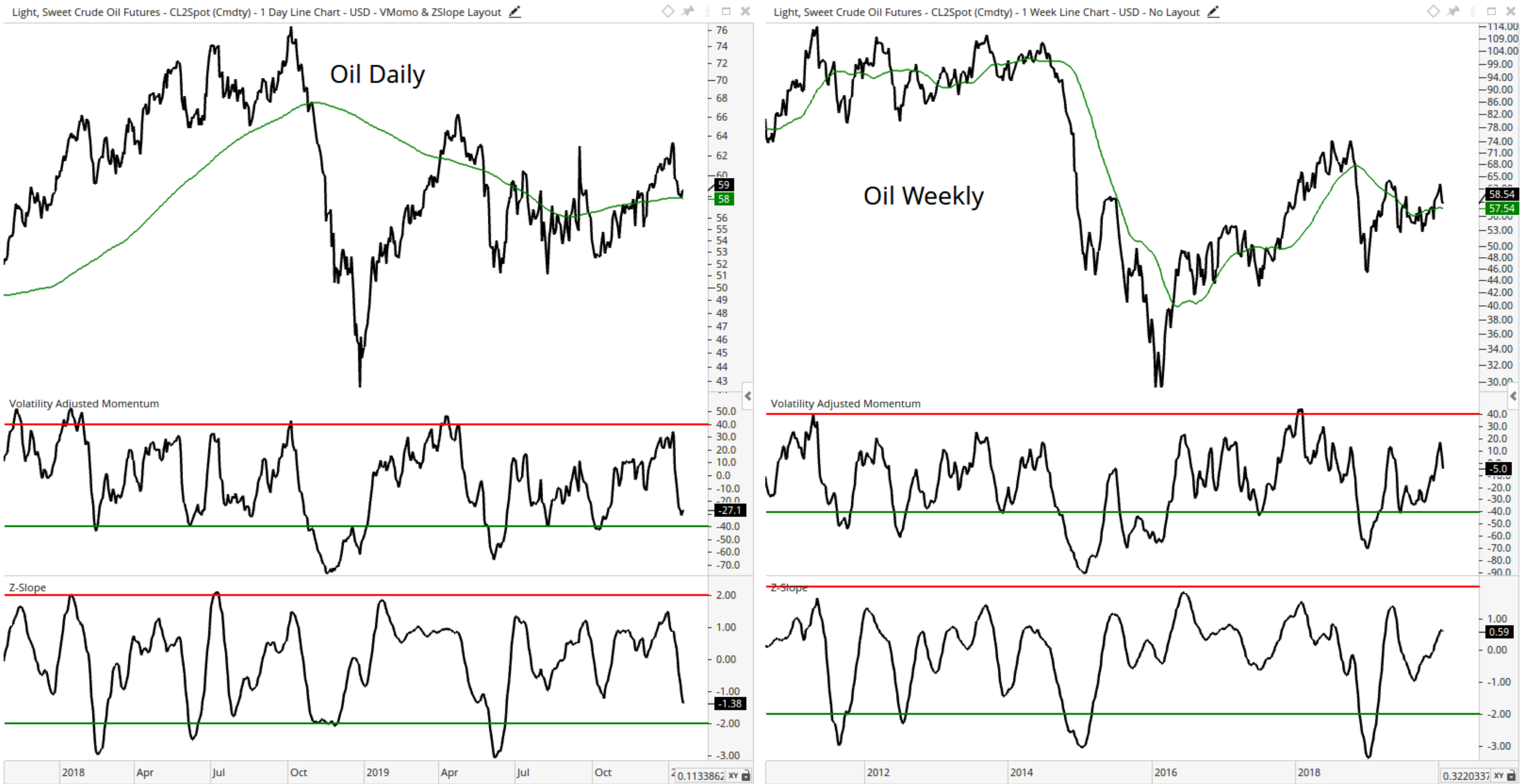
19th Jan 2020

U.S. DOLLAR


US Dollar Index - DXY (WI) - 1 Day Line Chart - USD - VMomo & ZSlope Layout
U.S. Dollar Daily
Volatility Adjusted Momentum
Z-Slope
2018
Apr
Jul
Oct
2019
Apr
Jul
Oct
US Dollar Index - DXY (WI) - 1 Week Line Chart - USD - No Layout
U.S. Dollar Weekly
Volatility Adjusted Momentum
Z-Slope
2014
2016
2018
Optuma
19th Jan 2020

19th Jan 2020

CRUDE OIL



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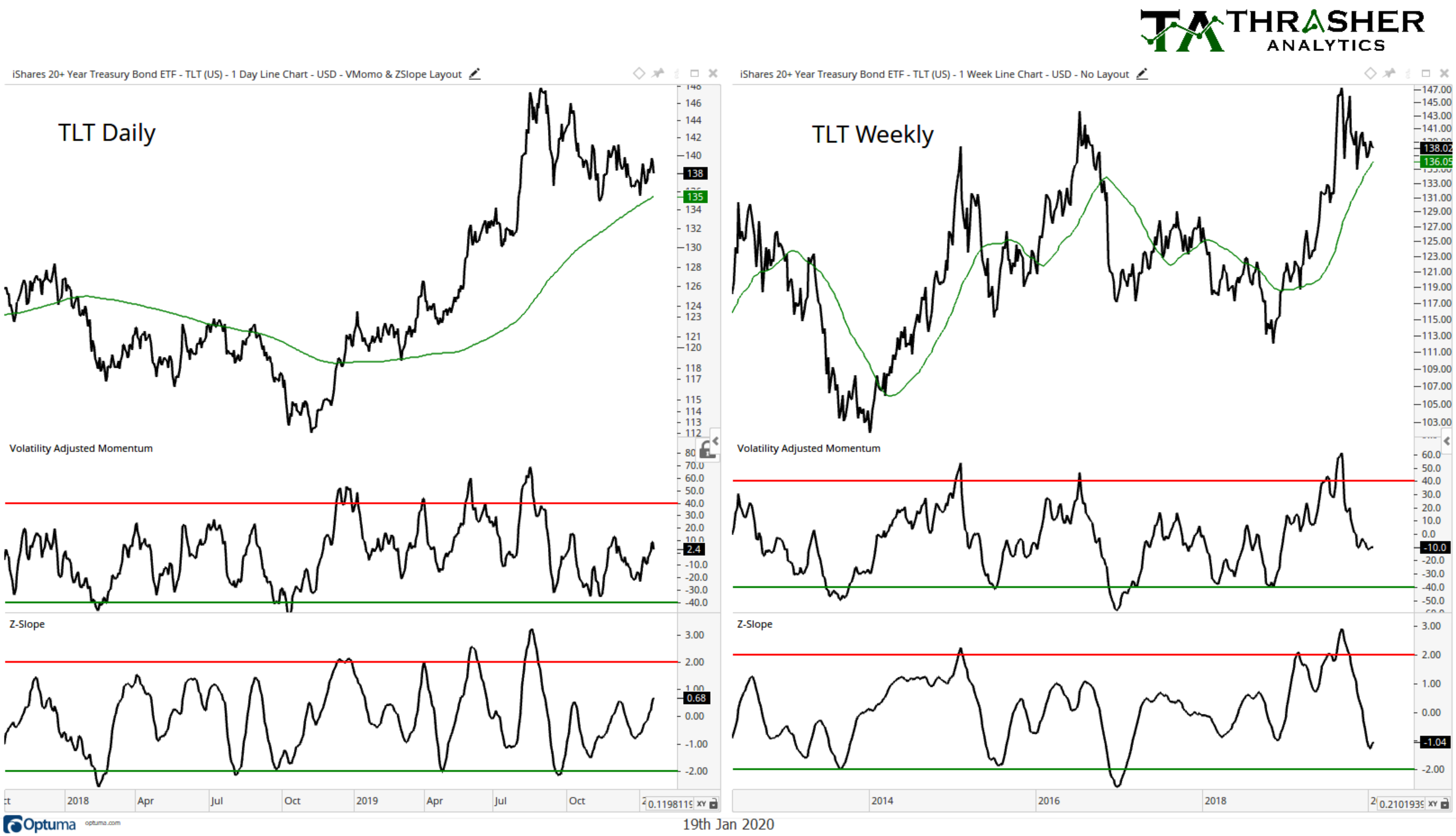
iShares 20+ Year Treasury Bond ETF - TLT (US) - 1 Day Line Chart - USD - VMomo & ZSlope Layout
TLT Daily
Volatility Adjusted Momentum
Z-Slope
iShares 20+ Year Treasury Bond ETF - TLT (US) - 1 Week Line Chart - USD - No Layout
TLT Weekly
Volatility Adjusted Momentum
Z-Slope
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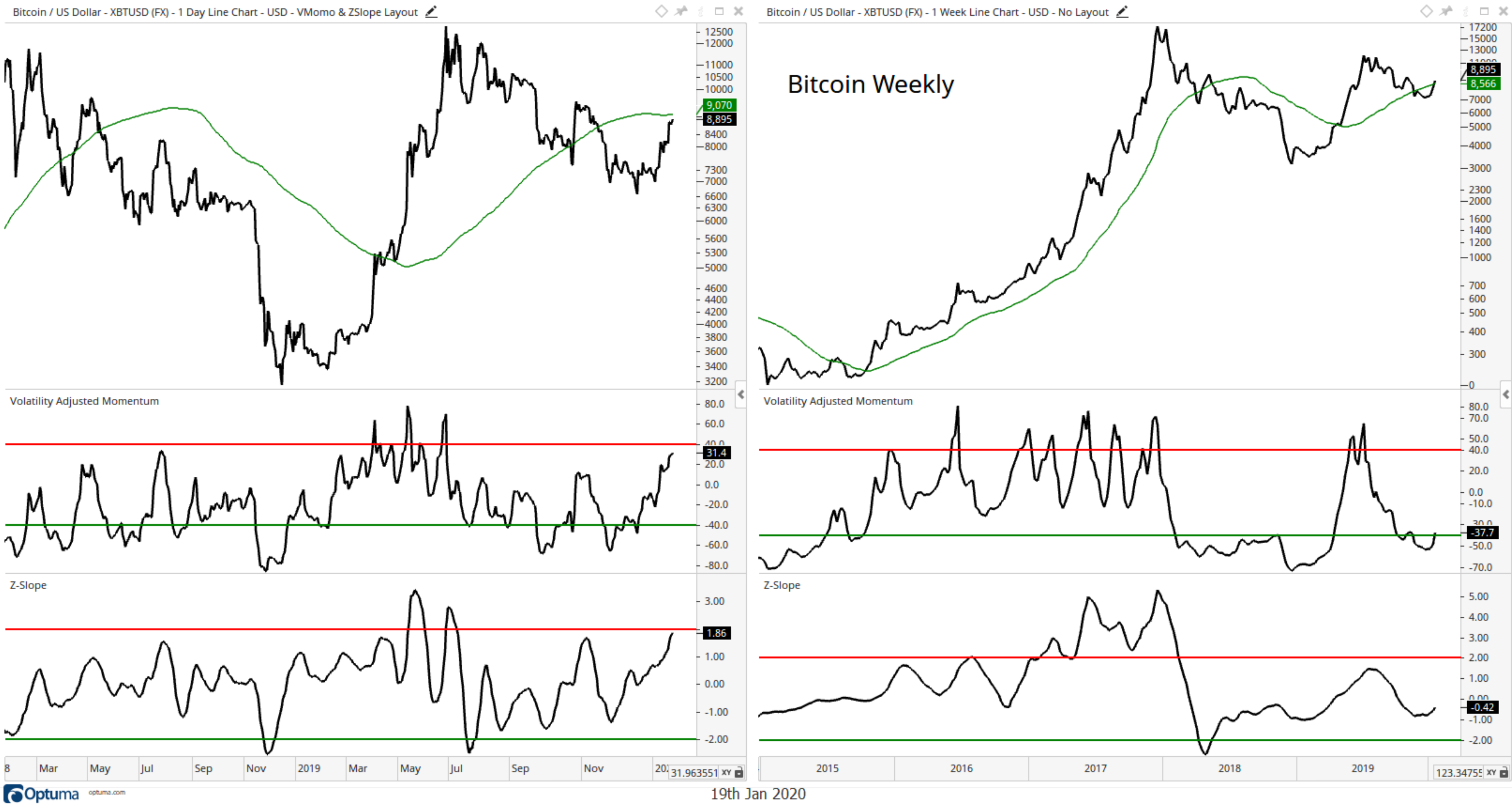
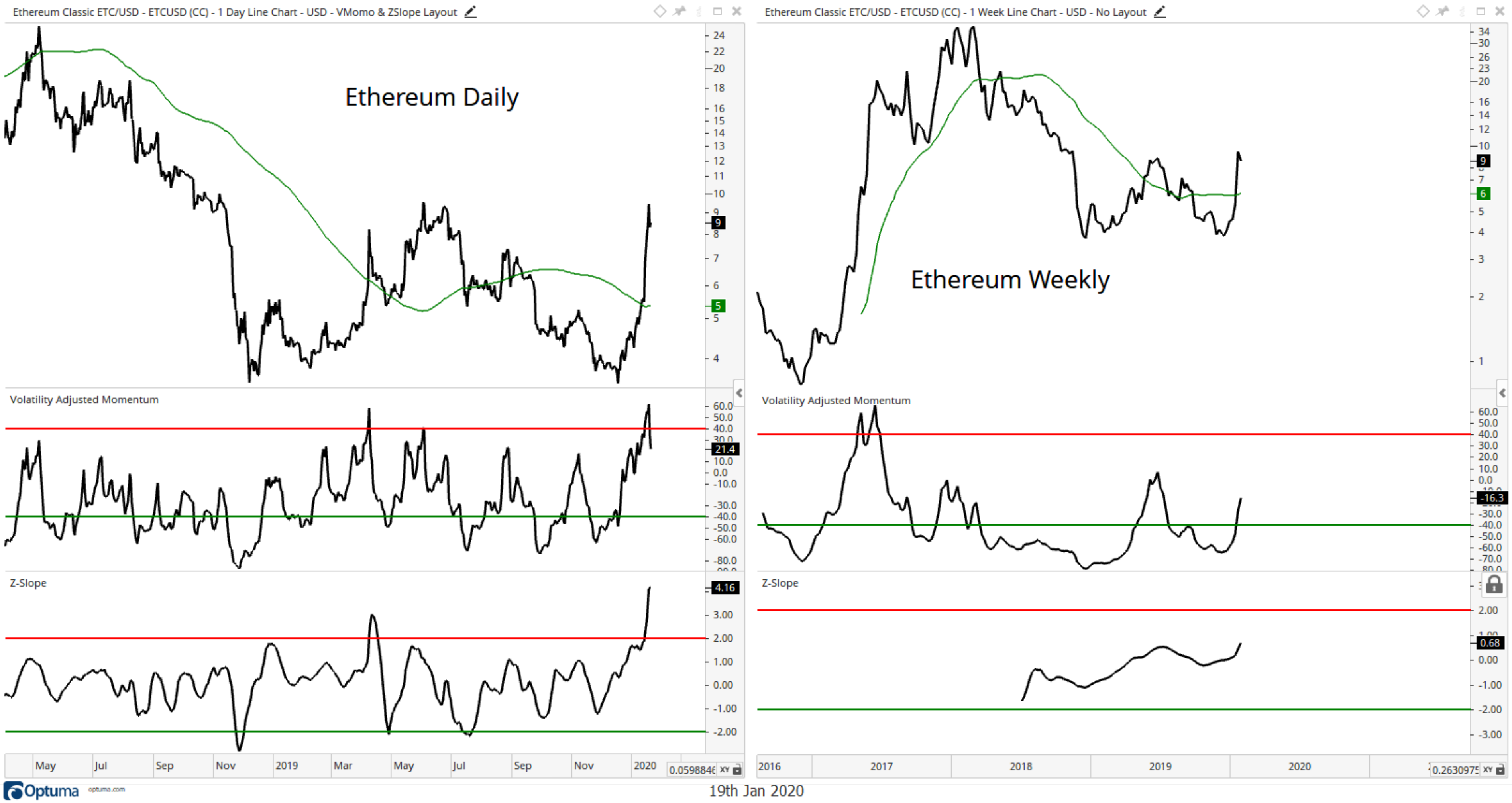
19th Jan 2020


Bitcoin / US Dollar - XBTUSD (FX) - 1 Day Line Chart - USD - VMomo & ZSlope Layout
Volatility Adjusted Momentum
Z-Slope
Bitcoin / US Dollar - XBTUSD (FX) - 1 Week Line Chart - USD - No Layout
Bitcoin Weekly
Volatility Adjusted Momentum
Z-Slope
Optuma
19th Jan 2020

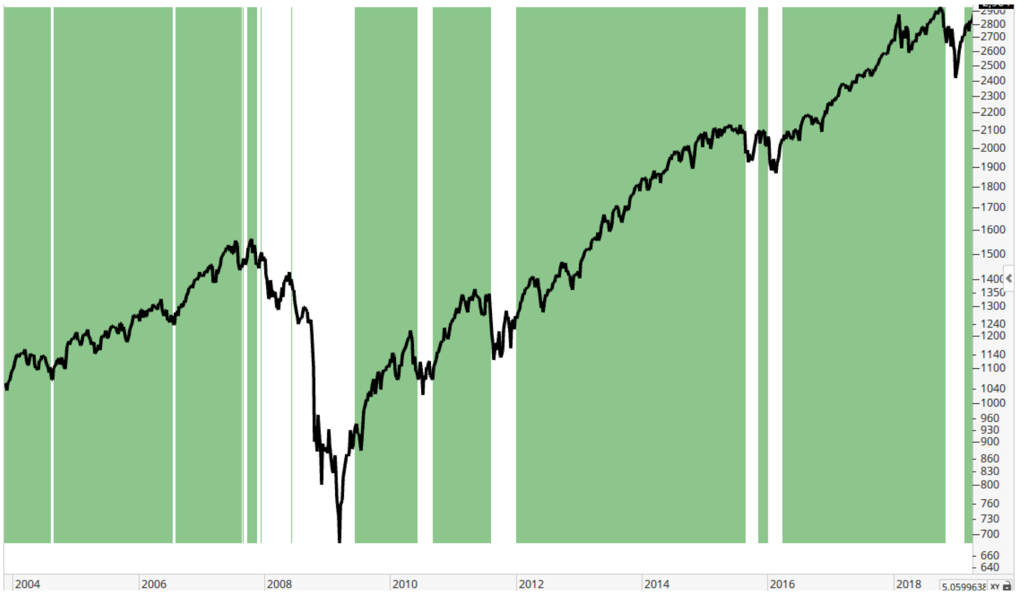


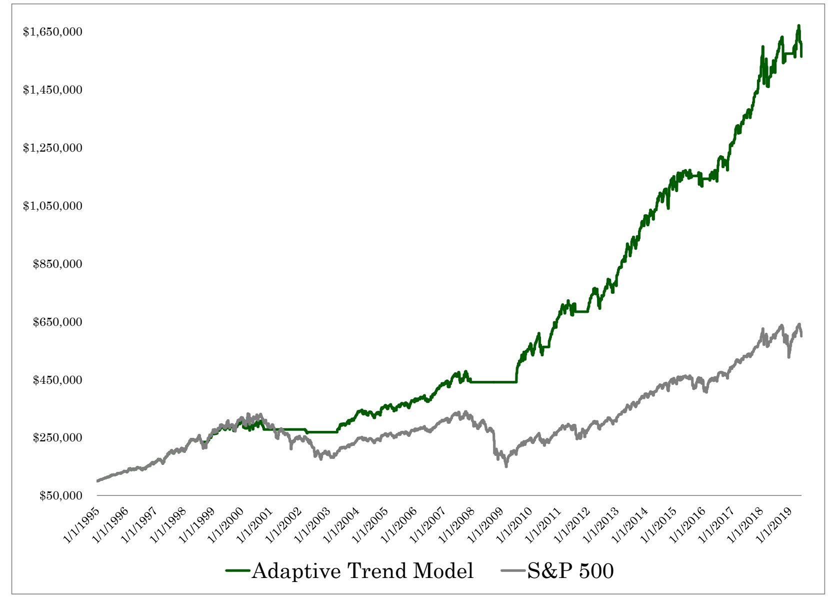
Ethereum Classic ETC/USD - ETCUSD (CC) - 1 Day Line Chart - USD - VMomo & ZSlope Layout
Ethereum Daily
Volatility Adjusted Momentum
Z-Slope
Ethereum Classic ETC/USD - ETCUSD (CC) - 1 Week Line Chart - USD - No Layout
Ethereum Weekly
Volatility Adjusted Momentum
Z-Slope
May
Jul
Sep
Nov
2019
Mar
May
Jul
Sep
Nov
2020
2016
2017
2018
2019
2020
Optuma
19th Jan 2020

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.

Adaptive Trend Model





	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.

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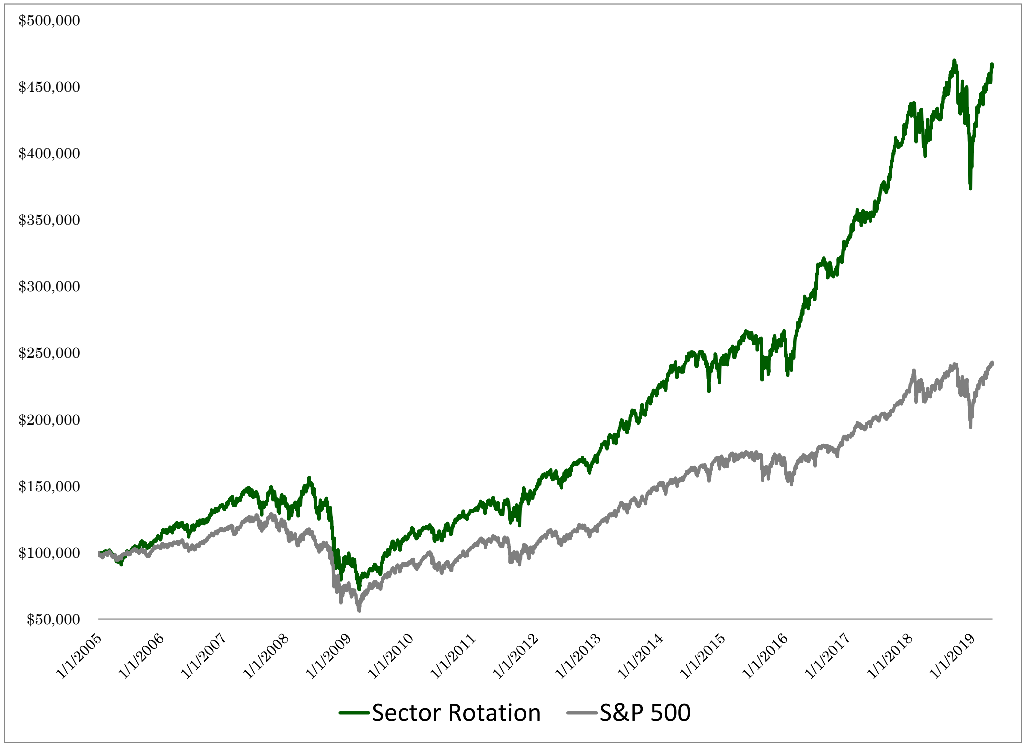

	Annualized Return	Annualized Volatility	Beta	Sharpe Ratio	Maximum Drawdown
Sector Rotation	12.7%	15.9%	0.96	0.64	53.9%
S&P 500	7.5%	14.8%	1	0.34	56.6%

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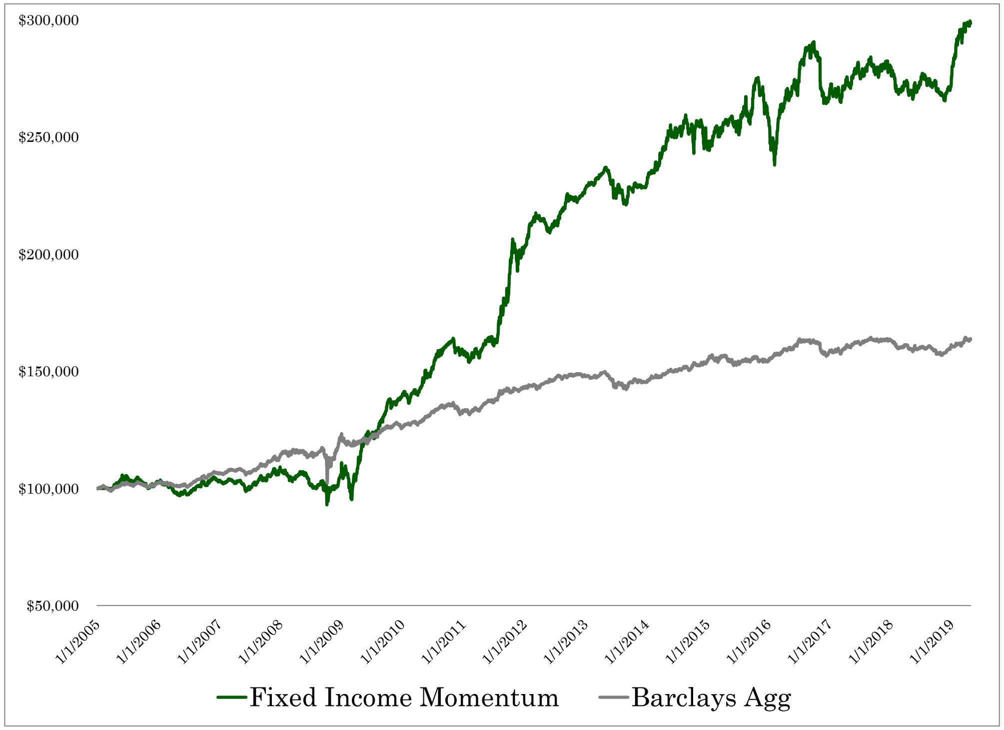
If equities are the speedboats in the sea of financial markets then fixed income securities are the tanker ships. While stocks can move violently in both directions, Thrasher Analytics research has shown that fixed income markets historically show consistent trends. Because of the tanker-like movements 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.



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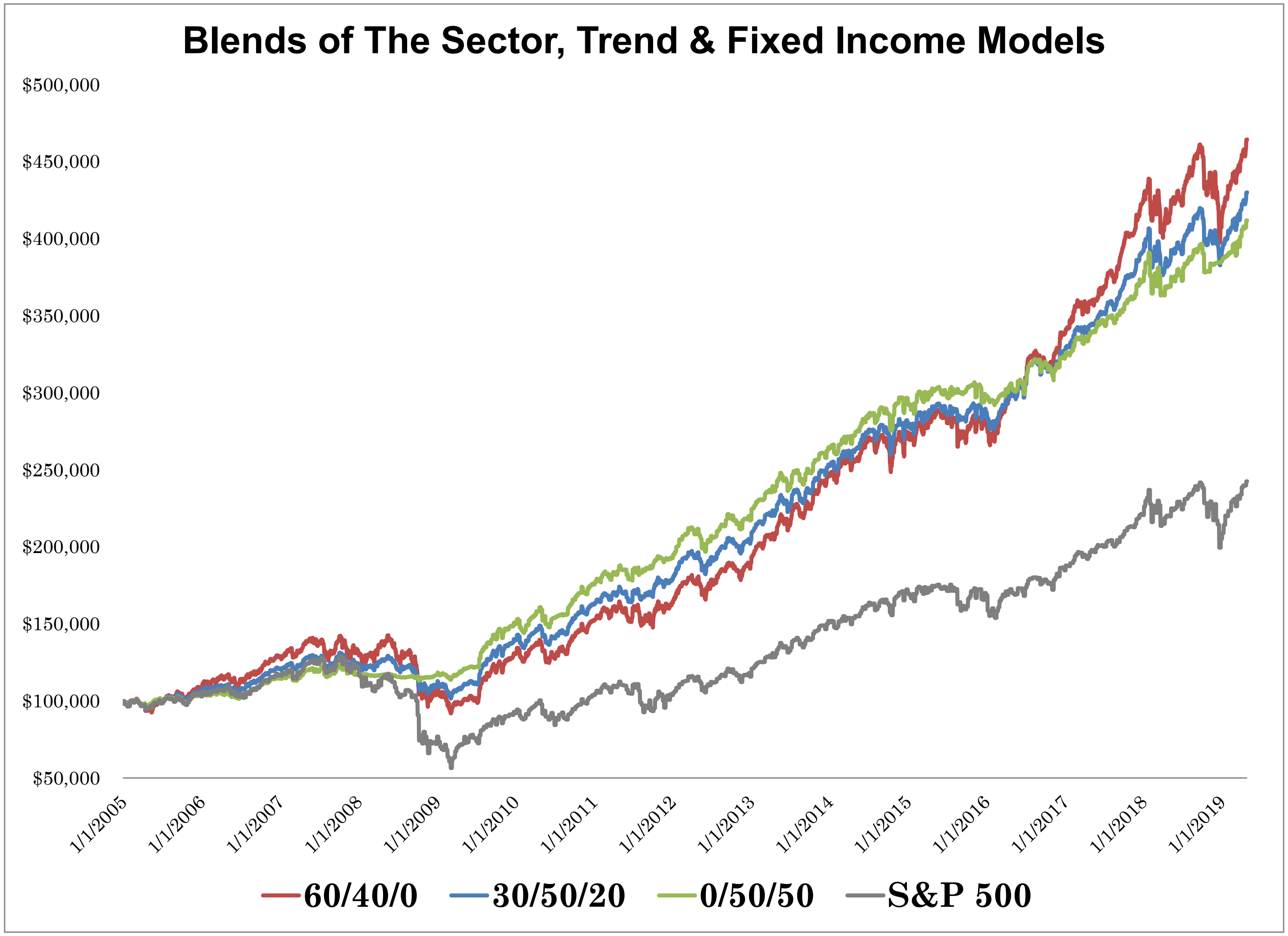
The concept of diversification is not new to financial markets. While many market participants focus on the diversification of the underlying holdings. This procedure is can be vastly skewed during periods of high market turmoil, in which correlations across asset classes tend to historically rise. Thrasher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

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Back Test Disclaimer:

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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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