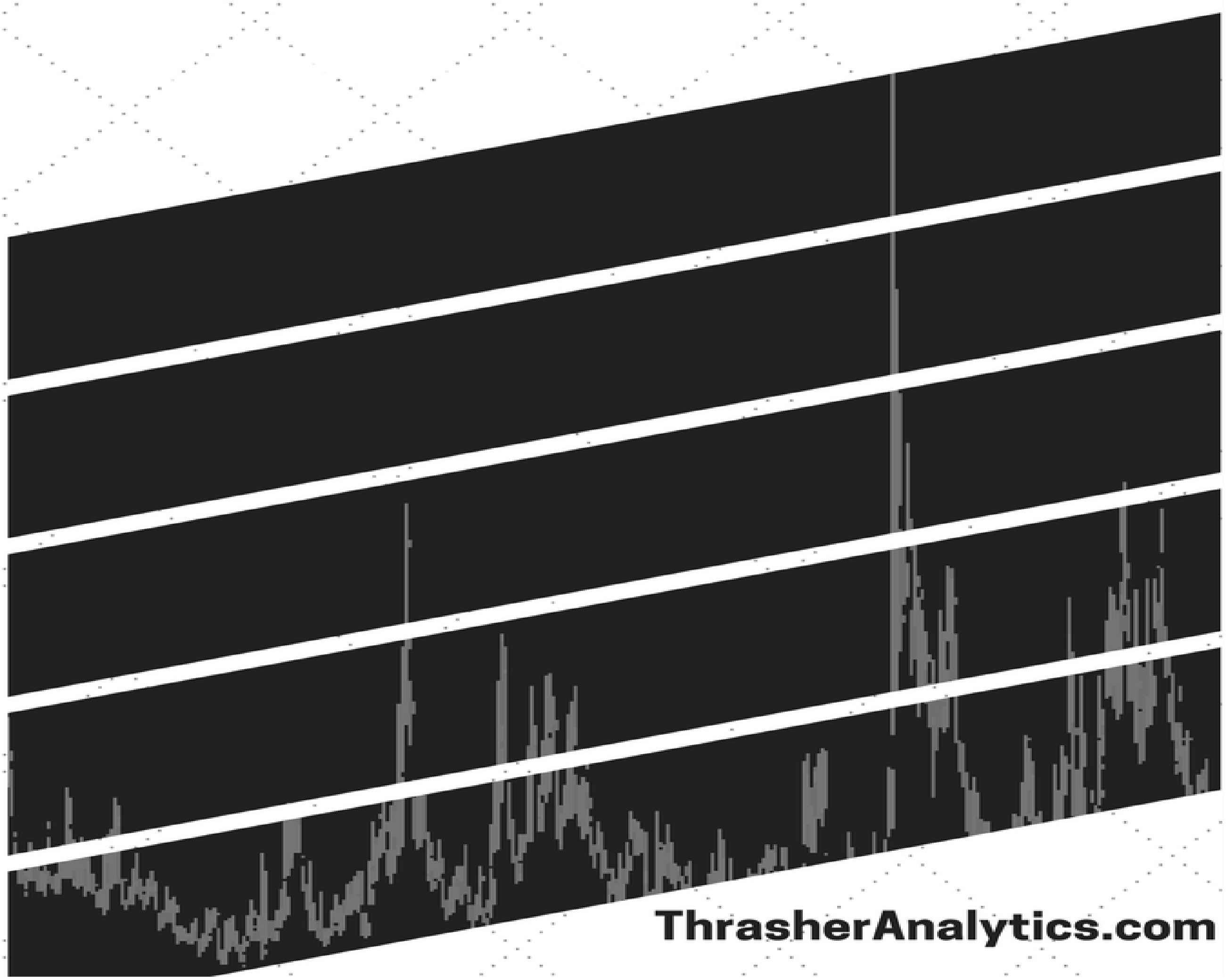
THRASHER ANALYTICS

BI-WEEKLY RESEARCH & ANALYSIS



ThrasherAnalytics.com

All eyes are on the Coronavirus headlines and for the most part, rightfully so (depending on the sources!). Rather than run through all the infection numbers, the restrictions being placed on citizens across the globe and the cornucopia of 'chart porn' that's been generated from this serious virus, I'm focusing this letter on the market and the implications of the historic selling that's taking place. There's a flood of statistics that have been generated, I'll address a few of them this week but I really don't want to get sidetracked from the markets and dissecting these turbulent markets.

Thursday the Dow Jones Industrial Average saw a 7.7 sigma move (since 1900) as reported by Bloomberg and data from Nomura. 7.7 sigma, like Black Monday in '87, are not statistically *supposed* to happen. But our great market reminds us whenever the opportunity arises, what's supposed to happen doesn't always and what's not supposed to, often does! Deutsche Bank noted that the S&P has experienced 3+% moves in both directions ten times over the last three weeks. The only other the time the market has accomplished this feat was in the Great Depression and the '08 financial crisis. This stat matches many others in highlighted just how far we've gone in the severity and speed of this decline. The need to go back a hundred years to dig up a sample size of two is mind blowing. But here we are. I believe the chances of a V-shaped (think Dec. '18) bottom are very unlikely and are not historically supported. I'll address why I believe this in the letter and share what I'll begin looking for when we do (whenever it begins to take place) start to form a low, that will likely be similar to '98, '11, '15 – a complex price action involving a test of the initial bottom that's accompanied by improving market internals.

THRASHER ANALYTICS MARKET DASHBOARD

Sector Rotation: March	
Technology	XLK
Utilities	XLU
Communications	XLC

Notable Breadth Data:	
SPX >50MA	3.56%
SPX >200MA	11.53%
Nasdaq >50MA	1.94%
Nasdaq >200MA	28.16%

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

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

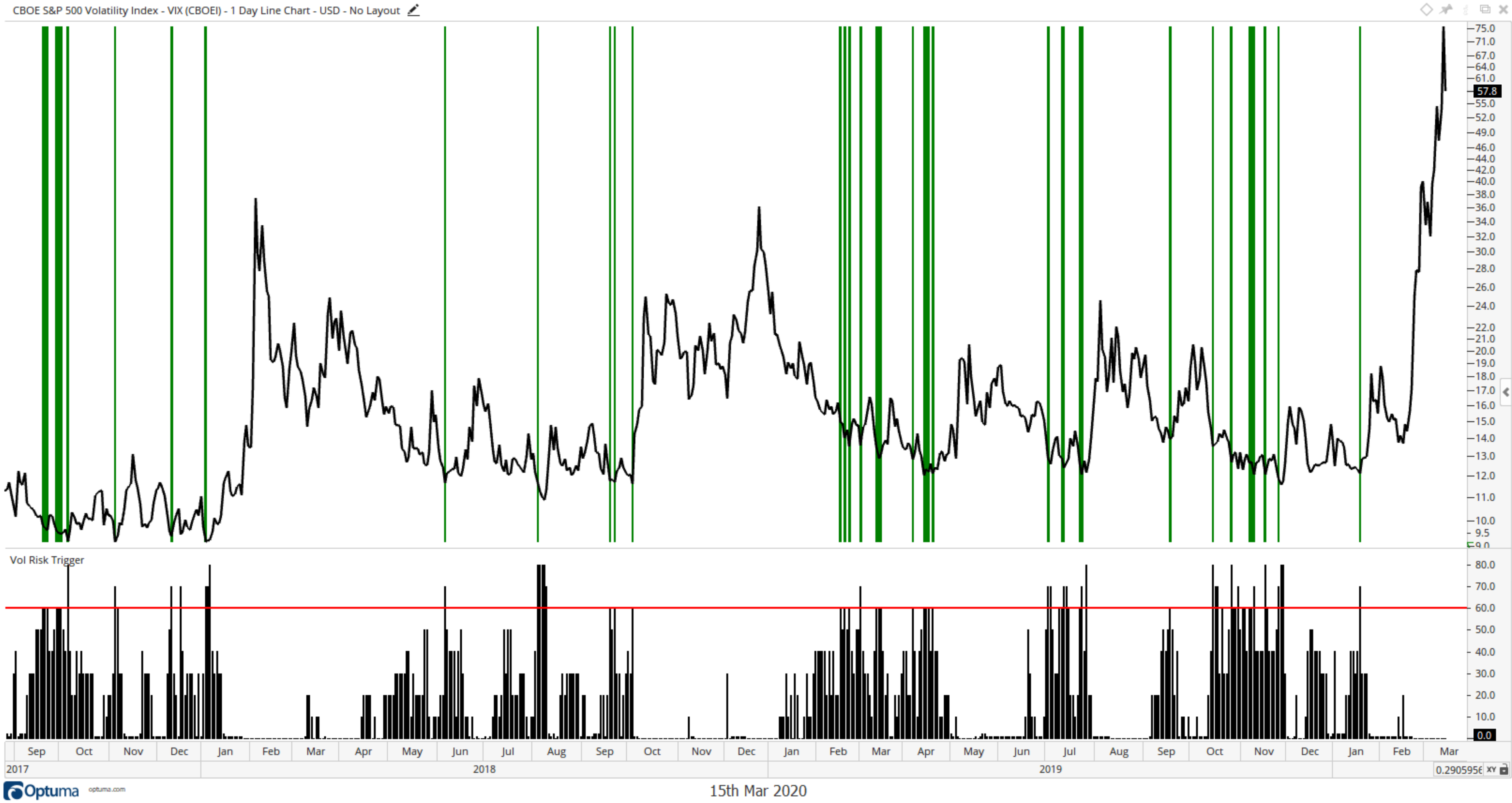
Daily Sentiment Index	% Bullish	5-day MA
S&P 500	18%	11%
Nasdaq 100	20%	12%
Nikkei	14%	11%
VIX	85%	88%
10yr Treasury	61%	78%
5yr Treasury	70%	81%
CRB Index	13%	12%
Gold	45%	69%
U.S. Dollar	62%	41%

**Green<25%   Red>80%*

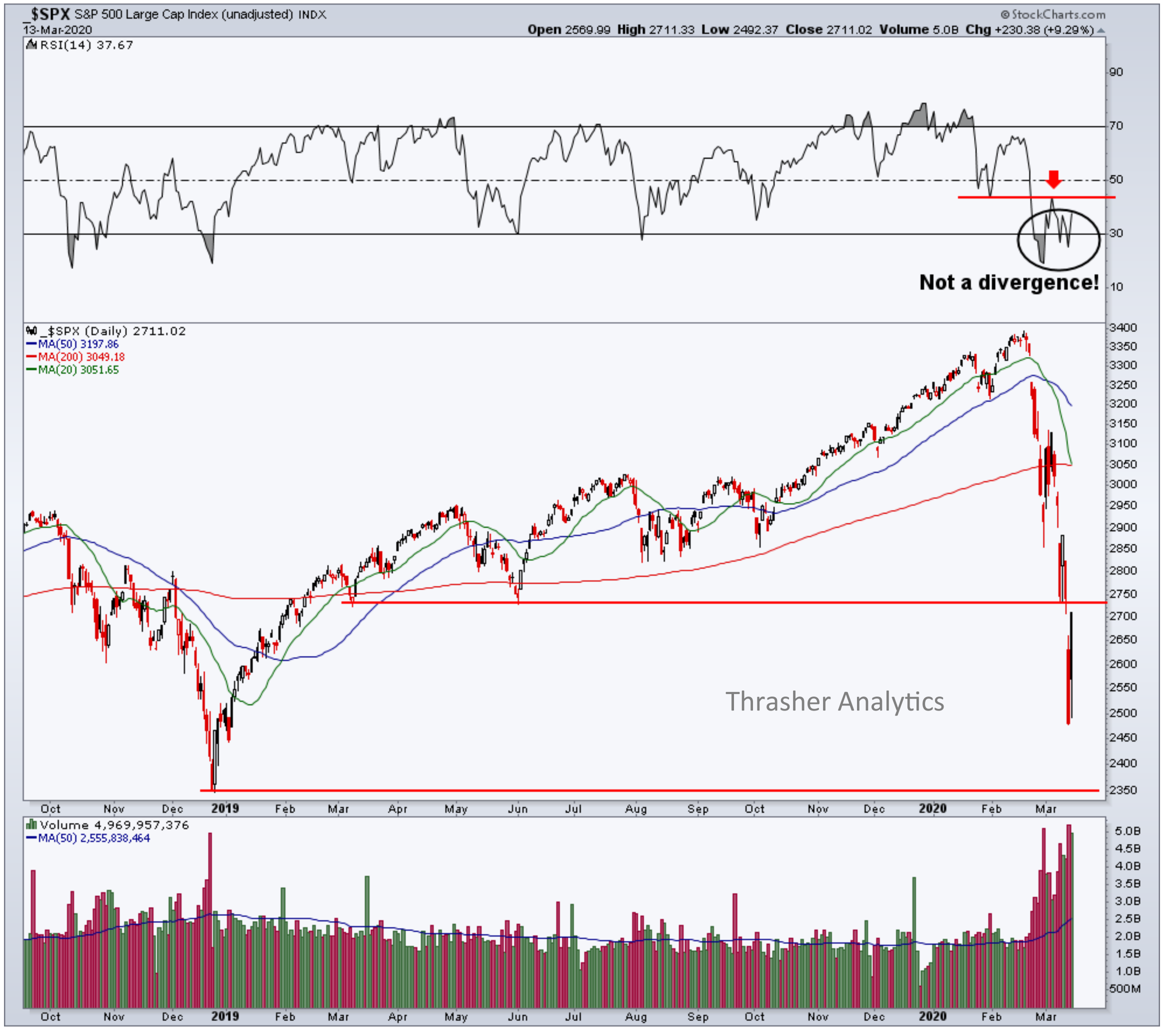
	Sector	> 50MA	> 200MA	1wk Perf	1mo Perf	3mo Perf	12mo Perf
✔	SPDR Technology Select Sector Fund ETF	False	False	-5.31%	-17.07%	-5.92%	16.61%
✔	SPDR Health Care Select Sector Fund ETF	False	False	-6.68%	-12.70%	-10.13%	-1.52%
✔	SPDR Communication Services Select Sector ETF	False	False	-7.29%	-18.78%	-12.12%	-2.45%
✔	SPDR Consumer Staples Select Sector Fund ETF	False	False	-8.01%	-12.42%	-9.83%	3.42%
✔	SPDR Real Estate Select Sector Fund ETF	False	False	-8.29%	-14.71%	-6.07%	-1.15%
✔	S & P 500 Stock Index	False	False	-8.79%	-19.65%	-14.45%	-3.55%
✔	SPDR Financial Select Sector Fund ETF	False	False	-9.78%	-25.96%	-24.94%	-12.95%
✔	SPDR Consumer Discretionary Select Sector Fund ETF	False	False	-10.77%	-22.44%	-16.94%	-7.5%
✔	SPDR Materials Select Sector Fund ETF	False	False	-13.11%	-23.12%	-23.05%	-16.93%
✔	SPDR Industrial Select Sector Fund ETF	False	False	-13.13%	-25.73%	-22.97%	-16%
✔	SPDR Utilities Select Sector Fund ETF	False	False	-14.07%	-17.52%	-8.99%	-1.28%
✔	SPDR Energy Select Sector Fund ETF	False	False	-24.26%	-41.33%	-46.63%	-51.21%

While all sectors were in the red last week, tech, health care, and communications were the three best performing - two of which are in the top three sectors for the Thrasher Analytics sector rotation model.

VOLATILITY RISK TRIGGER (VRT)

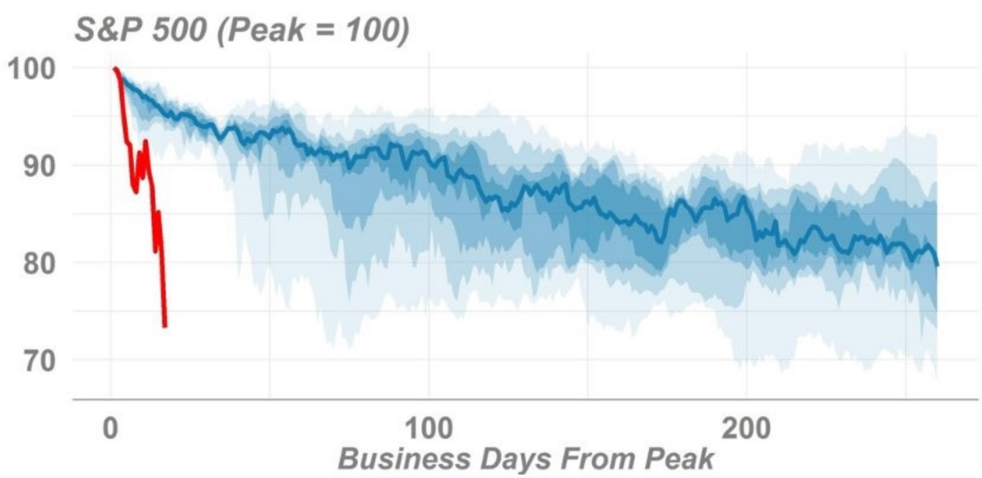


The VRT nailed the bottom in the VIX back in January, doing exactly what it was built to do. By no means did the VRT nor myself expect the move in volatility that followed. Spot VIX reached 75 last week, the highest level since the peak in volatility during the ‘08 financial crisis. On a closing basis, the VIX in ‘08 reached 80 (intraday it hit 89.53). This elevated VIX does not alone suggest a time to short volatility through ETFs. The volatility curve remains steep, providing a tailwind for long volatility products (vice versa a headwind for inverse volatility products).



What a move. This is truly historic times. The S&P 500 has fallen below major levels of potential support, whether that's prior price points or primary moving averages. We now sit above (as of this writing) above the 2018 low, which would be the - next - line in the sand for equities to approach. Momentum has made a slight higher low on the late-week drop, but that in my view is not a bullish divergence. Being that RSI continued to dip below 30, it's still experiencing bearish momentum, just to a lesser degree than before - hardly a positive development. Also notice that the brief move up in the RSI tagged the prior low as resistance, sending it back lower with price. Momentum is beginning to form a bearish range, a sign that this decline is unlikely to be short-lived.

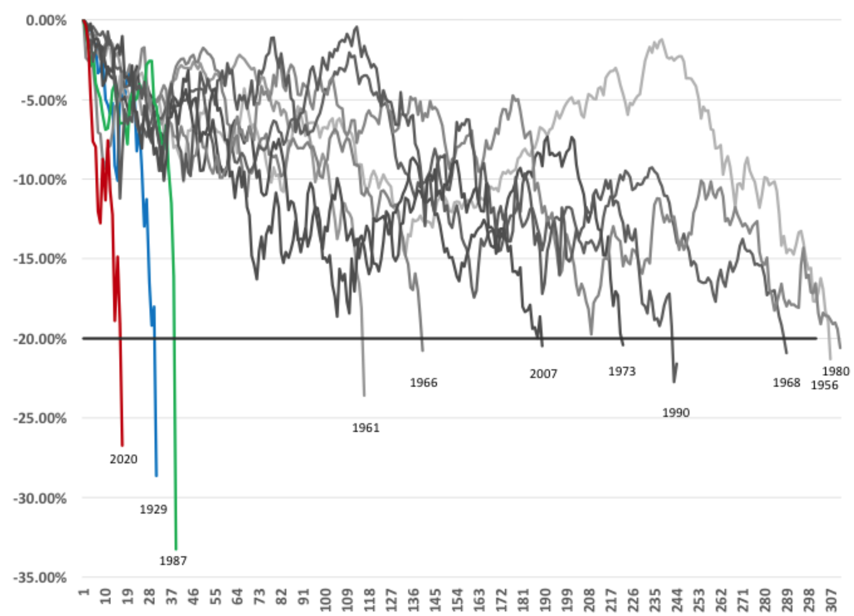
Exhibit 2: Current S&P 500 sell-off versus bear markets



Source: Bloomberg, Morgan Stanley Research; Note: Shows summary of bear market episodes. Each band represents observation decile starting at 10% to 90%, solid line is median. Red line is current sell-off. Data since 1927, or whenever history begins.

Exhibit 1: The S&P500 has dropped 20% from peak faster than in any other stock market crash before

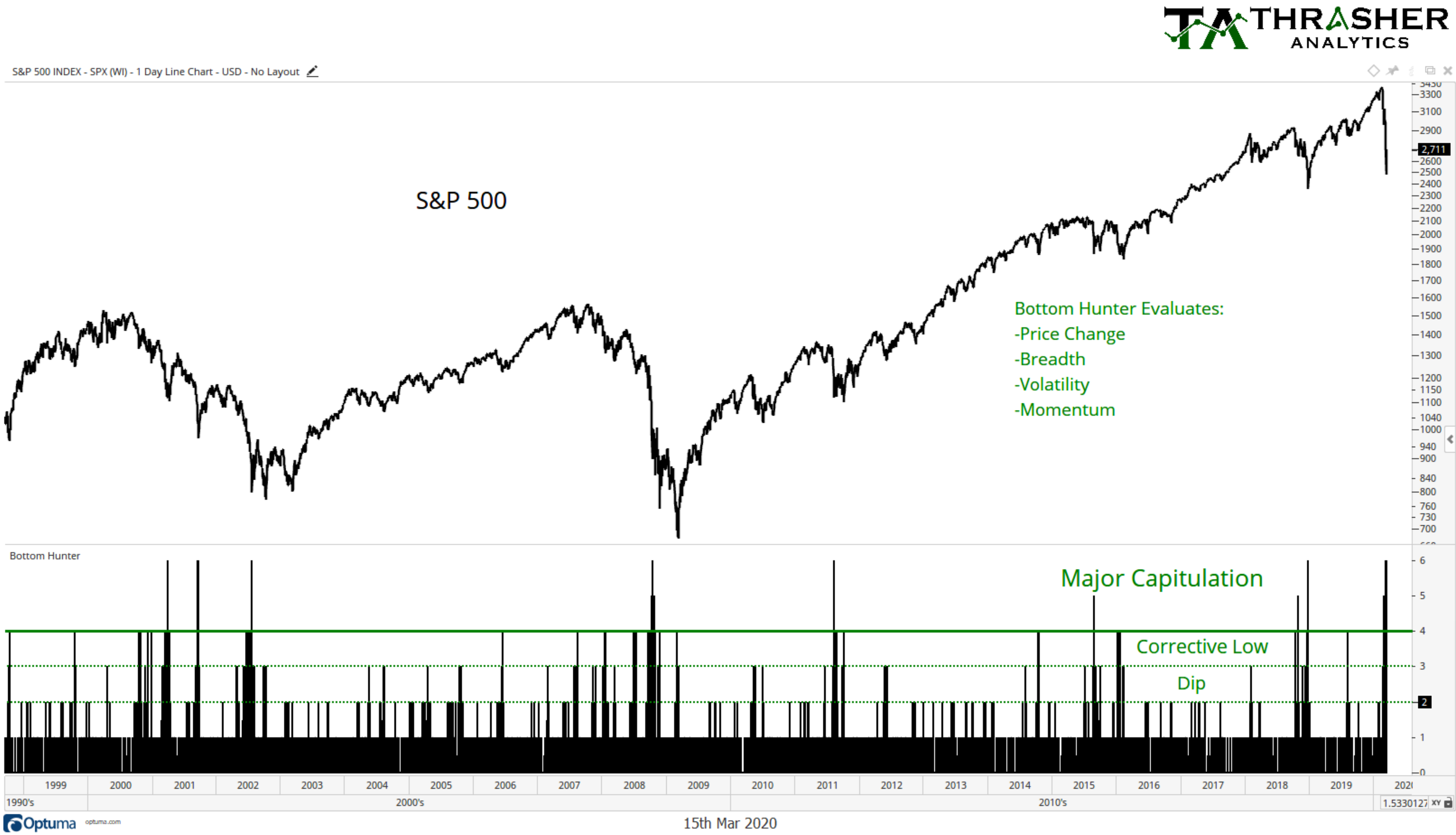
Performance until the day it surpassed the -20% threshold (vertical axis); Trading days from peak (horizontal axis)



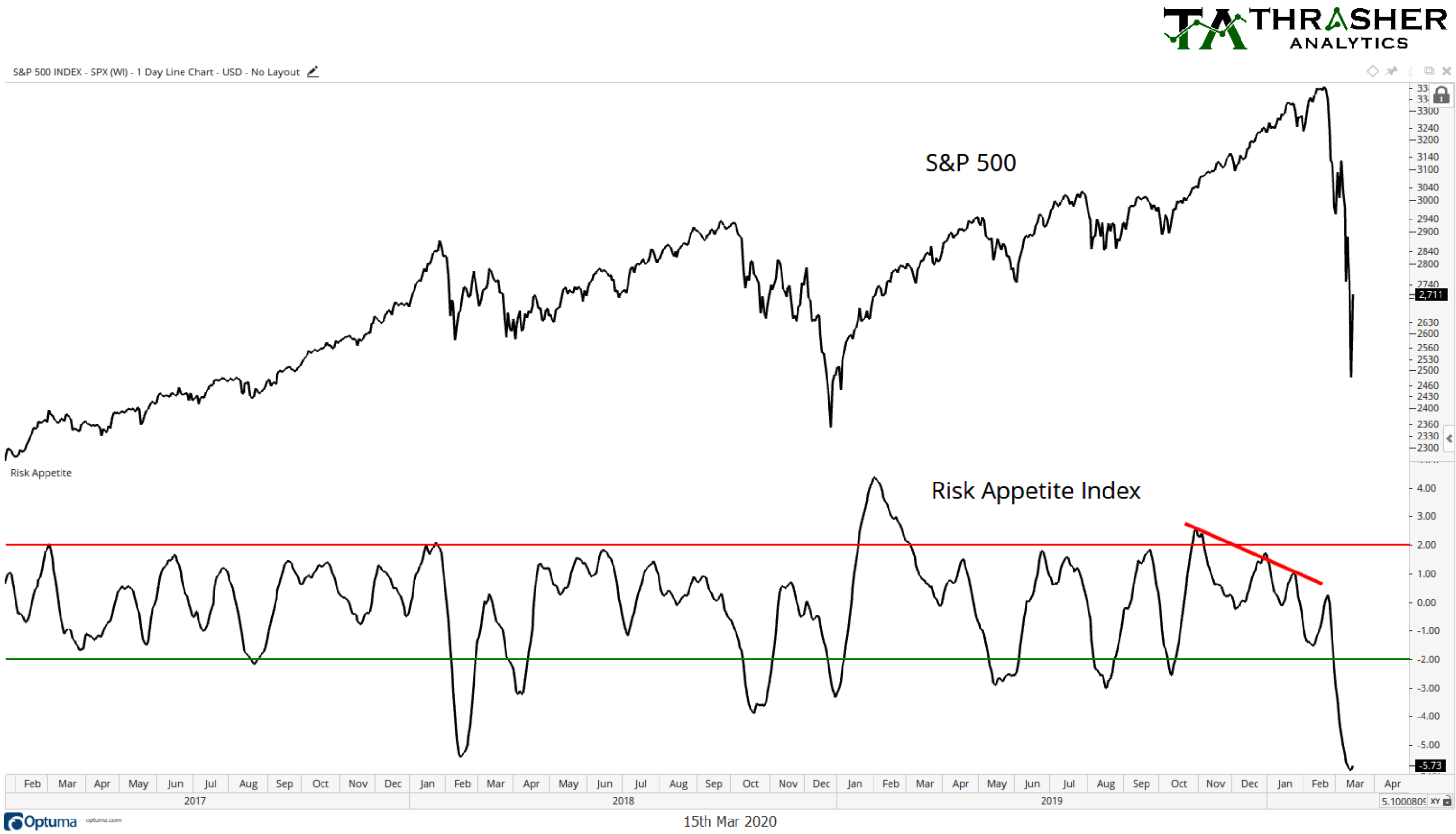
Source: Bloomberg, Goldmoney Research

I share these two charts to put this latest price action into context. The top chart comes from Jim Bianco and the second from Roy Sebag. Both charts compare the current S&P 500 to past bear markets. There hasn't been a time in history that a bear market has begun with such a severe and speedy decline. Not the Great Depression. Not Black Monday in 1987.

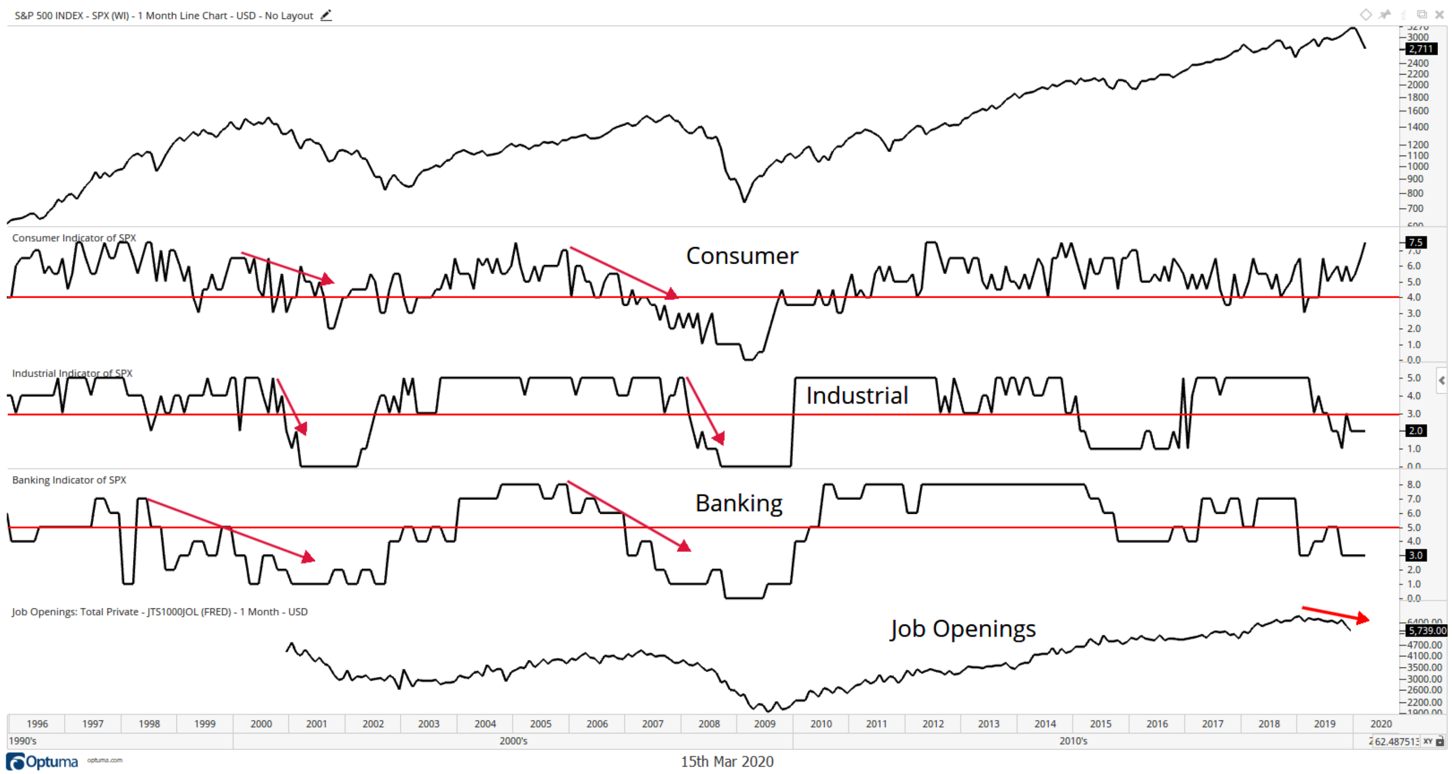
This makes it extremely difficult to create a playbook for how to handle this type of market. I will do my best in this letter and future letters to help provide continued commentary and analysis of what develops during this historic time.



I previously shared this chart when we last hit a major capitulation point earlier in the decline. As you can see on the chart, it's extremely rare for the Bottom Hunter to hit a 6 level, much less to do so twice in a week. The fact that we've seen two days (Monday and Thursday of last week) show signs of major capitulation is noteworthy alone. Each day was followed a snapback rally of 5% on Tuesday and 9% on Friday but have shown to be short-lived with the market continuing to show signs of weakness. From here I believe we are setup to see a W-shaped rather than a V-shaped bottom. I'll be writing more on this later in the letter.

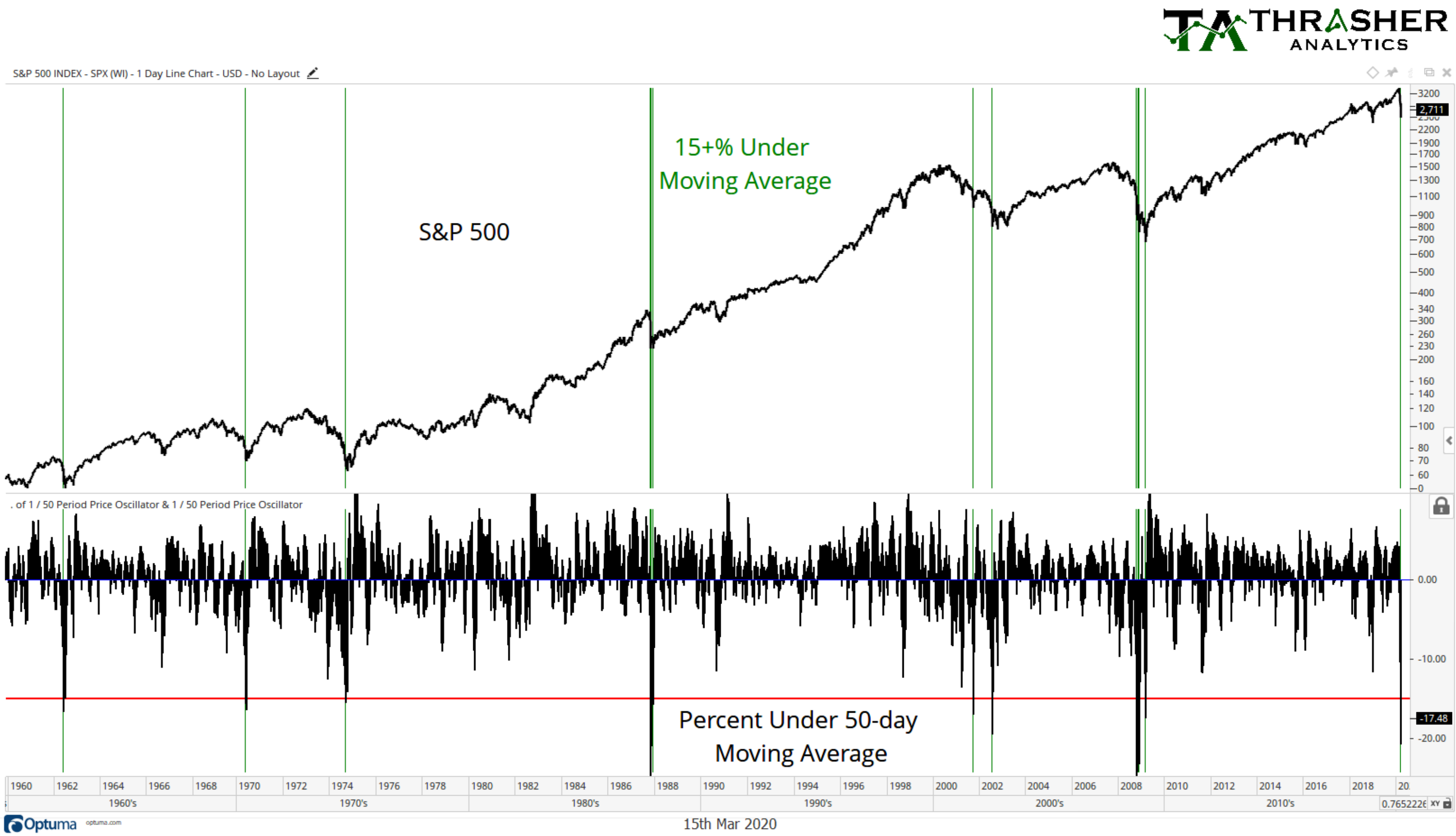


The Risk Appetite Index (RAI) put in a defined bearish divergence with stocks since November of last year and that's now been confirmed by price with this recent decline. The RAI now is at a extremely low level which is to be expected following the severe decline in price that's transpired. I will be monitoring this tool when we do (whenever that will be) begin to create a bottoming process. I expect that risk appetite will slowly improve and help give an early sign that a low is forming in the equity market. No such sign has yet to develop at this time however.



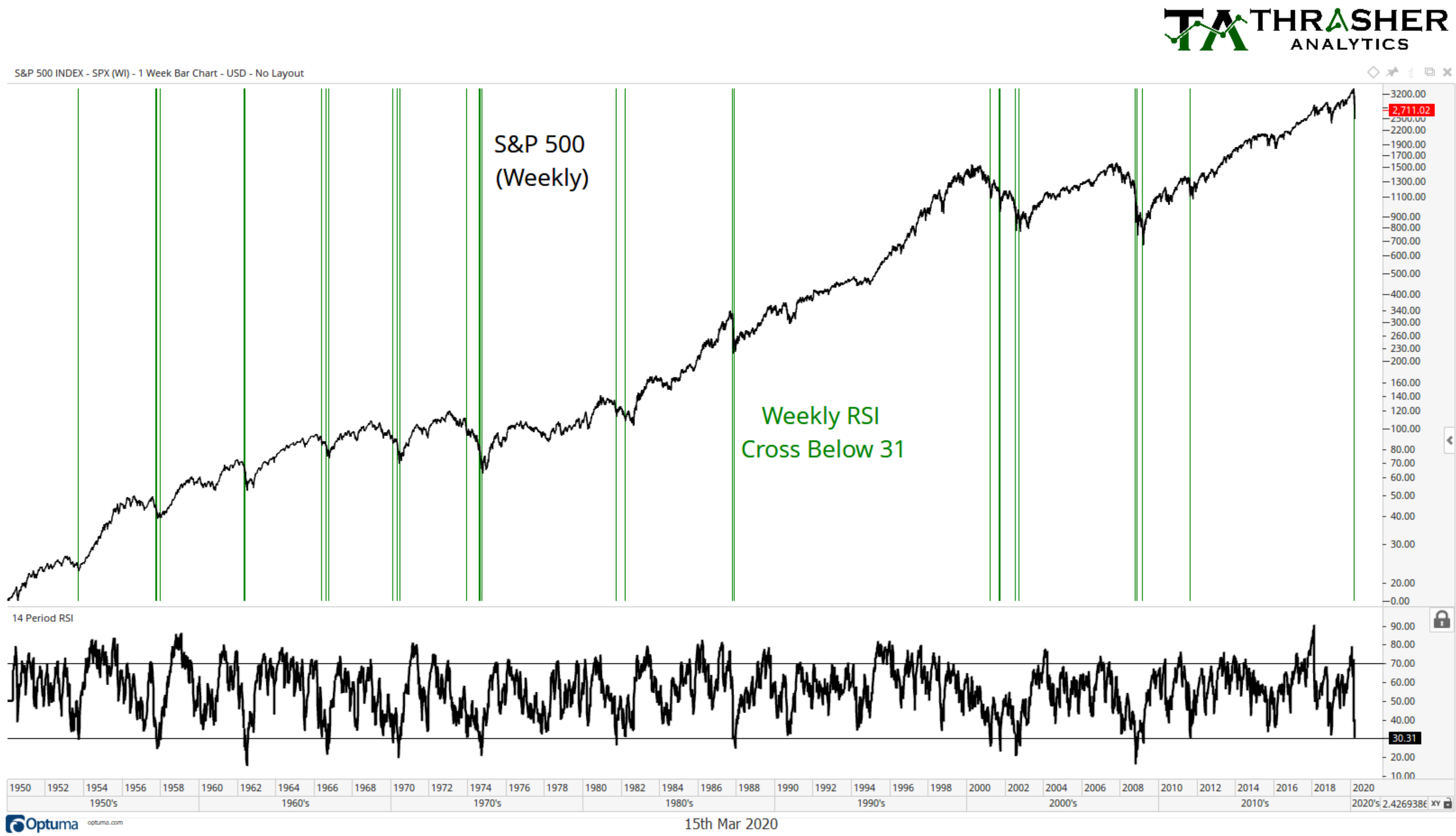
Above are the three components to the economy that I monitor; Consumer, Industrial, and Banking/Financial. If you've been a reader of this letter for at least six months then you know my view on the economy has been entirely placed on the consumer shoulders. Both the Industrial and Banking indicators have turned negative, leaving the consumer alone to carry the torch for U.S. economic growth. However, as I've also written in the past, job growth is likely to slow, which will negative impact the consumer. The bottom panel of the chart shows Job Openings, which have ben declining for the last year and are a leading indicator for the labor market.

If we 'lose' the consumer during the Coronavirus, something that's very possible with mass businesses closing or limiting their hours, and millions of Americans voluntarily quarantined in their homes, the consumer-dependent economy will surely faulter if this virus crisis persists. Typically consumer spending slows as the economy 'glides' into recession. This time may be different as major retailors (Nike, Apple, Abercrombie & Fitch, Under Armour, etc.) temporarily close their doors due to the virus. Americans may be impacted from decrease pay, and the pay they do receive is going to buy toilet paper instead of appetizers, frozen chicken instead of movie tickets, and Clorox wipes instead of SUVs.



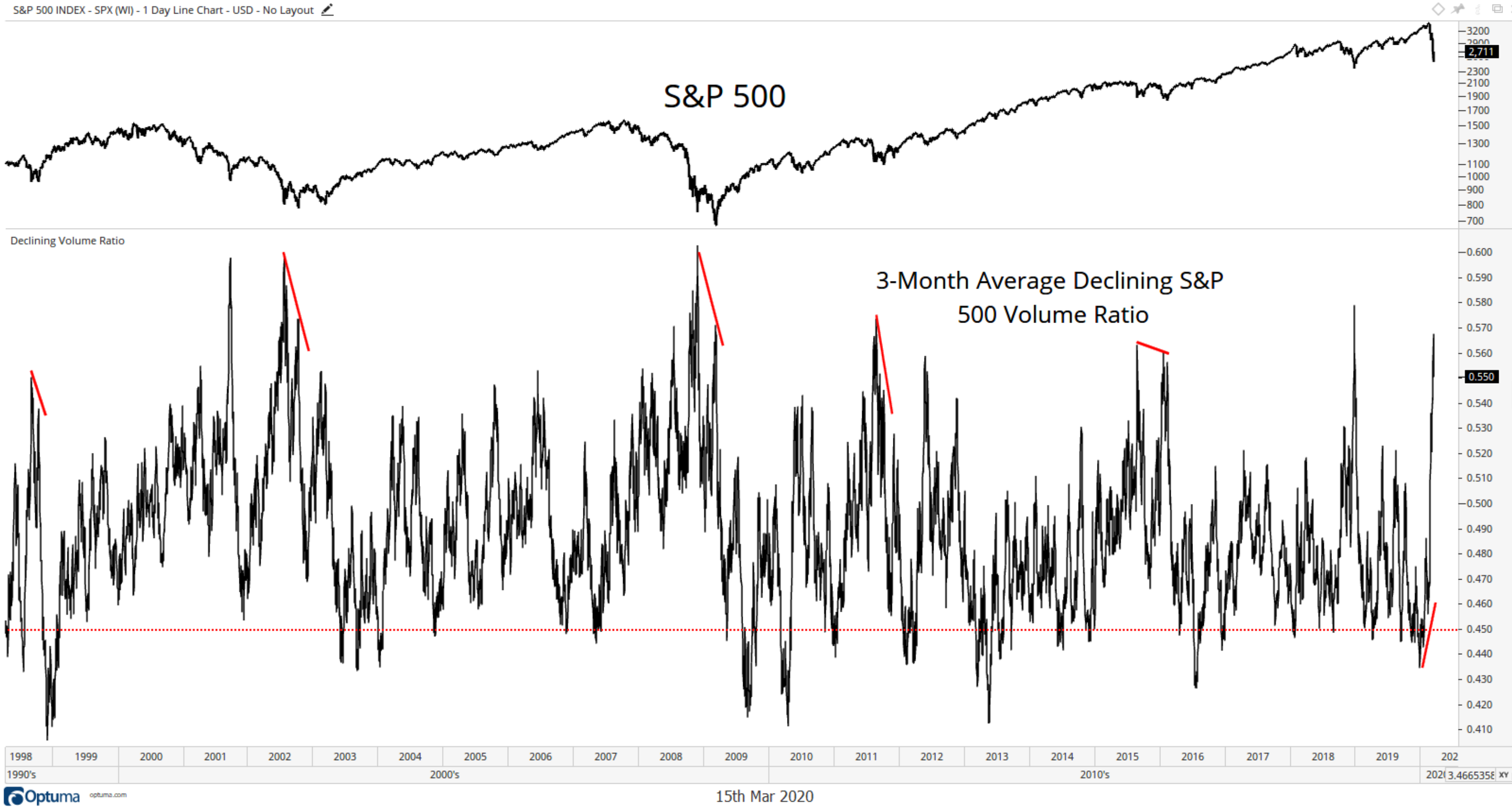
The S&P 500 is now more than 17% under its 50-day Moving Average, something it hasn't done since the depths of the financial crisis. Looking through the data, this chart included, we don't see a decline like this end with a V-shaped recovery, ala December 2018. Even '18 was abnormal and more an exception to the historical precedent than the rule. Since 1950 when the market has fallen by at least 15% below its 50-MA, a W-shaped bottom was form before the next up trend began. The green bars, while hard to see on this long-term of chart, show previous occurrences. The small sample size doesn't have any exceptions, each were a W-bottom.

Relaxing the metric to 10% below the 50-MA, the sample size increases to 39 but just two (one being Dec. '18) was not a W-shaped bottom.



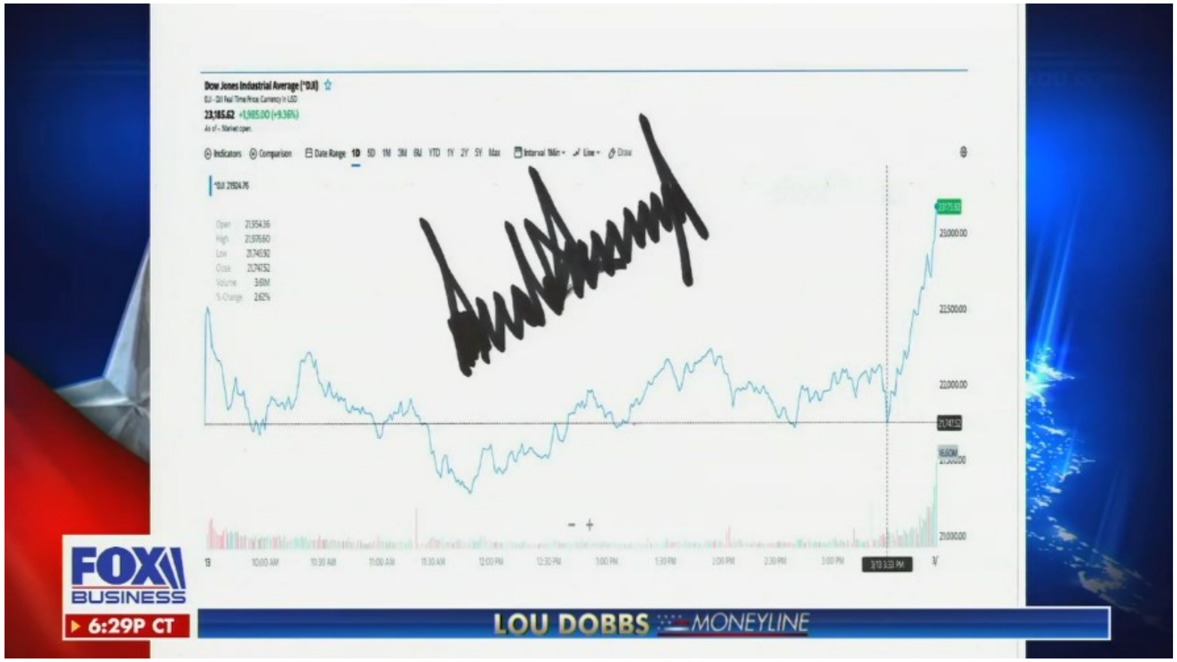
I went back to 1900 for the Dow and 1950 for the S&P 500 looking at when its weekly momentum has fallen to current levels and how the index's eventual bottom was formed. For the Dow, it's weekly RSI broke below 30 (which it's currently done) 74 times of which, only three saw a v-shaped bottom, the remaining 71 saw a test of the initial low. 1910 saw a v-bounce followed by a consolidation that lasted almost a full year before declining to test the '10 low the next year. In 1914, the Dow fell to the prior years low but the new down was a 'V'. 2001 following the 9/11 attack created a v-bottom and rallied for a year before the post-tech bubble bear market continued lower. For the S&P 500 (chart above), its weekly RSI broke 31 (as it did last week) 30 times and did not see a test of the initial low - once, in 1953.

This chart and the one before are two of the primary reasons I believe we'll see a more complex bottoming process for the U.S. equity market rather than a 2018-repeat of equities bottoming and then off to the races to a new high.



Next, I'll share a few of the signs I'll be looking for that stocks have begun to find a final low. First, volume.

I shared this chart when declining volume began to rise ahead of the current equity peak, the same analysis can be used to find a low, except we're now looking for declining volume to decrease. We saw this take place after the 1998, 2002, 2009, 2011 and 2015 bear markets (if you chose to classify each as such). The second low was created with less volume being traded on the downside, a positive sign that sellers are diminishing.



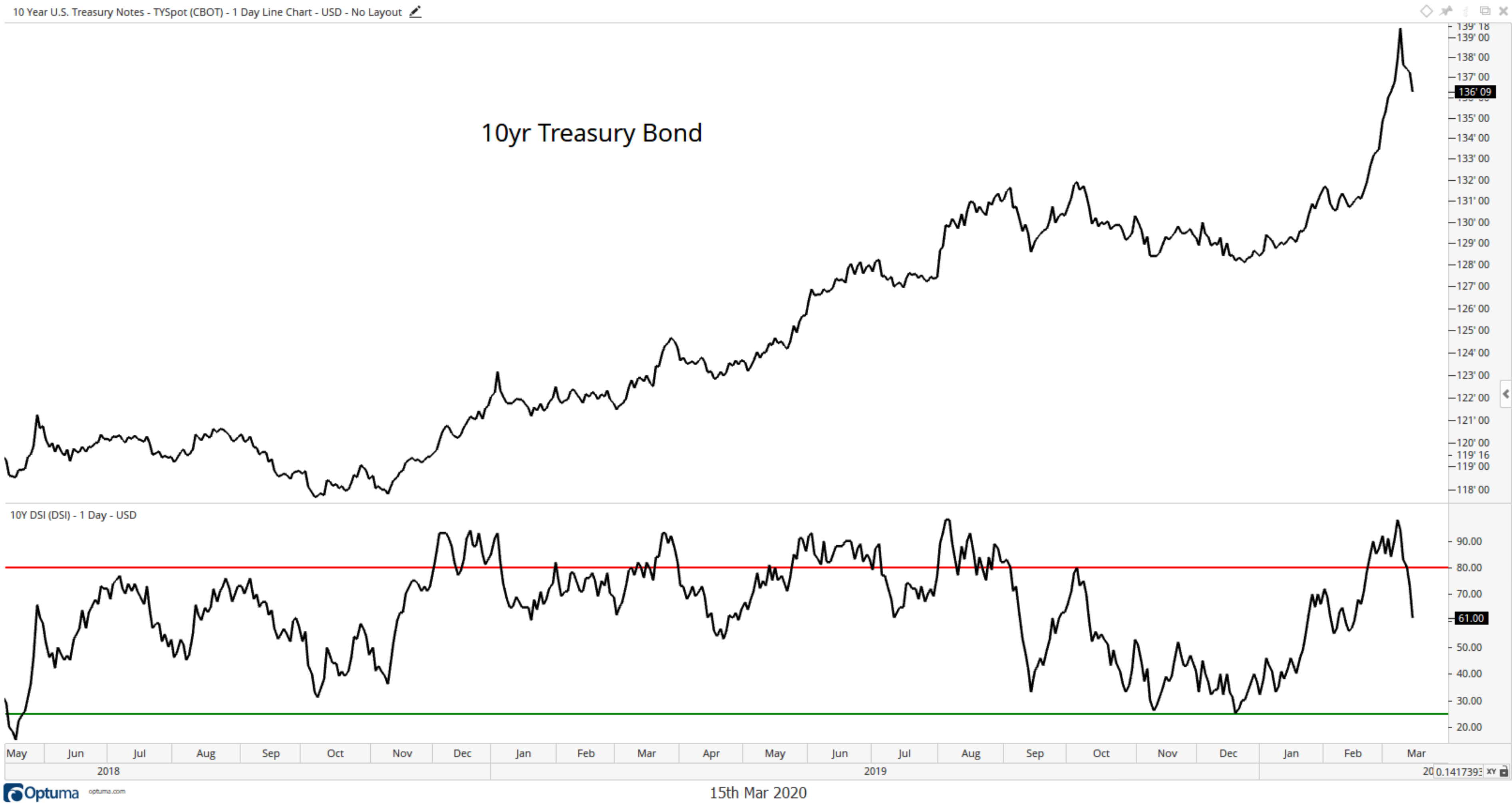
This is not meant as a political comment but one to show the focus of the current White House. Above is a 'signed' screenshot of Friday's stock market rally by the President Trump that was sent to Lou Dobbs at Fox News. It's no secret that Trump is extremely focused on the performance of the stock market, it's been a topic of numerous tweets since his inauguration and he surely is aware of the implications of the market's trend on a President's re-election chances. Because of this, the administration will surely pull out all the stops needed to pump up stock prices into the summer and eventually before the November election. Again, this isn't a politically biased comment but one to remind that this President has several stimulus levers he could pull (some requiring Congressional backing) to inject live back into the market. Just like a shot of adrenaline into a human can be a short-term fix, any stimulus attempt will likely be the same if the Coronavirus does show persistence and takes down the economy as many economists now are predicting. I believe that President Trump is aware of this and accepts it, knowing what he needs just has to "work" until November.

Market	% Bullish	5MA	History
Cattle DSI	5	7.6	
Australian Dollar DSI	7	14.8	
Lean Hog DSI	9	17.8	
Lumber DSI	12	16.2	
Heating Oil DSI	13	11.4	
Gasoline DSI	13	10.2	
CRB Index DSI	13	11.6	
Nikkei DSI	14	11.2	
British Pound DSI	14	26.80	
Cotton DSI	16	18.6	
Corn DSI	16	17.4	
Silver DSI	17	42.20	
Palladium DSI	17	38.00	
Orange Juice DSI	17	14.6	
Crude Oil DSI	17	12.8	
SPX DSI	18	11.2	
Cocoa DSI	19	27.00	

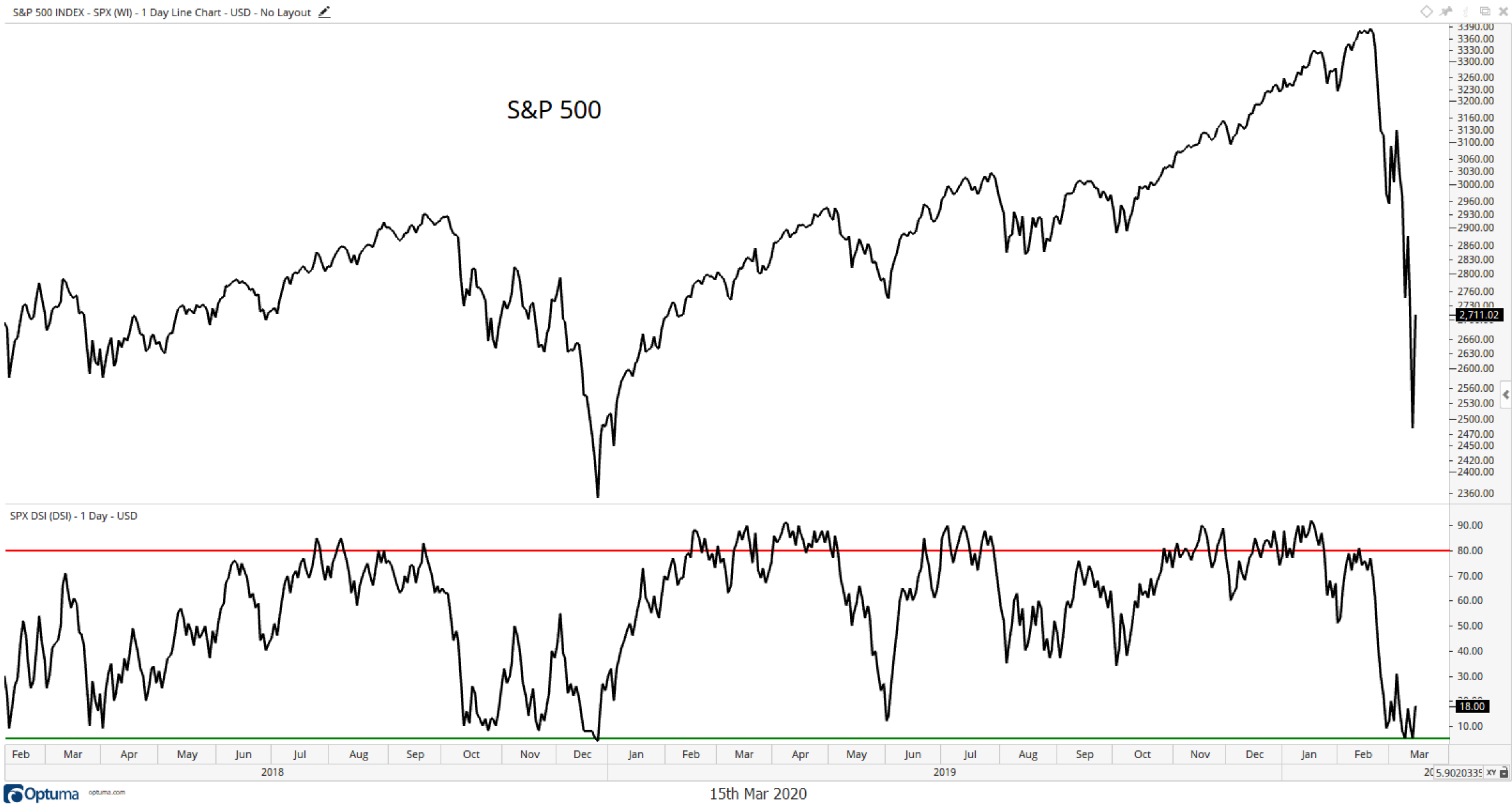
Code	% Bullish	5MA	History
Nasdaq DSI	20	11.8	
Copper DSI	21	21.6	
Sugar DSI	22	33.80	
Coffee DSI	25	32.40	
Platinum DSI	27.00	38.80	
New Zealand Dollar DSI	27.00	36.00	
Mexican Peso DSI	28.00	33.60	
Natural Gas DSI	32.00	27.00	
Euro DSI	43.00	56.00	
Gold DSI	45.00	69.00	
Wheat DSI	47.00	51.00	
Swiss Franc DSI	49.00	59.60	
10Y DSI	61.00	78.20	
US Dollar DSI	62.00	41.00	
5YR DSI	70.00	80.8	
EuroDollar DSI	78.00	85.6	
VIX DSI	85	87.6	

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

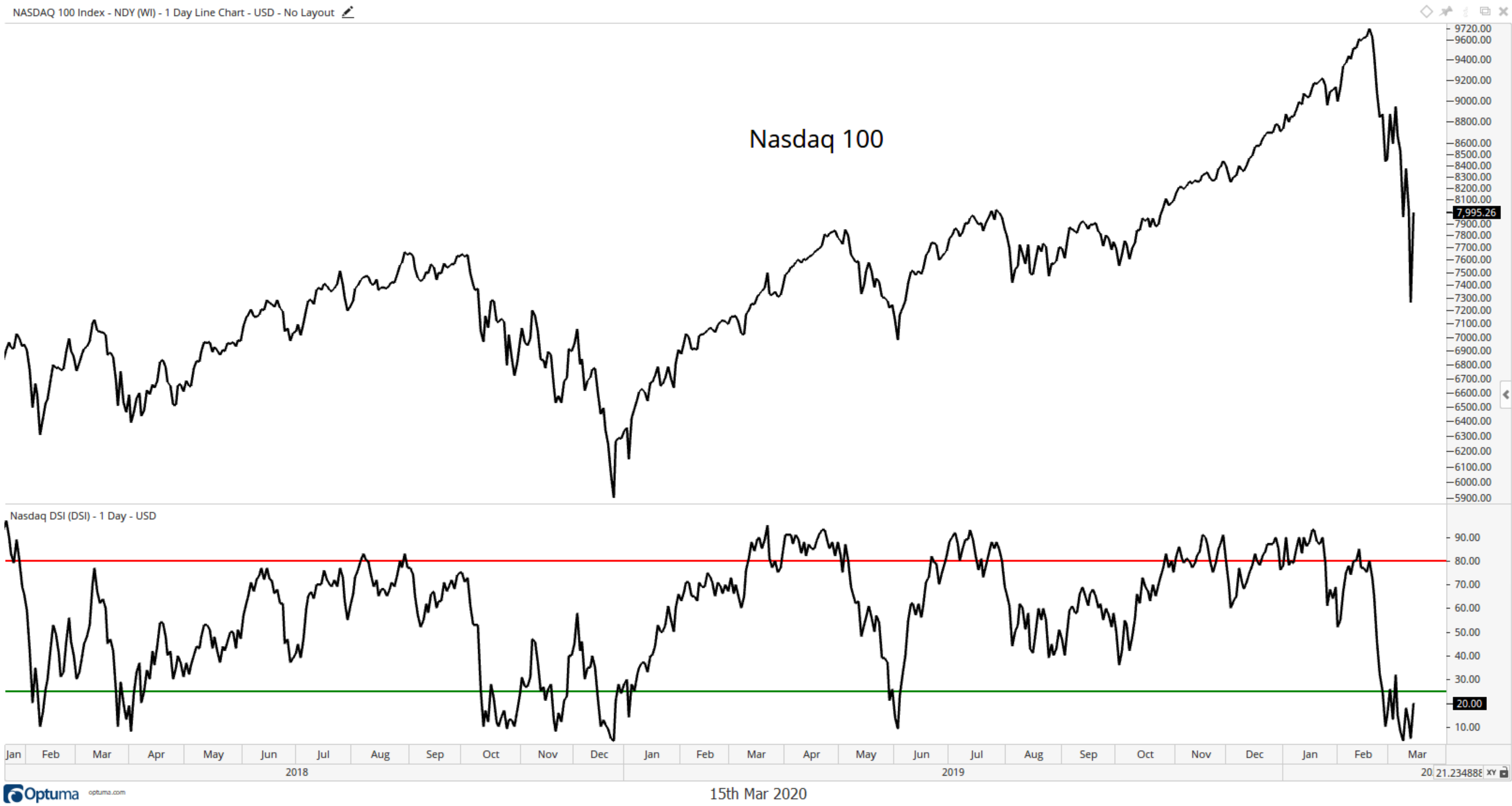
Daily Sentiment Index 10-year Treasury

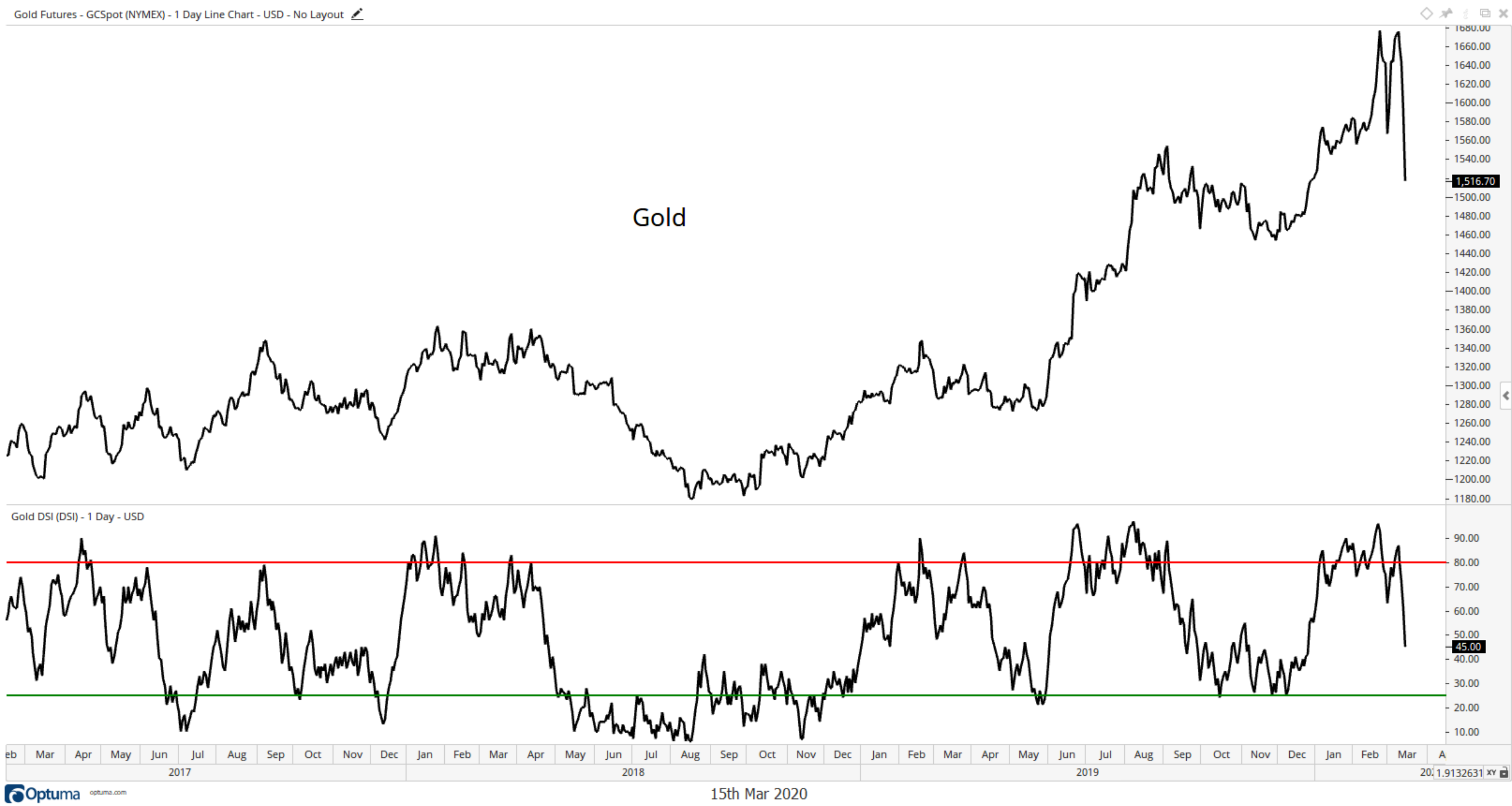


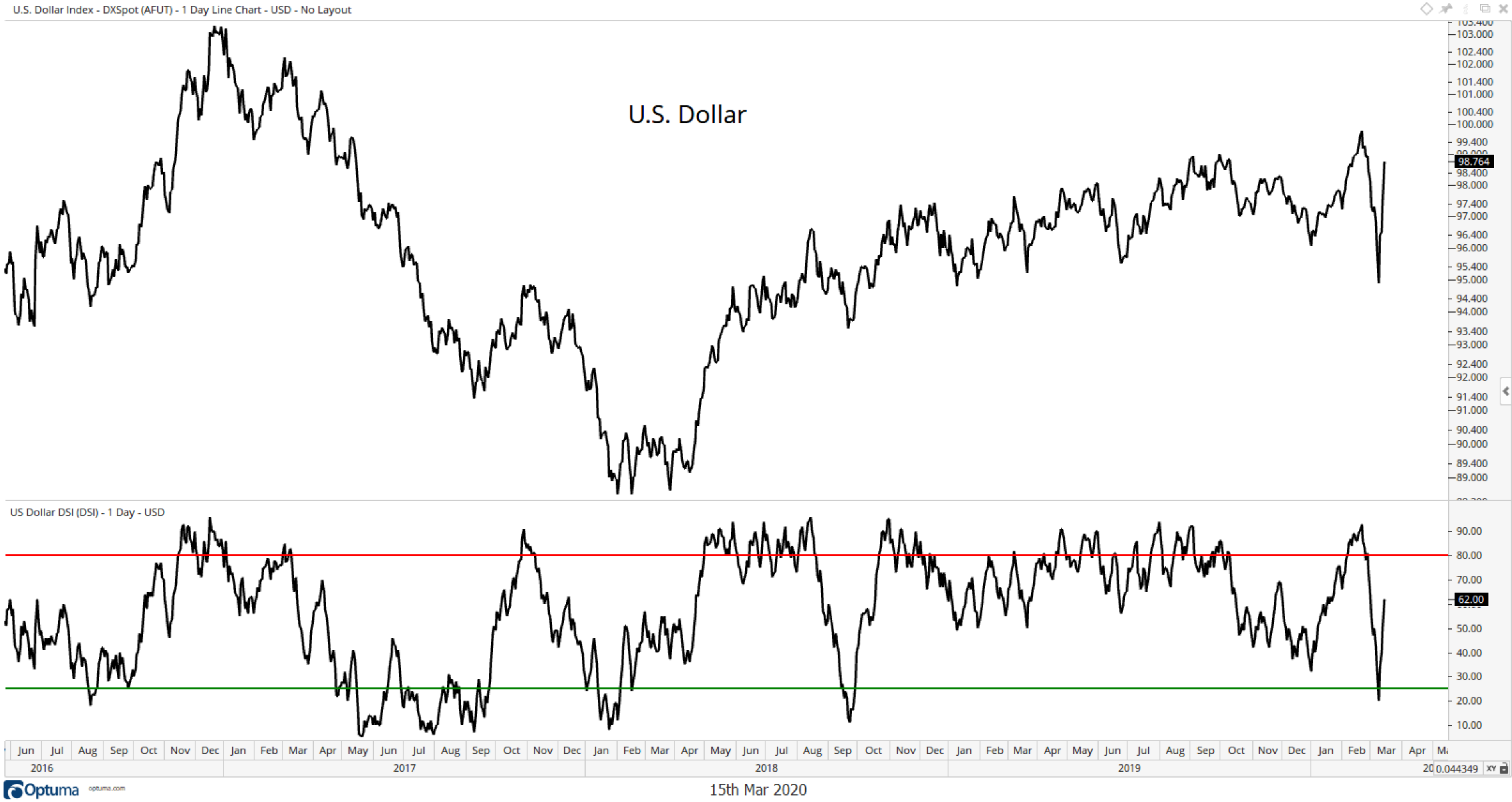
Daily Sentiment Index S&P 500



Daily Sentiment Index Nasdaq 100




Gold Futures - GCSpot (NYMEX) - 1 Day Line Chart - USD - No Layout
Gold
Gold DSI (DSI) - 1 Day - USD
1,516.70
45.00
2017
2018
2019
Optuma
15th Mar 2020



U.S. Dollar Index - DXSpot (AFUT) - 1 Day Line Chart - USD - No Layout
U.S. Dollar
98.764
US Dollar DSI (DSI) - 1 Day - USD
62.00
Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr
2016 2017 2018 2019
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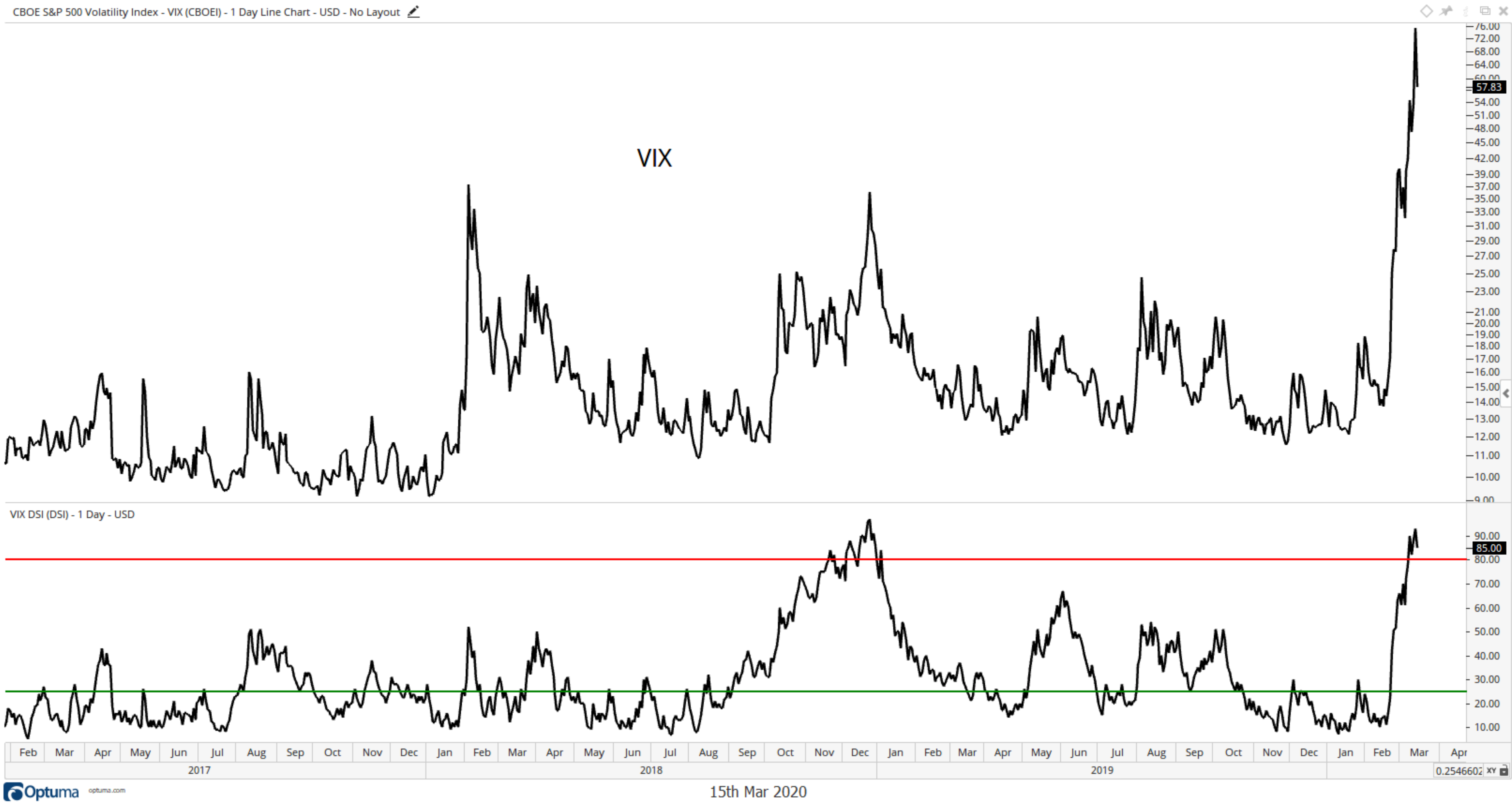
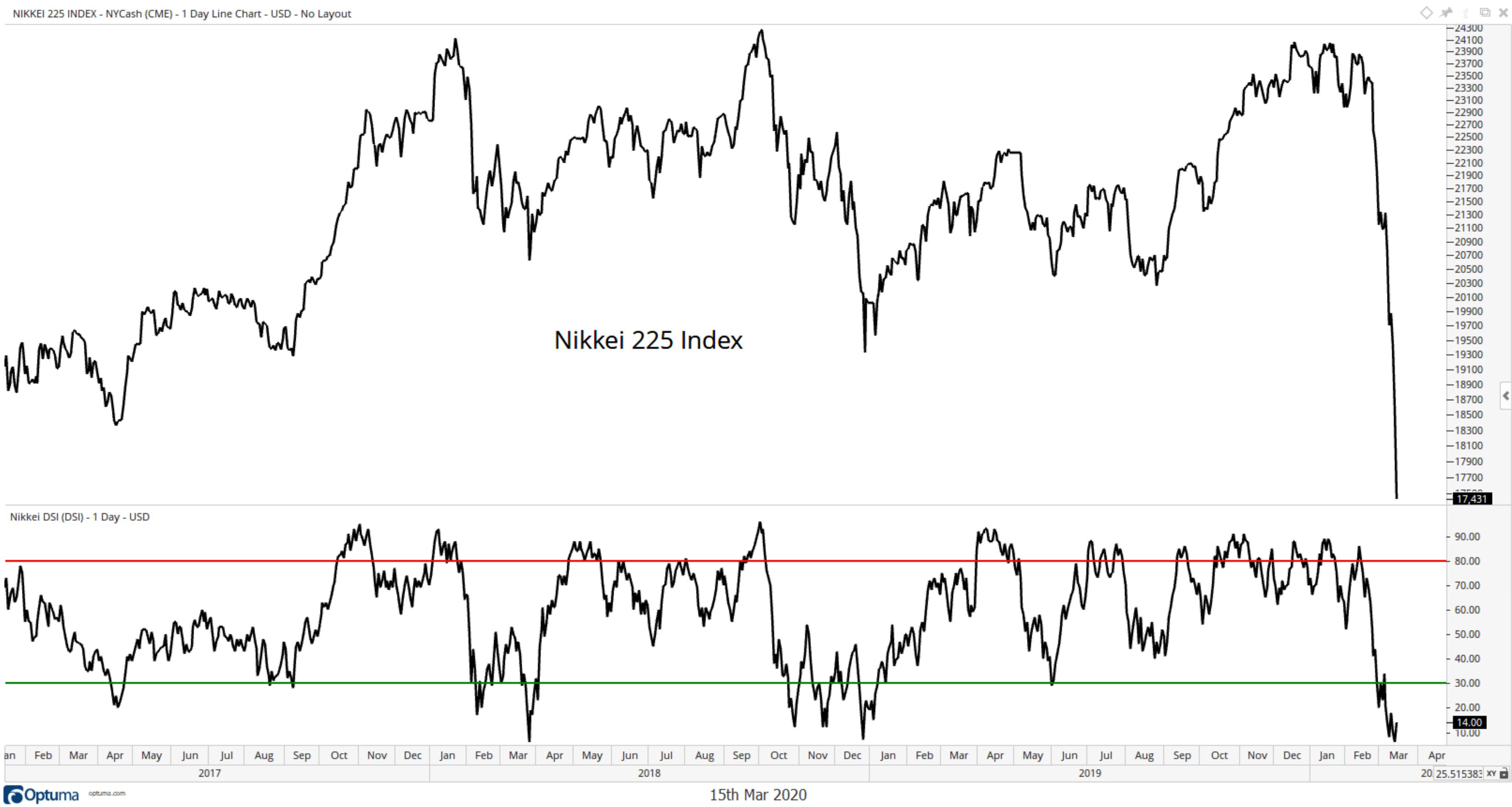
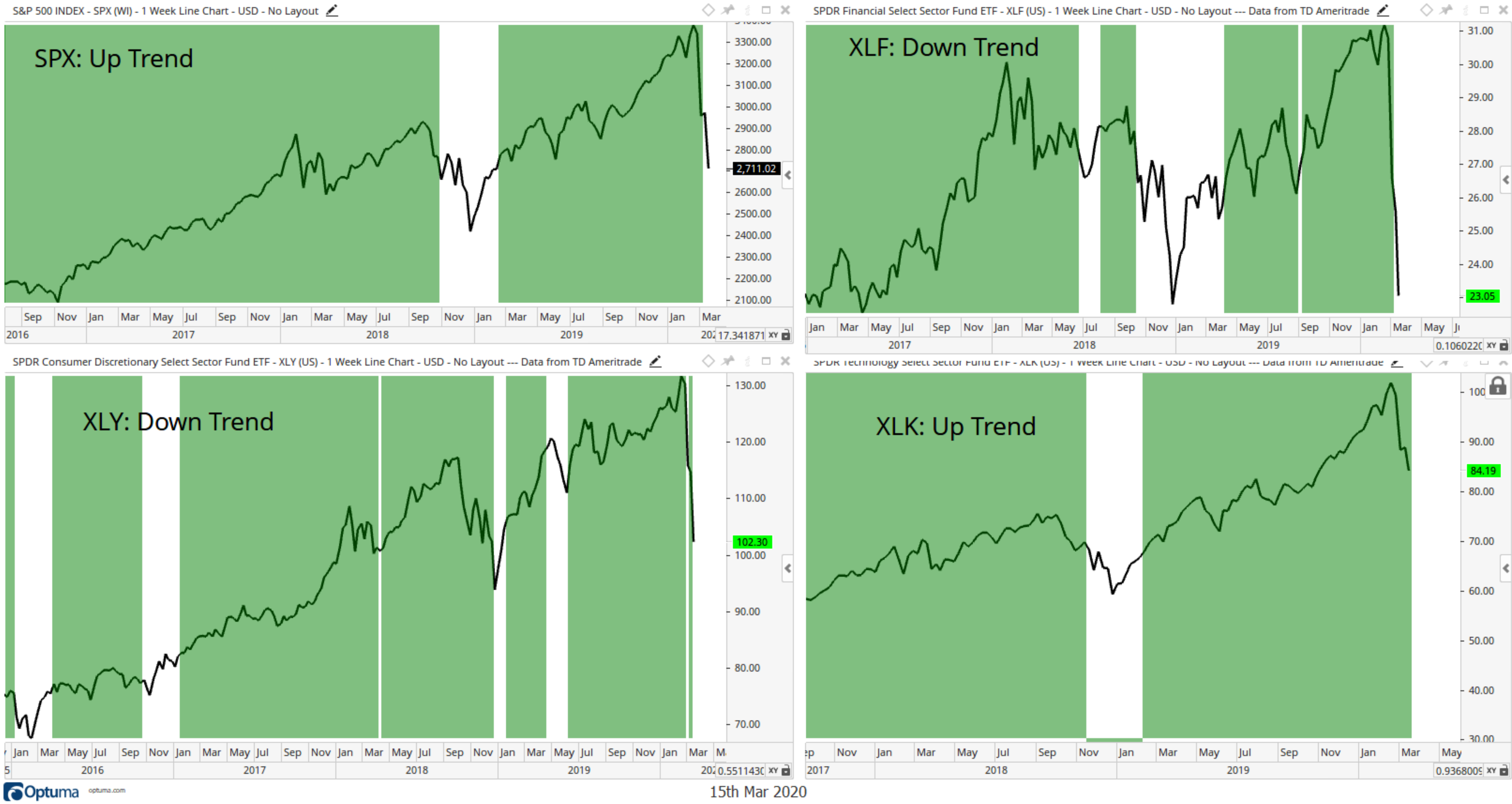
15th Mar 2020

Daily Sentiment Index VIX



Daily Sentiment Index Nikkei 225




S&P 500 INDEX - SPX (WI) - 1 Week Line Chart - USD - No Layout
SPX: Up Trend
SPDR Financial Select Sector Fund ETF - XLF (US) - 1 Week Line Chart - USD - No Layout --- Data from TD Ameritrade
XLF: Down Trend
SPDR Consumer Discretionary Select Sector Fund ETF - XLY (US) - 1 Week Line Chart - USD - No Layout --- Data from TD Ameritrade
XLY: Down Trend
XLK: Up Trend
2,711.02
23.05
102.30
84.19
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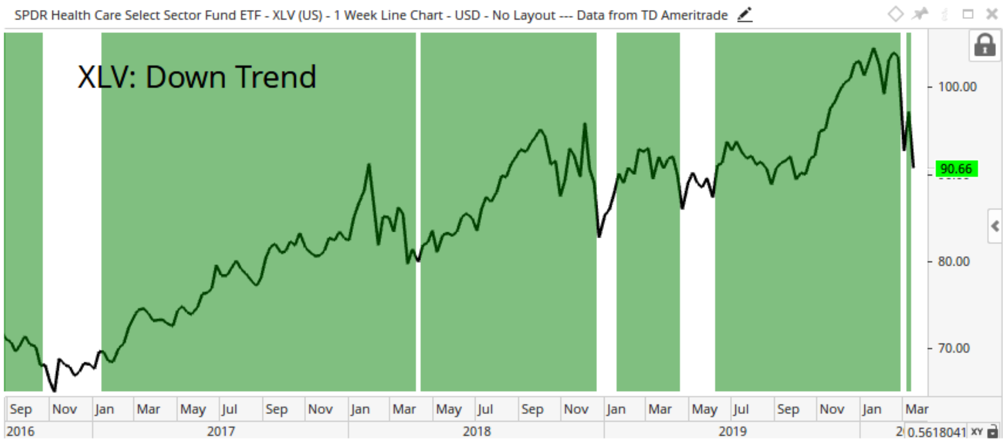
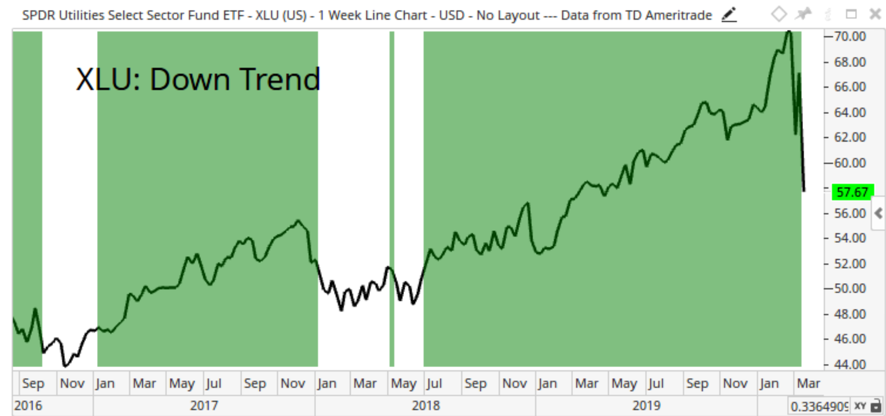
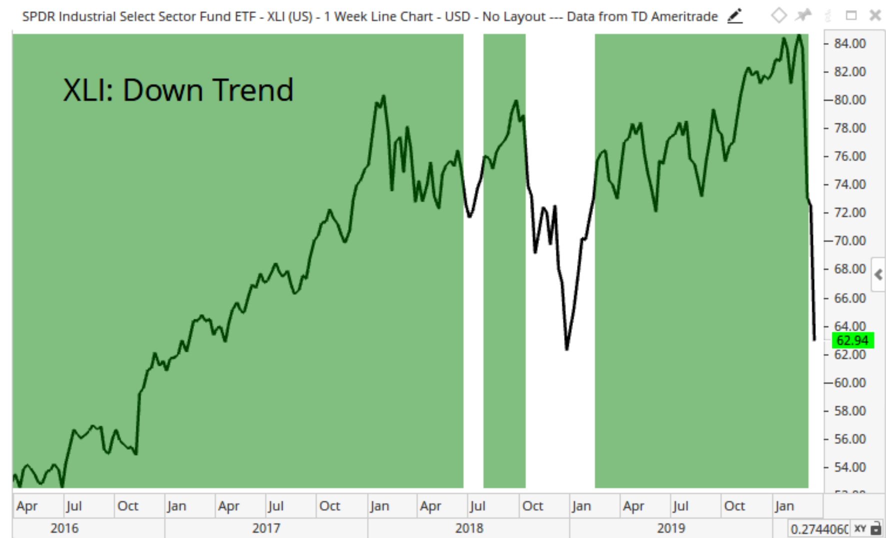
Sector Trend







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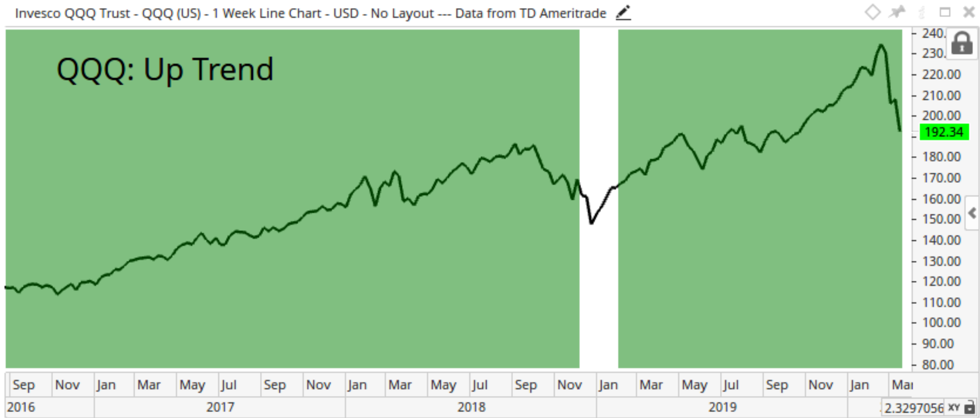

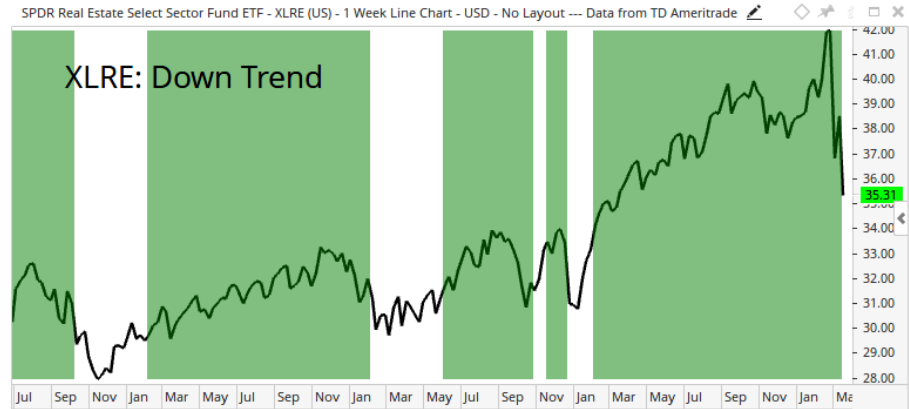

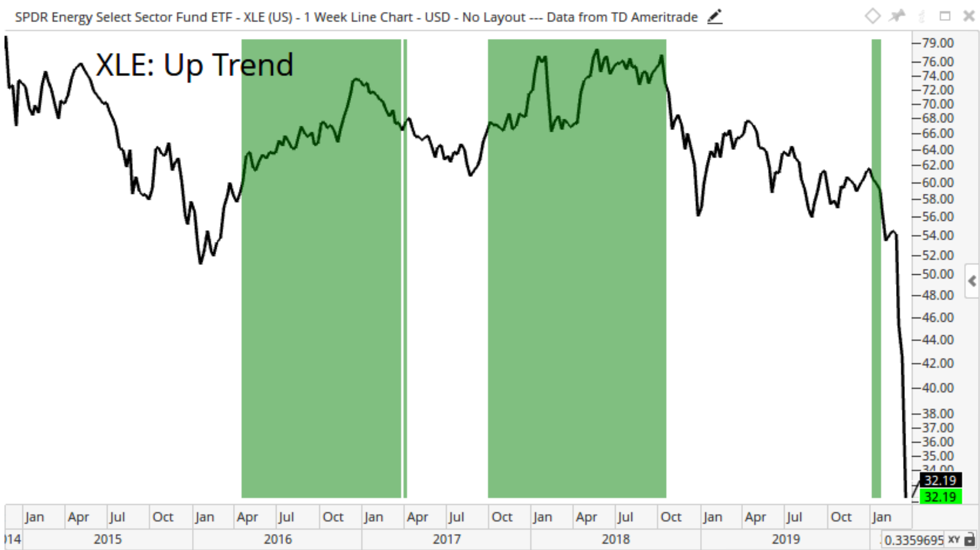

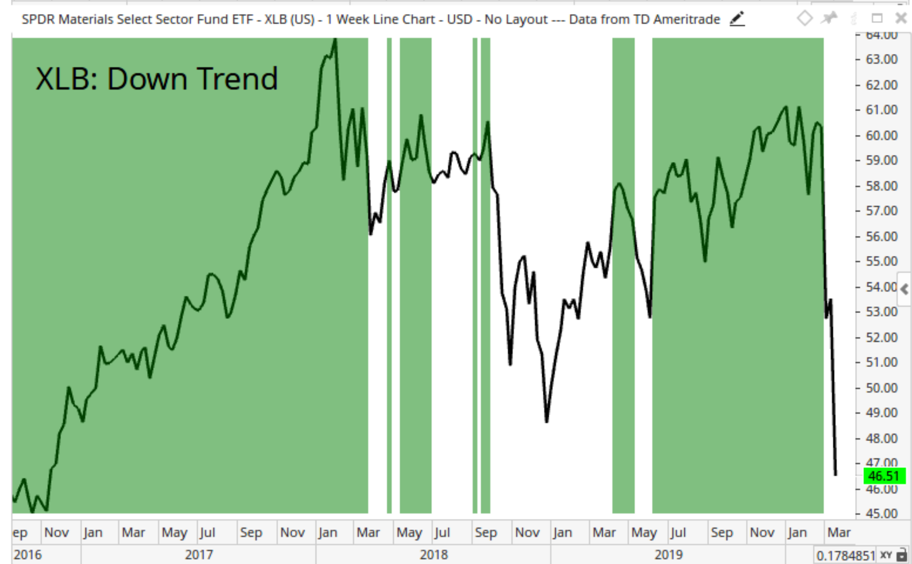

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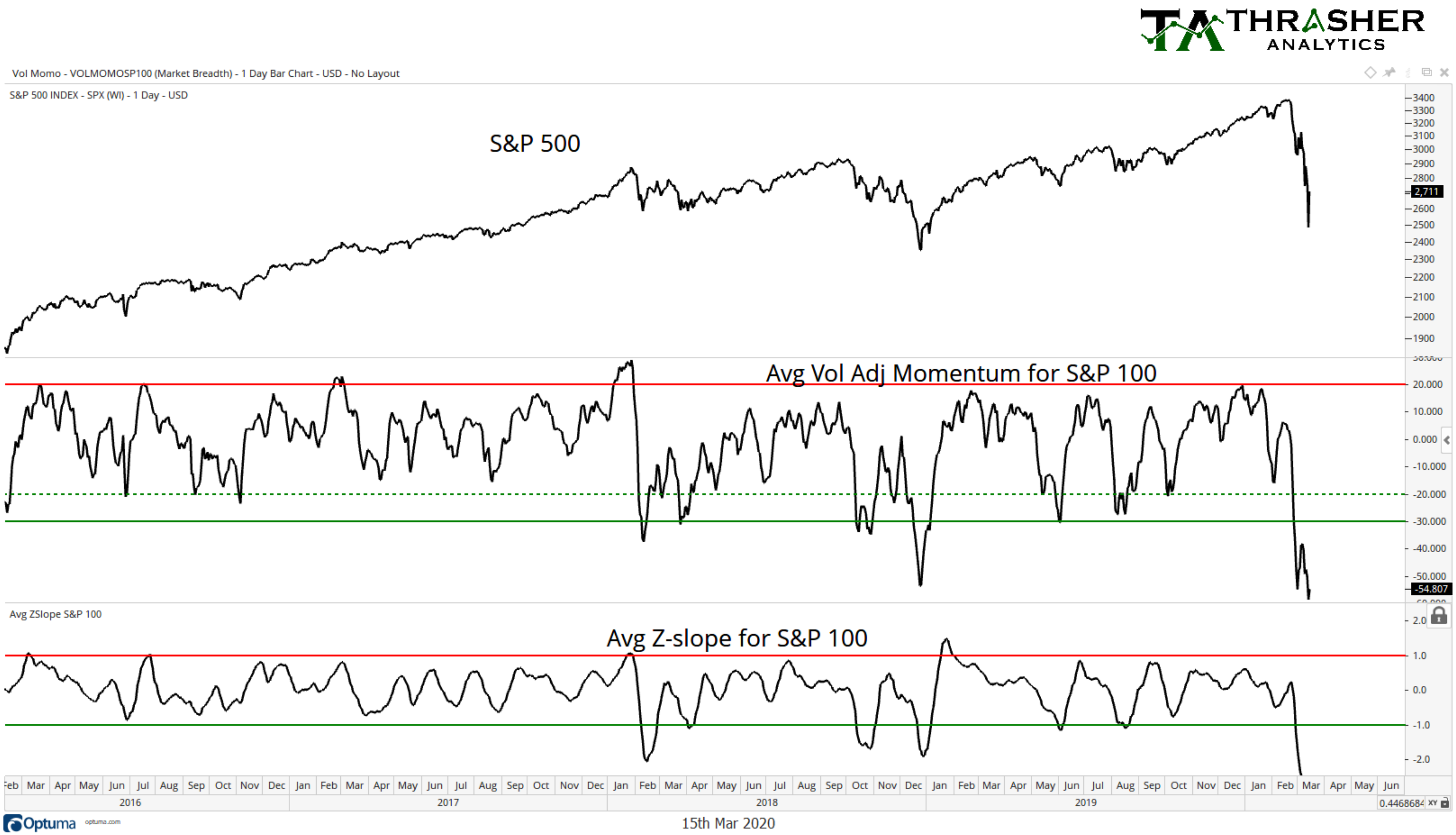
15th Mar 2020

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.

S&P 500

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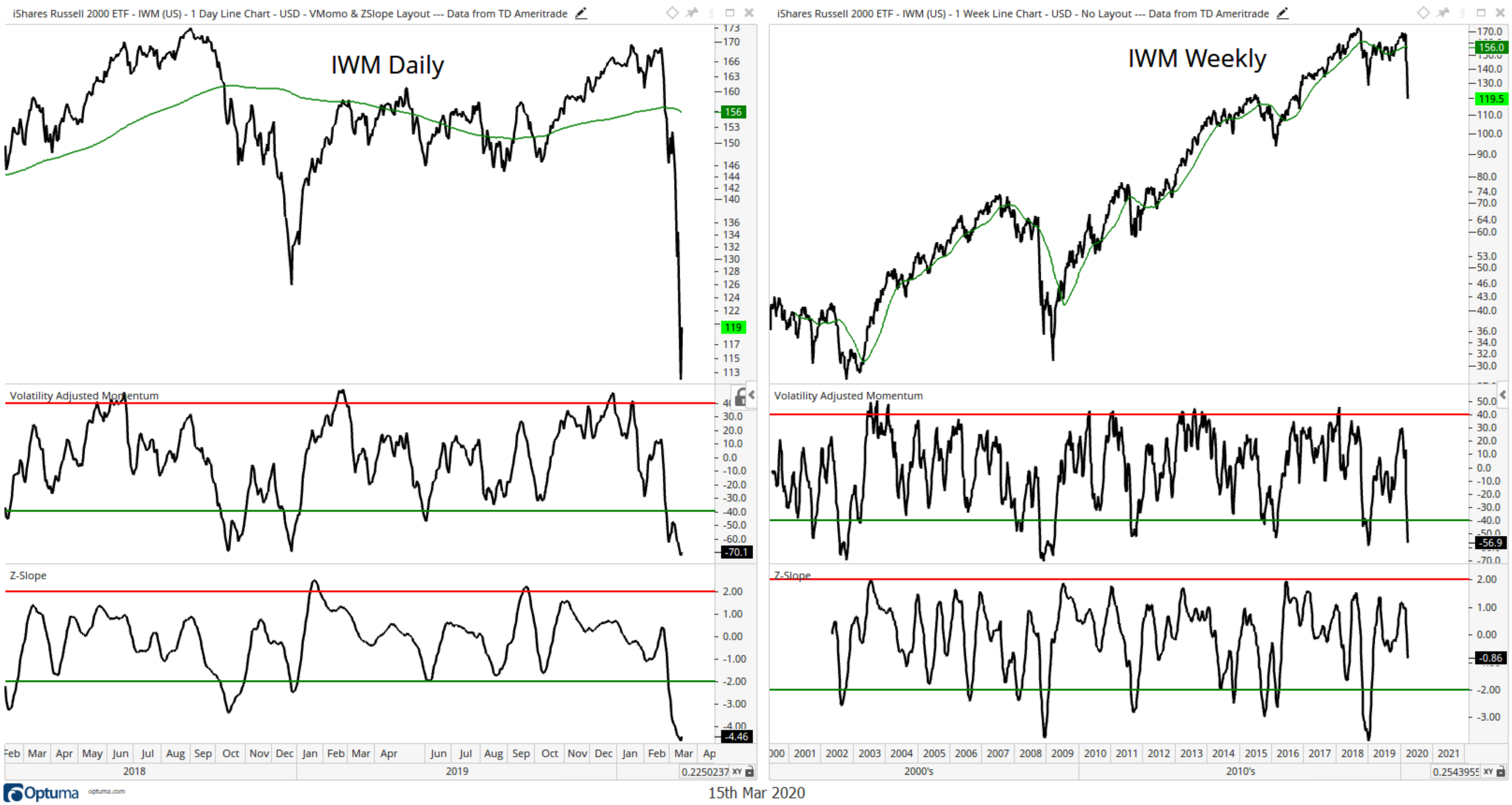
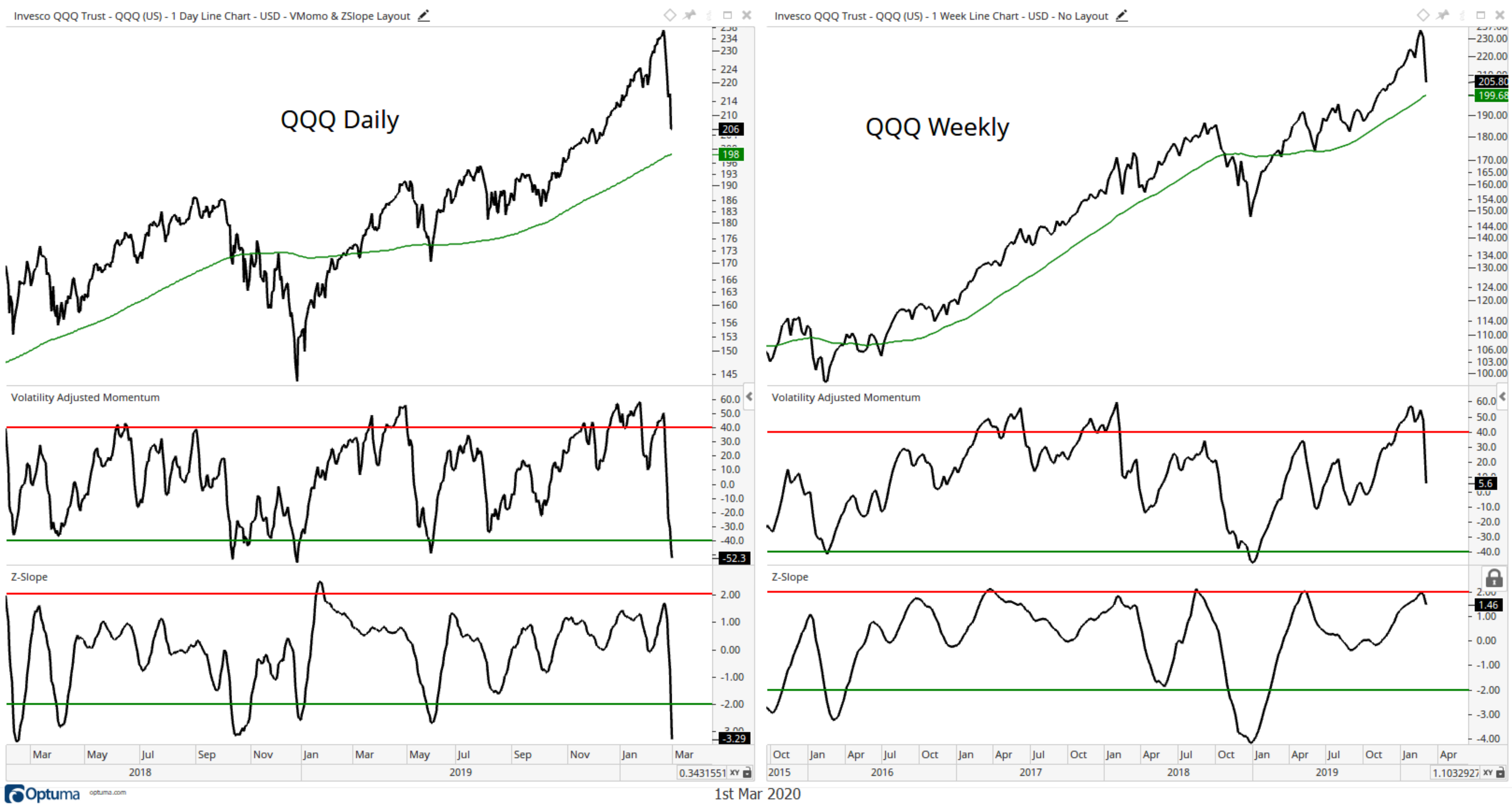
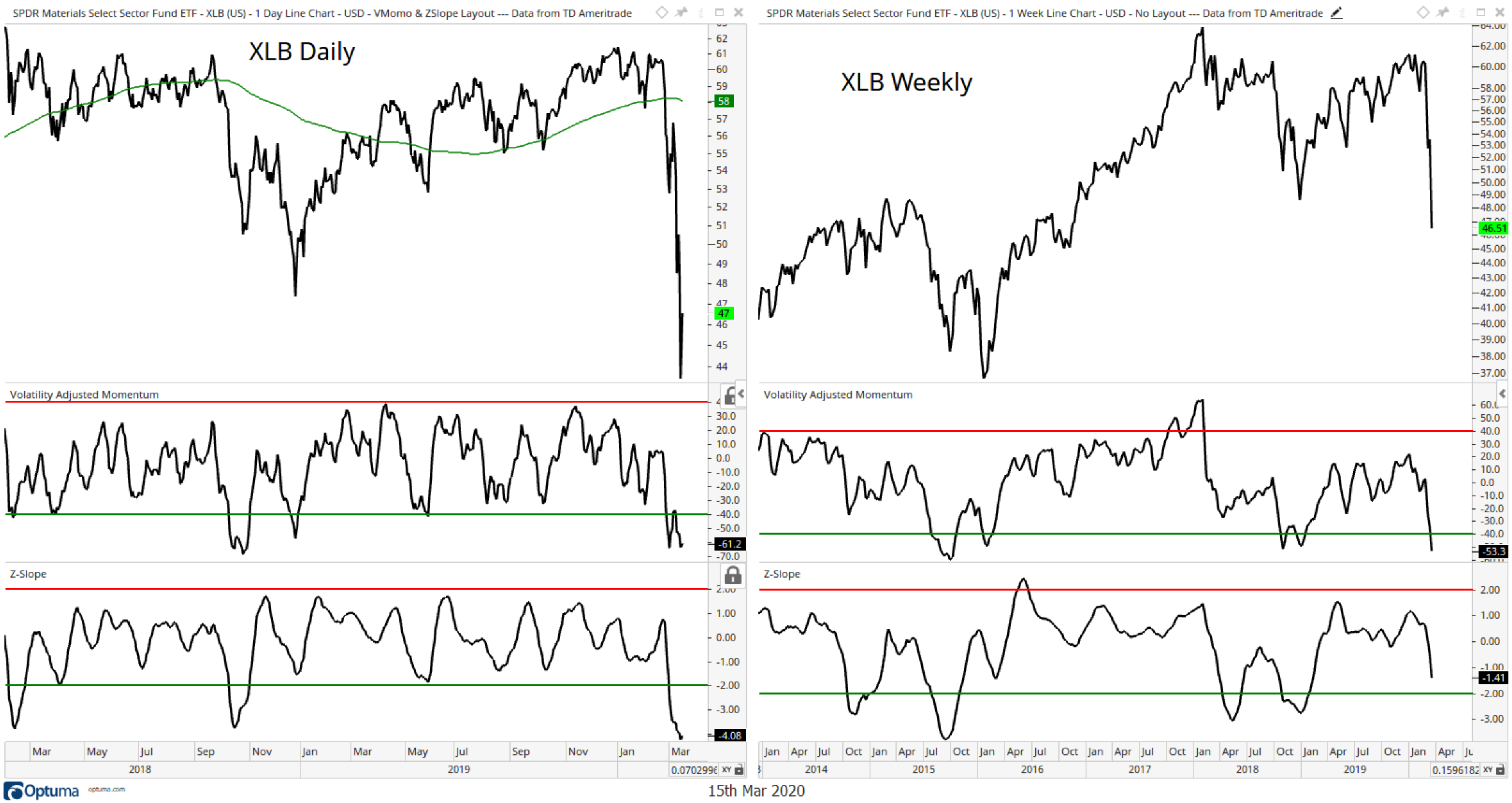
15th Mar 2020

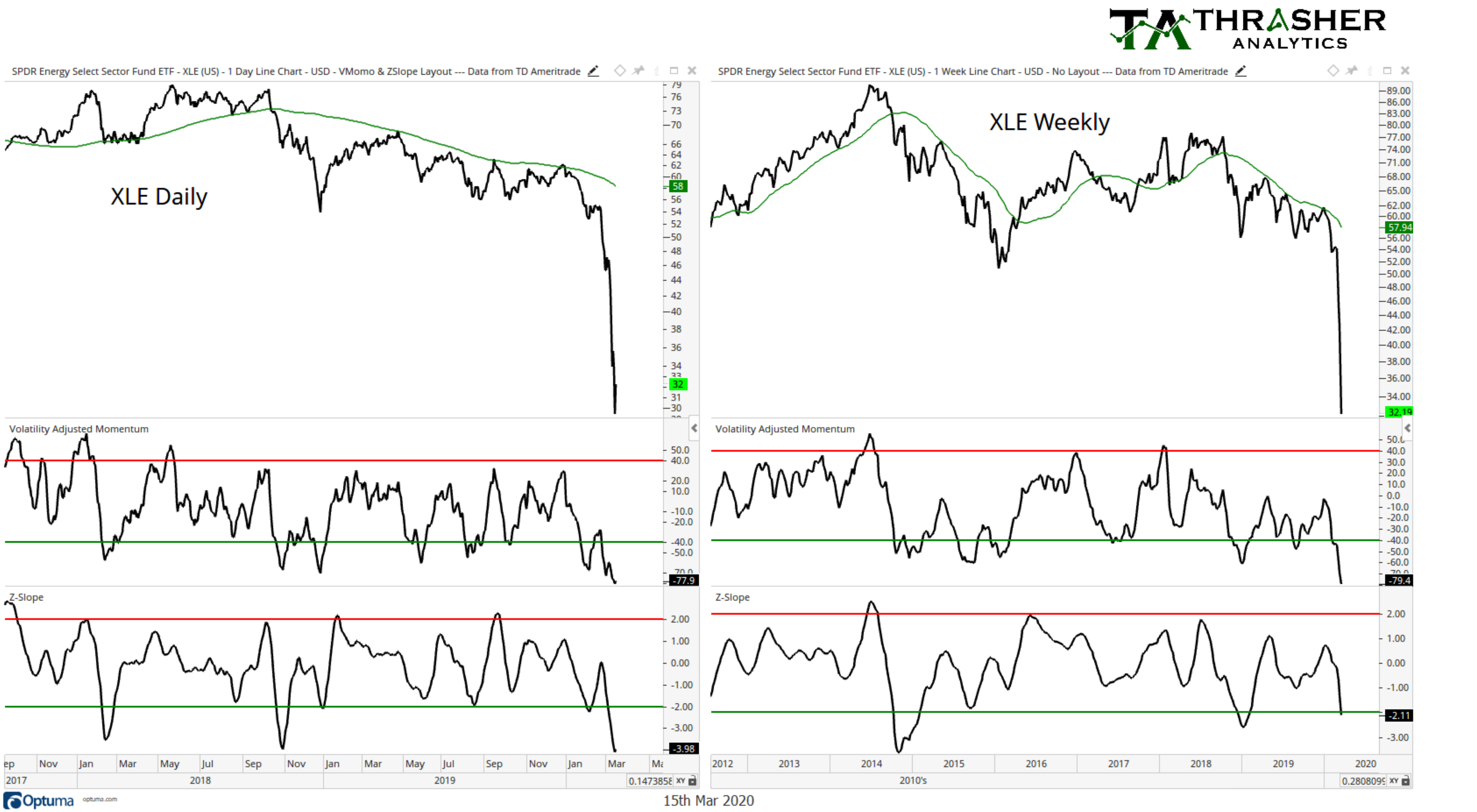
IWM


iShares Russell 2000 ETF - IWM (US) - 1 Day Line Chart - USD - VMomo & ZSlope Layout --- Data from TD Ameritrade
IWM Daily
Volatility Adjusted Momentum
Z-Slope
iShares Russell 2000 ETF - IWM (US) - 1 Week Line Chart - USD - No Layout --- Data from TD Ameritrade
IWM Weekly
Volatility Adjusted Momentum
Z-Slope
Optuma
15th Mar 2020

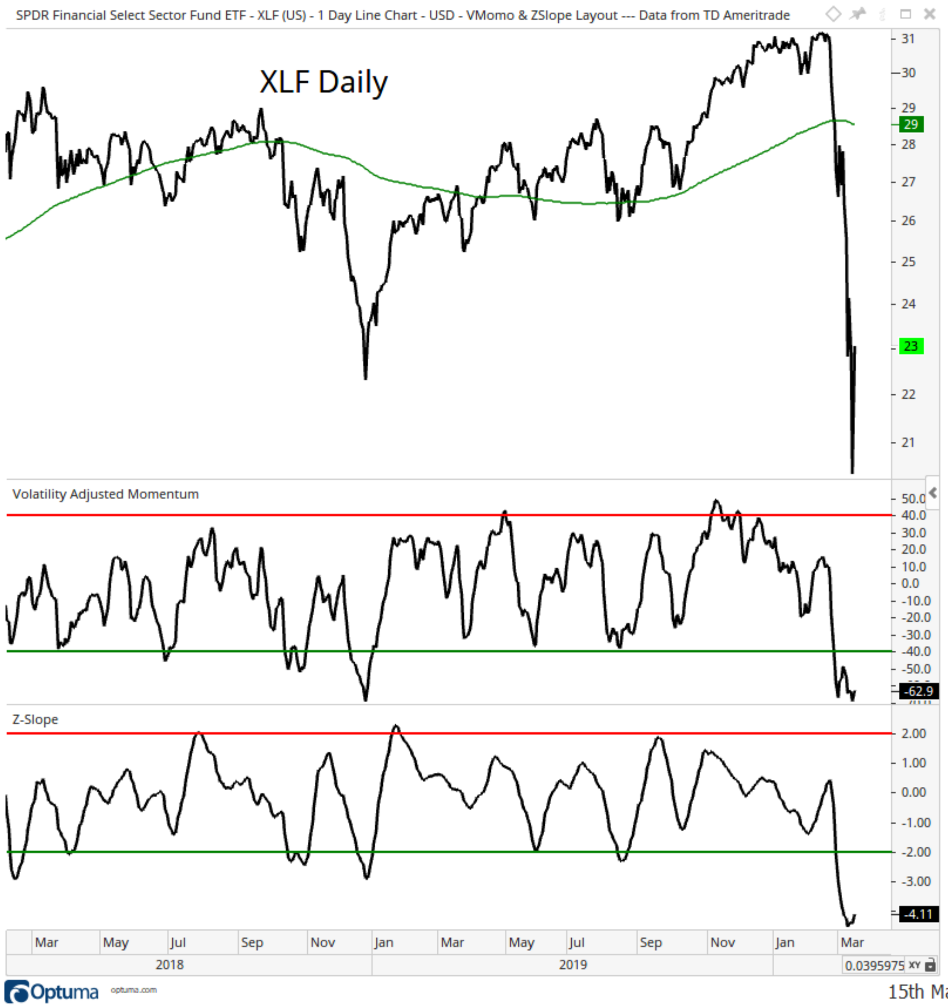
QQQ


Invesco QQQ Trust - QQQ (US) - 1 Day Line Chart - USD - VMomo & ZSlope Layout
QQQ Daily
Volatility Adjusted Momentum
Z-Slope
Invesco QQQ Trust - QQQ (US) - 1 Week Line Chart - USD - No Layout
QQQ Weekly
Volatility Adjusted Momentum
Z-Slope
Optuma
1st Mar 2020


SPDR Materials Select Sector Fund ETF - XLB (US) - 1 Day Line Chart - USD - VMomo & ZSlope Layout --- Data from TD Ameritrade
XLB Daily
Volatility Adjusted Momentum
Z-Slope
SPDR Materials Select Sector Fund ETF - XLB (US) - 1 Week Line Chart - USD - No Layout --- Data from TD Ameritrade
XLB Weekly
Volatility Adjusted Momentum
Z-Slope
15th Mar 2020


SPDR Energy Select Sector Fund ETF - XLE (US) - 1 Day Line Chart - USD - VMomo & ZSlope Layout --- Data from TD Ameritrade
XLE Daily
Volatility Adjusted Momentum
Z-Slope
SPDR Energy Select Sector Fund ETF - XLE (US) - 1 Week Line Chart - USD - No Layout --- Data from TD Ameritrade
XLE Weekly
Volatility Adjusted Momentum
Z-Slope
Optuma
15th Mar 2020

15th Mar 2020



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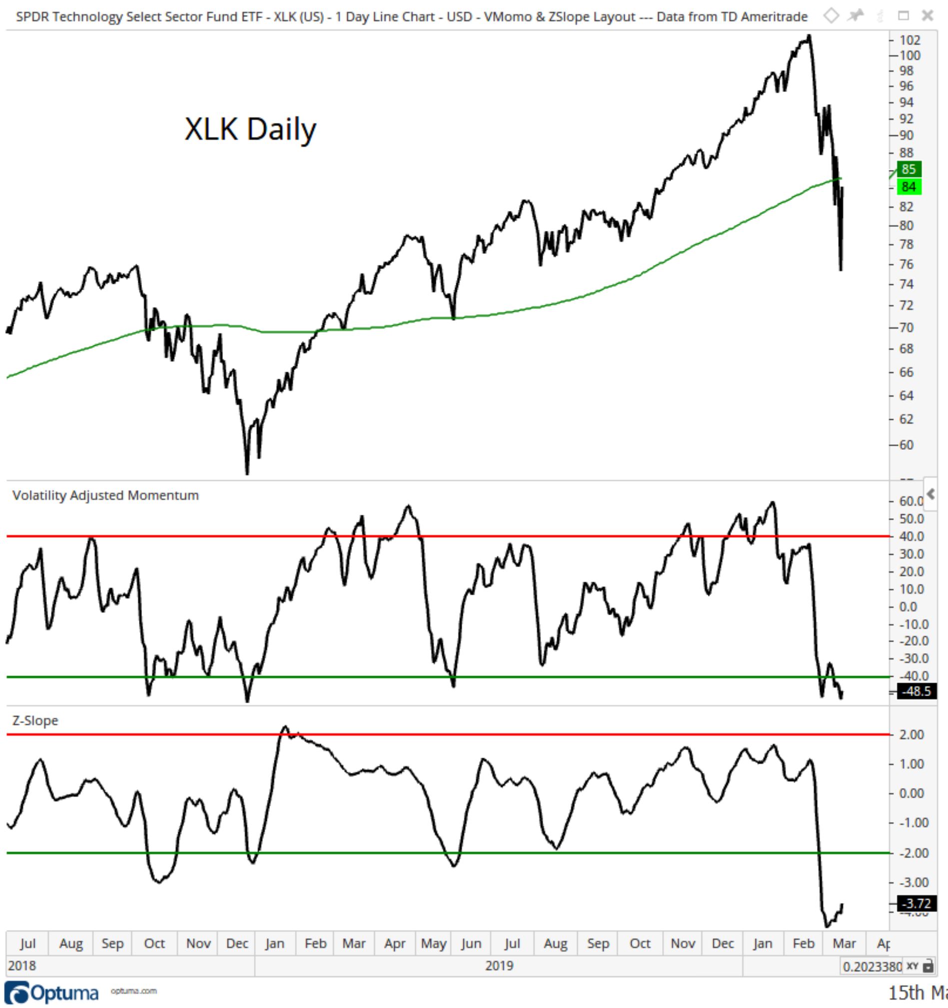

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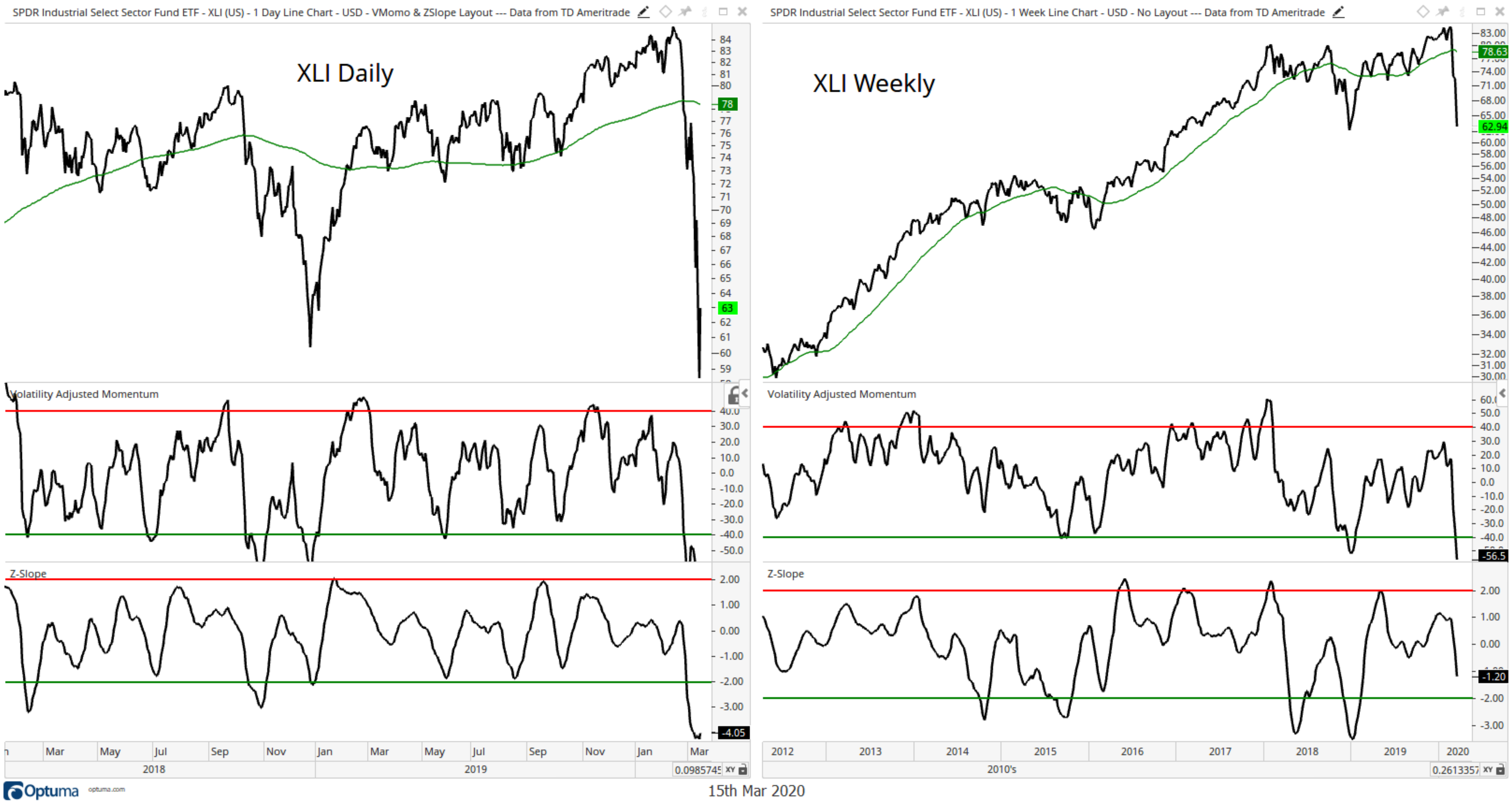
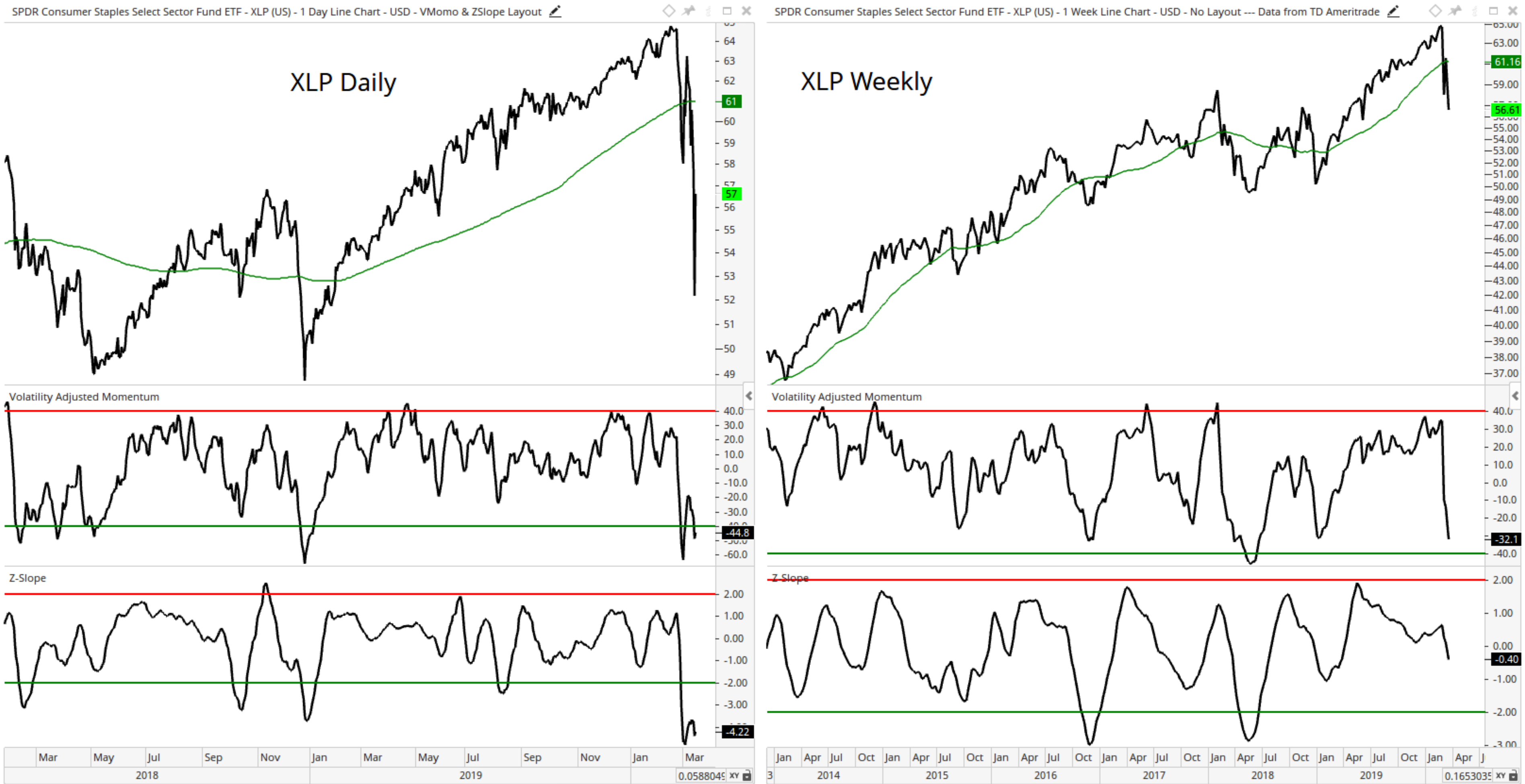

SPDR Industrial Select Sector Fund ETF - XLI (US) - 1 Day Line Chart - USD - VMomo & ZSlope Layout --- Data from TD Ameritrade
XLI Daily
Volatility Adjusted Momentum
Z-Slope
Mar
May
Jul
Sep
Nov
Jan
2018
2019
SPDR Industrial Select Sector Fund ETF - XLI (US) - 1 Week Line Chart - USD - No Layout --- Data from TD Ameritrade
XLI Weekly
Volatility Adjusted Momentum
Z-Slope
2012
2013
2014
2015
2016
2017
2018
2019
2020
2010's
Optuma
15th Mar 2020



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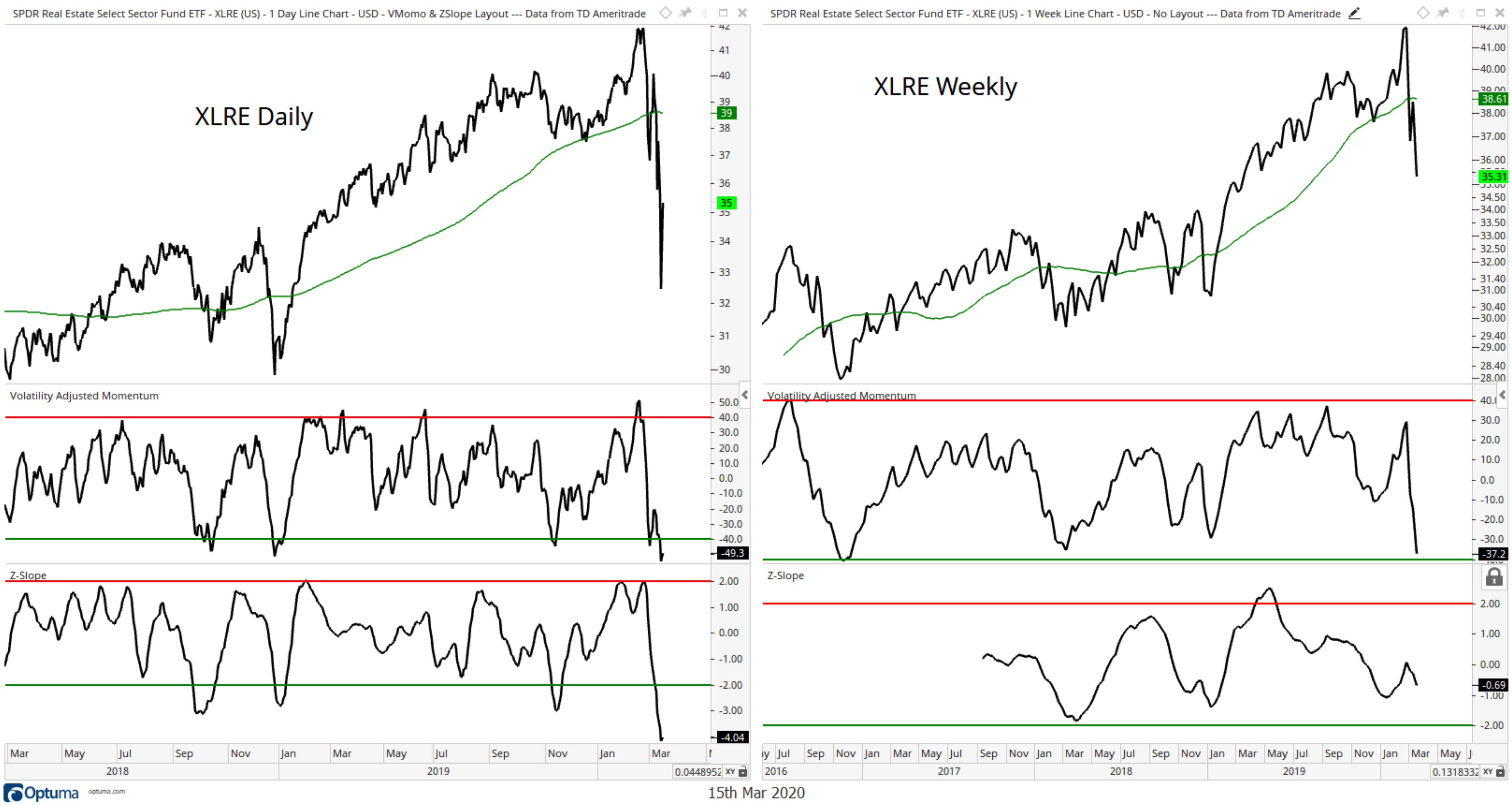
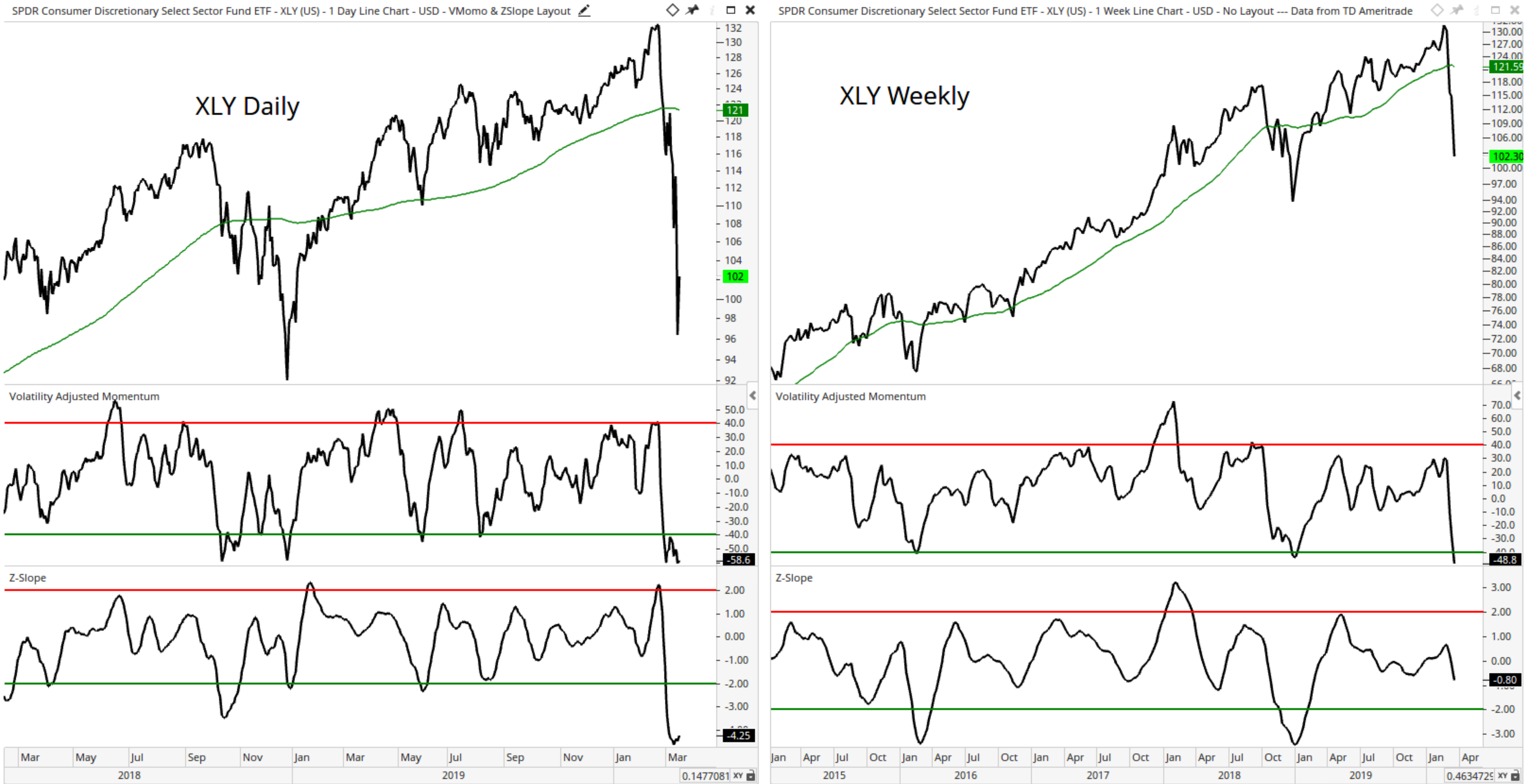


15th Mar 2020

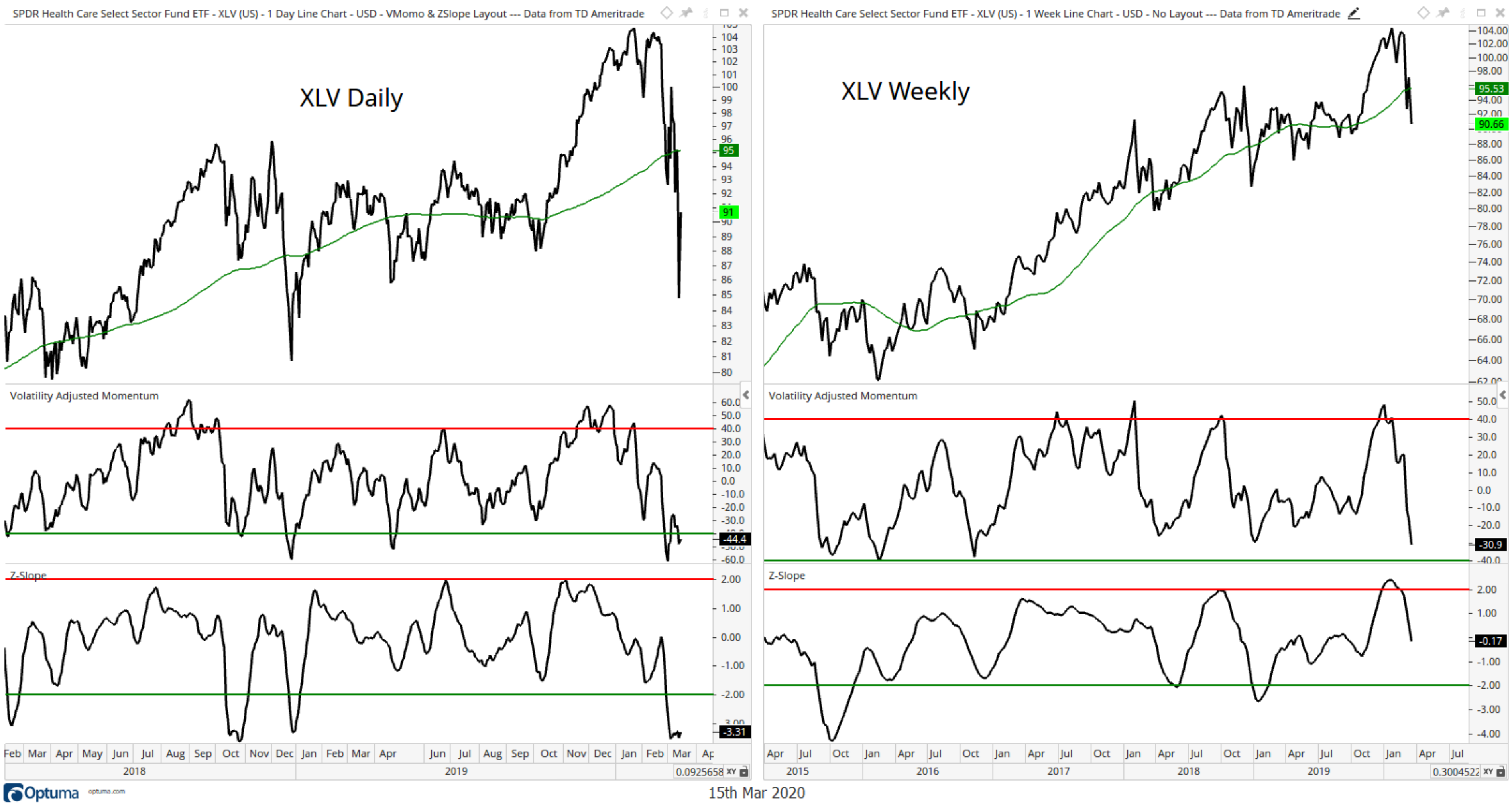
15th Mar 2020

XLY

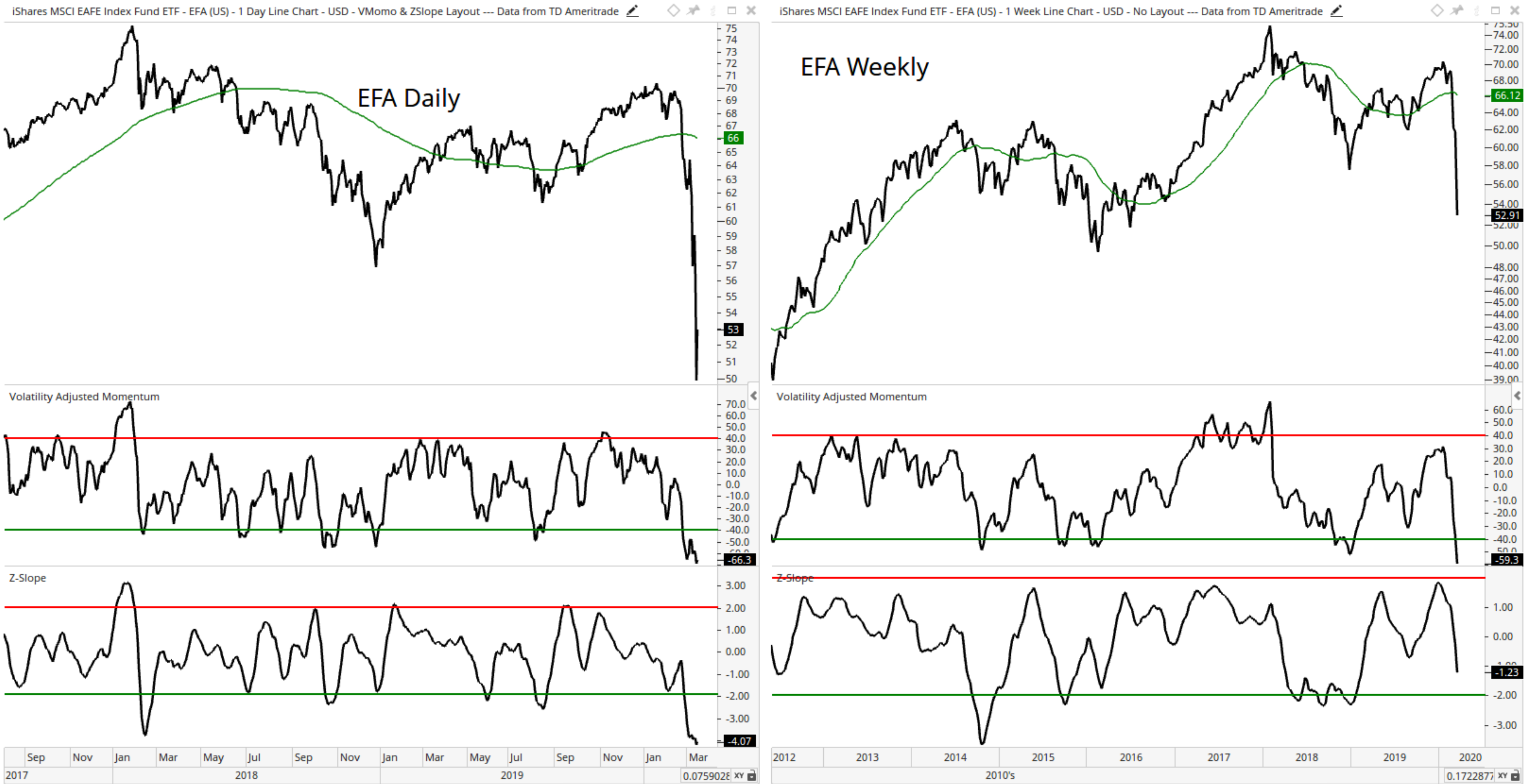


15th Mar 2020

XLV

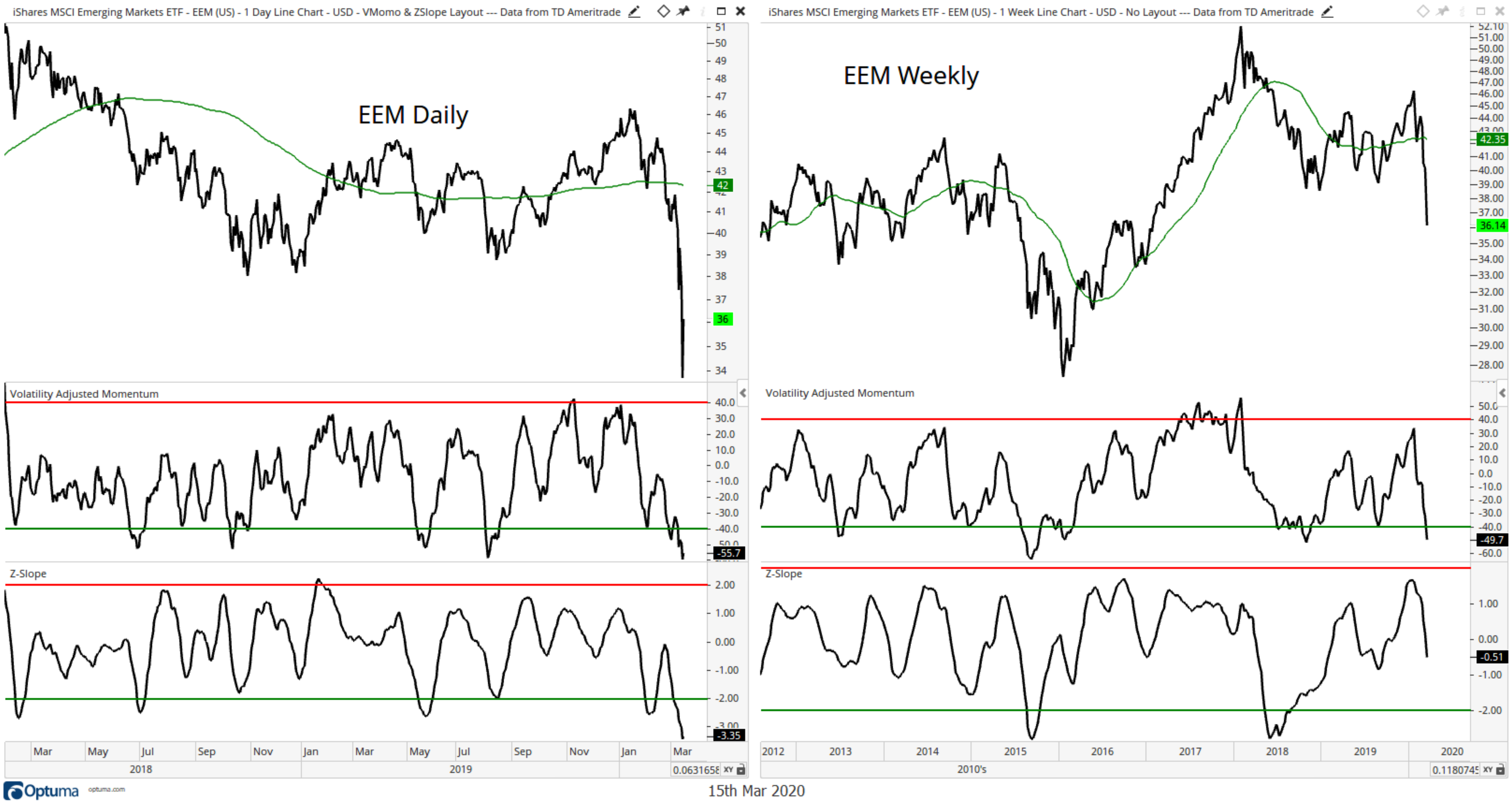


SPDR Health Care Select Sector Fund ETF - XLV (US) - 1 Day Line Chart - USD - VMomo & ZSlope Layout --- Data from TD Ameritrade
XLV Daily
Volatility Adjusted Momentum
Z-Slope
SPDR Health Care Select Sector Fund ETF - XLV (US) - 1 Week Line Chart - USD - No Layout --- Data from TD Ameritrade
XLV Weekly
Volatility Adjusted Momentum
Z-Slope
Optuma
15th Mar 2020



Optuma

15th Mar 2020



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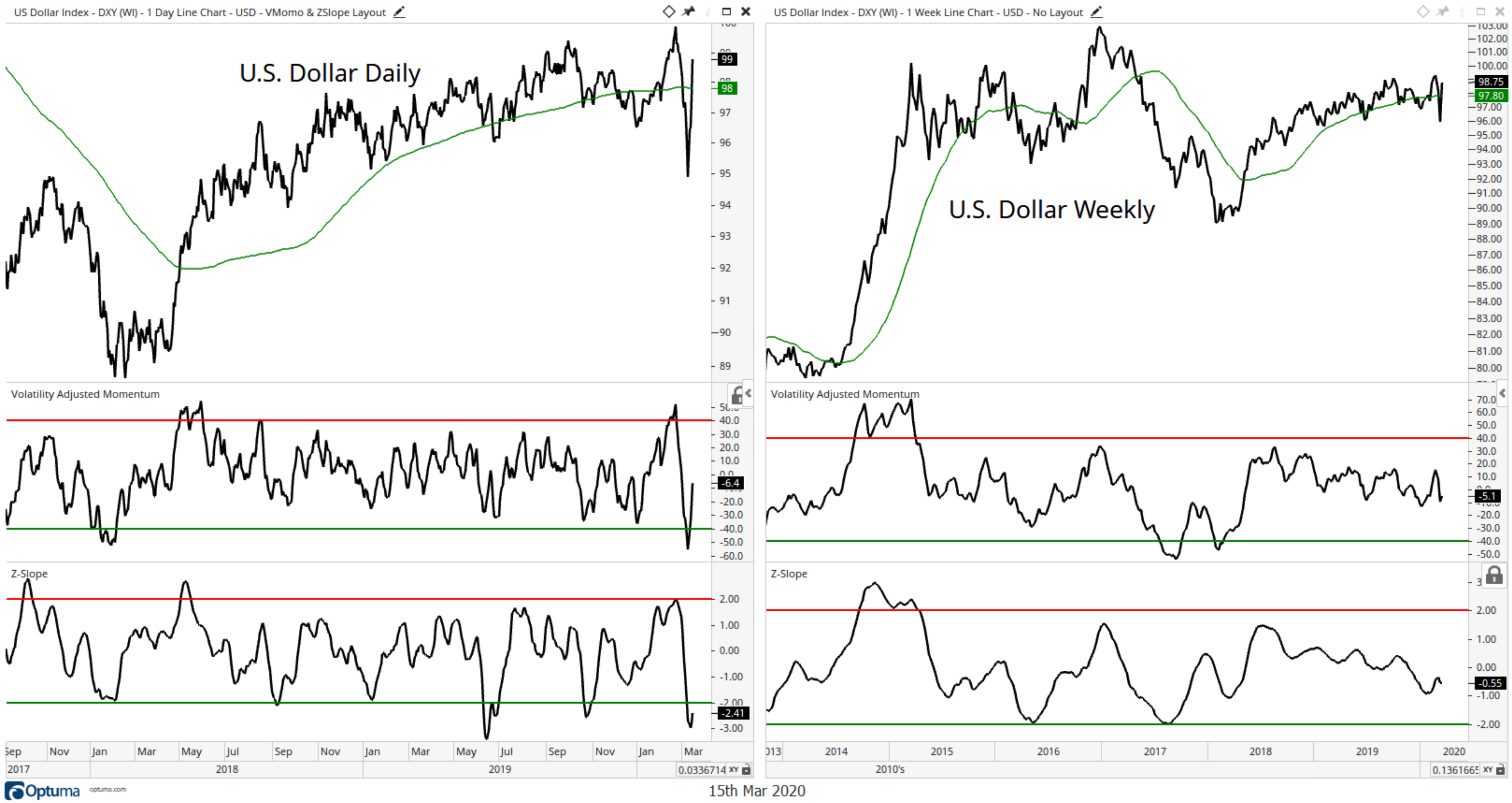
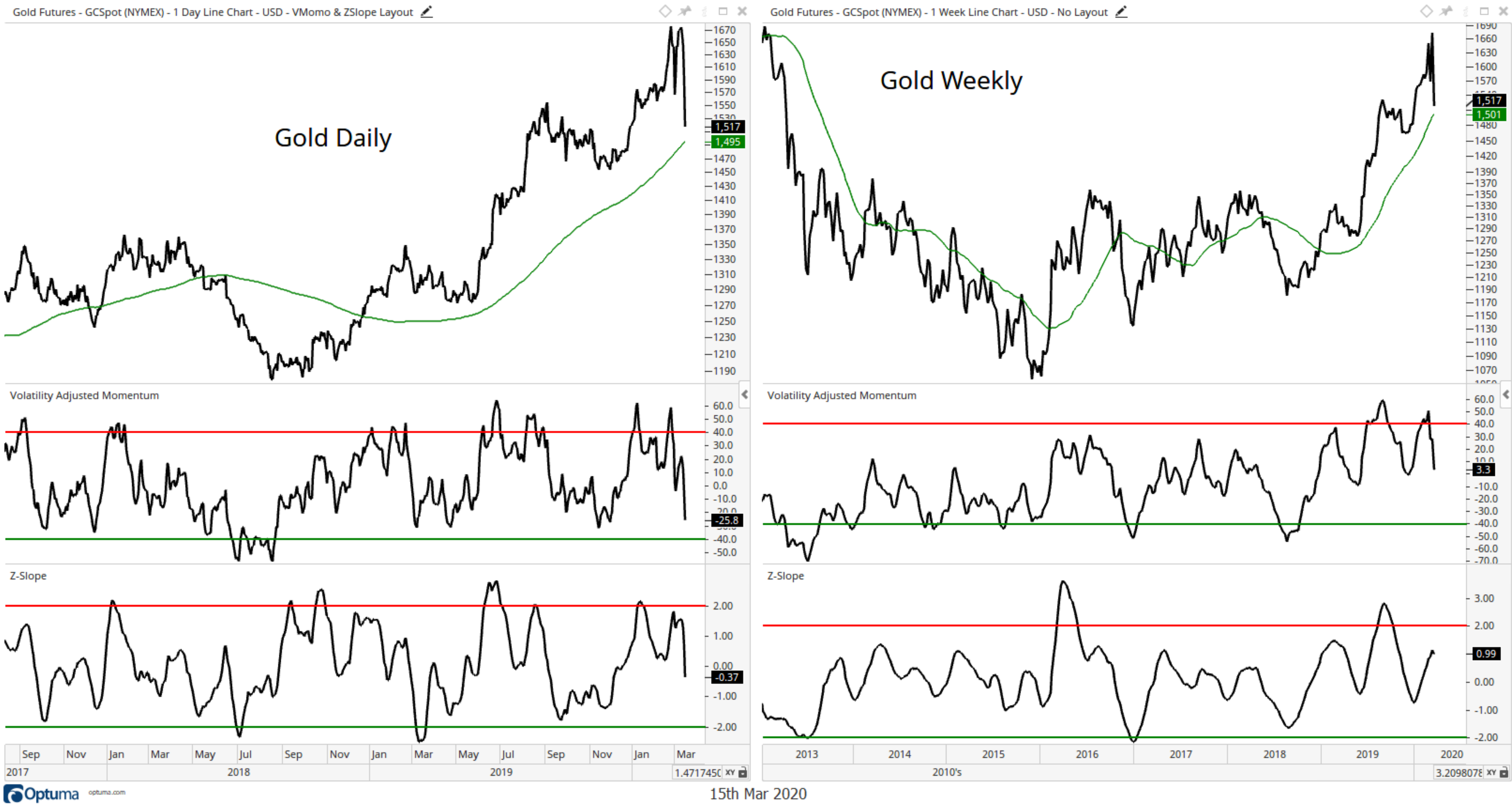

US Dollar Index - DXY (WI) - 1 Day Line Chart - USD - VMomo & ZSlope Layout
U.S. Dollar Daily
Volatility Adjusted Momentum
Z-Slope
US Dollar Index - DXY (WI) - 1 Week Line Chart - USD - No Layout
U.S. Dollar Weekly
Volatility Adjusted Momentum
Z-Slope
Optuma
15th Mar 2020



15th Mar 2020

Optuma

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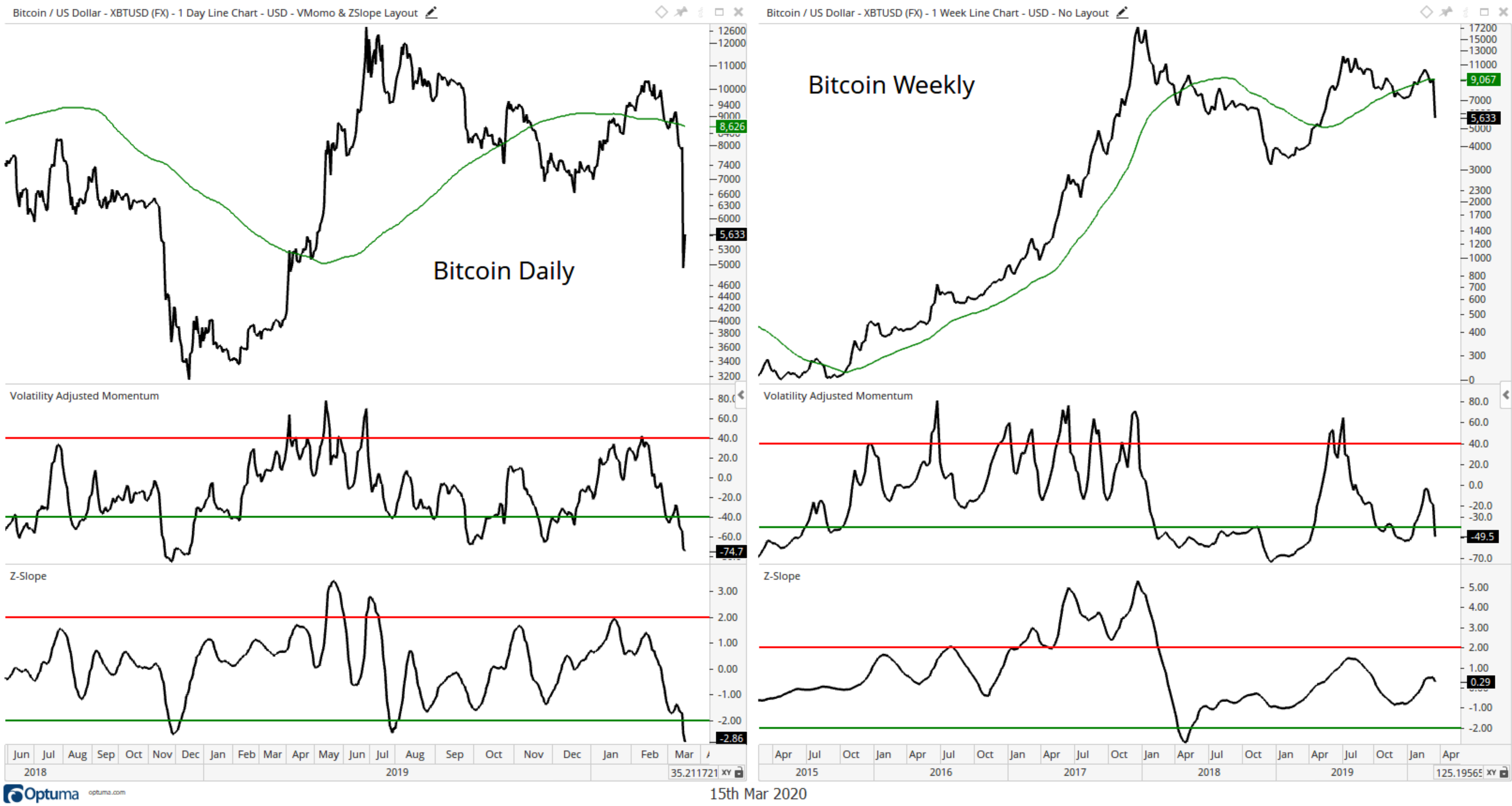
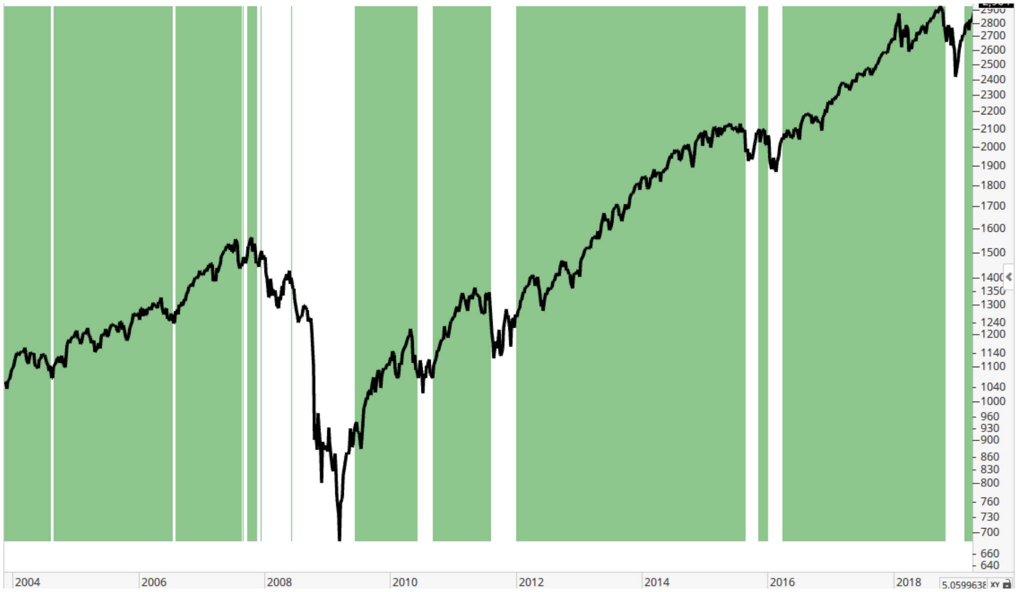
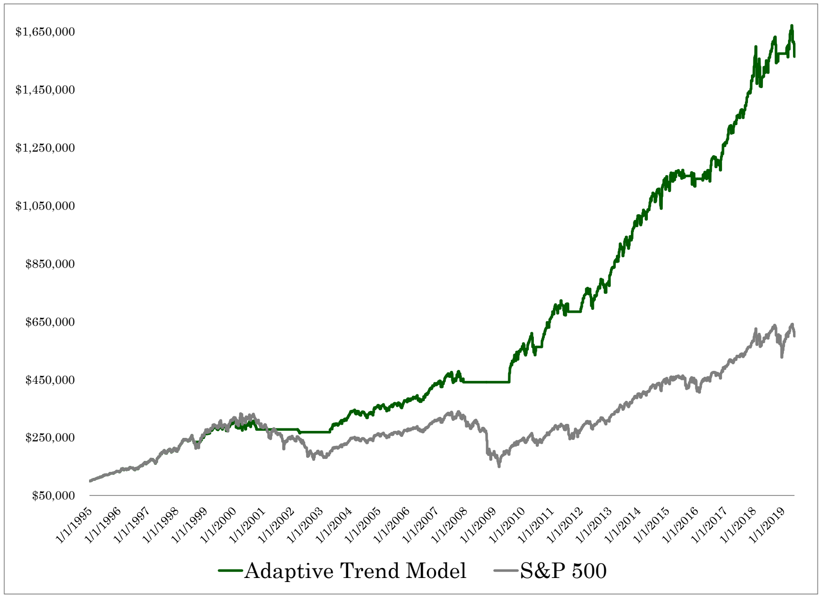

Bitcoin / US Dollar - XBTUSD (FX) - 1 Day Line Chart - USD - VMomo & ZSlope Layout
Bitcoin Daily
Volatility Adjusted Momentum
Z-Slope
Bitcoin / US Dollar - XBTUSD (FX) - 1 Week Line Chart - USD - No Layout
Bitcoin Weekly
Volatility Adjusted Momentum
Z-Slope
Optuma
15th Mar 2020

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.



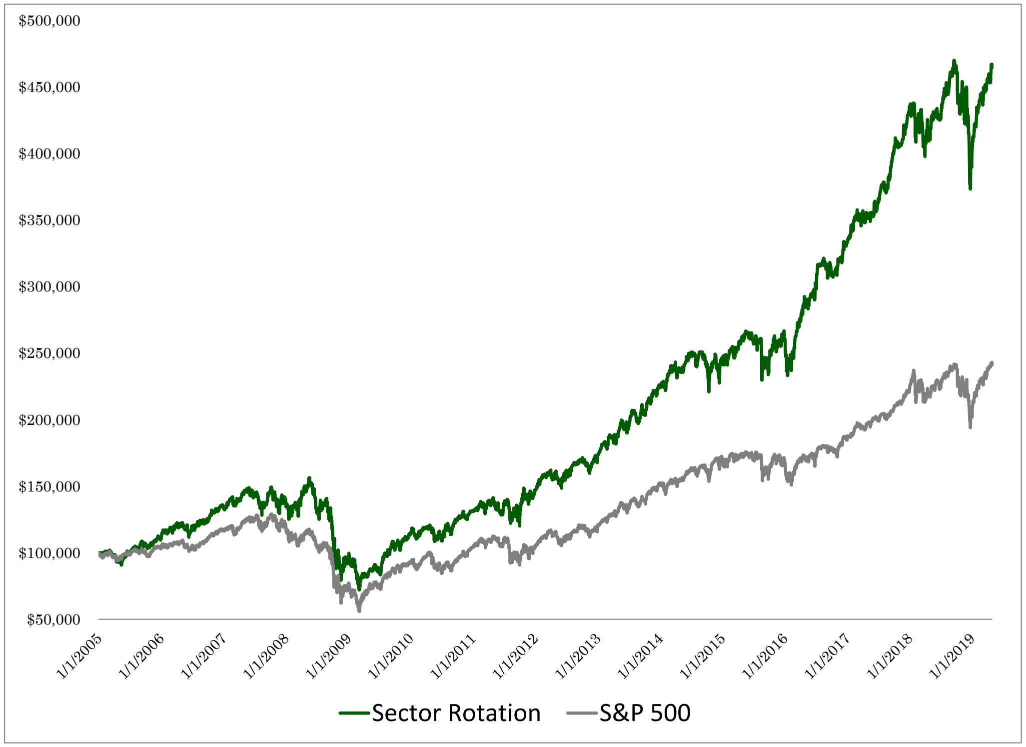


	Annualized Return	Annualized Volatility	Beta	Sharpe Ratio	Maximum Drawdown
Adaptive Trend	12.5%	10.3%	0.47	0.97	14.1%
S&P 500	8.9%	15.3%	1	0.42	56.6%

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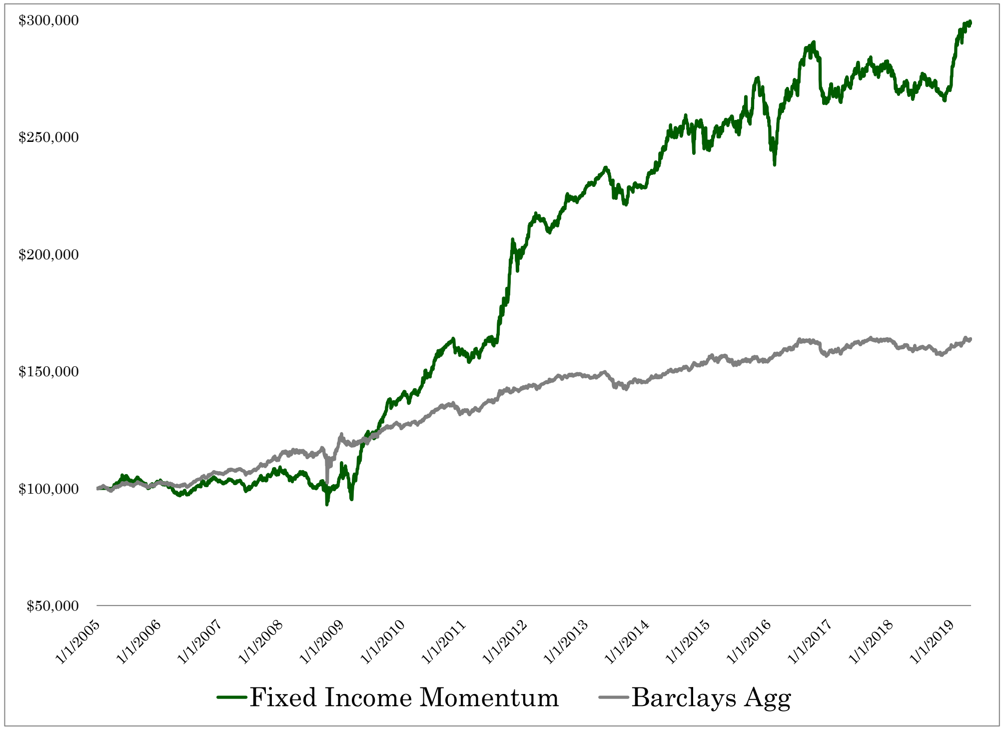
If equities are the speedboats in the sea of financial markets then fixed income securities are the tanker ships. While stocks can move violently in both directions, Thrasher Analytics research has shown that fixed income markets historically show consistent trends. Because of the tanker-like movements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



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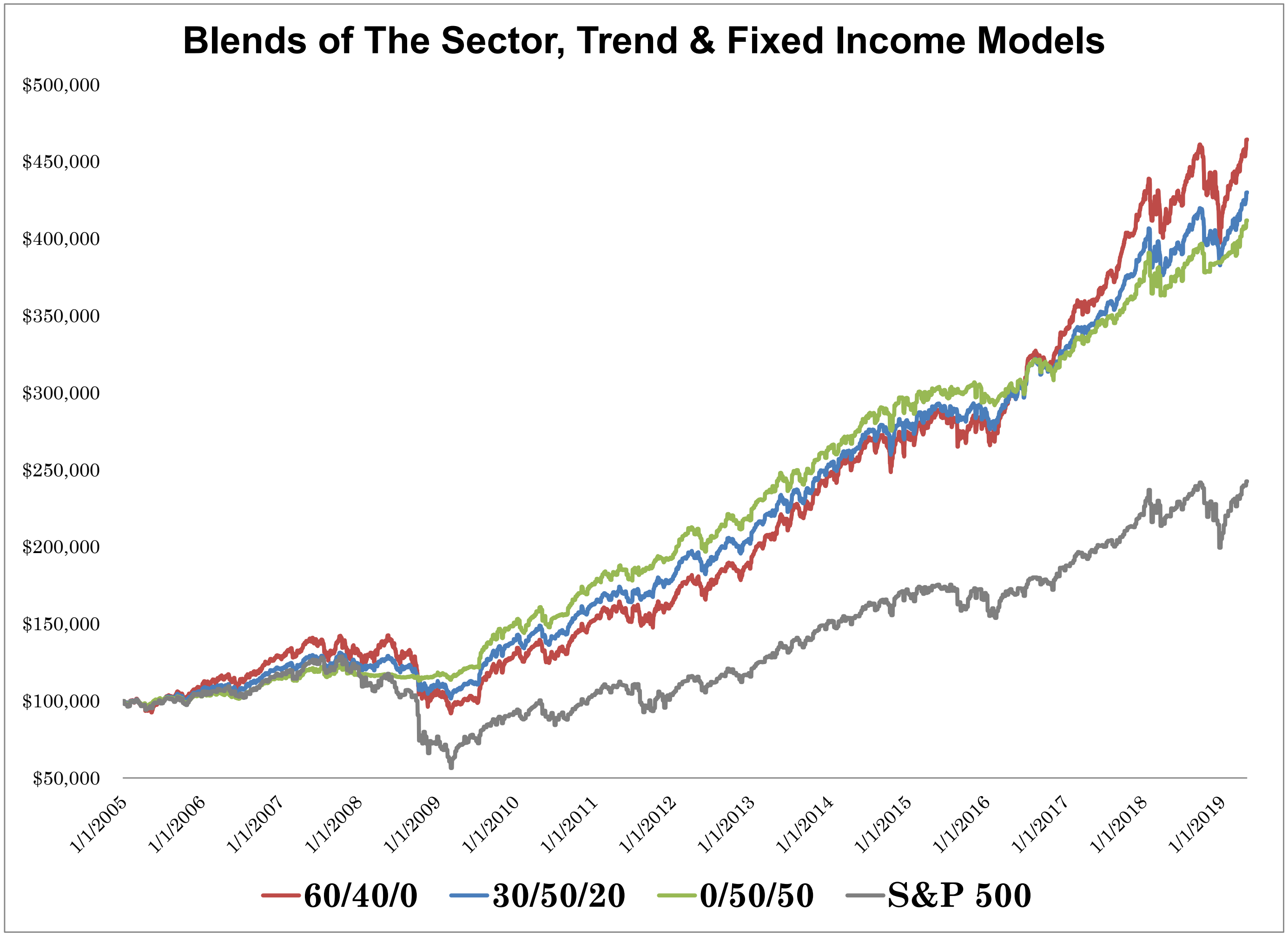
The concept of diversification is not new to financial markets. While many market participants focus on the diversification of the underlying holdings. This procedure is can be vastly skewed during periods of high market turmoil, in which correlations across asset classes tend to historically rise. Thrasher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

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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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