Market Digest – April 2020

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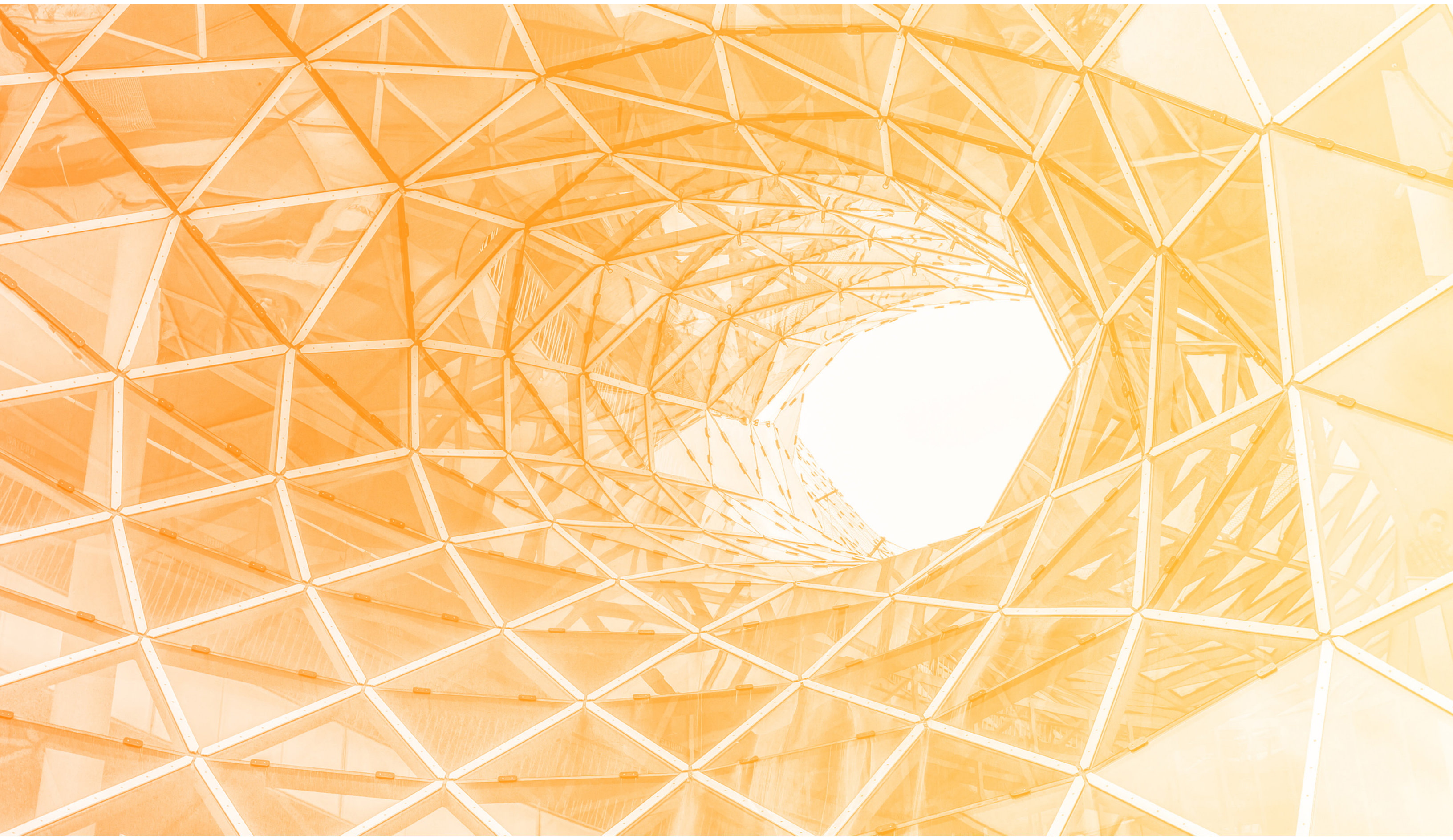

Is the worst behind us?

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AMY LUBAS, CFA DIRECTOR, WEALTH MANAGEMENT & ADVISORY SOLUTIONS
CHAD ELLIS RESEARCH ANALYST

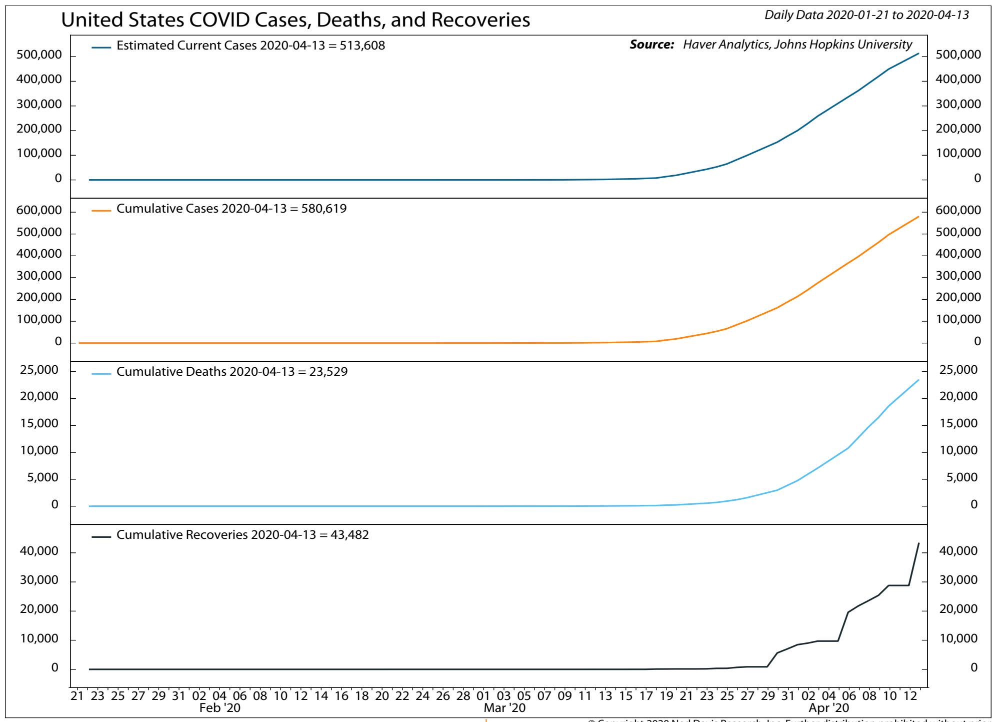
APRIL 16, 2020

Executive Summary

Bottoming process continues

Coronavirus (COVID-19) continues to dominate world news. Markets took a beating in March, but with the support of a massive monetary and fiscal response around the world, some markets have started to recover. The S&P 500 is up nearly 25% since its March 23 low. While we believe the stock market is continuing through its four-step bottoming process, there has been enough evidence in certain areas to move to a more neutral absolute position. The message within fixed income sectors was similar, so we neutralized our recommendations. The indicator improvement we've seen does not mean a retest is off the table. In fact, historical tendencies and leadership trends support a retest. Ultimately, the market direction depends on what happens with the coronavirus **(chart right)**. Below summarizes the changes we have made over the past several weeks:

Ultimately, the market depends on the virus



- On April 2, **we shifted a final 5% from stocks to bonds** in response to model and indicator deterioration. This move brought us more in line with our Global Balanced Account Model at 40% stocks (maximum underweight), 50% bonds (overweight), and 10% cash (market-weight).
- Over the past few weeks, we moved to a **neutral position within fixed income.** On March 24, we upgraded investment grade corporates to marketweight. On March 26, we followed with an upgrade of agency MBS to marketweight. On April 6, we upgraded EM (USD-denominated) bonds to marketweight. And just this week, we upgraded CMBS and ABS to marketweight while downgrading Treasurys to marketweight. We continue to think about the current health/financial/economic crisis in three ways: liquidity, solvency, and recovery.
- On April 14, we moved back to a **neutral stance on U.S. stocks**, which means we are looking for average long-term returns. We continue to follow our first three rules of research — Don't fight the Fed, Don't' fight the Tape, and Beware of the crowd at extremes. For the last two months, we have been following a four-step bottoming process: 1) oversold, 2) rally, 3) retest, and 4) breadth thrusts. We got enough improvement in breadth thrusts to move to neutral. However, history suggests that after waterfall declines, a retest occurs the vast majority of the time.
- We are currently defensive in our sector allocation — overweight Consumer Staples and underweight Industrials, Financials, and Energy. We are watching our bottom spotter indicator for when to move more cyclical.

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TIM HAYES, CMT CHIEF GLOBAL INVESTMENT STRATEGIST
ANOOP NATH, CFA GLOBAL ANALYST

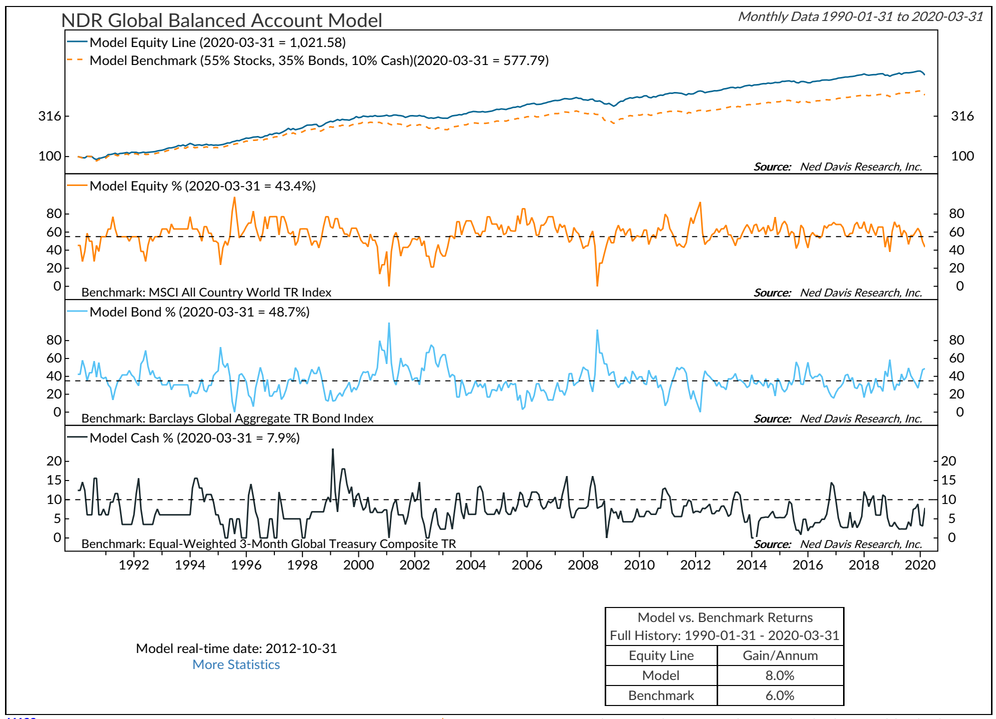
APRIL 16, 2020

Maximum underweight stocks

Key Takeaways

- On March 19, we decreased stock exposure by shifting 5% from stocks to cash.
- On April 2, we decreased stock exposure again by shifting 5% from stocks to bonds.
- Our current recommended allocation is underweight stocks (40%), overweight bonds (50%), and marketweight cash (10%).

Now at minimum equity exposure, more overweight bonds



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Final 5% cut in stocks

We have reduced our stock allocation three times during this market decline. First, on March 11, we downgraded stocks to underweight (50%) in our global asset allocation. Then, on March 19, we shifted 5% from stocks to cash, recommending a 45% stocks/45% bonds/10% cash allocation.

On April 2, we made our final 5% cut in stocks, bringing us in line with the latest Global Balanced Account Model update. Our recommended allocation is now 40% stocks (max underweight), 50% bonds, and 10% cash.

After rebounding in response to the massive monetary and fiscal initiatives, global stocks have turned their attention back to the increasingly dire economic data — casting doubt on whether the stimulus will check the mounting evidence of global recession. For bonds, the economic pessimism and central bank buying have perpetuated a long-term uptrend.

With bonds now favored by indicators based on All Country World Index (ACWI) price momentum, equal-weighted ACWI underperformance, credit spreads, and earnings estimate revision breadth, the global balanced account model's stock/bond composite is now 19%, a level last seen in 2008. The broader model's stock allocation has thus declined further — now calling for 43% stocks, 49% bonds, and 8% cash **(chart above)**.

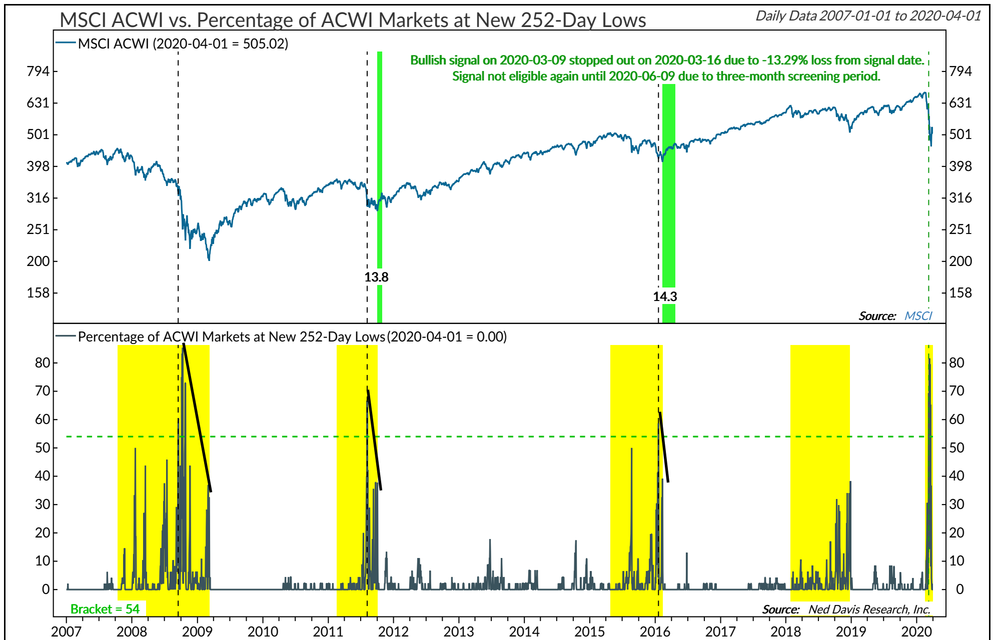
There's no way of knowing when the indicators will start to tell us that a new bull market is underway. Although, it will probably require compelling evidence of a peak in COVID-19 contagion, increasing confidence that economic activity will start resuming, and an upturn in year-ahead earnings expectations. It should also require a retest of the lows — either the current lows of March 23 or lower lows to come.

Watch the new lows

A component of our Bottom Watch report, the percentage of markets at 252-day new lows has indicated the start of a bottoming process when it has risen above 54% **(chart right)**. Each case was followed by a lower high in the percentage at the final bottom.

The current trend and breadth carnage is comparable to the damage in 2008, and thus, the ACWI can be expected to revisit and quite possibly exceed its lows, as it did then.

Watch for lower highs in percentage of new lows

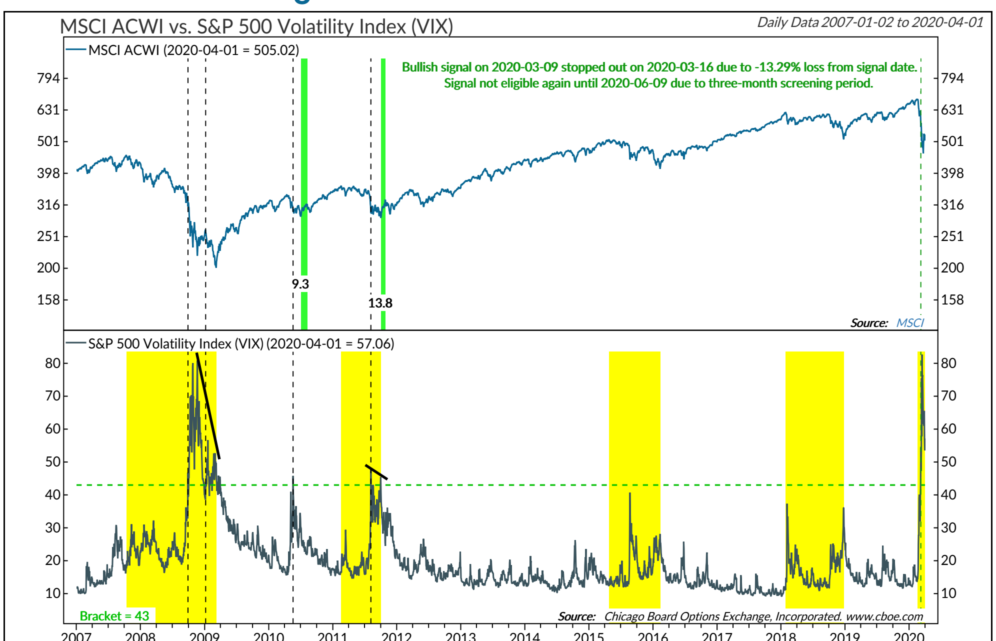


Signals (vertical dashed lines) = % of ACWI Markets at New 252-Day Lows first crosses above 54. Repeat signals screened for 3 months.
Green shading = rallies > 3% during the 3 months following signals (signal dates followed by corrections of 10% or more excluded).
Yellow shaded periods = cyclical bears in the MSCI ACWI

Total Cases	Valid Cases (>3% Rally)	Signal Accuracy (%)	Median Rally	Median Rally Length (Calendar Days)	Median Length to Rally (Calendar Days)
4	3	75.0	14.3	69	22

Customized version of IBOTTOM_B

Watch for lower highs in VIX



Signals (vertical dashed lines) = S&P 500 Volatility Index (VIX) first crosses above 43. Repeat signals screened for 3 months.
Green shading = rallies > 3% during the 3 months following signals (signal dates followed by corrections of 10% or more excluded).
Yellow shaded periods = cyclical bears in the MSCI ACWI

Total Cases	Valid Cases (>3% Rally)	Signal Accuracy (%)	Median Rally	Median Rally Length (Calendar Days)	Median Length to Rally (Calendar Days)
7	5	71.4	13.8	35	46

Customized version of IBOTTOM_A

Watch the VIX

Like the percentage of markets at new lows, the VIX has rocketed through its Bottom Watch level of 43 on its way to 83 — above the November 2008 extreme **(chart left)**. Initial VIX surges have usually been followed by several months of elevated volatility, with the VIX reaching lower highs once the market has started to test its lows. It's too soon to know if that process has started.

Risk-Off environment

The stock market performance has been anticipating the first global recession since 2008 — a recession with an end surrounded in uncertainty due to the coronavirus. With that in mind, we will continue to watch credit spreads, which tends to move in tandem with our 100-day ACWI Volatility Index. We've seen an upturn in the Barclays High Yield Bond Price Index, a component of our Risk-On Index. But, the risk-off U.S. Long-Term Government Bond Price Index has not rolled over.

The broader assessment of the Risk-On/Risk-Off Ratio (RO/RO) has been worsening again, with a death cross signal confirming the ACWI's signals **(chart below)**. The 50-day and 200-day RO/RO diffusion indices both describe a risk-off environment.

Focus on Rally Watch

When investors start to see valuations as reasonable, it will be a sign of improving economic and earnings prospects. A bottoming process would become more evident, with non-confirmation of lows in the major benchmarks.

The Rally Watch report would include more breadth thrust signals and longer-term confirmation of breadth improvement, sending the aggregate above 50% — this is what happened in April 2009. In the absence of breadth thrust developments, as well as the lower stock exposure recommended by the Global Balanced Account Model, we expect to maintain a minimum allocation to stocks and an overweight allocation to bonds.

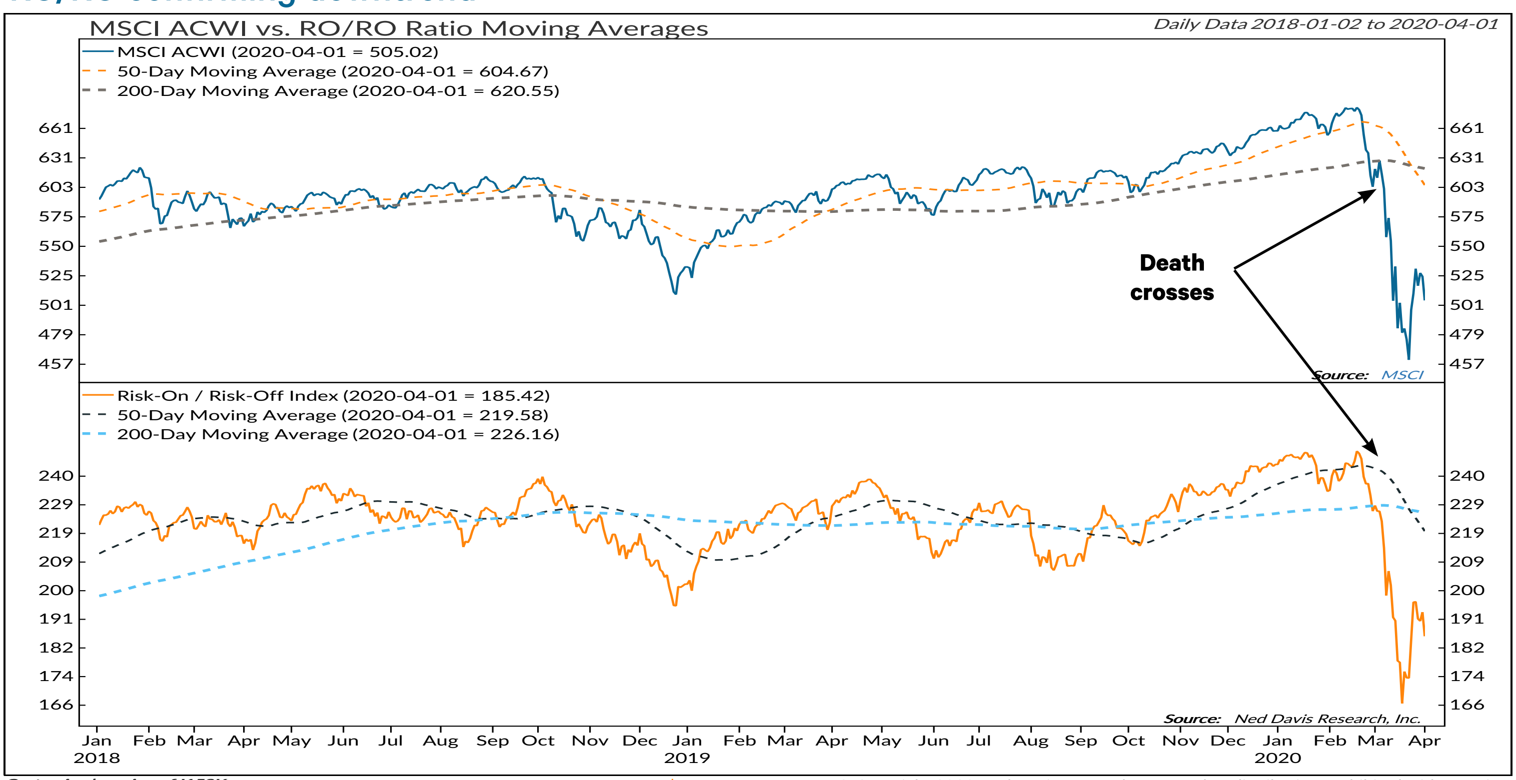
Once the indicator backdrop has turned bullish for stocks, however, there should be an excellent opportunity to reallocate back into stocks from bonds.

Remain bullish on gold

As long as the COVID-19 crisis continues, the appeal of holding U.S. dollars should be a source of support for the U.S. dollar. But given the Gold Watch aggregate, the relative trend strength versus the U.S. dollar, relative sentiment, stock bear market tendencies, the strengthened inverse correlation, heightened volatility, real interest rate trends, the U.S. deficit, and similarities to the period around the volatility spike of 2008, we expect gold to be the far better performer, with a return to record highs ahead.

Above excerpted from: "Another equity cut — down to the limit" and "Stay bullish on gold" by Tim Hayes, April 2 and March 26, 2020, respectively (available through NDR's Institutional product offerings)

RO/RO confirming downtrend



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Is the secular bull market over?

Although not our base case, we recognize the risk that the global economy could fail to respond significantly to the massive monetary and fiscal stimulus made necessary by the economic shutdown, with a secular bear market reflecting the expectations for chronic stagnation.

Such a secular bear would be defined by a lack of confidence in the sustainability of economic growth and earnings. Given historical tendencies, it's likely that within the secular bear the cyclical bulls would be relatively short and contained, while the cyclical bears would be relatively long and extended.

Consistent with the secular bull tendency, the ACWI gained 14% per year from the low in 2009 to the high on January 26, 2018. Yet, since then, the ACWI's per year return has been -6% — consistent with a bear. If stocks are bound to regain their secular bull market form, the major benchmarks should start to post consistently positive annualized returns, including the kind of broad advance that persisted from 2009 to 2011 **(chart below)**.

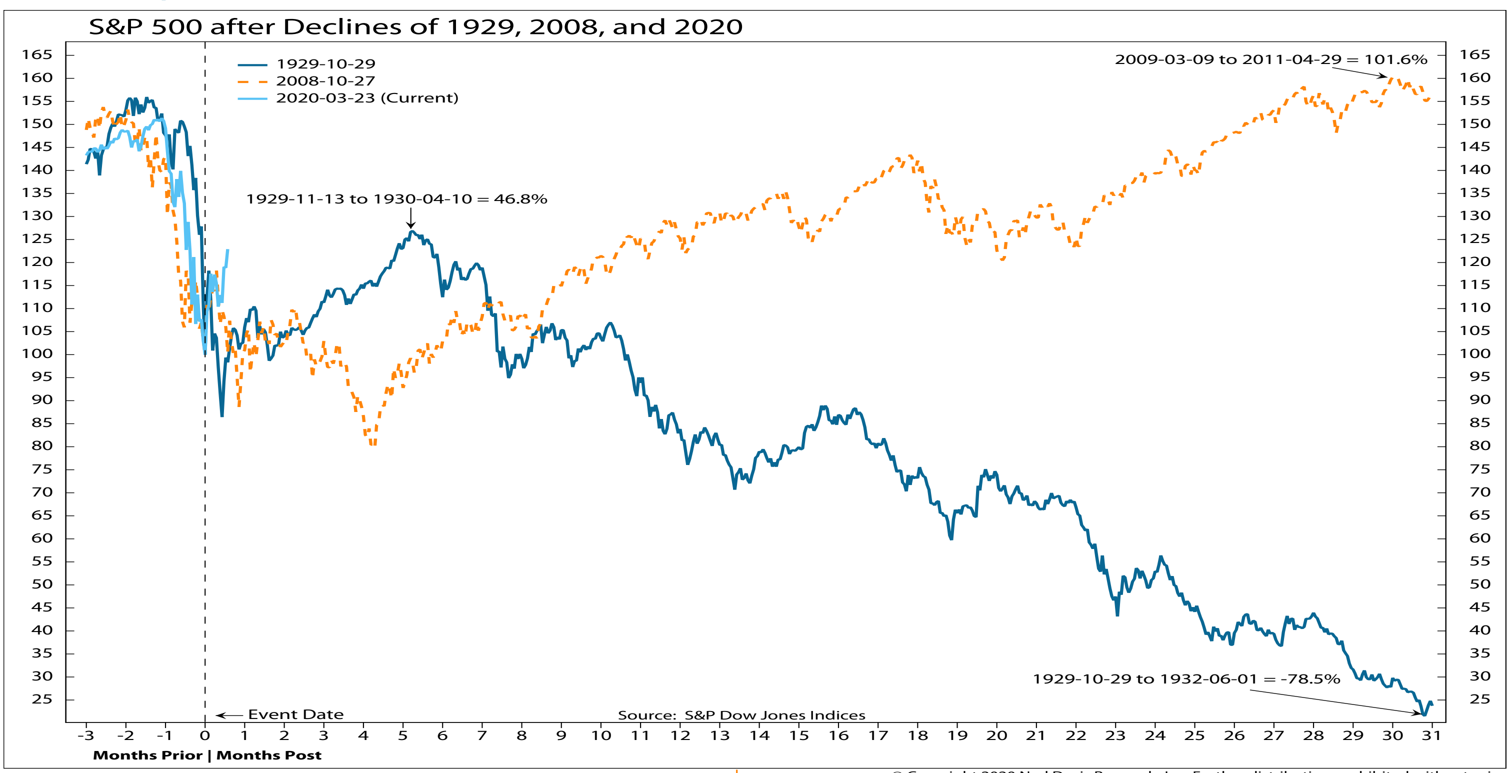
If this high-volatility bottoming process gives way to rising expectations that the liquidity infusions will reflate the global economy, as it did as the secular bull got started, then we could expect a similar broad and sustainable advance in the continuing secular bull. But, it's also possible that a strong rally fails to produce new highs — a sign of a developing secular bear.

If a secular bear is underway, then not only will the cyclical bulls be shorter, but so will the rallies. Secular bear rallies have taken the S&P 500 higher for an average of 31 days before 5% declines and 91 days before 10% drops, versus respective averages of 84 days and 331 days during secular bulls.

We will be watching the price action, valuations, and economic developments to determine if the 11-year secular bull is reasserting itself, or if a new secular bear is underway.

Above excerpted from: "The secular question" by Tim Hayes, April 9, 2020 (available through NDR's Institutional product offerings)

Which way from here?



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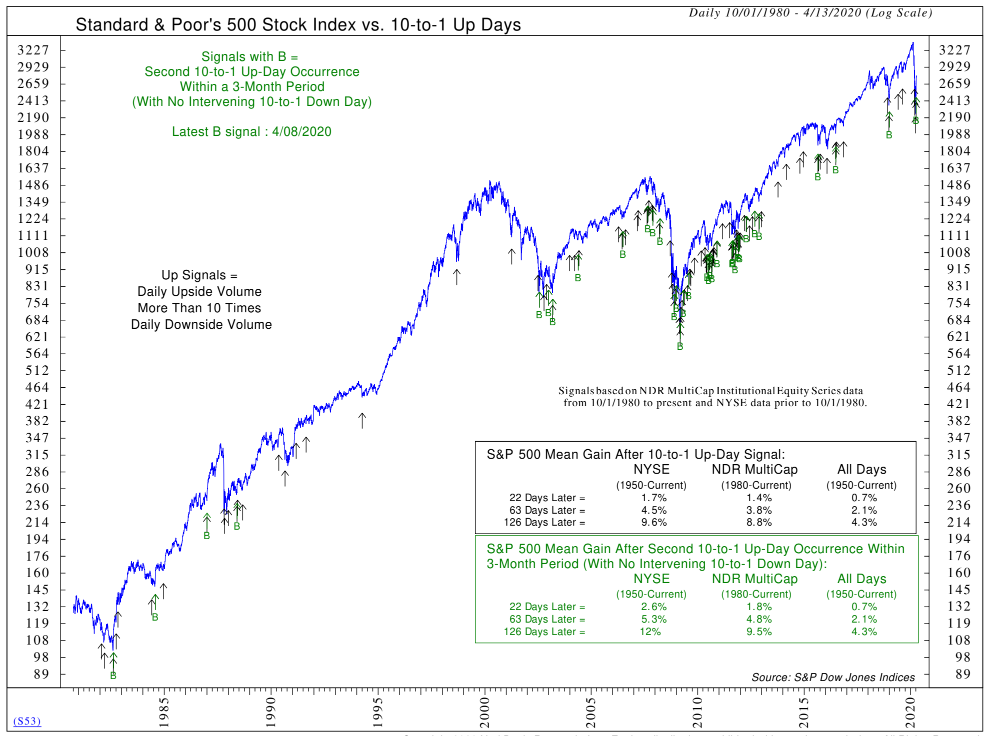
APRIL 16, 2020

Upgraded U.S. stock market outlook to neutral

Key Takeaways

- Lifted our intermediate-term U.S. stock market outlook from cautious to neutral.
- The indicator improvement does not mean a retest is off the table. Leadership trends support a retest.
- We outline what it would take to turn bullish or bearish again.

After double 10:1 up days, stocks rally 1-6 months later, on avg



Don't fight the Fed. Don't fight the tape. Beware of the crowd at extremes. These are the first three rules of NDR's Nine Rules of Research. **All three have improved enough for us to lift our intermediate-term U.S. stock market outlook from cautious to neutral.**

Don't fight the Fed

The Fed acted more quickly than in any other crisis, partially because the infrastructure was in place from the 2008-2009 financial crisis. The Fed's announcement on Thursday to extend another $2.3 trillion in financing to businesses and governments shows they will do whatever it takes to support the economy — and in turn the markets. There will be long-term consequences of the Fed's actions, but for now, central banks are clearly supportive.

Don't fight the tape

For the last two months, we have been following a four-step bottoming process: oversold, rally, retest, and breadth thrusts. History suggests that after waterfall declines, a retest occurs the vast majority of the time. But, if enough breadth thrust indicators fire, we have said that the process would move to step four. **Not enough breadth thrust indicators have given bullish readings to jump to step four, but enough have to reduce the chances of a worst-case scenario.**

One breadth thrust indicator, the percentage of stocks above their 10-day moving averages, signaled on March 26. A second breadth thrust indicator fired on April 8, with a second 10:1 up day without an intervening 10:1 down day **(chart above).** Not all breadth thrust indicators have registered bullish readings. The ratio of 10-day advances to 10-day declines remains below its 1.9 threshold.

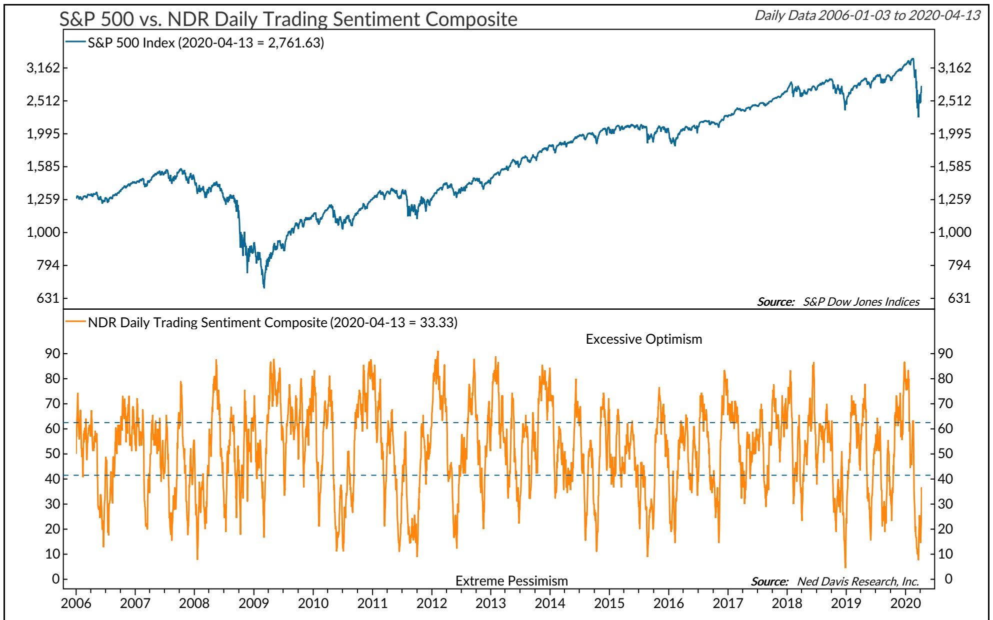
If this is a bear market rally, it is one of the strongest on record. The 27.6% gain in the Dow Industrials since March 23 is the second-biggest rally within a bear market, after a 35%

rally in 1930. Using the S&P 500, the 24.7% gain is the fourth-longest on record. Either way, the magnitude of the rally implies that it could be reclassified as the beginning of an NDR-defined cyclical bull market.

Beware of the crowd at extremes

One of our concerns in late January — and during the February-March waterfall decline — was the sentiment was slow to fall to a level of extreme pessimism. Despite the monster rally, the NDR Daily Trading Sentiment Composite remains in its pessimistic zone **(chart right).**

Sentiment in pessimism zone



S&P 500 Index Performance
Full History: 1994-12-30 to 2020-04-13

NDR Daily Sentiment Composite is	% Gain/ Annum	% of Time
Above 62.5	-7.74	28.06
41.5 - 62.5	6.37	44.58
Below 41.5	27.26	27.36

Buy/Hold = 7.35% Gain/Annum

S&P 500 Index Performance
Chart View: 2006-01-03 to 2020-04-13

NDR Daily Sentiment Composite is	% Gain/ Annum	% of Time
Above 62.5	-5.43	29.08
41.5 - 62.5	1.82	42.23
Below 41.5	24.58	28.69

Buy/Hold = 5.60% Gain/Annum

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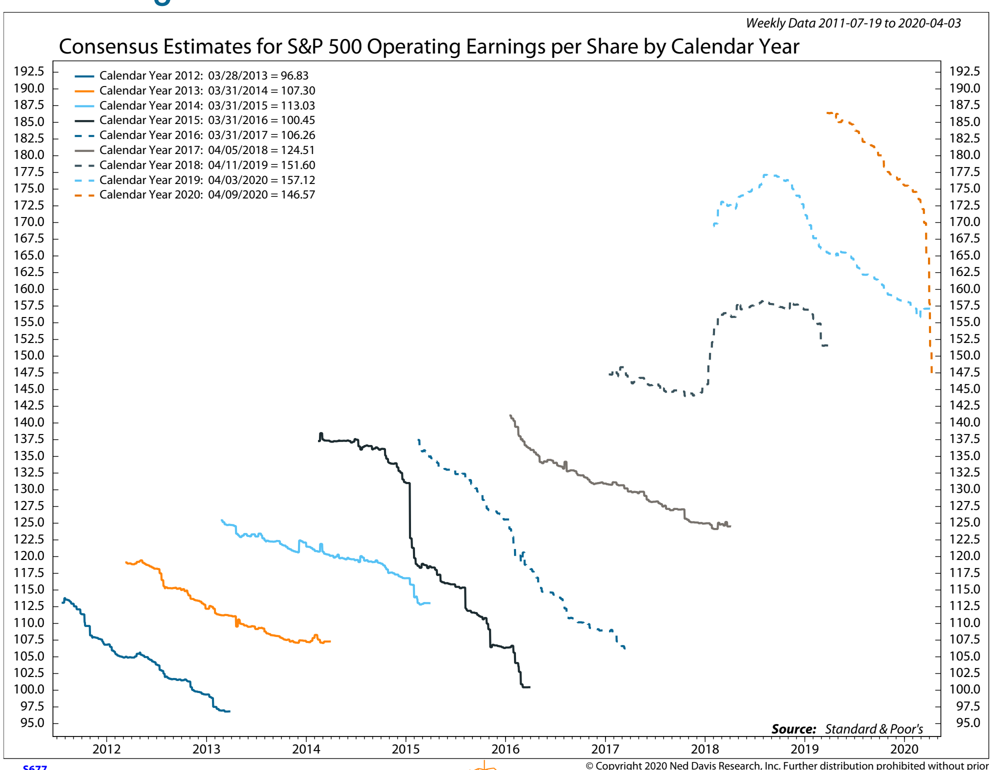
Estimating EPS in 2020 will be even harder than normal



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Why just neutral?

With a friendly Fed, an improving tape, and healthy skepticism, why not turn bullish? **The indicator improvement does not mean a retest is off the table.** If the S&P 500 retraces even half of its gains, most would call it a retest. The strength of the rally reduces the chances of a full retest, but **a retest of some degree remains our base case.**

There are plenty of potential catalysts: there will likely be bankruptcies, many companies could pull guidance — making earnings even harder to predict **(chart left)**, the economy could be slower to reopen than expected, consumer spending could be weak as social distancing areas stay closed (they are 25% of the labor force), or the economy could need to go into lockdown again if the virus resurfaces.

What will it take to turn bullish?

From a technical perspective, intermediate- and longer-term breadth indicators would need to confirm the short-term breadth thrust indicators.

Even though charts S53 and S45 have great track records, they gave early signals in late-2008 and early-2009. Like during the financial crisis, they could be victim to historic volatility.

The **chart below** generates a breadth thrust signal when the percentage of stocks above their 50-day moving averages climbs above 90%. Due to its longer moving average, it did not register a signal until May 2009, two months after the bottom. However, it didn't provide a head fake before the March 2009 low. A bullish signal from this indicator would confirm a more bullish outlook.

Medical breakthroughs that lead to a rapid reopening of the economy or a sustained decline in cases would suggest the recovery will be faster than expected.

Will you turn bearish again?

If the indicators deteriorate, then yes. Technically, more downside volume, more stocks making new lows — and fewer stocks above their moving averages would indicate another major down leg for the stock market.

A second wave of the coronavirus would mean the recession would be longer and more severe than expected.

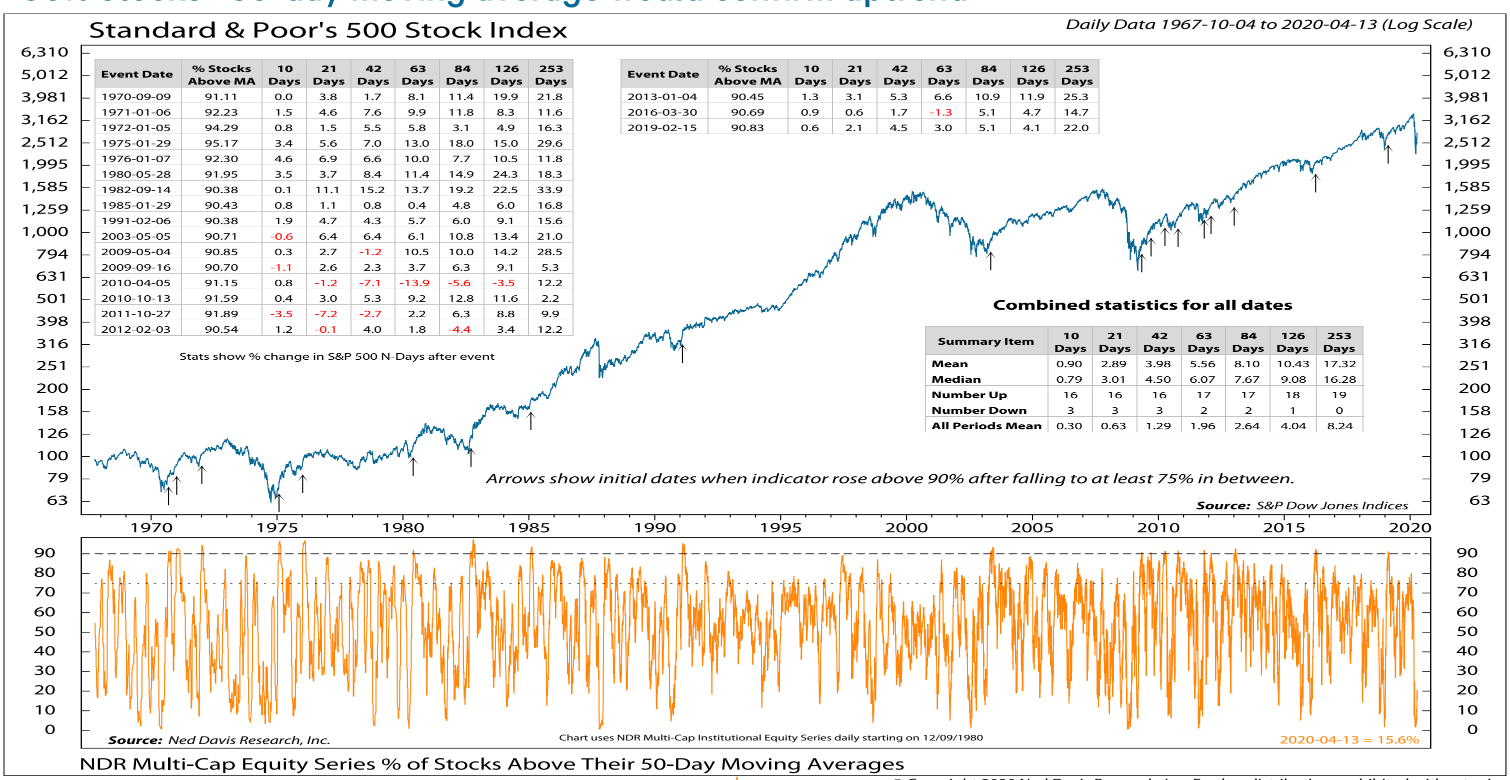
A re-widening of credit spreads would indicate that the Fed lost its battle to backstop the economy and markets.

While the most oversold areas have bounced, leadership shifts are not as decisive as the popular averages suggest. This not only lends credence to a retesting phase, but also suggests that investors are skeptical about the economic outlook, consistent with our macro team's expectation for a square root-shaped economic recovery.

Above excerpted from:

"Upgrading U.S. equity outlook to neutral. What to watch." by Ed Clissold, April 14, 2020 (available through NDR's Institutional product offerings)

>90% stocks >50-day moving average would confirm uptrend



Event Date	% Stocks Above MA	10 Days	21 Days	42 Days	63 Days	84 Days	126 Days	253 Days
1970-09-09	91.11	0.0	3.8	1.7	8.1	11.4	19.9	21.8
1971-01-06	92.23	1.5	4.6	7.6	9.9	11.8	8.3	11.6
1972-01-05	94.29	0.8	1.5	5.5	5.8	3.1	4.9	16.3
1975-01-29	95.17	3.4	5.6	7.0	13.0	18.0	15.0	29.6
1976-01-07	92.30	4.6	6.9	6.6	10.0	7.7	10.5	11.8
1980-05-28	91.95	3.5	3.7	8.4	11.4	14.9	24.3	18.3
1982-09-14	90.38	0.1	11.1	15.2	13.7	19.2	22.5	33.9
1985-01-29	90.43	0.8	1.1	0.8	0.4	4.8	6.0	16.8
1991-02-06	90.38	1.9	4.7	4.3	5.7	6.0	9.1	15.6
2003-05-05	90.71	-0.6	6.4	6.4	6.1	10.8	13.4	21.0
2009-05-04	90.85	0.3	2.7	-1.2	10.5	10.0	14.2	28.5
2009-09-16	90.70	-1.1	2.6	2.3	3.7	6.3	9.1	5.3
2010-04-05	91.15	0.8	-1.2	-7.1	-13.9	-5.6	-3.5	12.2
2010-10-13	91.59	0.4	3.0	5.3	9.2	12.8	11.6	2.2
2011-10-27	91.89	-3.5	-7.2	-2.7	2.2	6.3	8.8	9.9
2012-02-03	90.54	1.2	-0.1	4.0	1.8	-4.4	3.4	12.2

Event Date	% Stocks Above MA	10 Days	21 Days	42 Days	63 Days	84 Days	126 Days	253 Days
2013-01-04	90.45	1.3	3.1	5.3	6.6	10.9	11.9	25.3
2016-03-30	90.69	0.9	0.6	1.7	-1.3	5.1	4.7	14.7
2019-02-15	90.83	0.6	2.1	4.5	3.0	5.1	4.1	22.0

Summary Item	10 Days	21 Days	42 Days	63 Days	84 Days	126 Days	253 Days
Mean	0.90	2.89	3.98	5.56	8.10	10.43	17.32
Median	0.79	3.01	4.50	6.07	7.67	9.08	16.28
Number Up	16	16	16	17	17	18	19
Number Down	3	3	3	2	2	1	0
All Periods Mean	0.30	0.63	1.29	1.96	2.64	4.04	8.24

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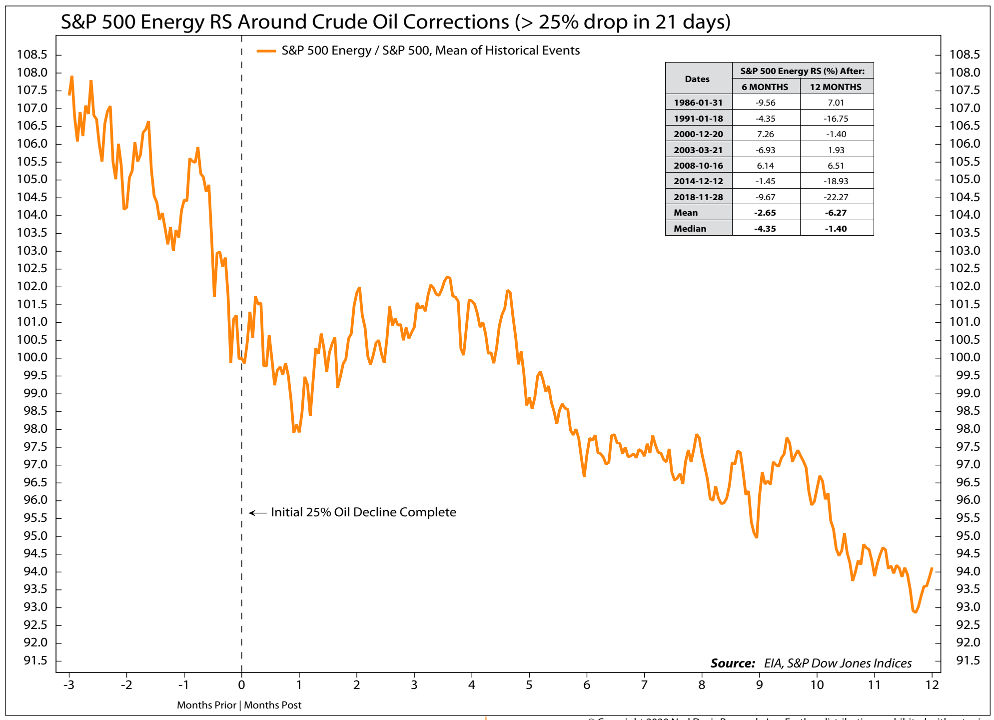
APRIL 16, 2020

Sector leadership around waterfall declines

Key Takeaways

- Sector leadership leans defensive during the bottoming process.
- Financials, Consumer Discretionary, and Technology sectors tend to lead after the bottoming process is complete.
- Looking for a buy signal from our sector market bottom spotter.

Expect weakness after large, quick price drops



Dates	S&P 500 Energy RS (%) After:	
	6 MONTHS	12 MONTHS
1986-01-31	-9.56	7.01
1991-01-18	-4.35	-16.75
2000-12-20	7.26	-1.40
2003-03-21	-6.93	1.93
2008-10-16	6.14	6.51
2014-12-12	-1.45	-18.93
2018-11-28	-9.67	-22.27
Mean	**-2.65**	**-6.27**
Median	**-4.35**	**-1.40**

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We have written several publications highlighting the four steps in the market bottoming process: **oversold, rally, retest, and breadth thrusts.** This analysis focuses on sector leadership throughout the process following waterfall declines.

Oversold

Previous waterfall declines have seen a **majority of sectors reach bear market territory** by the time the waterfall decline is over. Of the six waterfall decline cases — our sector data begins in 1972 — four have seen **every sector** reach bear market territory by the end of the waterfall decline.

A sector is considered to be in a bear market if it is 20% or more below its record closing high. The **chart above** shows that all sectors reached bear market territory on March 20. It's too early to declare March 23 the official end date for the current waterfall. Either way, most waterfalls see rallies and retests, and often lower lows.

Rally

Rallies following waterfall declines have been strong. A rally is defined as the period from the waterfall end to the interim market high, before a retest. The median rally has seen the market bounce close to 15% in 18 market days **(table on next page)**. Sector leadership during this phase is made up of the **most oversold and defensive sectors**. Energy, Communication Services, and Financials have done well during rallies. Defensive Health Care and Utilities have also been strong. The top bounce back candidates for the current waterfall case are Energy, Financials, and Industrials. Each are 2.5 standard deviations or more oversold on a 21-day basis compared to the S&P 500.

Retest

Waterfall declines almost always see a retest, and waterfall lows are broken nearly 70% of the time. Waterfall retests are measured from the rally interim high to the bear market low, or to the end of the basing period if no new low was made.

Sector leadership is decidedly defensive during this period. Consumer Staples, Health Care, and Communication Services have outperformed in all previous retest cases. Utilities has outperformed in four of five cases.

Breadth thrusts

The final step in the bottoming process is multiple breadth thrust signals that give the “all clear” that a new up leg is underway. On a sector level, **we will look for a shift in leadership that occurs around major market turning points.** Sector leadership following final waterfall bottoms returns to favoring cyclical sectors. Financials, Consumer Discretionary, and Technology have performed well, while defensive Consumer Staples, Health Care, and Utilities have underperformed in most cases.

Most oversold and defensive best during rallies

Sector Waterfall Rally Performance Since 1972

S&P 500 Sectors	Median Gain %	Median Days	% Cases Outperforming
Energy	19.13	18	80
Health Care	13.07	18	80
Communication Services	18.43	18	60
Financials	14.28	18	60
Utilities	12.53	18	60
Real Estate	2.55	18	50
Consumer Staples	15.09	18	40
Consumer Discretionary	11.13	18	20
Materials	10.98	18	20
Industrials	10.79	18	20
Information Technology	9.87	18	20
S&P 500 Index	14.92	18	N/A

Cases: 10/04/1974 to 11/04/1974, 10/19/1987 to 10/21/1987, 07/23/2002 to 08/22/2002, 10/10/2008 to 11/04/2008, and 08/08/2011 to 08/31/2011. 12/24/2018 case was deemed a V-shaped recovery and was excluded from study.
Source: S&P Dow Jones Indices.

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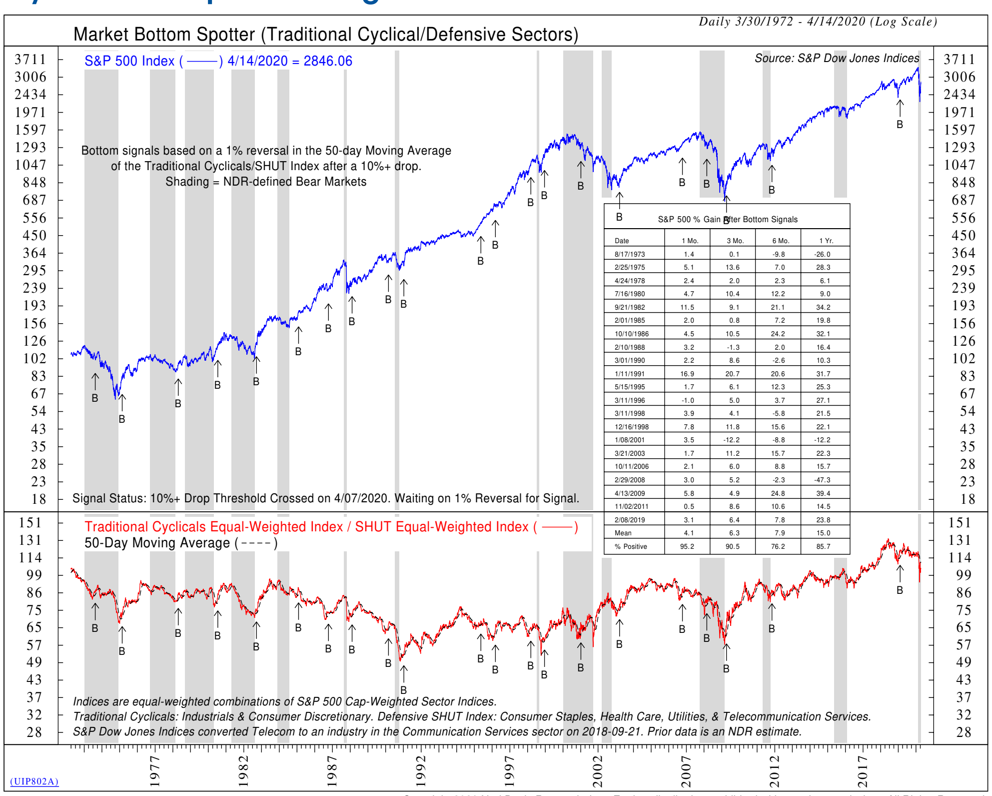
Cyclicals outperforming SHUT since March 18



Bottom Spotter

One of our favorite indicators to help us get more cyclical after a waterfall decline is our “Bottom Spotter” **(chart left)**. Since March 18, the ratio of Traditional Cyclical sectors to defensive SHUT sectors has rallied. Note, the signal does not nail the market bottom — historically, it has occurred an average of 43 days and 9% after the low. We expect to move less defensive soon. **We see Energy, Industrials, and Financials — all underweight — as upgrade candidates.** Health Care and Technology are the most overbought and are potential downgrade candidates.

Above excerpted from: “Waterfall bottoming and sector leadership” by Rob Anderson, March 26, 2020 and “Getting more bullish as cyclical sectors rally” by Pat Tschosik, April 9, 2020 (available through NDR’s Institutional product offerings)

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WARREN PIES, ERP ENERGY STRATEGIST

APRIL 16, 2020

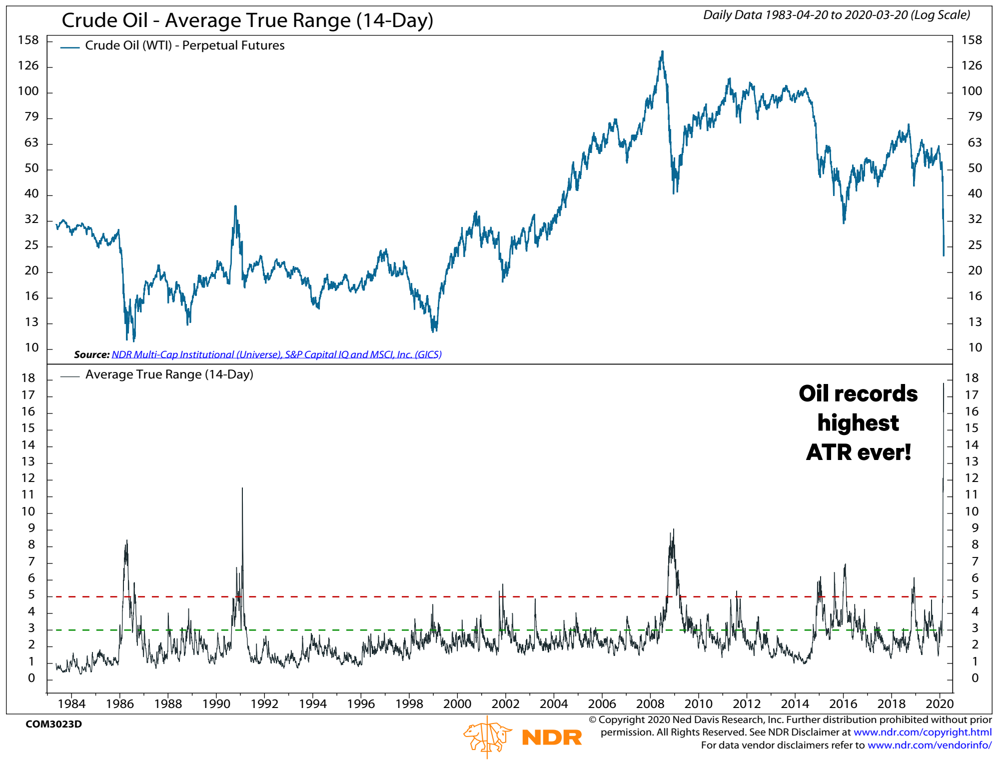
Oil: War of attrition

Key Takeaways

- In the current oil price war, Saudi Arabia is in the weakest position.
- For the last five years, Russia has tightened its purse strings and increased reserves.
- Low oil prices will force Saudi Arabia to make difficult decisions.

"What you want in warfare is room to maneuver. Tight corners spell death."
- Robert Greene, The 33 Strategies of War.

Oil Average True Range at all-time highs



The oil market was an early victim in the fight against COVID-19. As we warned in February, the virus' spread — and resulting lockdowns of global economies — represented a true black swan for crude oil. As demand fell, OPEC+ seemed ready to cut production and attempt to support the market. However, at the last minute, Russia balked. In response, Saudi Arabia slashed official selling prices (OSPs) for Arab Light crude oil.

For the first time ever, the world's oil producers began a major price war in the midst of a sharp demand contraction. As a result, oil fell to almost $20 per barrel and volatility — as measured by the 14-day Average True Range — spiked to an all-time high (chart above)!

In our view, the current OPEC+ conflict will be a war of attrition. According to Wikipedia, "Attrition warfare is a military strategy consisting of belligerent attempts to win a war by wearing down the enemy to the point of collapse. The war will usually be won by the side with greater resources."

The current standoff involve: Russia, Saudi Arabia, and U.S. shale producers. These players account for more than 1/3 of global oil production. None of these major producers can survive sub-$40 oil in the long-term. In our opinion, Russia is in the best position for this war of attrition, while Saudi Arabia appears weak. U.S. shale will remain, but "shale, inc." may not.

Above excerpted from: "Oil: War of attrition" by Warren Pies, March 23, 2020 (available through NDR's Energy add-on product offering)

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ALEJANDRA GRINDAL SENIOR INTERNATIONAL ECONOMIST
PATRICK AYERS INTERNATIONAL ECONOMIC ANALYST

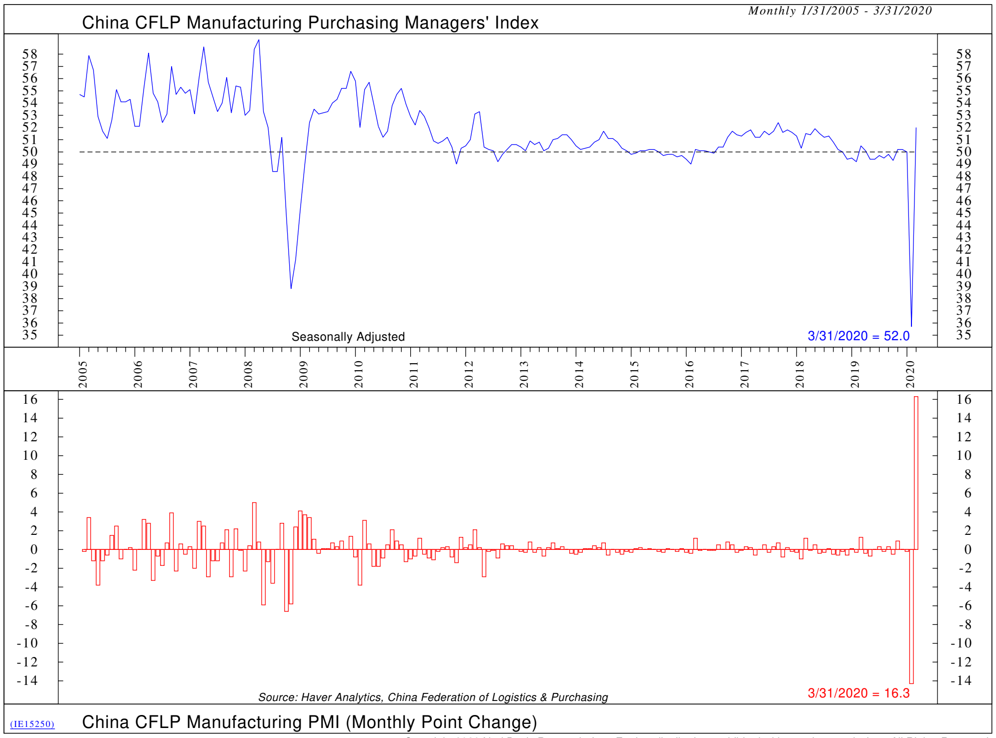
APRIL 16, 2020

COVID-19 is delivering a beating

Key Takeaways

- COVID-19 caused global manufacturing to plummet in March, confirming our view that the global economy is in a severe recession.
- With the risk of major global recession imminent, policy makers have sprung into action.
- We downgraded our 2020 global growth estimate to 0% — few signs of a near-term recovery.

China reports unprecedented rebound



With about four billion people — roughly half of the world's population — on complete or partial lockdown due to COVID-19, our earliest reads of the global economy are beginning to show the devastating effect so far of the coronavirus. As a result, we know for a fact that economic activity has plummeted. But until recently, we haven't had the opportunity to assess the severity of the pandemic's economic impact.

Global manufacturing contracted for a second month in March, as the global PMI edged up 0.5 points to 47.6. The month-to-month rise in the index was mostly due to China, the second-largest contributor to the aggregate, which saw activity rebound following an ebbing of COVID-19 cases. Excluding China, the global PMI plunged 3.4 points to 46.6, the lowest since May 2009.

China decouples, for now

China was the only major economy that reported manufacturing growth in March, registering a remarkable rebound from record low levels **(chart above)** as new COVID-19 cases ebbed.

With the rest of the world's major economies on either complete or partial lockdown in response to the pandemic, it's hard to imagine that China's economy can return to pre-COVID-19 levels anytime in the near future.

Europe plummets

Europe, which is about a month or two behind China when it comes to addressing the pandemic, saw its manufacturing activity plummet in March. The eurozone index dropped 4.8 points, the second-largest decline on record. Several countries in the region — including Italy, France, Ireland, and Sweden — registered the largest month-to-month declines on record.

Downgraded global growth

We now estimate that **global economic growth will be flat in 2020.** This is significantly down from our pre-COVID-19 estimate of 3.3% and around the pace of growth observed in 2009 during the Global Financial Crisis (GFC). We are still early in this crisis, so our estimate may be subject to significant change as new data is revealed.

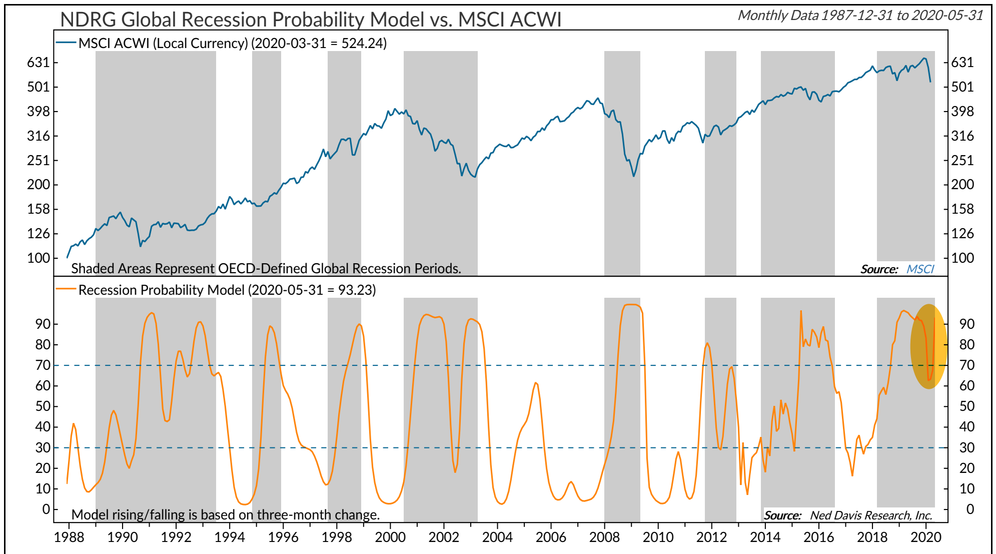
The tides have turned

The **chart at right** shows the NDR Global Recession Probability Model. Early this year, the probability had fallen out of the high-risk zone, amid signs of easing trade tensions and easier monetary policies around the world. But the recovery came to an abrupt halt, as our model surged 26 points to 93%.

Leading indicator posts historic slump

The global OECD leading economic indicator plunged to its lowest level in over a decade. From February to March, the monthly change fell by the most since global data began in the early 1970s. Three consecutive gains in the index usually imply a positive economic turning point. That doesn't look like it's happening anytime soon.

Global recession model spiked up



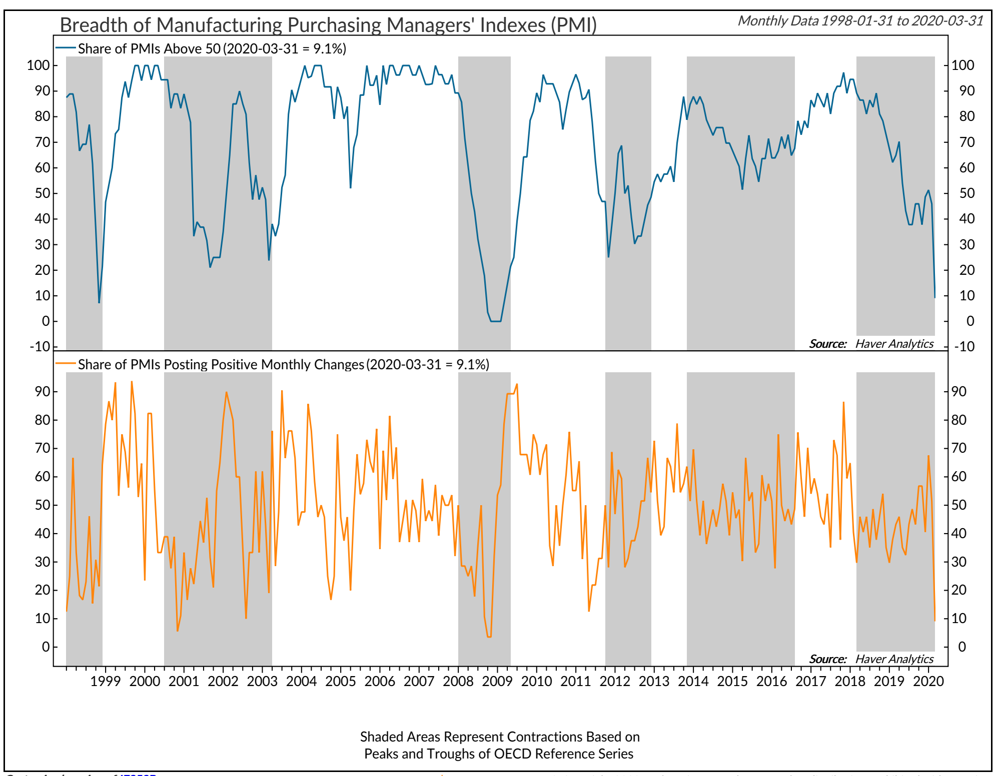
Returns Regardless of Direction ACWI Performance **Chart View:** 1988-03-31 to 2020-03-31		
Recession Probability Model	% Gain/ Annum	% of Time
Above 70.0	4.11	28.35
30.0 - 70.0	3.23	33.66
Below 30.0	7.07	38.00
Buy/Hold = 4.92% Gain/Annum		

Recession Probability Model Rising ACWI Performance **Chart View:** 1988-03-31 to 2020-03-31		
Recession Probability Model	% Gain/ Annum	% of Time
Above 70.0	-4.23	17.96
30.0 - 70.0	1.22	18.00
Below 30.0	5.50	14.61
Buy/Hold = 4.92% Gain/Annum		

Recession Probability Model Falling ACWI Performance **Chart View:** 1988-03-31 to 2020-03-31		
Recession Probability Model	% Gain/ Annum	% of Time
Above 70.0	20.28	10.39
30.0 - 70.0	5.59	15.66
Below 30.0	8.06	23.38
Buy/Hold = 4.92% Gain/Annum		

IE90B

Broadest deterioration since GFC



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Services collapses

The global services PMI plunged a record 10.1 points to 37.0, the deepest contraction in the sector since data began in 1998. Since many countries did not instill stay-at-home orders until later in March, **April data could be even worse.**

Broadest downturn since GFC

A characteristic of global recession is that it has broad-based participation among countries. The breadth of the world's manufacturing PMIs reporting expanding manufacturing sectors slumped to just 11% in March, the smallest proportion since the GFC in 2009 **(chart left).**

Sentiment craters

Global sentiment also suffered a historic decline. The Sentix Global Economic Conditions Index plummeted a record 43.5 points in April. This came after a record drop of 19.3 points in the prior month.

Central bank response unprecedented

The global monetary policy response has been immense and immediate and already far surpassing that of the GFC. One of the biggest benefits of monetary policy is that there is usually no implementation lag.

The share of central banks in easing cycles has jumped to 94%, the highest since October 2009. Furthermore, the percent of central banks with record-low rates is at an all-time high of 59% **(chart below).**

The fiscal response is building, but unlike monetary policy, the implementation lag is typically longer, as there usually needs to be broad agreement among policy makers before making major decisions.

Room for hope

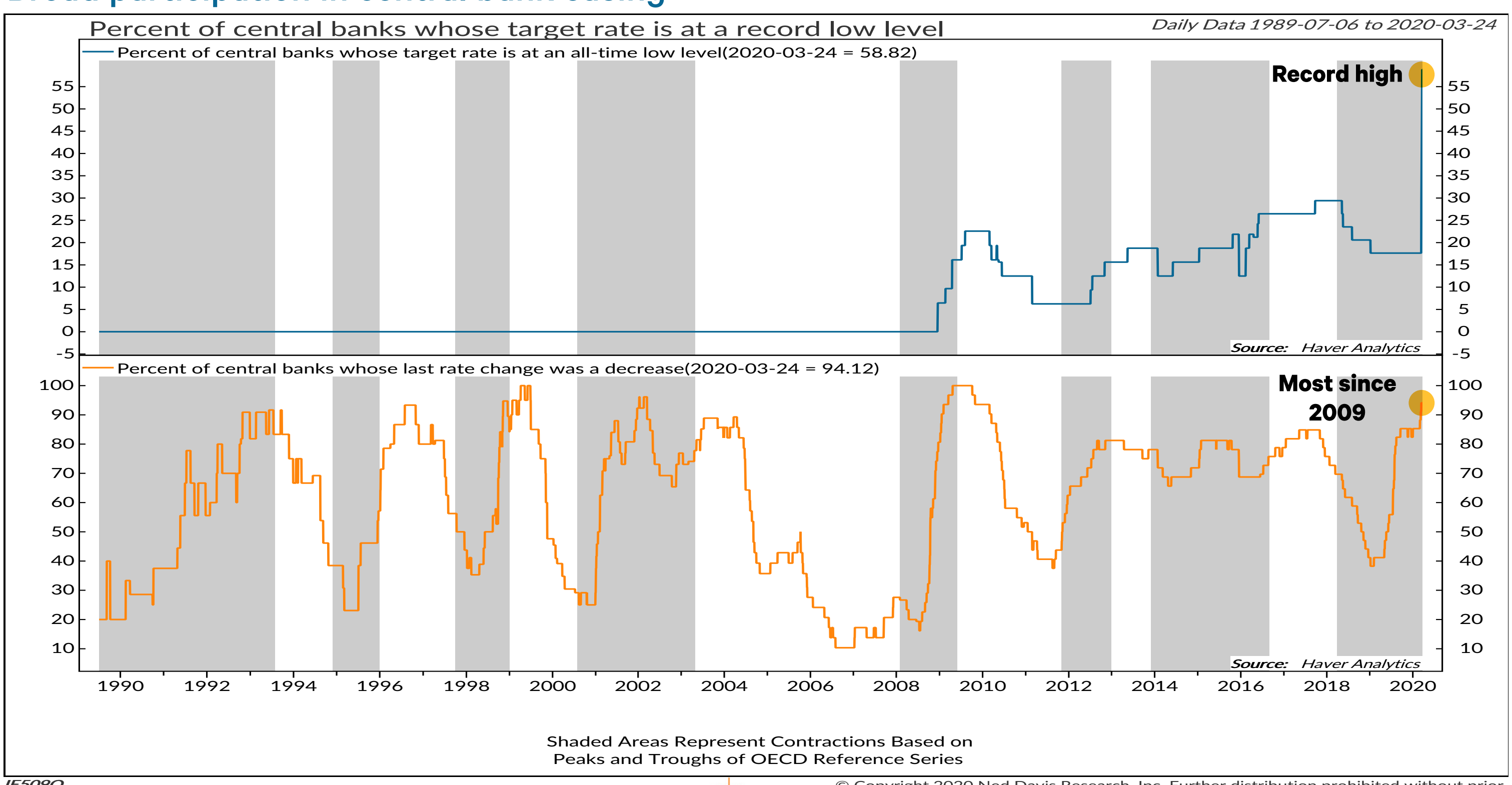
But, there is some room for hope. The unprecedented monetary and fiscal stimulus we've seen globally will help ease some of the pain.

Countries that went through stringent measures to cap the spread of the virus are starting to recover. China is an excellent example where activity has rebounded over the past month.

The recovery won't be a smooth one. With the risk of a second wave of the outbreak, the world's population will continue to be cautious.

Above excerpted from: "Is COVID-19 stimulus unprecedented?" and "COVID-19 wipes out global manufacturing" and "Five charts show shocking damage of COVID-19" by Alejandra Grindal, March 26, April 2, and April 9, 2020, respectively (available through NDR's Institutional product offerings)

Broad participation in central bank easing



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JOSEPH F. KALISH CHIEF GLOBAL MACRO STRATEGIST
VENETA DIMITROVA SENIOR U.S. ECONOMIST

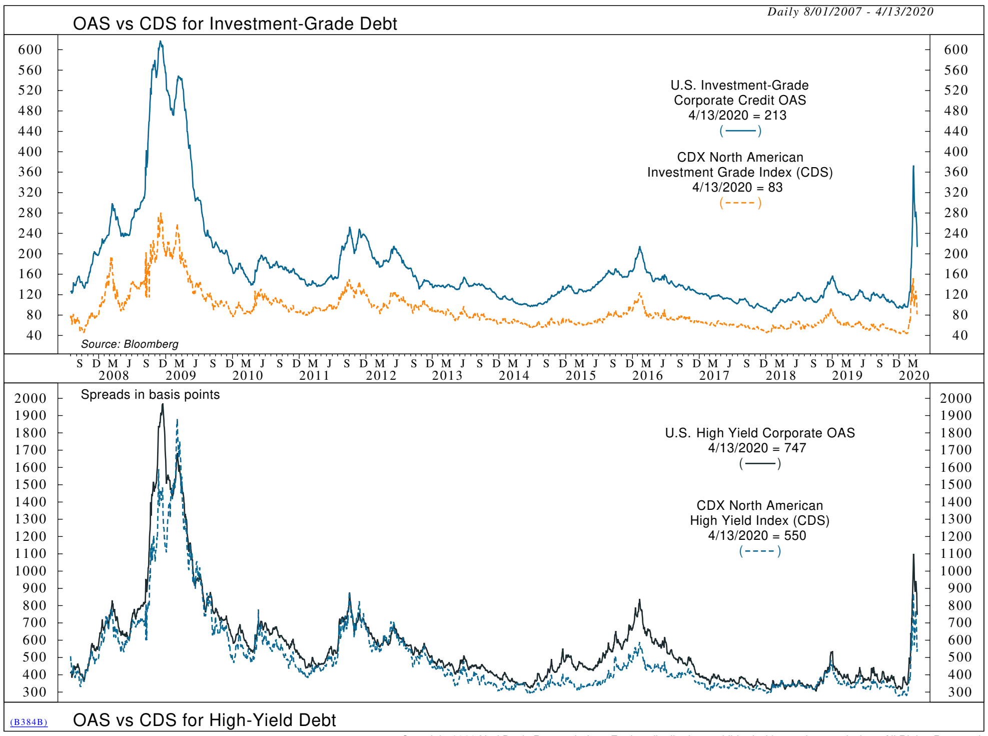
APRIL 16, 2020

Neutralized some sectors of fixed income

Key Takeaways

- We upgraded investment grade credit, MBS, EM (USD) bonds, CMBS, and ABS to marketweight.
- We remain underweight high yield and expect those spreads to continue to widen.
- We downgraded Treasurys from overweight to marketweight.

Valuations have improved



Upgraded investment grade corporate bonds

On March 23, the investment grade option-adjusted spread (OAS) was 373 basis points (3.73%), while high yield hit 1100 basis points (11%) **(chart above)**.

Two weeks prior, we were uncertain as to the extent of the virus spread. Pricing in a short recession seemed appropriate. Now we should expect a deeper recession and therefore wider spreads.

We looked at the Baa/Long-term Treasurys spread for each recession going back to 1920. The monthly average at the start of the recession was around 200 basis points (2%). The peak spread was just over 300 basis points (3%). On Friday, March 20, that spread was around 380 basis points (3.8%). There were only four recessions that had peak spreads exceeding that: the Great Depression, 1973-75, 1981-82, and 2007-08.

Meaningful policy support is on its way.

With approval from the Treasury Secretary and the cooperation of the Treasury Department, the Federal Reserve announced on Monday, March 23 sweeping new measures to support the liquidity and functioning of the IG corporate bond market. The establishment of primary and secondary corporate credit facilities will help larger companies.

Since then, the Fed has established a lending program for SMEs and Congress passed a $2.3 trillion stimulus package. Without similar support, high yield spreads should continue to widen.

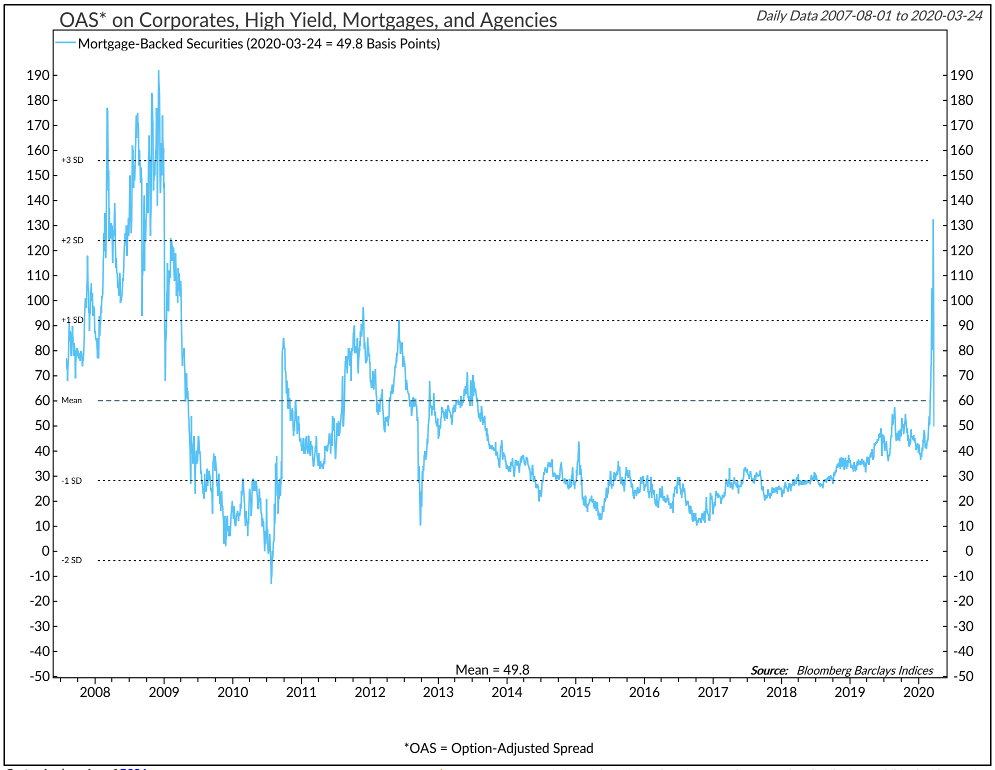
Upgraded Agency MBS

We also upgraded agency mortgage-backed securities (MBS) to marketweight from underweight. MBS represents 26% of the U.S. Fixed Income Aggregate Index. While spreads had widened, despite the Fed's announcement of $200 billion of MBS purchases on March 15, the need for some market participants to raise cash pushed the spread to more than 2 standard deviations above its mean **(chart right)**.

Then, the Fed announced that it would conduct open-ended purchases of Treasurys and agency MBS in order to "support smooth market functioning and effective transmission of monetary policy." Following the Fed's MBS purchases in 2008-09, spreads continued to narrow.

So, while we missed an opportunity to close out the underweight at better levels, we did so on March 26, near to where the spread was at the time of our downgrade.

MBS got oversold and valuations had become attractive



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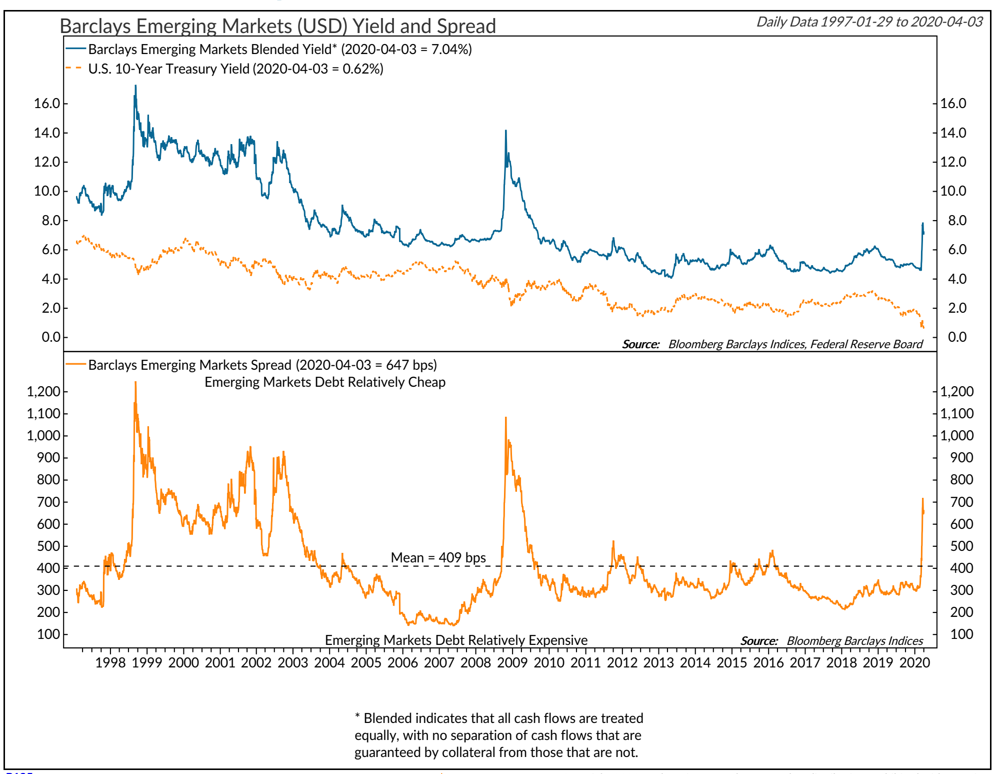
EM valuations improved



B195

Upgraded EM

On April 6, we upgraded Emerging Market (EM) bonds to marketweight from underweight. Better valuations **(chart left)**, policy actions, and improved U.S. dollar funding support the upgrade to neutral.

Above excerpted from:

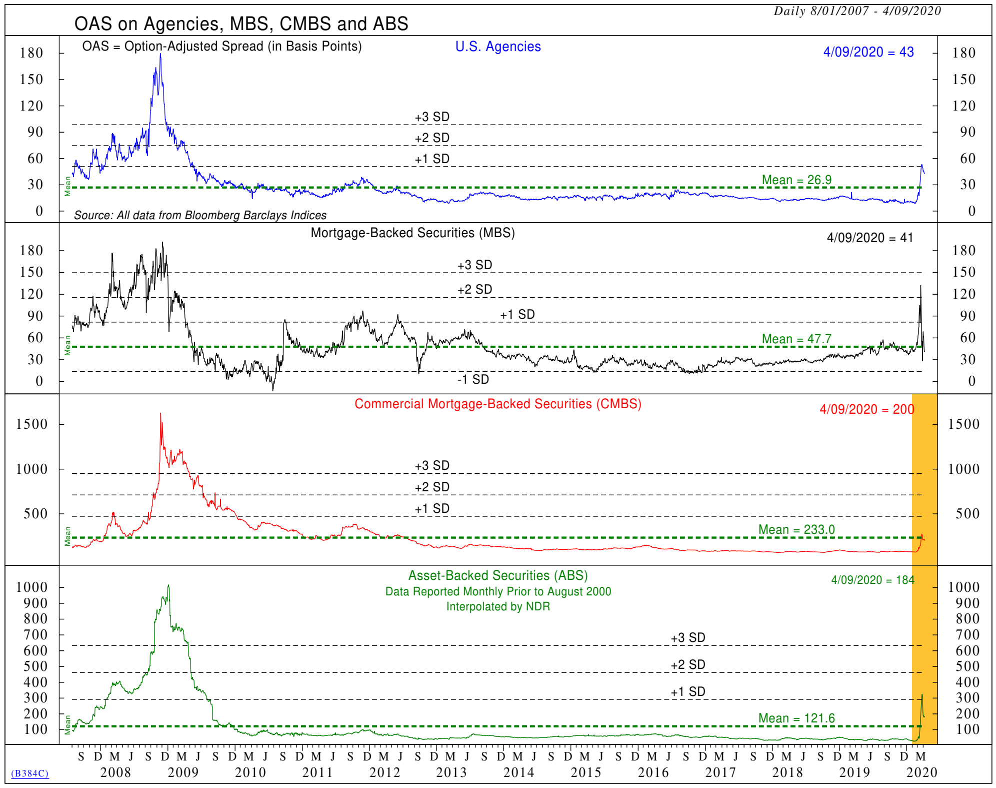
"Upgrading IG corporates to marketweight," "Upgrading Agency MBS to marketweight," and "Upgrading EM bonds to neutral" by Joseph Kalish, March 24, March 26, and April 6, 2020, respectively (available through NDR's Institutional product offerings)

Upgraded CMBS and ABS

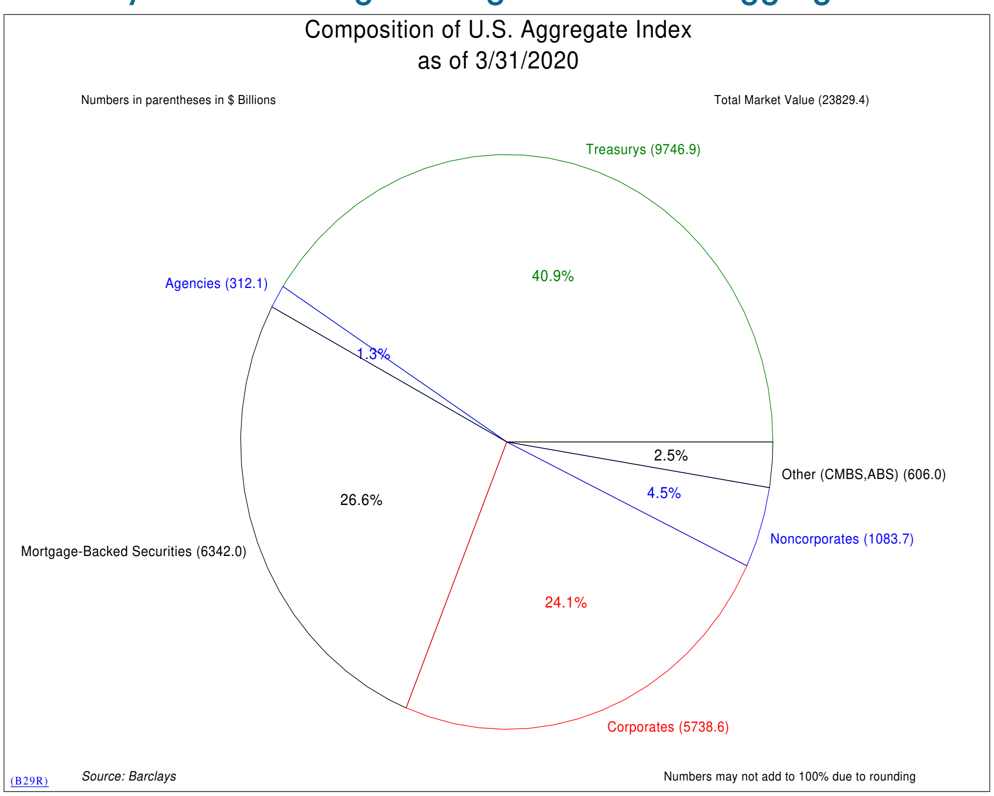
On April 13, we upgraded commercial mortgage-backed securities (CMBS) and asset-backed securities (ABS) to marketweight from underweight **(chart right)**. Together, these sectors account for about 2.5% of the U.S. Fixed Income Aggregate Index.

To reduce credit risk, the Fed is applying huge haircuts to the underlying collateral. Newly issued leveraged loans will have a minimum haircut of 20%, while CMBS will have a minimum haircut of 15%. Haircuts on other asset-backed securities range from 5% to 12%.

Upgraded CMBS and ABS to marketweight



Treasurys have the largest weight in the U.S. Aggregate



Downgraded Treasurys

In order to make room for the upgrades, we **downgraded Treasurys from overweight to marketweight**. Treasurys account for about 41% of the U.S. Aggregate **(chart left)**. The Fed has been tapering its Treasury purchases from a peak of $75 billion per day on April 1 to $30 billion per day this week.

Above excerpted from:

"Unwinding more underweights" by Joseph Kalish, April 13, 2020, respectively (available through NDR's Institutional product offerings)

Back to the zero lower bound

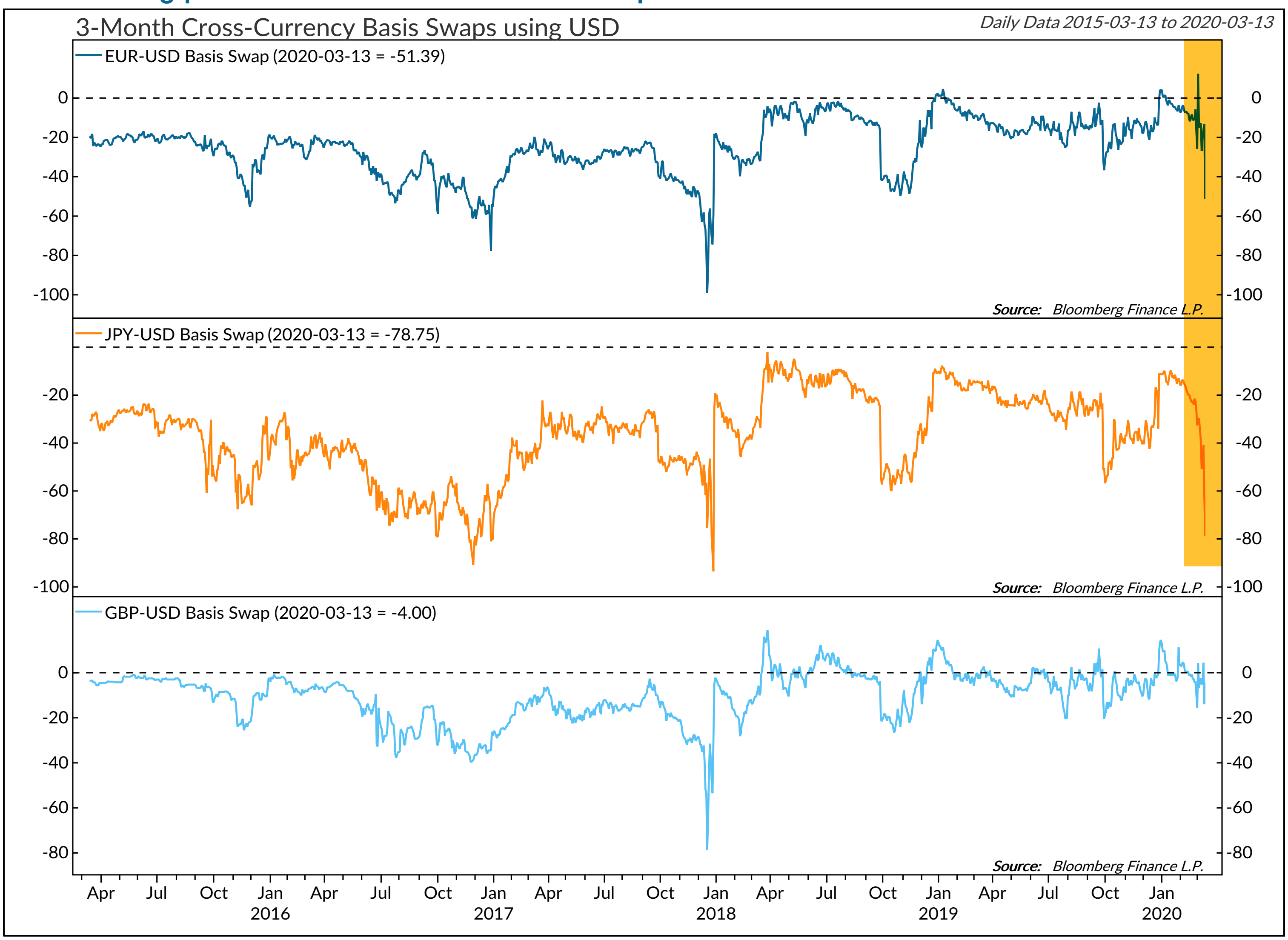
The Fed fired a bazooka on Sunday night, March 15, issuing updated forward guidance and implementing a new round of large-scale asset purchases. To recap, the Fed slashed the target range for the fed funds rate by 100 basis points (1%) back to the zero lower bound (ZLB) of 0.00 to 0.25% for the first time since December 15, 2015. It plans to maintain this range until it is "confident that the economy has weathered recent events and is on track to achieve" its goals.

The Fed will buy $500 billion of Treasury securities and $200 billion of MBS. After buying $37 billion of Treasurys on Friday, March 13, it said it would buy $40 billion more on Monday, March 16.

Additionally, the Fed opened the discount window up to 90 days and reduced the rate to 0.25%. It lowered the rate on USD liquidity swap lines to 25 basis points (0.25%) over OIS as funding pressures were building **(chart below)** and added an 84-day maturity. The reserve requirement ratio was eliminated. Intraday credit would be provided on both a collateralized and uncollateralized basis. Lastly, banks were encouraged to reduce their capital and liquidity buffers

Above excerpted from: "Fed fires bazooka but virus still standing" by Joseph Kalish, March 16, 2020 (available through NDR's Institutional product offerings)

USD funding pressures evident in FX basis swaps



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Treasurys are stretched

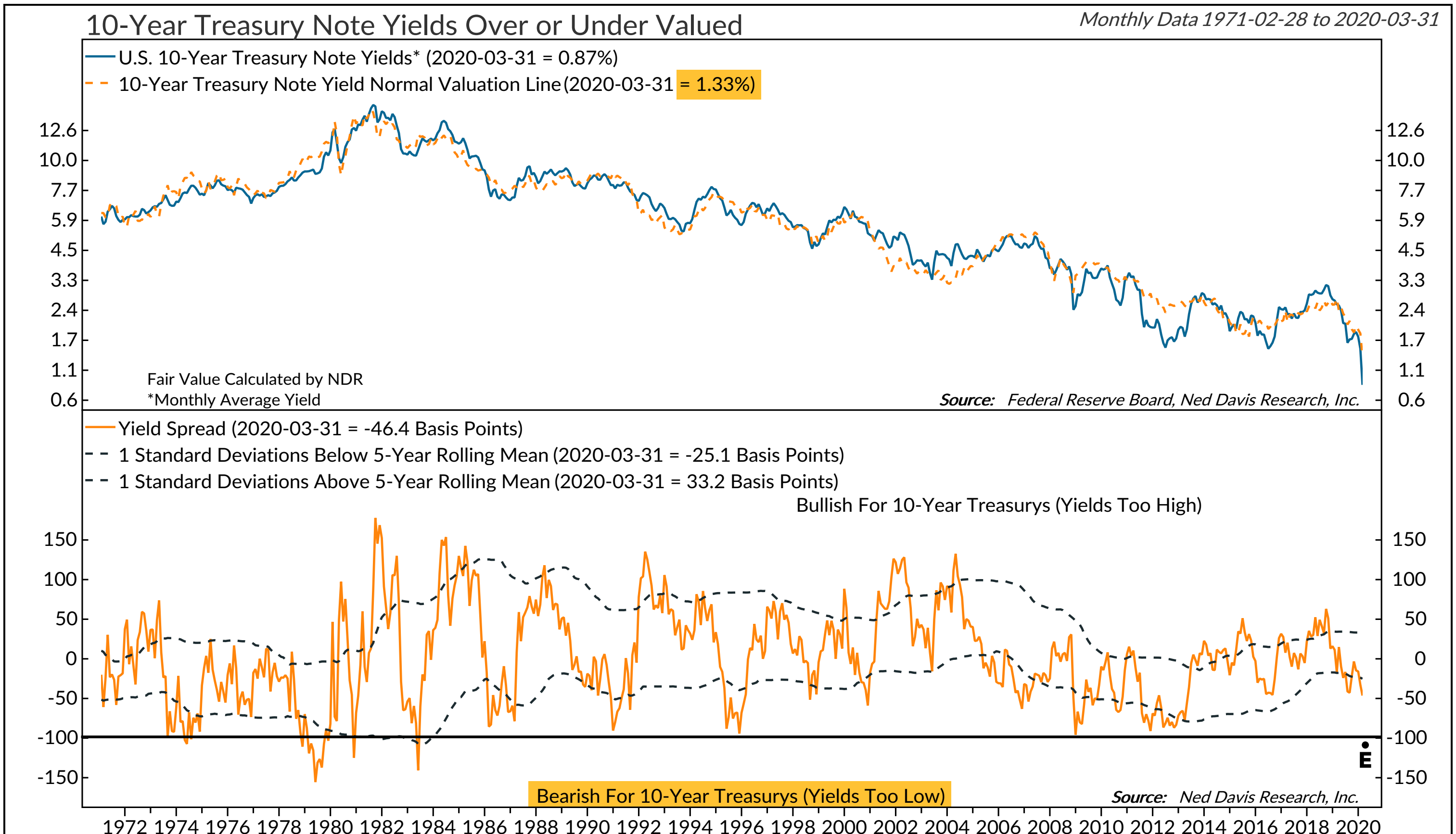
On March 8, the 10-year Treasury yield dipped below 0.32% for the first time.

Valuations are stretched. Our primary valuation model for the 10-year Treasury yield shows fair value at 1.33% for March, as shown on the **chart below**. In other words, a month ago the 10-year yield fell around 100 basis points (1%) below fair value, which would have been the biggest overvaluation since June 1983. The table in the chart shows that the Treasury bond market has generally not performed well following extreme periods of overvaluation.

Momentum is stretched. Our Interest Rate Futures Momentum Index exceeded 31.5% on March 9. Last week, the Internal Clusters of our Bond Benchmark Model hit nearly 85%. Each of those peaks marked at least a short-term extreme in price action.
What's next? Treasury bond yields have bounced significantly from their March low. Treasury bears argue that the onslaught of supply will push yields higher and steepen the curve.. However, we expect the Fed to keep policy accommodative for a long time.

Above excerpted from: "S-t-r-e-t-c-h-e-d" by Joe Kalish, April 9, 2020 (available through NDR's Institutional product offerings)

The 10-year yield was 100 bp below fair value



Determinants of Fair Value	Sensitivity
Core PCE Price Index	0.41
6-Month T-Bill Yield	0.49
Real German Bond Yield	0.32
Real GDP Output Gap	-0.21

Analysis Dates: 1971-02-28 - 2020-03-31			
Signal	Barclays LT Treas Mean Return After:		
	6 Months	12 Months	18 Months
After > +1SD	3.29	6.46	7.95
After < -1SD	-2.78	-5.44	-7.73

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VENETA DIMITROVA SENIOR U.S. ECONOMIST
JOSEPH F. KALISH CHIEF GLOBAL MACRO STRATEGIST

APRIL 16, 2020

Recession has hit the U.S.

Key Takeaways

- Uncertainty about the path of the virus and stimulus effectiveness lead to four broad recession/recovery scenarios.
- COVID-19 caused global manufacturing breadth to plummet in March, confirming our view that the global economy is in a severe recession.
- Extraordinary market movements have pushed several indicators to extreme levels.

Four scenarios

	Shape	Description	Probability
Case 1	Square-root	Steep declines in output and employment in 1H 2020. Rebound in Q3 and Q4, as monetary and fiscal stimulus backstop the economic fallout. Slow growth after that.	35%
Case 2	U	Steep declines in output and employment in 1H 2020. Stabilization in 2H 2020. Recovery strengthens in late-2020/early-2021. The economy takes a year or more to regain lost output. Slow growth after that.	35%
Case 3 (Best)	V	Steep declines in output and employment in 1H 2020, followed by a sharp rebound in Q3 (return to pre-COVID-19 conditions). The economy recovers lost output by the end of 2020. Monetary and fiscal stimulus fuel strong growth after that.	20%
Case 4 (Worst)	L	Steep declines in output and employment in 1H 2020. Virus persists. Social distancing is prolonged. Policy failures do not provide adequate economic support. Credit crisis deepens. Long-term damage to households and businesses, folowed by a wave of bankruptcies and layoffs. Stagnation sets in.	10%

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Self-induced recession

No two business cycles are exactly alike, but they share a familiar pattern: trough (expansion begins) -> recovery -> expansion -> peak (recession begins). Repeat.

The U.S. economy has entered a self-induced recession, stemming from the near shutdown of supply and demand in an effort to arrest the spread of COVID-19. The contraction has been sudden and speedy. The loss of employment has been equally sharp and deep.

The duration of the recession will first depend critically on the path of the coronavirus. The longer the virus lingers and necessitates social distancing, the longer the bottoming process for the economy will be and the greater the odds of structural damage to the economy.

With this in mind, we highlighted four broad recession/recovery scenarios in the **table above**. Most post-WWII recessions have been V- or U-shaped. For simplicity, we denoted recessions that lasted less than a year as V-shaped, and those that lasted for more than a year as U-shaped.

While macro data lags the actual deterioration in economic conditions, financial markets are already pricing in a recession. The stock market is still in a bottoming process — historically, it has bottomed four to five months before the end of the recession.

Above excerpted from:
"U.S. recession/recovery scenarios" by Veneta Dimitrova, April 1, 2020 (available through NDR's Institutional product offerings)

Will the U.S. see more layoffs?

The initial wave of firings in March had a record 1.047 million increase in temporary layoffs **(chart below)**. This is one of the first mechanisms for businesses to control labor costs as output growth approaches cyclical peaks. Historically, there have always been fewer unemployed workers on temporary layoff than permanent.

The current crisis may challenge this paradigm if we get another month with a big surge in temporary layoffs.

A critical indicator to watch in the next several months will be the level of temporary layoffs, and more precisely, the ratio of permanent to temporary layoffs **(second clip)**. The behavior of the ratio in the coming months will determine if the labor market will normalize along with economic activity, or if we are in for another jobless recovery.

In addition to more temporary layoffs, businesses have already reduced temporary help services, shortened the workweek, and converted some full-time work to part-time — as ways to control labor costs during the recession.

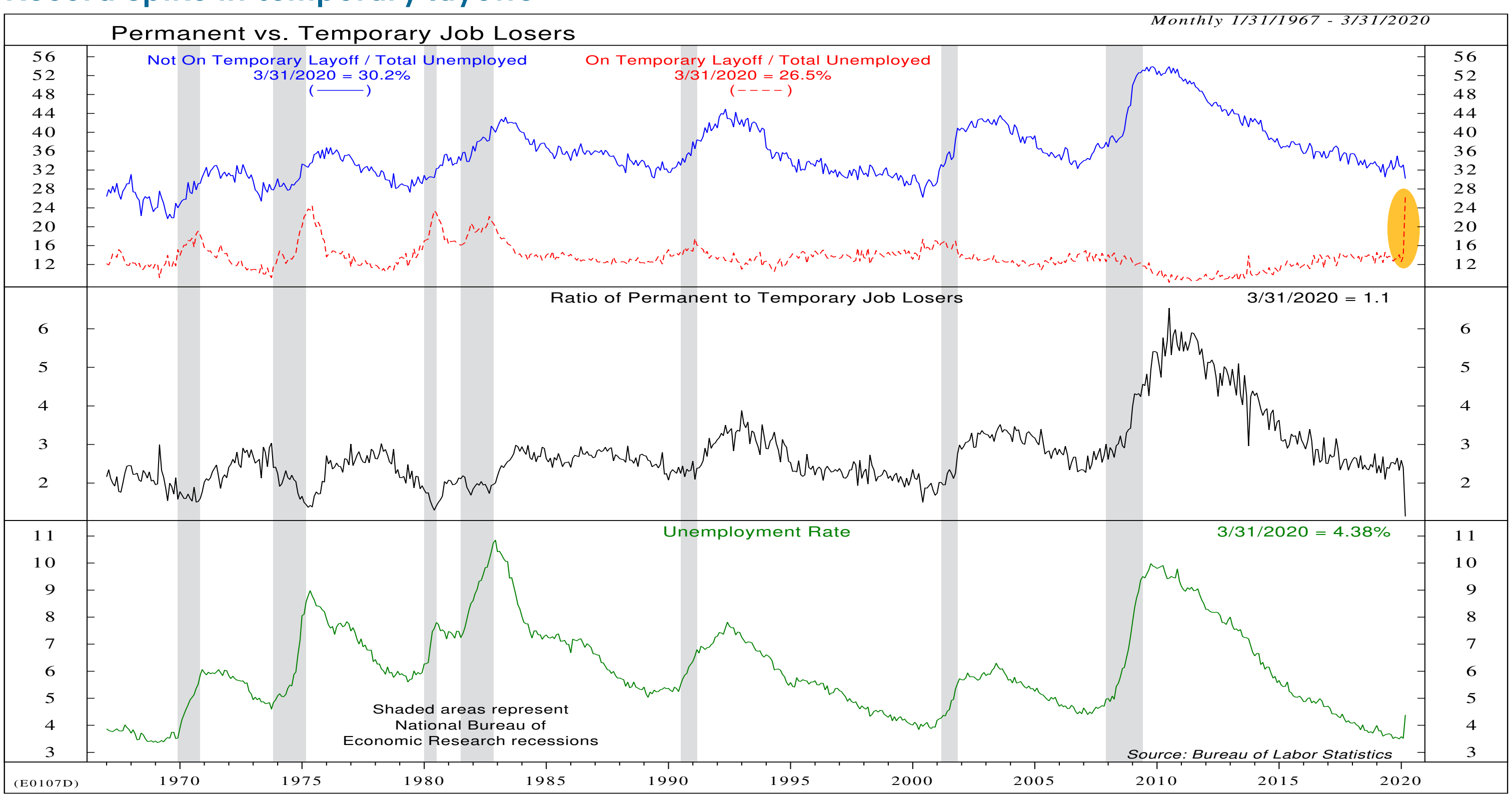
COVID-19 layoffs continue to surge

No respite from COVID-19 for the labor market, as initial claims for unemployment insurance posted another near-record level of 6.606 million last week, above the consensus of 4.500 million. To be sure, new claims were 261,000 fewer than the upwardly-revised record of 6.867 million in the week before. But, this is hardly a sign of turn-around in an economy gripped by pandemic fears.

Over the past four weeks, initial jobless claims have totaled 17.062 million, representing 10.5% of the labor force. This means that **the unemployment rate in April will likely approach 15.0%**.

Above excerpted from: "Will temporary layoffs turn permanent?" and "COVID-19 layoffs continue to surge" by Veneta Dimitrova, April 7, 2020 and April 9, 2020, respectively (available through NDR's Institutional product offerings)

Record spike in temporary layoffs



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NED DAVIS SENIOR INVESTMENT STRATEGIST

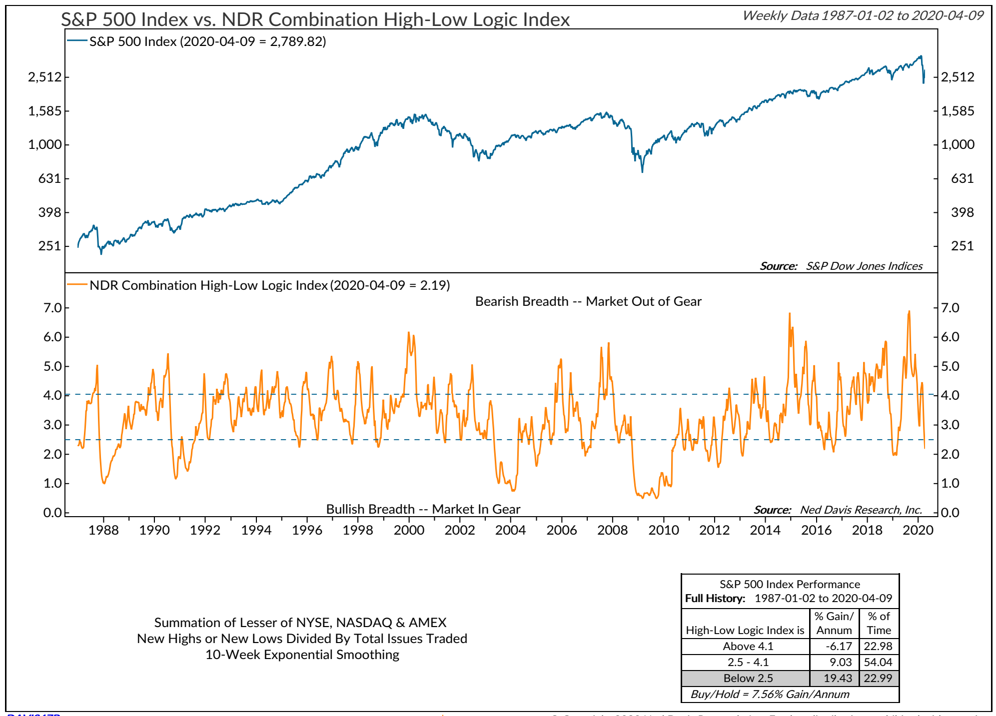
APRIL 16, 2020

Trading strategy now neutral

Key Takeaways

- Breadth thrusts and favorable monetary conditions have shifted my hedge fund strategy to neutral.
- High-Low Logic Index went bearish on February 14, 2020.
- With a reading of around 1%, the indicator helped call the lows in 1987, 1990, 2002-2003, and 2008-2009.

Fab Five Tape now bearish, although overall model is neutral



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Bearish divergences at highs

One indicator in the Fab Five Tape has been bearish for a while, the NDR Combination High-Low Logic Index, which is a breadth indicator using new 52-week highs and lows **(chart above)**.

It turned bearish on 2/14/2020, despite new record highs for the DJIA on 2/12/2020 and both the S&P 500 and NASDAQ on 2/19/2020. What the High-Low Logic Index showed was that despite the headline record highs, the number of 52-week new lows was abnormally high, showing "the market was out of gear."

Seeking more bullish breadth

The indicator has begun to plunge — it has been in the bullish zone at nearly all important lows since 1987. But, given the debt and valuation bubble in February, I would like to see a "major" low reading like we saw in 1987, 1990, 2002-2003, and 2008-2009. **This is around the 1% level on the indicator, which would suggest panic selling, setting the stage for the next bull market**.

Breadth Thrusts

One of our breadth thrust charts gives a signal whenever there are three straight days of 1.5% or over gains on the S&P 500. It did not give a thrust signal for 3/26/2020, because the gain on the second day (3/25/2020) missed the 1.5% threshold. The DJIA did, however, have three straight days above 1.5%.

Neutral strategy

With the breadth thrusts and favorable monetary conditions, I changed my hedge fund strategy to neutral on March 30. If we get some more breadth thrusts, I hope to go bullish. I would expect to see a rally for several months like after 9/11, at a minimum.

Above excerpted from: "It called the top — will it call the bottom?" by Ned Davis, March 30, 2020 (Ned's Insights is available through NDR's Advisory add-on product offerings)

Glossary of terms

Asset Allocation: Ned Davis Research, Inc. constrains the recommended equity weighting (which can theoretically range from zero to 100%) to be limited to a minimum of 40% stocks and a maximum of 70% stocks. Due to the constraint on equity weighting, the combination of bonds and cash can be weighted no greater than 60% and no less than 30% in NDR's recommendations. The benchmark for bond allocation is 35% and for cash is 10%.

Benchmark Duration: The most commonly used measure of bond risk, quantifies the effect of changes in interest rates on the price of a bond or bond portfolio. The longer the duration, the more sensitive the bond or portfolio should be to changes in interest rates. Point of reference for a measurement.

Beta: A number describing the relation of an investment return with that of the financial market as a whole. Numbers greater than one suggest an investment will increase more than the broad market when it is rising, and have greater declines when the market is falling.

Breadth: A technical term used to demonstrate how broadly a market is moving.

Capital Market: Is a market for securities (debt or equity), where business enterprises (companies) and governments can raise long-term funds.

Commercial Mortgage-Backed Securities (CMBS): A type of mortgage-backed security backed by commercial mortgages rather than residential mortgages. When compared to a residential mortgage-backed security, a CMBS provides a lower degree of prepayment risk because commercial mortgages are most often set for a fixed term.

Core Inflation: Is a measure of inflation which excludes certain items that face volatile price movements, notably: food and energy.

Cyclical Bear: Cyclical swings in the market can last from several months to a few years, and are designed to be in line with the primary trend. A cyclical bear market is a cyclical swing when the market is in a downtrend.

Cyclical Bull: Cyclical swings in the market can last from several months to a few years, and are designed to be in line with the primary trend. A cyclical bull market is a cyclical swing when the market is in an uptrend.

Deflation: Is a slight decrease in the general price level of goods and services. Deflation occurs when the annual inflation rate falls but stays above 0%.

Demographics: Studies of population based on factors such as age, race, sex, economic status, level of education, income level, and employment.

Echo Bull/Bear: An echo bear market is a shallower correction which occurs in the equity market that does not coincide with an economic recession. An echo bull market is one that follows and echo bear market.

European Central Bank (ECB): Is the institution of the European Union (EU) which administers the monetary policy of the EU Eurozone member states. It is thus one of the world's most important central banks. The bank was established by the Treaty of Amsterdam in 1998, and is headquartered in Frankfurt, Germany.

Glossary of terms

Eurozone/European Union: Is an economic and monetary union (EMU) of the European Union (EU) member states which have adopted the euro currency as their sole legal tender. It currently consists of Austria, Belgium, Cyprus, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, the Netherlands, Portugal, Slovakia, Slovenia, and Spain.

Federal Open Market Committee (FOMC): A component of the Federal Reserve System, is charged under United States law with overseeing the nation's open market operations. It is the Federal Reserve committee that makes key decisions about interest rates and the growth of the United States money supply.

Gross Domestic Product (GDP): The total output of goods and services produced in a given country during a given period.

Lagging Indicator: An economic factor that changes after the economy has already begun to follow a particular pattern or trend; used to confirm long-term trends.

Leading Indicator: An economic factor that changes before the economy starts to follow a particular pattern or trend; used to predict changes in the economy.

Median P/E: Numeric value separating the higher half of a sample, a population, or a probability distribution, from the lower half. This is the middle price-to-earnings ratio of a series.

Mortgage-Backed Securities (MBS): A type of asset-backed security that is secured by a mortgage or collection of mortgages. These securities must also be grouped in one of the top two ratings as determined by an accredited credit rating agency.

MSCI Emerging Market Index: An index developed by Morgan Stanley Capital International, Inc. (MSCI) as an equity benchmark for emerging market stock performance. It is a capitalization-weighted index that aims to capture 85% of publicly available total market capitalization. Component companies are adjusted for available float.

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NDR HOUSE VIEWS (Updated April 14, 2020)

NDR recommends an underweight allocation to equities. We are overweight bonds and marketweight cash. When coronavirus worries start to subside and global economic activity starts returning to normal, we will likely see stock prices moving higher with rising bond yields. But there's not yet any evidence that such a recovery is at hand.

Equity Allocation

U.S. | We are marketweight the U.S. relative to other regions and neutral on an absolute basis. The rebound after the waterfall decline has been broader than the typical bear market rally. We favor large-caps over small-caps and favor Growth over Value.

INTERNATIONAL | We are marketweight all seven regions within our seven-way regional allocation framework.

Macro

ECONOMY | The global economy is in a sustained slowdown. Recession probability in the U.S. has increased, due to the spread of COVID-19. Other major risks include heightened trade war tensions, a sharp slowdown in China, and political dysfunction in the U.S. and Europe.

FIXED INCOME | We are at 110% of benchmark duration. We are neutral on the yield curve. We are marketweight Treasurys, IG corporates, agencies, agency MBS, CMBS, and ABS. We are underweight high yield.

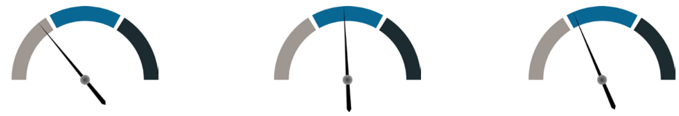
ENERGY | The combination of a demand shock (coronavirus) and an OPEC price war necessitate a bearish oil position.

GOLD | Long-term uptrend intact. We are bullish.

DOLLAR | Models are bullish. We see limited upside potential.

Economic Summary

April 13, 2020



Global Economy
Below Trend
(0.0%)

U.S. Economy
At Trend
(1.8%)

U.S. Inflation
Moderate
(2.2%)

● Overweight ● Marketweight ● Underweight

GLOBAL ASSET ALLOCATION

- Overweight: Bonds (50%)
- Marketweight: Cash (10%)
- Underweight: Stocks (40%)

Benchmark: Stocks (55%), Bonds (35%), Cash (10%)

Equities — Regional Relative Allocation

- Overweight:
- Marketweight: U.S. (55%) | Europe ex. U.K. (15%) | Emerging Markets (11%) Japan (7%) | U.K. (5%) | Canada (3%) | Pacific ex. Japan (4%)
- Underweight:

Benchmark – U.S. (55.9%), Europe ex. U.K. (13.7%), Emerging Markets (11.8%), Japan (7%), U.K. (4.8%), Pacific ex. Japan (3.6%), Canada (3%)

Global Bond Allocation

- Overweight: U.S. (55%) | U.K. (8%)
- Marketweight: Europe (27%)
- Underweight: Japan (10%)

Benchmark: U.S. (51%), Europe (26%), Japan (18%), U.K. (5%)

U.S. ALLOCATION

- Overweight: Bonds (50%) | Large-Cap | Growth
- Marketweight: Mid-Cap | Cash (10%)
- Underweight: Stocks (40%) | Small-Cap | Value

Benchmark: Stocks (55%), Bonds (35%), Cash (10%)

Sectors

- Overweight: Health Care | Consumer Staples
- Underweight: Energy | Industrials | Financials

Those sectors with a benchmark weight > 9%, an overweight/underweight is more than +/- 300 basis points from the S&P 500 benchmark. For smaller sectors, the active bet is +/- 100 basis points.

U.S. Bonds — 110% of Benchmark Duration

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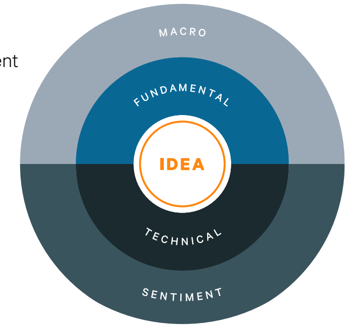

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