White Paper

Ned Davis Research Group

Why Macro Matters – A Global Economic Framework to Identify Opportunities and Risks

July 2019

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Introduction

This white paper discusses why macroeconomics is an important input for investment decisions. At Ned Davis Research (NDR), we believe that historical macroeconomic analysis sets the stage for broader investment decisions. Our process is highly dependent on historical evidence and integrating a wide data set to gauge the economic regime.

When analyzing the correct macroeconomic indicators, both cyclical and secular, investors can gain important insight into asset allocation, as well as geographical and sector positioning. This includes analyzing various components of the economy and putting the pieces of the puzzle together for a more informed and empirically-backed analysis and insights.

Macroeconomic analysis also helps identify important risk factors, whether it's through signs of excess or policy uncertainty. NDR applies an apolitical framework that focuses on data analysis and removes often-seen biases in judgment. Our rich graphical perspectives help to put context to the current environment and to place fact before fiction. Knowing the domestic and global macroeconomic backdrop is critical to understanding investment risk and opportunities and to putting clients on the right side of the major trends.

In this paper, we demonstrate this approach and how we implement the various global macroeconomic concepts into our process. Among the topics we cover are:

- The business cycle
- Monetary and fiscal policy
- Inflation
- Consumption and investment spending
- Economic surprises and outsized changes in data
- Risk factors such as credit and demographics

Objective weight of the evidence

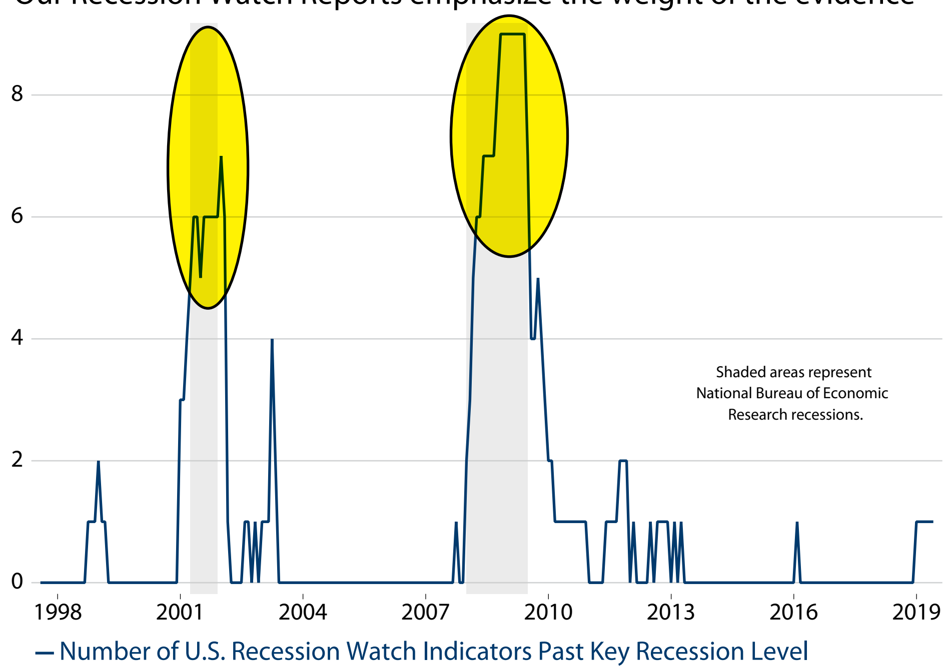
At NDR, we don't depend on just one or two indicators to determine our economic and asset class positions. Nor do we come to an emotion-driven conclusion based on predetermined beliefs, and then find the data to support it. We rely on a library of indicators with long historical precedent that have had a consistent track record. We then use the weight of the evidence to objectively balance the risks. Our thorough analysis of our extensive data sets also often finds that relationships that existed in the past, may not hold in the present. In a similar vein, we also find that a relationship that applies to one country, may not apply in the same way to another.

Our Recession Watch Reports are a good example of NDR's approach to research. These watch reports are available for several different countries and regions. Each report is comprised of seven to ten indicators, which are distinct to each report, that have historically had an excellent track record in identifying economic downturns in a timely fashion. **Using the weight of the evidence, we are confident that a downturn is in place when more than half of the data in our watch reports are flashing negative signals**. This helps prevent us from following false signals, as relationships can often erode over time.

Figure 1 shows the historic track record of the signals generated by our U.S. Recession Watch Report, while the shading reflects NBER-defined U.S. recessions. When a majority of indicators start reaching recessionary levels, we're confident that a recession is on the horizon.

Figure 1: One or two indicators in our Recession Watch Reports can occasionally give incorrect signals. In the past, many economists followed these data series on their own and erroneously called for recession. Using the weight of the evidence helps reduce the risk of incorrect calls.

Our Recession Watch Reports emphasize the weight of the evidence



Source: Ned Davis Research, Inc.

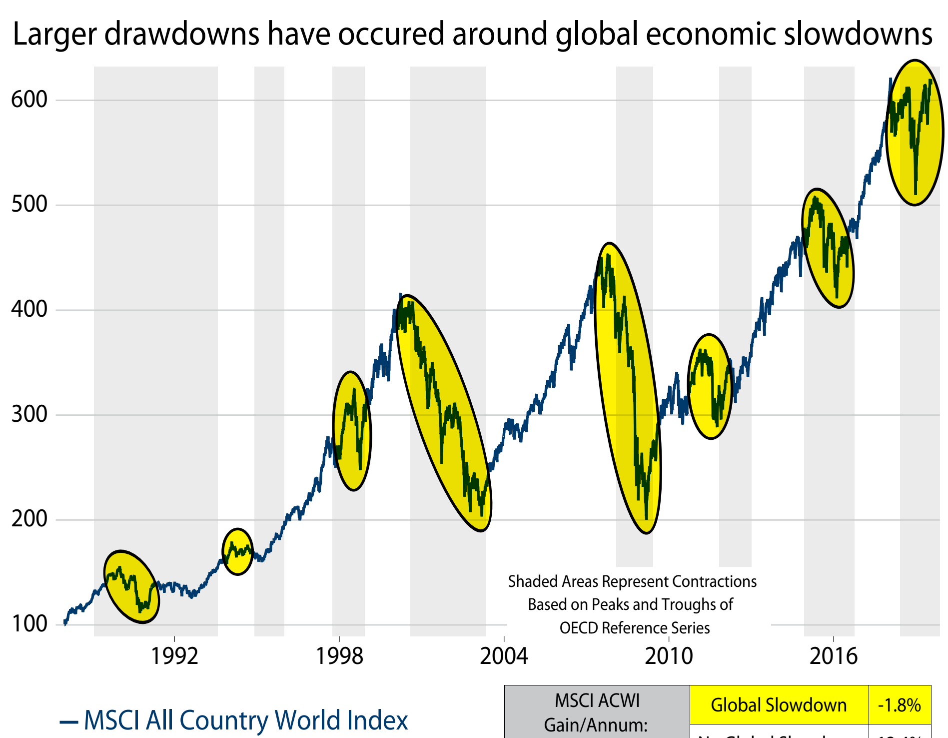
Why recession is important

The business cycle is one of the most important drivers of asset market returns. Companies depend on strong economic performance to support their growth. If the global economy falters, aggregate demand falls and companies' sources of revenue dissipate. There is also a feedback loop. Weak asset-market performance tends to reduce sentiment and have a negative wealth effect.

The relationship between equities and the business cycle is evident in **Figure 2**, which shows the MSCI All-Countries World Index (ACWI) vs. OECD-defined global slowdowns. Since MSCI ACWI data began in the late 1980s, **large drawdowns in global equites have exclusively occurred in or around these global slowdowns**.

Oil, as well as commodities in general, also tend to underperform when global economic activity has been weak. Contrary to equity markets and commodities, bonds outperform during these global slowdowns, as risk appetite falls.

While most equity-market corrections have tended to occur around global slowdowns, the most aggressive asset-market moves have transpired when the global slowdowns have been accompanied by U.S. recession. Since the late 1980s, the average drawdown in global equities during global slowdowns not accompanied by U.S. recession has been 19%. This compares to -45% when the U.S. has been in recession.



MSCI ACWI Gain/Annum: (1987-12-31 - 2019-07-19)	Global Slowdown	-1.8%
	No Global Slowdown	13.4%

Source: MSCI

Figure 2: Contrary to popular belief that the economy lags markets, one can observe that in most cases, the vast majority of equity drawdowns have occurred after the global slowdowns have begun.

Don't fight the Fed

One of NDR's most imperative rules of research is "Don't fight the Fed." When central banks become more accommodative, this bolsters borrowing, ultimately increasing aggregate output, which can support cyclical assets. Additionally, the liquidity left over after demand is met can be invested into financial markets. The reverse happens when central banks tighten policy.

Because of this, it's no surprise that equity markets respond favorably to Federal Reserve easing. The Dow Jones industrial Average (DJIA) has been up an average 16% in the year following a first Fed rate cut, as shown in **Figure 3**. The track record is auspicious, with the market up in 18 of the 24 cases (starting in the year 1921).

With respect to fixed income, Treasury yields have generally declined during Fed easing cycles. Related to this, the yield curve has been flat to steeper when the Fed has eased policy.

When the Fed eases, the rest of world usually follows. On average, central bank policy rates outside of the U.S. have peaked at around the same time that the Fed has initiated rate cuts. Since the world's economies are interconnected, it would make sense that economic weakness in the U.S. would be evident in other parts of world, thus prompting easing from other central banks. Fed easing also often relieves currency depreciation risks from many economies, also allowing for more accommodation. Our analysis has found that when more than half of the world's central banks have been easing, it's been bullish for global equities.

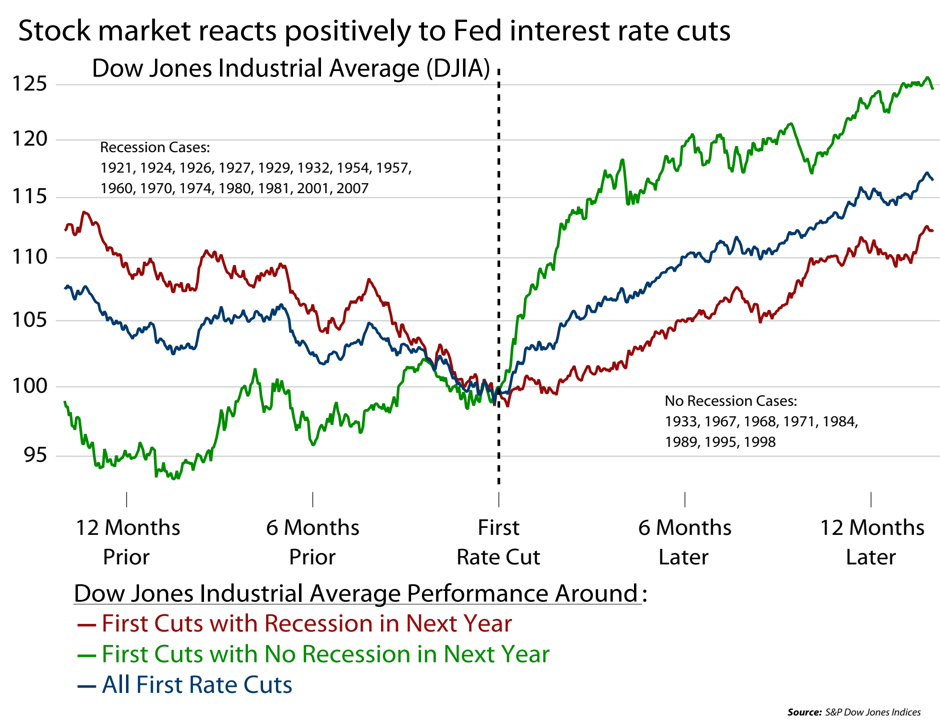


Figure 3: The DJIA has increased even more when Fed easing has not coincided with a U.S. recession, up 24% a year later, vs. the recessionary cases of 11%.

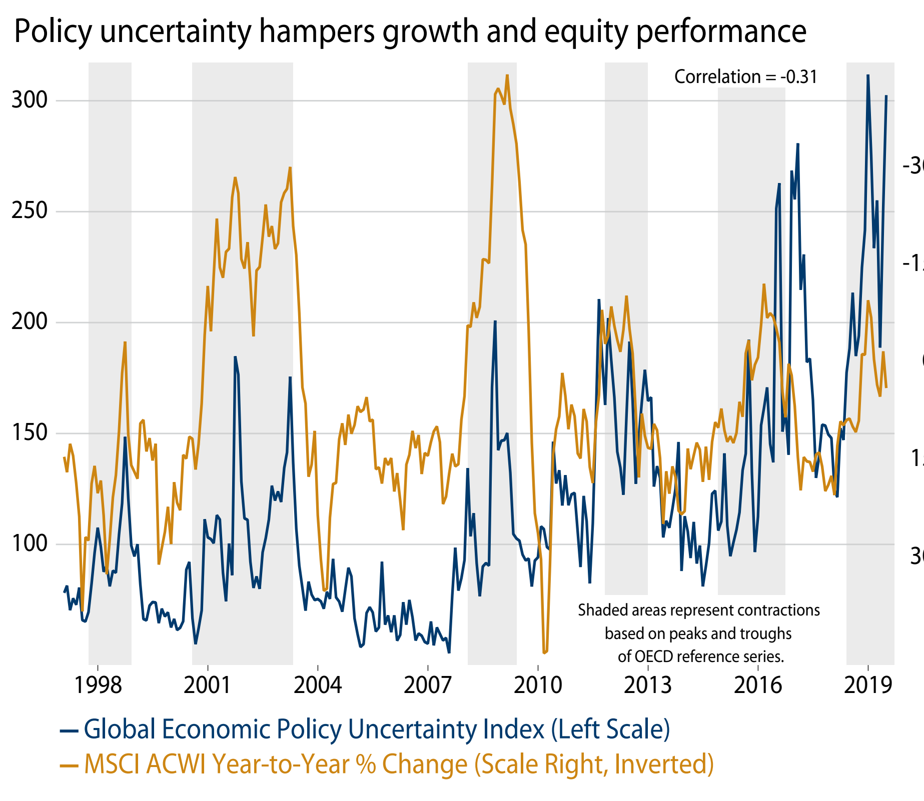
How politics can be objective

NDR is known for applying an apolitical framework that focuses on data analysis and removes often-seen biases in judgment. But gauging the political and broader policy landscape, which many consider to be abstract and subjective, is important for investment decisions. NDR, however, has various ways of empirically and objectively implementing this into our process.

Assessing just government spending can give a great deal of insight. Our analysis has found that when the budget balance deteriorates, whether it's via lower taxes or increased government spending, on average equities tend to outperform and the dollar tends to weaken as the boost in stimulus encourages economic growth. Longer-term, however, the accumulation of debt has often been associated with lower potential growth and a crowding out of private investment.

In recent years, **policy uncertainty has played an increasingly larger role in macroeconomic and investment performance**, as the rise of populist governments all over the world has resulted in unilateralist policy decisions. The Economic Policy Uncertainty Index, shown below in **Figure 4**, measures the number of mentions of policy uncertainty in major newspapers all over the world. As one can see, elevated uncertainty has historically been associated with sustained global economic slowdowns and sub-par global equity-market performance.

Figure 4: Elevated uncertainty is associated with global economic slowdowns and weaker equity market performance.



Inflation – focus on the trend

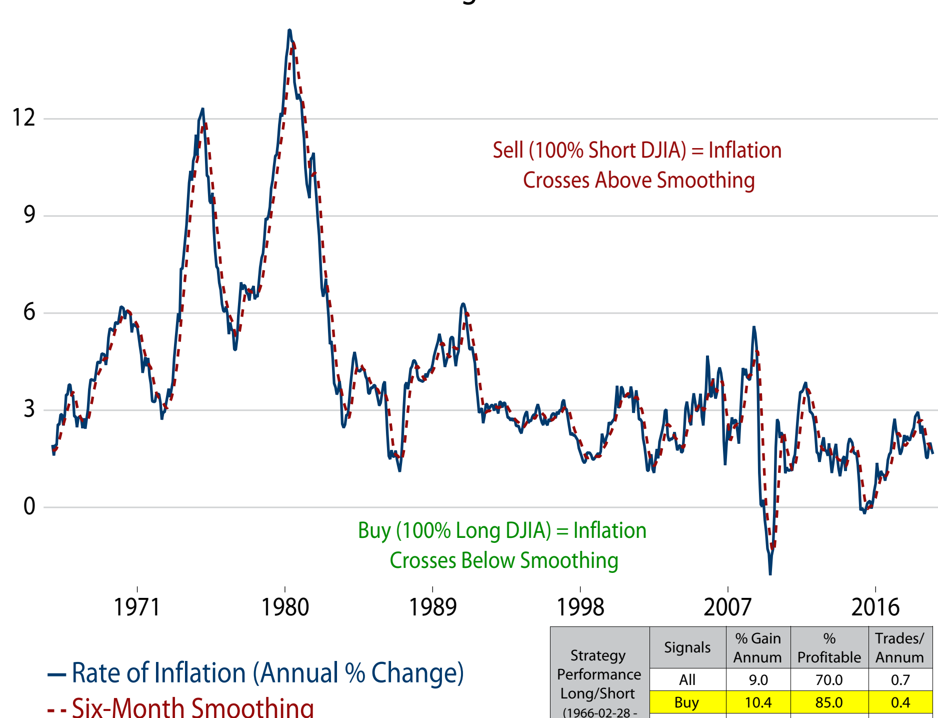
It is a blessing and a curse. Too much inflation is a symptom of an overheating economy or is the result of a supply shock, e.g., oil shortage. As central banks tighten monetary policy to temper economic growth and inflation expectations, higher interest rates weigh on equity valuations. Too little inflation is a symptom of an economy that is mired in slow growth or is the result of oversupply, e.g., global labor supply. As central banks ease monetary policy to stimulate aggregate demand, lower interest rates support equity valuations.

But what is too much or too little inflation? Central banks give us guidance, with the Federal Reserve and most other developed country central banks having an explicit inflation target of 2.0%. **We find value not only in where inflation stands relative to its target, but also relative to its short-term trend**. As **Figure 5** below shows, CPI inflation running sufficiently above its six-month average is bearish for the stock market, and our analysis generates a sell signal. Conversely, when CPI inflation crosses below its six-month average, our analysis generates a buy signal. This simple switching strategy has outperformed buy/hold over the full history.

Other asset classes respond differently to inflation. CPI inflation running above (below) its long-term trend (five-year smoothing) has historically been associated with falling (rising) long-term bond prices.

Figure 5: While inflation has been broadly under control for the past three decades, changes relative to its short-term trend are still important for stock prices.

The stock market doesn't like rising inflation



Strategy Performance Long/Short (1966-02-28 - 2019-06-30)	Signals	% Gain Annum	% Profitable	Trades/ Annum
	All	9.0	70.0	0.7
	Buy	10.4	85.0	0.4
	Sell	4.3	55.0	0.4
	Buy/Hold	6.4	--	--

Source: *Bureau of Labor Statistics*

NDR way of evaluating credit conditions

Credit is the lifeblood of the economy and the main channel through which monetary policy gets transmitted. Thus, evaluating credit conditions is instrumental in determining the prospects for both economic and financial market performance. At NDR, we employ our own Credit Conditions Index (CCI), which is designed to measure the cost and availability of credit to consumers and businesses. At peak levels, the CCI indicates that the cost of credit is low and availability is high. Conversely, at trough levels the CCI indicates the opposite.

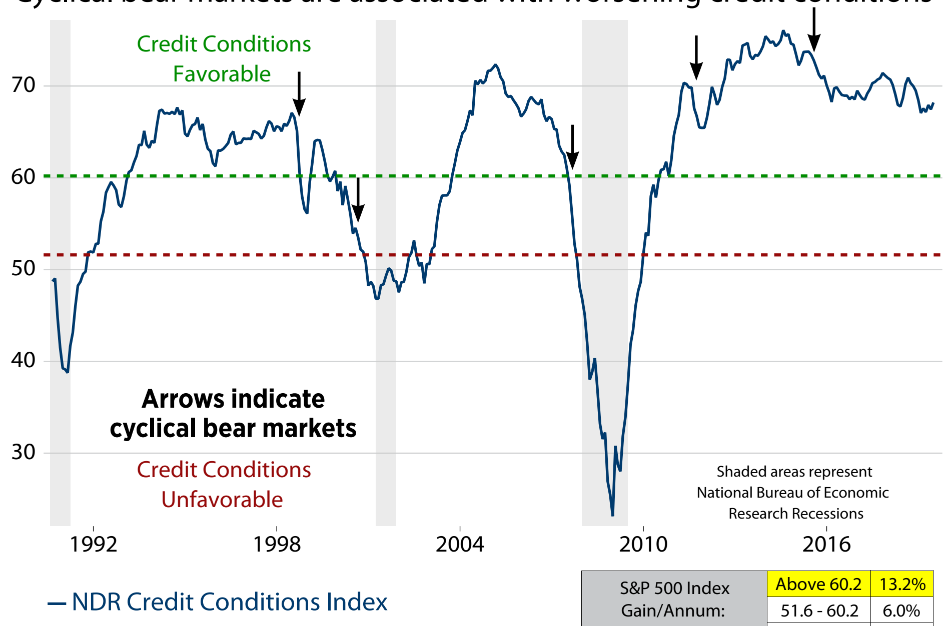
The CCI has peaked well ahead of each of the past three recessions and has troughed ahead of expansions, although each credit cycle is different. The early 1990s were characterized by the Savings & Loan crisis, a commercial real-estate bust, and a recession induced by an oil-related shock due to the Iran-Iraq war. The commercial real estate sector took over a decade to normalize, but the peak in household credit conditions occurred in 1994.

Unlike the 1990s, conditions in the 2000s were dominated by residential mortgages, with the bursting of the housing bubble precipitating the Great Recession.

Why do credit conditions matter? Simply put, **cyclical equity bear markets are associated with deteriorating credit conditions**, whereas cyclical bull markets are correlated with improving or favorable credit conditions. As shown on **Figure 6** below, the CCI declined and fell out of the favorable zone during the cyclical bear markets from 2000-02 and from 2007-09.

Figure 6: The CCI has declined during all cyclical bear markets since the early 1990s and has fallen out of the favorable zone during the bear markets of 2000-02 and 2007-09.

Cyclical bear markets are associated with worsening credit conditions



S&P 500 Index Gain/Annum: (1990-08-31 - 2019-06-30)		
	Above 60.2	13.2%
	51.6 - 60.2	6.0%
	Below 51.6	-7.3%

Source: Ned Davis Research, Inc.

Discretionary or staples – consumer spending is key

Accounting for nearly 70% of GDP, personal consumption expenditures (PCE) is a key driver of final domestic demand. The economy goes where the consumer leads it, as what and how much we buy ultimately determines corporate revenues and profits, which in turn drive stock prices.

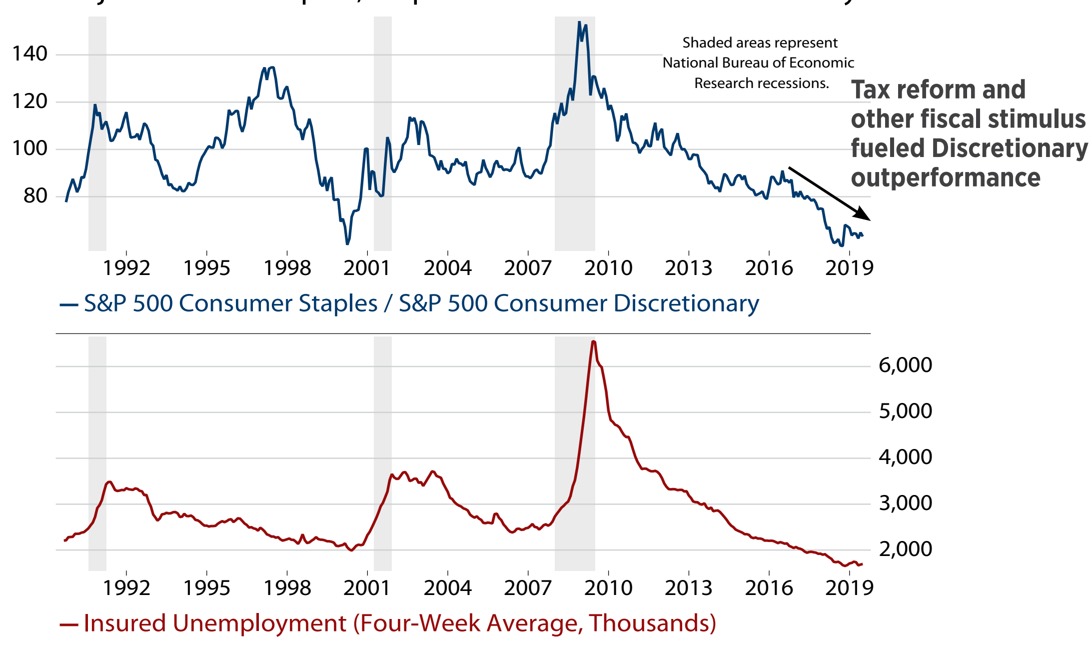
From a macro standpoint, the key driver of consumer spending is personal income. The historical correlation between income and spending growth, adjusted for inflation, is more than 70%. Thus, what impacts income growth (e.g. employment, wages) typically impacts spending growth, as well. Other factors that influence consumer spending include changes in inflation and inflation expectations, household wealth, credit conditions, and consumer confidence.

Not all consumer spending is equal. **When it comes to investing, an important distinction is between Consumer Discretionary and Staples**. Discretionary spending is a pro-growth cyclical sector, while Staples is a defensive sector. When the economy is in a sustained expansion or accelerating, Discretionary outperforms Staples. When the economy is headed for a slowdown or is already in a recession, Staples outperforms Discretionary, as is clear on **Figure 7** below.

In the depths of the Great Recession, when jobless claims surged, Staples outperformed Discretionary handsomely. As the subsequent recovery took hold and the unemployment rate declined, Discretionary outperformed Staples.

Figure 7: Discretionary outperforms Staples when the labor market is strong. Conversely, Staples outperforms Discretionary when the labor market is weak.

When jobless claims spike, Staples beat Consumer Discretionary



Investment spending paves the future for the economy and markets

Should companies reinvest their earnings, or should they pay out dividends, buy back their stock, or simply hold on to their cash? Macro factors play an important role in this decision which matters for both short-term and long-term investors.

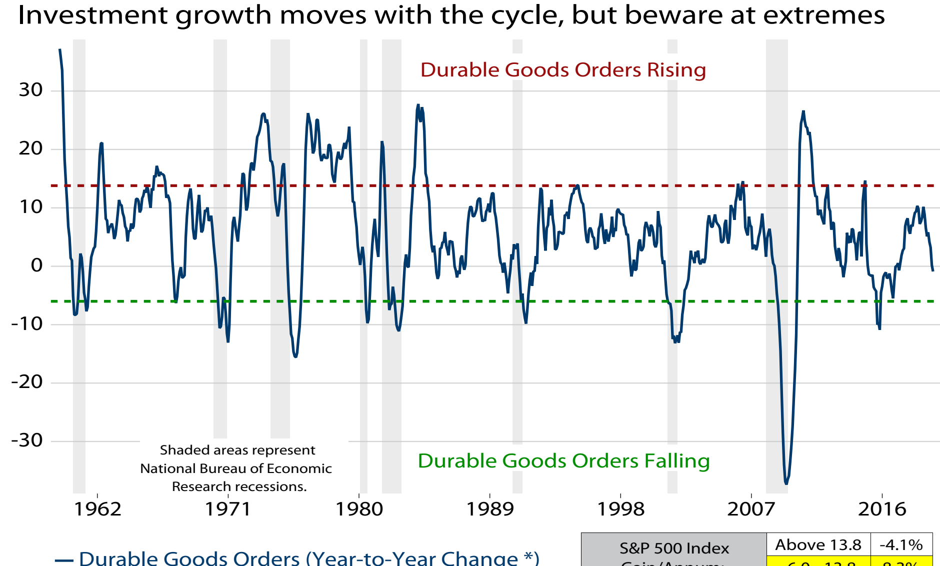
An increase in capital investment spending is typically viewed favorably by investors as it **translates into higher long-term earnings potential and higher stock prices**. But its effectiveness depends on where we are in the business cycle. If the economy is coming out of recession or growth is accelerating for other reasons (e.g., fiscal stimulus or monetary policy change), a forceful increase in capex lifts stock prices as it means higher corporate profits ahead, and it reinforces the positive feedback loop for the economy (growth begets more growth). But if the economy is already near potential, a sharp increase in capex can be inflationary in the short term, precipitating higher interest rates that can drive up the cost of credit and cut into corporate earnings and stock prices.

One early capex indicator that is important in this respect is durable goods orders (e.g., machinery, electrical equipment, computers, communications equipment, etc.). Its year-to-year momentum slows ahead of recessions and rebounds at the onset of expansions, as **Figure 8** shows. But when it reaches extremes either to the upside or the downside, it becomes a contrarian indicator for overall stock market performance.

From a long-term perspective, investment spending boosts labor productivity (i.e., output per hour) and thus leads to faster potential output growth.

Figure 8: Durable goods orders are a useful early indicator of investment growth and stock prices.

Investment growth moves with the cycle, but beware at extremes



S&P 500 Index Gain/Annum: (1959-05-31 - 2019-06-30)		
	Above 13.8	-4.1%
	-6.0 - 13.8	8.3%
	Below -6.0	14.6%

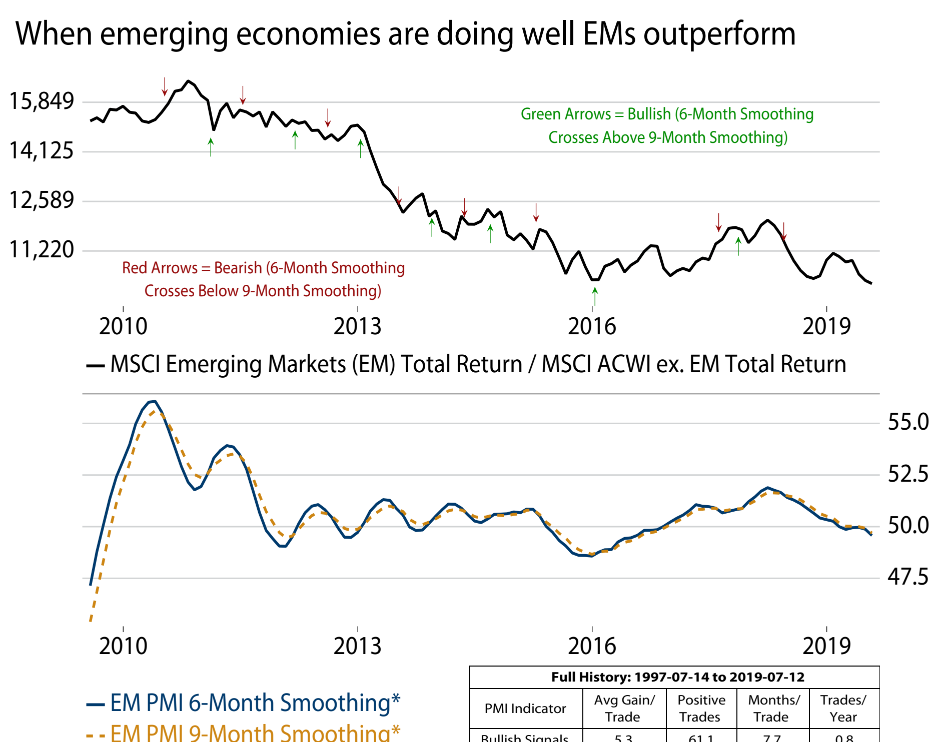
Macroeconomics and global regional allocation

Analyzing relative economic trends can also give investors insight as to where they should allocate their investments among countries and regions. But one must be cautious about what data they monitor and how they view it, and not simply assign investments to where growth is the fastest, as potential economic growth rates can vary widely among countries. For example, emerging markets, such as China and India, have the capacity to grow much faster due to economic backwardation than developed economies such as the U.S. and Europe.

Instead **we focus on data that is normalized or anchored to a long-term mean**, such as the Purchasing Manager Indexes (PMIs) and the OECD leading indicators. We also look at deviations from trend growth, as sharp directional changes in growth, as opposed to just a growth rate, can also influence the outlook. As shown in **Figure 9** below, trends in the emerging market PMI can help us generate buy and sell signals for emerging market equities.

Even if one doesn't invest outside of the domestic realm, knowing relative global trends can influence equity styles, such as whether to allocate into large caps or small caps. Less than half of the S&P 600 pre-tax profits come from international sources, versus about 50% for S&P 500 companies.

Figure 9: When the emerging market PMI has surpassed its longer-term trend, emerging market equities tend to outperform relative to the rest of the MSCI ACWI.



Full History: 1997-07-14 to 2019-07-12				
PMI Indicator	Avg Gain/ Trade	Positive Trades	Months/ Trade	Trades/ Year
Bullish Signals	5.3	61.1	7.7	0.8
Bearish Signals	1.7	44.4	6.9	0.8

* Front-Weighted Moving Average
Source: MSCI, Ned Davis Research, Inc.

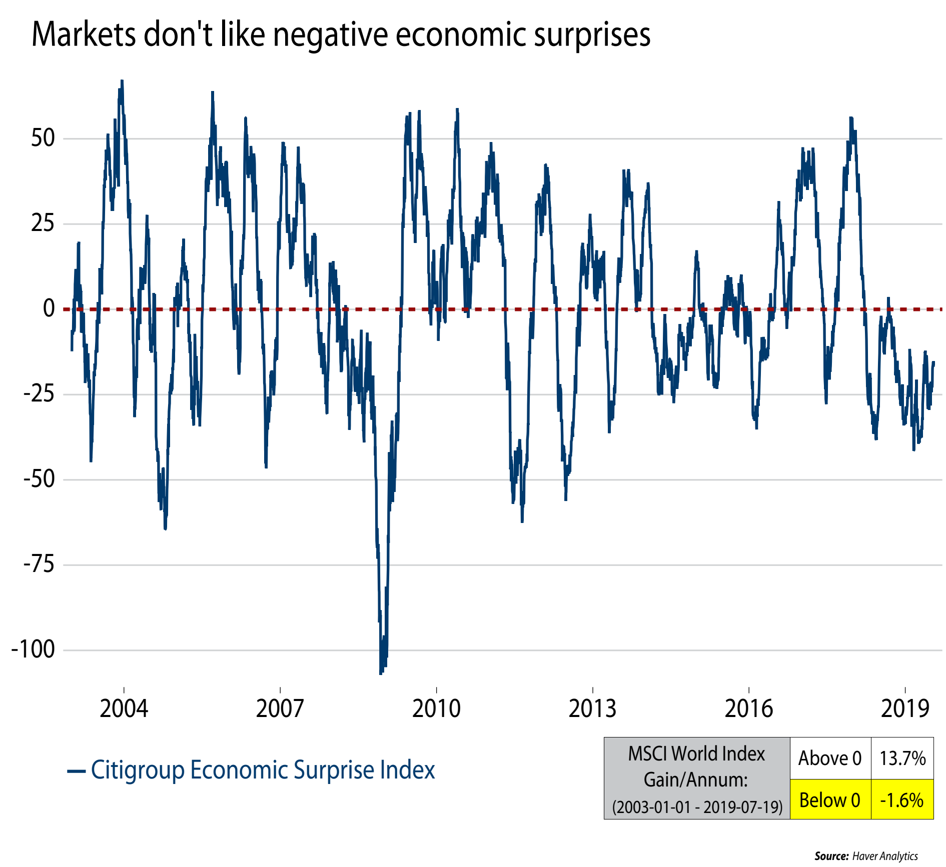
When the element of surprise matters

Investors usually try to anticipate economic conditions. But unfortunately, they are often wrong. Our analysis of the Citigroup Economic Surprise Indexes, which compare economic data relative to consensus estimates, can give insight into asset class performance. In general, **when data surprises to the downside (upside), equities tend to underperform (outperform)**.

We found that the indexes corresponding to the largest developed economies, namely the U.S., eurozone, U.K., and Japan, typically had the most pronounced relationship with equity markets. We also found the results were far more robust when we looked at the equity markets of countries and regions on an absolute basis, as opposed to a relative basis. This suggests that broad global equity market performance is related to the general health of the world's largest economies. Related to this, the economic data from these larger countries is also more closely scrutinized by market participants, thereby making the market more sensitive to this data.

Figure 10, shown below, depicts the Citigroup index for G10 currencies vs. the MSCI World Index. As shown in the mode box, when the index has been negative, the MSCI World has typically underperformed.

Figure 10: Investors often anticipate economic conditions incorrectly. Positive surprises have historically been good for equities, while negative surprises have coincided with weaker equity performance.



Extreme levels and changes in indicators matter

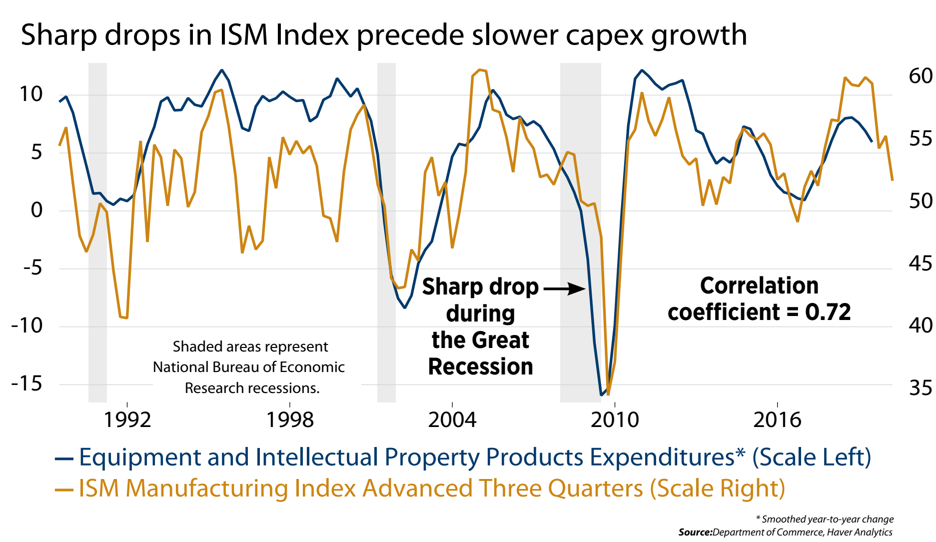
At NDR, we appreciate that history rarely repeats itself but often rhymes. When an indicator registers an extreme level or an outsized change relative to its past, we evaluate how the economy and financial markets have performed in subsequent periods. This provides an added perspective on expectations and can prove valuable in risk management.

More often than not, **extreme levels and outsized changes in economic indicators are precursors to longer-lasting changes in broader economic conditions and movements in financial markets**. For instance, a surge (slump) in the ISM Manufacturing Index, a broad indicator of factory activity, often precedes a surge (slump) in investment spending. Since the latter is about 15% of the U.S. economy and is highly pro-cyclical, it may lead to faster (slower) economic growth ahead and a related response from financial markets.

As **Figure 11** below shows, there is a strong positive correlation between the ISM Manufacturing Index and investment spending growth three quarters later. Sharp declines in factory activity often happen ahead of and during economic slowdowns and are associated with weaker growth in capex, corporate profits, and stock prices. Conversely, sharp rebounds in factory activity lead to stronger growth in capex, corporate profits, and stock prices.

For instance, not only did the ISM Manufacturing Index peak well ahead of the Great Recession, but it plunged by nine points in October 2008, the fourth biggest drop on record. It indicated a deepening economic slowdown and at least several more quarters of capex cuts ahead. While equity prices are typically positively correlated with the ISM Index, at extremes (high/low) the stock market may react in a contrarian way, as it raises the probability that the Fed will hike/cut interest rates.

Figure 11: Changes in the ISM Manufacturing Index lead capex growth by several quarters.



Demographics drive the long-term

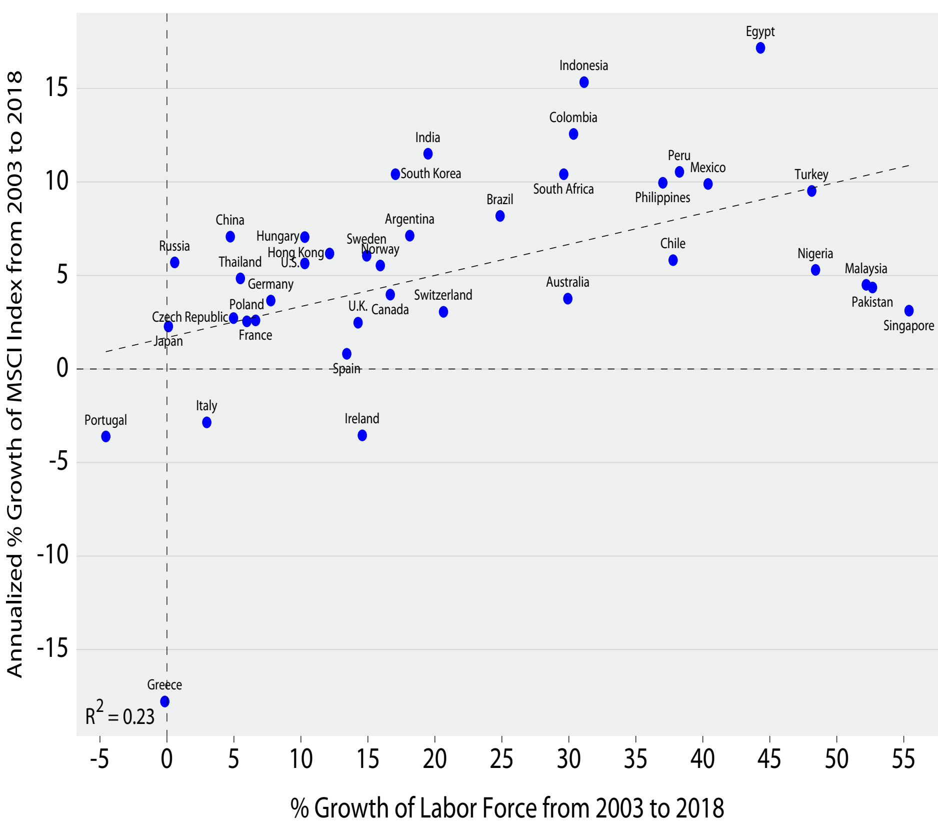
Global population trends can have a profound impact on long-term equity market performance. Holding all else constant, if a country's labor pool shrinks, this will have a negative impact on a country's economy. That's why it is not surprising that growth in the working age segment of a country's population, particularly among maturing workers, is important for equity market performance in the long-run.

As shown in **Figure 12** below, **in the long-run, stock market returns have had a positive relationship with labor force growth**. This suggests that large parts of the emerging world, such as Latin America, South Asia and Southeast Asia, as well as frontier markets have the most room for upside in the coming decades. Among developed markets, the U.S, Australia, Ireland, and Singapore are the best positioned.

As the R-squared indicates, demographics explains some, but not all, equity market performance. Even so, there's no denying that the relationship with demographics exists. Additionally, unlike most forecasts, demographic projections are fairly accurate in the long-term since they're based on births that have already happened.

Figure 12: While demographics alone cannot fully explain long-term returns, it's an important input since forecasts are fairly accurate.

Stronger labor force growth tends to bolster equity performance



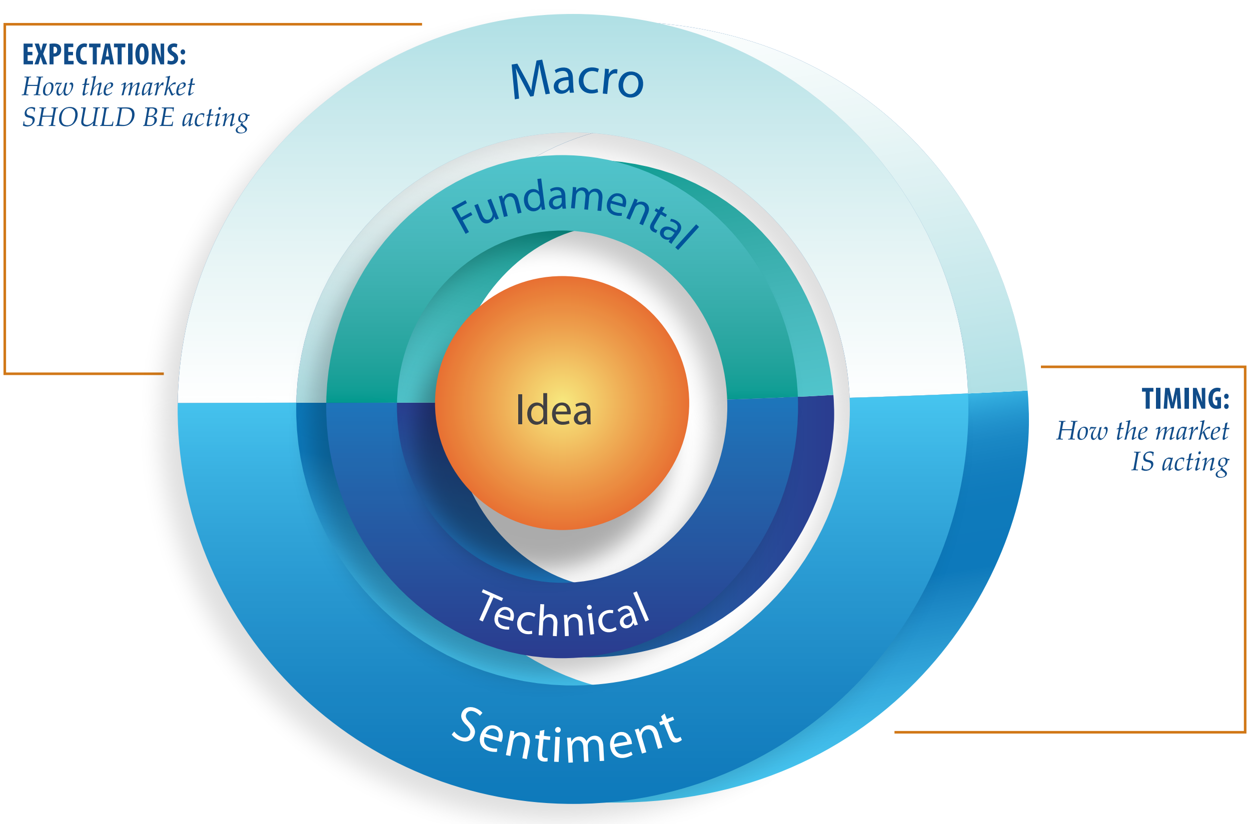
Source: MSCI, Copyright © International Labour Organization (ILO Department of Statistics, https://laborsta.ilo.org/)

Conclusion

It's clear that macroeconomics plays a significant role in the investment process. Knowing early-on whether the economy is in recession could save investors from significant downside, while being aware of the impact of expansionary monetary and fiscal policy trends can allow for substantial upside in investment returns. Identifying long-term risks, such as debt and demographics, the latter of which is already known, helps identify potential risk factors to the business cycle. Monitoring economic sectors can give insight into where investors should be positioned. Meanwhile, being aware of outsized changes in data or incorrectly positioned expectations can safeguard against major negative moves in markets.

NDR's apolitical and empirically-backed analysis allows us to identify these trends, removing biases from our process.

Macroeconomics is just one piece of the pie
At NDR, we apply a multifaceted approach to research, where macroeconomics is just one part of the framework. In addition to that, we also implement sentiment, technical (i.e. price trends), and fundamental factors into our process. Using all these factors together, coupled with our weight of the evidence approach, helps keep us on the right side of major trends.



About NDR

Ned Davis Research (NDR) helps investment management professionals make better decisions with unbiased, insightful and risk-appropriate quantitative indicators, strategy, models and analysis across asset classes. Founded in 1980 by Ned Davis, a noted market historian, NDR employs a unique 360° approach combining both fundamental and technical analysis. NDR also undertakes quantitative custom research projects for its clients. It has offices in Venice (US), Atlanta, Boston, London (UK), New York, San Francisco, and Hong Kong. More information is available at ndr.com.

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