Where Are We in the Stock Market Cycle?

A Look at Bear Markets from 1960 to the Present

Ricardo L. Cortez, CIMA

Introduction

The current bull market cycle is now almost a decade old and, while mature by historical standards, an old Wall Street maxim reminds us that "bull markets do not die of old age." A change in macroeconomic factors and/or internal market dynamics typically precedes or accompanies a change in the trend of the stock market. While the stock market goes through cyclical ups and downs, there is little historical consistency as to length of expansions and subsequent bear markets. Most recently, the stock market declined -10% in early 2018 after several years of rising prices and low volatility. We will have to wait to see if this is merely a "normal" correction or the start of a more meaningful decline.

On the negative side, valuations are now at historically elevated levels, investor sentiment has reached new highs of optimism (negative from a contrary point of view) and interest rates are rising. On the positive side, we have not yet seen the signs of an economic contraction: earnings remain strong, credit spreads remain narrow and the yield curve is still positive. Nonetheless, there is historical precedent for significant market setbacks in the absence of a recession: 1961-1962, 1966, 1976-1978, 1987 and 1998, for example.

As of March 2018, there have been 14 significant stock market declines since 1960.[1]

- For the 14 total declines, the average decline was -29.2%.
- Nine of these declines have been associated with recessions, resulting in an average decline of -30.5%.
- Five other declines of -19% or more occurred that were not associated with recessions; the average decline in these cases was -26.9%.

Chris Guptill, my partner and CIO at Broadmark Asset Management, has been a pioneer in the application of factor analysis to stock market price movements for many years. Building upon the work of Marty Zweig, Ned Davis, Robert J. Farrell, Edson Gould and other great stock market analysts, Chris Guptill created an investment process over 20 years ago that identified four major factors—three qualitative and macroeconomic and one quantitative and technical—that have historically provided repeatable signals at market extremes. These four factors, or "pillars," that make up our investment process are: valuation, monetary policy and credit conditions, investor sentiment and momentum.

In this paper, we will describe the four factors in our investment process, apply our four-pillar process to stock market peaks prior to the bear markets of the last half century, and offer our perspective into where we are now in the current investment cycle as compared with previous cycles.

[1] Including all declines associated with recessions and all other declines of -19% or more since 1960 (*Figures 1 and 2*).

The Four Pillars of the Investment Process

Valuation: Historically at high points in the stock market cycle, valuation levels are elevated, while on the other hand, at market lows, valuations are low. We look for extremes in valuations to tell us when to be cautious and when to be more optimistic about future returns. Many metrics are available to assess equity valuation levels, including the median price-earnings (P/E) ratio of the S&P 500, Robert Schiller's cyclically-adjusted P/E (CAPE) ratio of 10-year normalized earnings, the U.S. Federal Reserve (Fed) Board model, the price-book ratio, the price-sales ratio, stock market capitalization as a percentage of gross domestic product (GDP) and various dividend discount models.

Monetary Policy and Credit Conditions: Monetary policy and credit conditions are among the most important factors in the determination of the long-term direction of the U.S. stock market. As the stock market and economic cycle mature approaching a peak, the Fed usually begins to tighten monetary policy through interest rate increases and other monetary tools at its disposal. During the current cycle, for example, one of the tools that the Fed used to provide liquidity to the system was quantitative easing. According to released statements, the Fed is now reversing this process by a systematic reduction in its balance sheet, or quantitative tightening.

A variety of indicators can be used to assess monetary policy and credit conditions. The rate of change of interest rate movements, the difference between short rates and long rates (the yield curve), the spread between the yield on Treasury securities and corporate, municipal and high-yield bonds (credit spreads), free reserves and indicators of inflationary pressures are among the many indicators that we use. In addition, the last decade has shown that global markets can have a major impact on the U.S. stock market. Therefore, indicators of the actions of global central banks—the U.K., Japan, China and Europe, among others—that could affect U.S. policy and the U.S. stock market are important in this analysis.

Investor Sentiment: In our analysis, investor sentiment should be assessed from a contrarian point of view. When investors are very optimistic, it is usually the time to be cautious. When investors are selling heavily, it is usually time to increase market exposure. One measure of investment sentiment is the bullishness or bearishness of stock market investment letters written by market pundits, portfolio strategists and individual investors. Put-call ratios, short interest, and margin debt are among the many indicators that provide perspective on extremes in investor sentiment.

Momentum: Healthy markets are distinguished by a high percentage of stocks participating in the advance. During these times, measures of volume and market breadth confirm new highs in the major market indexes. As the stock market and economic cycle near a peak, there are usually decreasing levels of participation in terms of both breadth and volume, which creates negative divergences.

Models that are important in this analysis include the percentage of stocks above their 10- and 30-week moving averages, cumulative on-balance volume and breadth, measures of institutional flow of funds and the divergences between the broad list of stocks and the major market indexes.

A Historical Perspective on Stock Market Declines and Recessions

Most, but not all, stock market declines occur in advance of U.S. and/or global economic recessions. Figure 1 shows all nine stock market declines since 1960 that were associated with U.S. and/or global recessions. There is also historical precedent for significant stock market corrections of -19% or more that have occurred without a corresponding recession, as shown in Figure 2. The average of these 14 market declines was -29.2% lasting 325 days.

Figure 1. Declines associated with recessions

Year(s)	Amount Decline	Duration (Days)
1960	-17.4%	294
1968-1970	-35.9%	539
1973-1974	-45.1%	694
1980	-15.9%	68
1981-1982	-24.1%	472
1990	-21.2%	87
2000-2001	-29.7%	616
2002	-31.5%	204
2007-2009	-53.8%	517
Average	***-30.5%***	***388***

Figure 2. Declines without a recession

Year(s)	Amount Decline	Duration (Days)
1961-1962	-27.1%	195
1966	-25.2%	240
1976-1978	-26.9%	525
1987	-36.1%	55
1998	-19.3%	45
Average	***-26.9%***	***212***

For illustrative purposes only. Source: Ned Davis Research (NDR) Group. Based on Dow Jones Industrial Average declines associated with a recession (Figure 1) or those with a decline of -19% or more (Figure 2) since 1960.
Past performance is not indicative of how the index will perform in the future. The index reflects the reinvestment of dividends and income and does not reflect deductions for fees, expenses or taxes. The index is unmanaged and is not available for direct investment.

What Did the Four Factors Look Like at Previous Market Tops?

Valuation

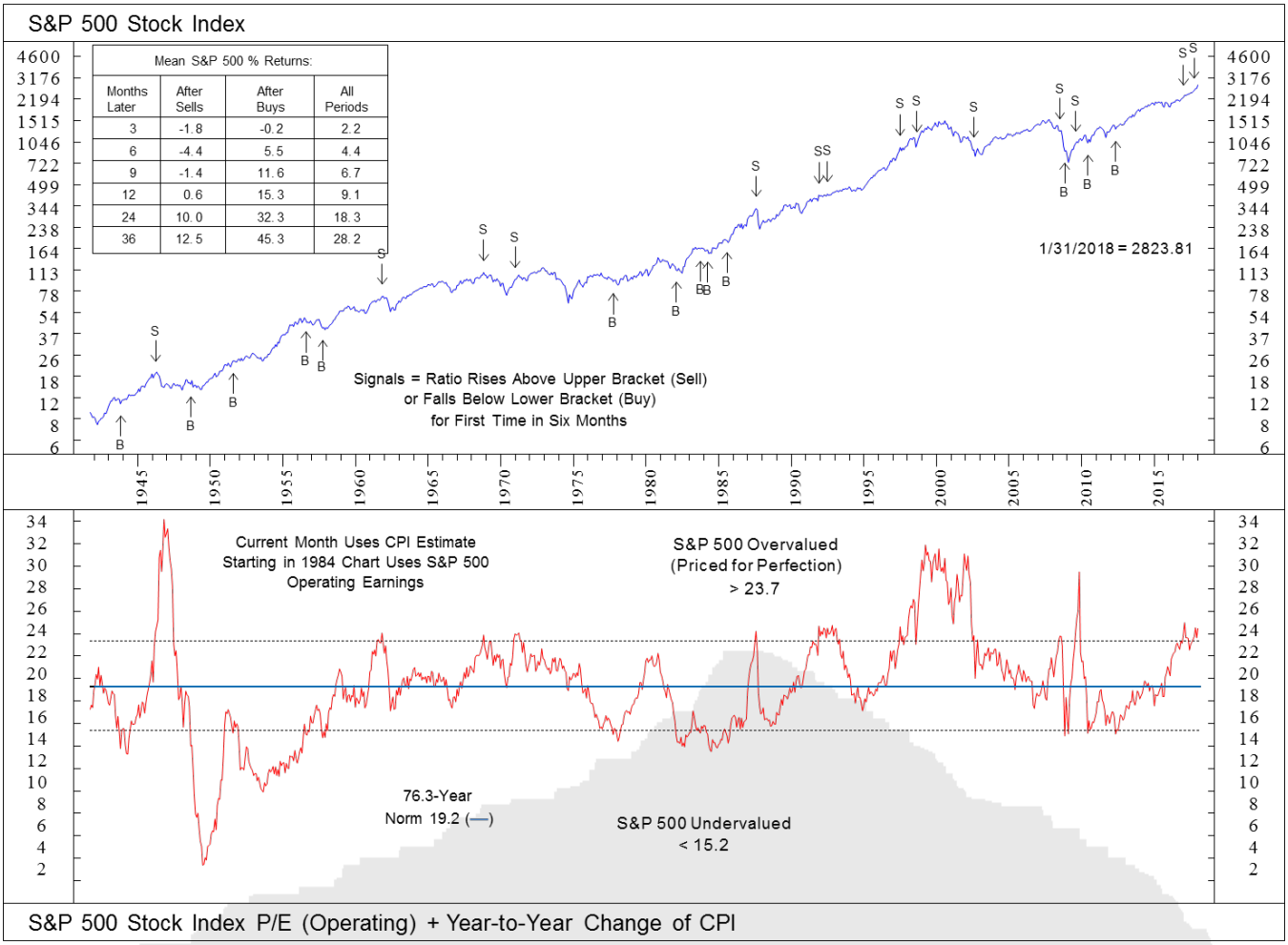
In our process, equity valuations must be assessed within the prevailing economic and interest rate environment. There is always a competition for funds between stocks, bonds and other asset classes: if the expected return on bonds is lower, greater valuation will be accorded equities, while if the expected return on bonds is greater, equities will be valued lower. Valuations therefore must be adjusted for this competition for funds.

One way to adjust P/E ratios for the general level of interest rates is to combine the current level of P/E ratios with the year-to-year change in the consumer price index (CPI, Figure 3). This adjustment shows that the high P/E ratios of the late 1940s ushered in a period of more regular valuation cycles.

Historically, when P/E ratios reach 24x, it is often a warning sign. This level was very useful in signaling the stock market declines of 1960, 1968-1970, 1987, 1990, 2000-2002 and the last financial crisis of 2008-2009. Currently, this measure

stands at 24x, indicating overvaluation. But as the chart shows, this valuation is not as great as either 2000 or 2008 when adjusted for interest rates

Figure 3. Equity Valuations Adjusted for Interest Rate Levels

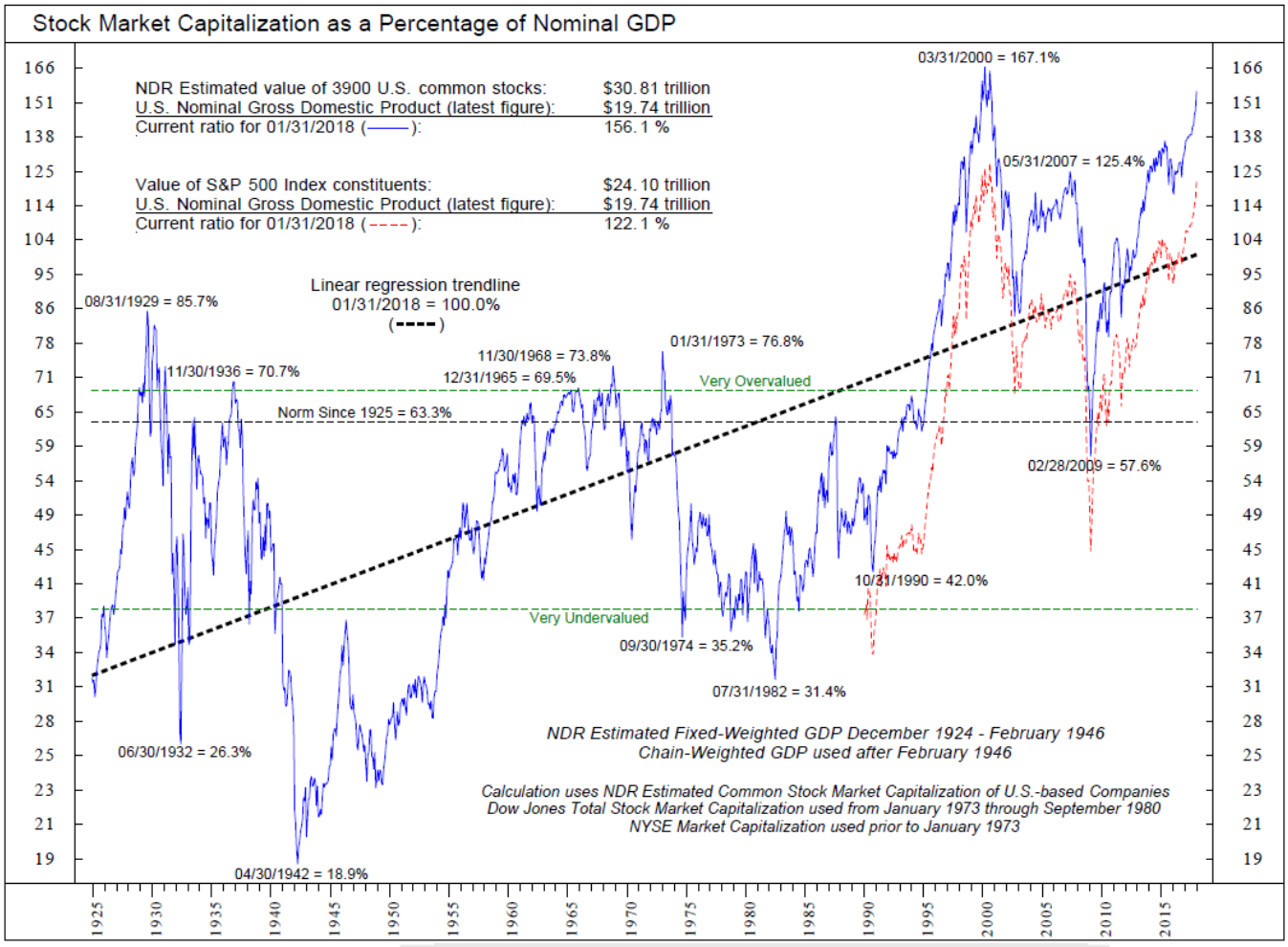


For illustrative purposes only. Sources: Ned Davis Research, Standard & Poor's, Bureau of Labor Statistics. Monthly data, 10/31/1941 - 01/31/2018 (Log Scale).

Past performance is not indicative of how the index will perform in the future. The index reflects the reinvestment of dividends and income and does not reflect deductions for fees, expenses or taxes. The index is unmanaged and is not available for direct investment.

Another way of looking at equity valuations is stock market capitalization as a percentage of GDP, which is historically similar to the median P/E ratio in that it was lower in the 1960s-1980s than in the last 30 years. This measure indicates that we are nearing the high "dotcom bubble" valuation levels of 2000. When a least squares regression analysis is applied to this indicator to see the underlying trend of the data, it shows that valuation peaks have risen higher during each cycle over the last century. Therefore, it follows that valuations may eclipse the 2000 levels prior to a significant market peak and downturn in the current market cycle.

Figure 4. Valuations Trending Upward



For illustrative purposes only. Source: Ned Davis Research. Monthly data 12/31/1924 - 01/31/2018 (Log Scale). Concept courtesy of Jim Bianco.

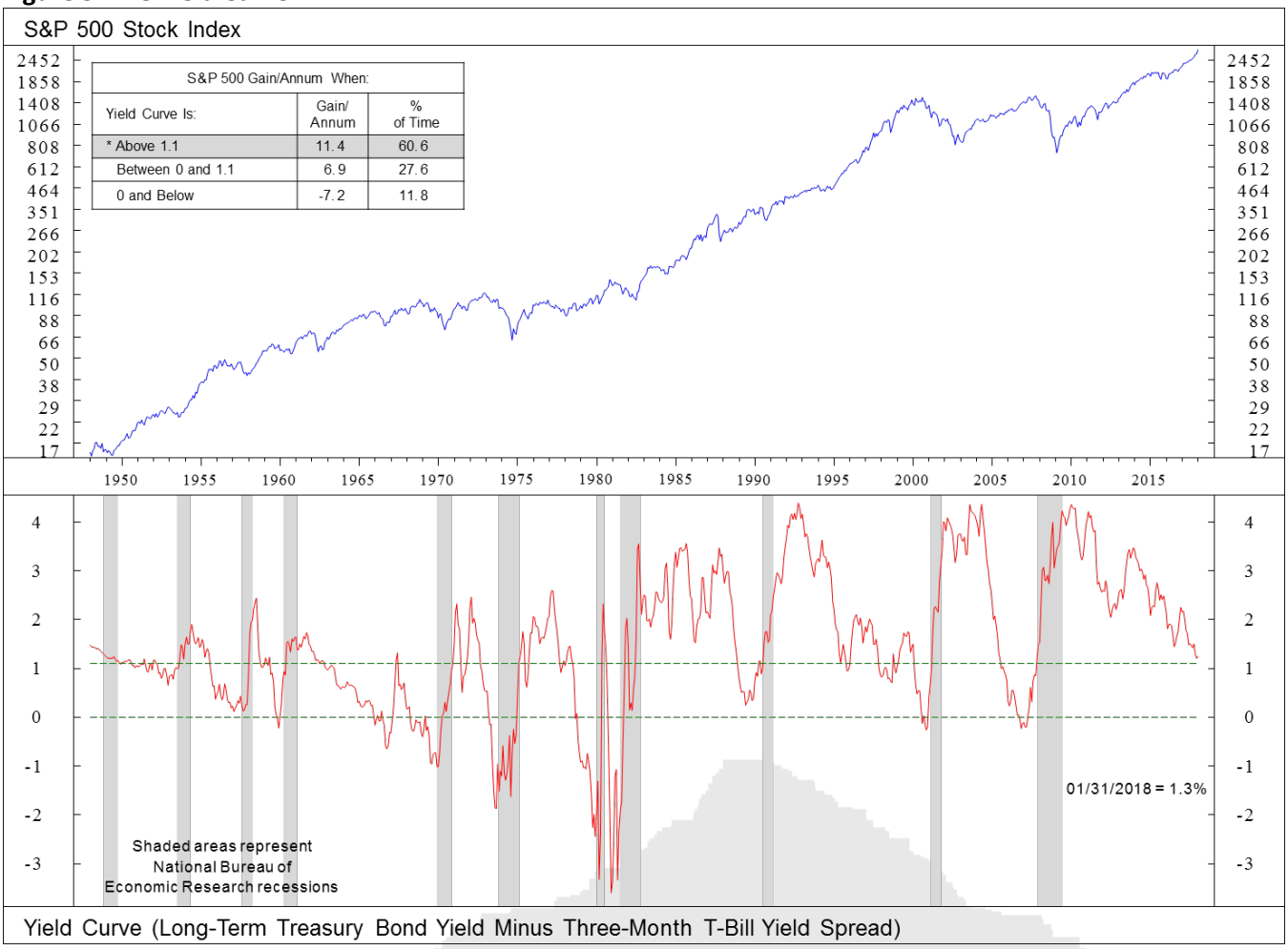
In summary, while nominal valuations are high by any measure, interest rates are extremely important in assessing the relative level of equity valuation. Higher interest rates, in our opinion, are the key to signaling the next bear market according to this analysis. As of this writing, short-term interest rates are at their highest level since 2008 and the 10-year U.S. Treasury Note has recently climbed to its highest level since the spring of 2014. We would therefore rate equity valuation to be in negative territory.

Monetary Policy and Credit Conditions

Our investment team adheres to the principles of pioneering market analyst and investor Marty Zweig, including the principle of "don't fight the Fed." When the Federal Reserve is easing monetary policy and credit conditions are accommodative, it provides a healthy environment for equities. A tightening of Fed policy eventually creates a poor environment for equities and sometimes indicates an economic recession.

An inversion of the yield curve—which we define as the spread between the yield on the long-term U.S. Treasury bond and the yield on the three-month U.S. Treasury bill—has often preceded or accompanied both a recession and a stock market decline of -19% or more. Figure 5 shows the yield curve since the late 1940s. The yield curve has inverted—i.e., moved below zero—prior to all recessions since 1960 except for 1990. The 1990 recession was short as was the subsequent stock market decline, lasting only 87 days. One of the shortest stock market declines without a recession was 1987, which lasted only 55 days, but it was also the steepest decline without a recession at 36.1%. Prior to 1960, it is interesting to note that there were three recessions (1949, 1954 and 1957) where the yield curve did not invert. The short and sharp declines of 1962 and 1987 also had neither an inverted yield curve nor a recession. Our assessment is that a negative yield curve is usually a good indicator of a recession and subsequent stock market decline. On the other hand, significant declines have happened in the absence of an inversion.

Figure 5. The Yield Curve



For illustrative purposes only. Sources: Ned Davis Research, S&P Dow Jones Indices. Monthly data 01/31/1948 - 01/31/2018 (Log Scale). Past performance is not indicative of how the index will perform in the future. The index reflects the reinvestment of dividends and income and does not reflect deductions for fees, expenses or taxes. The index is unmanaged and is not available for direct investment.

One factor that is common to most important stock market declines is a rise in interest rates. Prior to virtually every stock market top and subsequent decline, with or without a recession, there has been a rise in interest rates before the market top. Figure 6 is a long-term look (since 1900) at the S&P 500, the yield on long-term U.S. government bonds and commodities prices. While longer-term secular trends in interest rates are evident in the data, there was an increase in interest rates prior to virtually every stock market decline of -19% or greater, including the non-recessionary years. While no one knows how high interest rates must rise before they negatively affect economic activity, rising interest rates are a negative factor in our process. If credit spreads begin rising, that, coupled with rising rates, might be an indication that we are nearing the end of this economic cycle.

Figure 6. Asset Classes and Secular Trends

For illustrative purposes only. Sources: Ned Davis Research, S&P Dow Jones Indices. Monthly data 01/31/1900 to 01/31/2018 (Log Scale). Yields sources: prior to 1919 - A History of Interest Rates by Sidney Homer & Richard Sylla (Annual Average); from 1919 to Present - Federal Reserve (Annual Close).

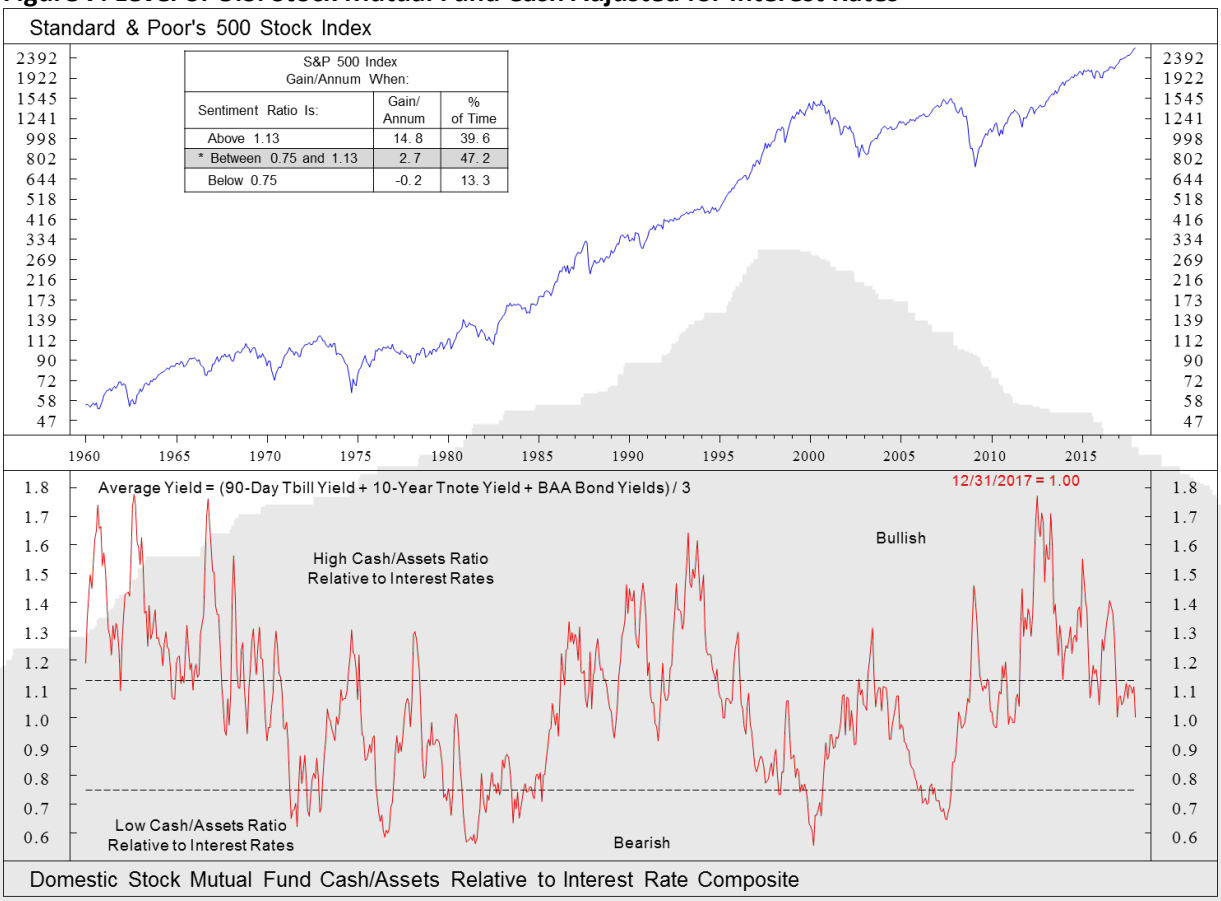
Past performance is not indicative of how the index will perform in the future. The index reflects the reinvestment of dividends and income and does not reflect deductions for fees, expenses or taxes. The index is unmanaged and is not available for direct investment.

Investor Sentiment

We look at investor sentiment from a contrary point of view. Currently, the level of bullish investor sentiment is the most optimistic it has been in many years, which is a negative indicator for the stock market. One indicator of investor sentiment is the level of cash in mutual funds. A high cash position indicates that investors are fearful of the market, which is positive for the stock market from a contrarian point of view. A low cash position indicates that mutual funds have put most of their cash to work already, which is usually negative for the stock market. As with valuation measures, it is important to adjust cash positions for the general level of interest rates as the holding of cash positions will, at least in part, be influenced by the prevailing level of the yield on short-term securities.

Figure 7 shows the level of U.S. stock mutual fund cash adjusted for interest rates for the last 50 years. During the 1960s, cash levels were generally high. Nonetheless, the lowest relative levels of cash were evident at the stock market peaks of 1960, 1962, 1966 and 1968-1970. As inflation and "stagflation" increased in the 1970s, cash levels declined again prior to the stock market tops of 1973-1974, 1976-1978, 1982, 2000-2002 and 2008-2009.

Figure 7. Level of U.S. Stock Mutual Fund Cash Adjusted for Interest Rates



For illustrative purposes only. Sources: Ned Davis Research, S&P Dow Jones Indices, Investment Company Institute. Monthly data 01/31/1960 - 12/31/2017 (Log Scale).

Past performance is not indicative of how the index will perform in the future. The index reflects the reinvestment of dividends and income and does not reflect deductions for fees, expenses or taxes. The index is unmanaged and is not available for direct investment.

Currently, this indicator is in neutral territory despite the fact that virtually all other measures of sentiment (not adjusted for interest rates) are negative. Our assessment is that while a cautious market view must be maintained due to the current high levels of investor optimism, the last piece of the puzzle is likely to be a general increase in interest rates, which would then likely precipitate an interest rate-adjusted low level of cash in mutual funds.

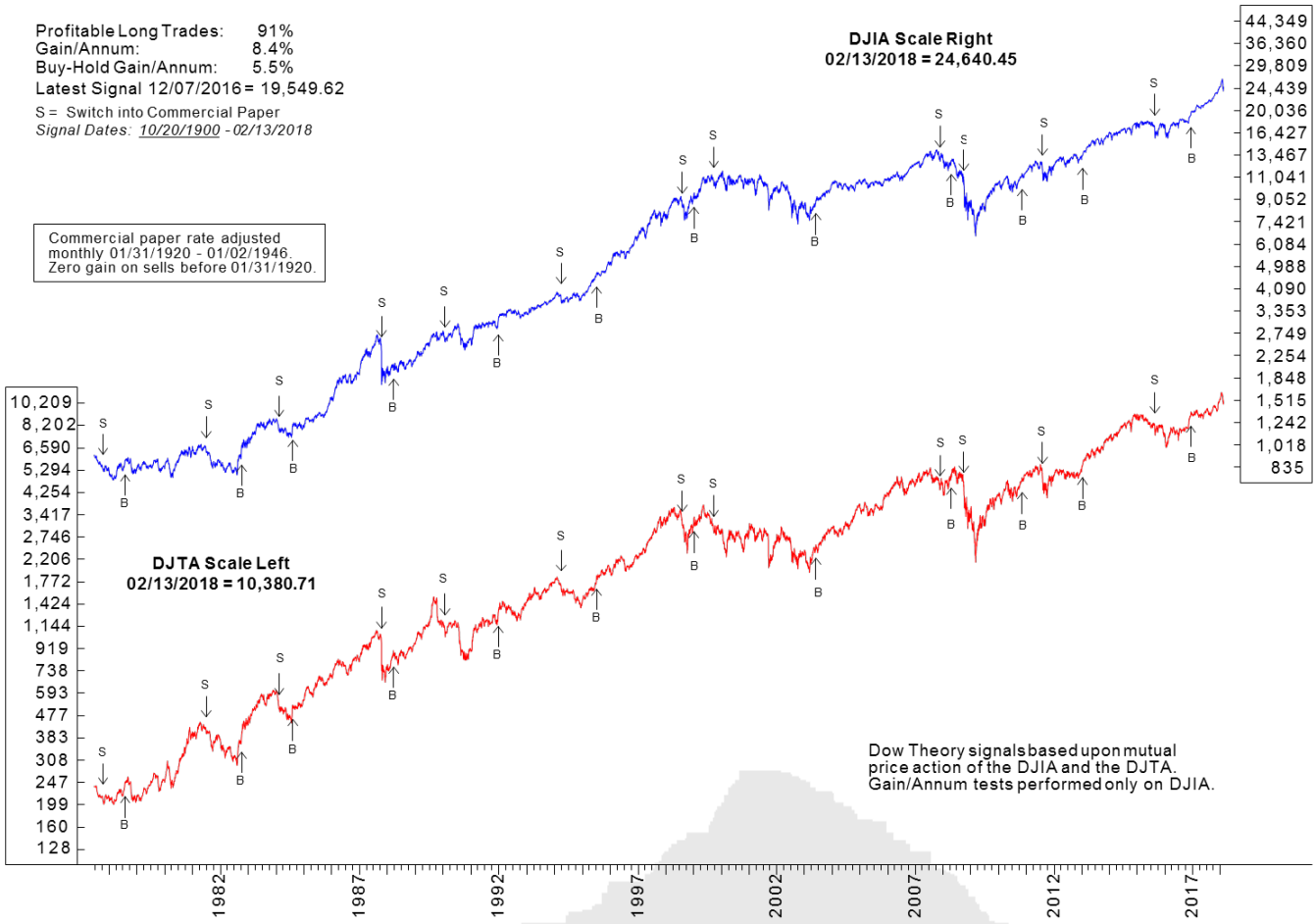
As is the case with valuation, investor sentiment measures must be seen in a broader economic context. A rise in interest rates would push these indicators, which are already in negative territory, to levels that would indicate a more significant market top. As noted previously, interest rates appear to already have begun this climb. Investor sentiment would therefore have to be judged to be in negative territory.

Momentum

Another key tenet from Marty Zweig is "don't fight the tape." When momentum is strong, the market's advance is broad based with the majority of sectors participating in the advance. On the other hand, when the major market averages are rising but the rest of the market is not confirming the new highs, it is usually a sign of impending weakness for the market as a whole. Virtually all major market declines, including all 14 periods noted previously and most market corrections of -10% or more, have been preceded by some divergences between the major averages and the broad list of stocks.

There are many ways of looking at momentum and divergences. One of the simplest methods is the Dow Theory, which was derived from 255 editorials in the Wall Street Journal written by Charles H. Dow (1851–1902). Following Dow's death, several of his colleagues gave the theory a more formal structure (Dow himself never used the term "Dow Theory" nor did he ever present it as a trading system). The theory measures the divergence between the performance of the Dow Jones Industrial Average (DJIA) and the Dow Jones Transportation Average (DJTA). When one average hits new highs and the other does not, a divergence is created. The divergences between the averages create buy and sell signals, but, despite Dow's colleagues' rules, these signals are often subjective. Nonetheless, divergences are important, and this simple rules-based method of measuring divergences demonstrates what we look for to determine the health of the market (Figure 8). Based upon the (subjective) rules presented in the chart, the history of buy and sell signals is helpful. Since 2016, both averages have been in sync and therefore have indicated a healthy market.

Figure 8. Dow Theory Signals (Historical Perspective)



For illustrative purposes only. Sources: Ned Davis Research, S&P Dow Jones Indices. Daily data 06/23/1977 - 02/13/2018 (Log Scale).
Past performance is not indicative of how the index will perform in the future. The index reflects the reinvestment of dividends and income and does not reflect deductions for fees, expenses or taxes. The index is unmanaged and is not available for direct investment.
This chart is provided to show the historical performance of suggested Dow Theory signals. The determination of a signal is subjective and is often determined after the signal date by a consensus of sources and opinions. **This chart should not be used in real time for market guidance.**

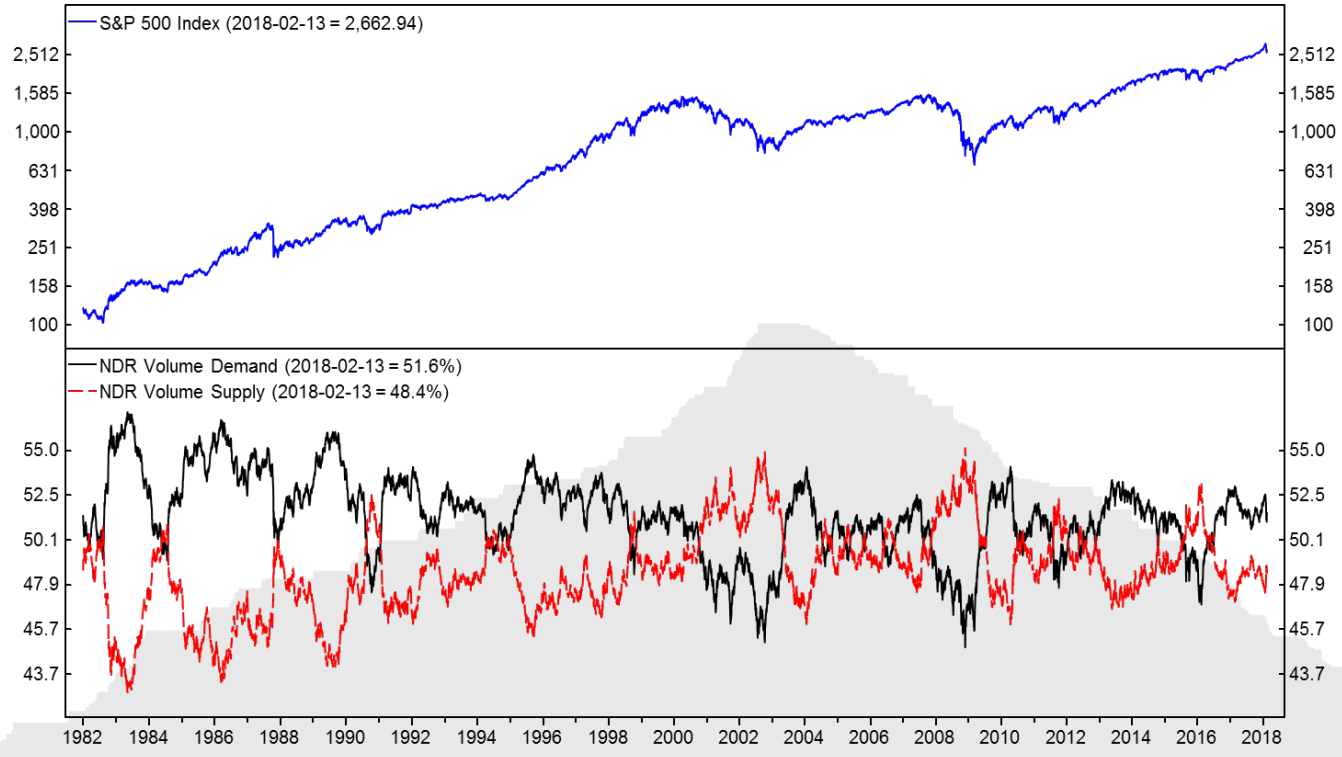
Another important factor in assessing the underlying strength of the market and potential divergences is through an analysis of up and down volume in the market (Figure 9). "Volume Supply" is the smoothed total volume of declining issues while "Volume Demand" is the smoothed total volume of advancing issues using Broad Market Equity Series (BMES) All-Cap Volume data. The results in the table below the chart represent the performance of the S&P 500 when NDR Volume Demand crosses above and below NDR Volume Supply.

When NDR Volume Demand is greater than NDR Volume Supply, which suggests that investors are enthusiastic about the market, the S&P 500 historically has a higher gain per annum. When NDR Volume Demand is less than NDR Volume Supply, which suggests that investors are cautious about the market, the S&P 500 historically has a lower gain per annum.

The bottom portion of the chart plots the ratio of the 10-day total of the number of advancing issues to the 10-day total of the number of declining issues. When advancing issues outnumber declining issues by a wide margin over a 10-day period, it generally indicates a significant shift in market momentum and tends to be followed by further gains. The NDR Multi-Cap Institutional Equity Series universe, which uses only common stocks drawn from all U.S. exchanges (i.e., excluding non-common issues such as closed-end funds, preferred stocks, etc. and including non-NYSE stocks), is designed to give a clearer view of true market breadth.

When the models of upside and downside volume cross, it often signals a change in the trend in the market. For example, the last time downside volume rose above upside volume was in late 2015. The S&P 500 subsequently declined -14.5% into February 2016. Currently, upside volume remains above downside volume. If supply rises above demand in the future, it would indicate further caution.

Figure 9. Volume Supply and Demand



S&P 500 Index Performance 1981-12-31 to 2018-02-13		
NDR Volume Demand is	% Gain/ Annum	% of Time
Above NDR Volume Supply	11.57	78.80
Below NDR Volume Supply	-0.52	21.20
Buy/Hold = 8.89% Gain/Annum		

For illustrative purposes only. Sources: Ned Davis Research, S&P Dow Jones Indices. Daily data 12/31/1981 to 02/13/2018.
Past performance is not indicative of how the index will perform in the future. The index reflects the reinvestment of dividends and income and does not reflect deductions for fees, expenses or taxes. The index is unmanaged and is not available for direct investment.

Summary and Conclusion

While nominal equity valuations are historically high, after adjusting for interest rates, valuations are still below their 2000-2002 and 2008-2009 levels. Nonetheless, equity valuations must be deemed to be negative by any historical standard and further interest rate rises, even without a corresponding rise in stock prices, would drive this indicator further into negative territory.

The monetary and credit picture is more mixed according to our models. The recent swift rise in interest rates, anticipated hikes in the fed funds rate and continuing reduction in the Fed's balance sheet all indicate a move toward a tightening monetary policy, which is typically negative for stocks. On the other hand, credit spreads remain narrow. Credit spreads usually widen prior to more significant declines, which has not happened yet. Also, while an inverted yield curve is not always a precursor to larger stock market declines, the yield curve is still positive, which buttresses the argument that the stock market has not yet begun to discount a recession. It is important to note, however, that a continuing rise in interest rates would potentially move these indicators closer to negative territory.

Investor sentiment is at historically elevated levels of bullishness, which is negative from a contrary point of view. As an example, mutual fund cash levels adjusted for interest rates show that this measure of investor sentiment is negative, but not quite as negative as it was in 2000-2002 or 2008-2009. Nonetheless, rising interest rates would move this metric in a negative direction for the stock market. Indeed, this indicator is now falling to levels that are the most negative in a decade.

Finally, market momentum has been strong in recent years with broad participation. The DJIA and the DJTA have been in sync, and therefore bullish, since 2016. If the DJTA begins to significantly underperform the DJIA (or vice-versa), it would be a negative signal. Likewise, measures of volume have not yet indicated that selling pressure has overcome buying pressure, although they are moving in that direction.

In summary, our analysis indicates that we are in the late stages of the economic and stock market cycle. Valuation and sentiment are negative and, while the monetary and credit picture is still mixed, a continuation of the recent rise in interest rates would likely have a negative impact not only on our monetary and credit factors, but also on valuation and sentiment. Momentum has been positive for the past few years. The market's recent early-2018 weakness could create divergences. Utilities and real estate investment trusts (REITs) are already beginning to weaken as the result of higher interest rates, yet more serious divergences have yet to arise. If more serious divergences arise in 2018, such as the major market averages outperforming the broad market and an increase in downside volume, it would turn our momentum models negative. Coupled with the negative readings in valuation, monetary policy and sentiment, these factors would complete the picture of a high probability of economic weakness and accompanying stock market decline in the next 12-24 months, in our view.

Ricardo L. Cortez, CIMA
Co-Chief Executive Officer, Broadmark Asset Management
San Francisco

Ricardo Cortez is the co-chief executive officer of Broadmark Asset Management. He is responsible for the management of Broadmark's day-to-day business activities as well as the oversight of the firm's sales and marketing efforts. Additionally, he is a member of the investment team and serves as the firm's chief risk officer.

Ricardo joined Broadmark in 2009 as president, global distribution and was named co-CEO in 2013. Prior to Broadmark, he was president of the private client group at Torrey Associates, LLC. He has held roles including vice president at Goldman Sachs as a product manager for the firm's global multi-manager strategies program, and senior vice president at Prudential Investments overseeing product development and sales for the investment management services division.

Ricardo graduated cum laude from Queens College, City University of New York with a bachelor of arts and formerly served as chairman of its business advisory board. He is an adjunct faculty member at Harvard University and has been a guest lecturer on investment policy and hedge funds at the Wharton School, University of Pennsylvania. Ricardo was awarded the Certified Investment Management Analyst® (CIMA) designation in 1993 and has published numerous articles on hedge funds.

Investing involves risk, including a possible loss of principal. Past performance does not guarantee future results.

Broadmark Asset Management ("Broadmark") is a registered investment advisor. The views expressed contain certain forward-looking statements Broadmark believes these forward-looking statements to be reasonable, although they are forecasts and actual results may be meaningfully different. This material represents an assessment of the market at a particular time and is not a guarantee of future results. This information should not be relied upon by the reader as research or investment advice regarding any particular security.

Prices, quotes and other statistics have been obtained from sources we believe to be reliable, but Broadmark cannot guarantee their accuracy or completeness. All expressions of opinion are subject to change without notice.

Indexes shown for illustrative purposes only. It is not possible to invest directly in an index.

The specific securities identified and described do not represent all of the securities purchased, sold, or recommended for advisory clients, and the reader should not assume that investments in the securities identified and discussed were or will be profitable.

10-year U.S. Treasury is a debt obligation issued by the U.S. Treasury that has a term of more than one year but not more than 10 years.

Consumer price index (CPI) is an index number measuring the average price of consumer goods and services purchased by households. The percentage change in the CPI is a measure of inflation.

Cyclically adjusted price-earnings (CAPE) ratio is a valuation measure, generally applied to broad equity indices, that uses real per-share earnings over a 10-year period. The ratio uses smoothed real earnings to eliminate the fluctuations in net income caused by variations in profit margins over a typical business cycle.

The **dividend discount model (DDM)** is a procedure for valuing the price of a stock by using the predicted dividends and discounting them back to the present value.

Dow Jones Industrial Average (DJIA) is a price-weighted average of 30 blue-chip stocks that are generally the leaders in their industry and are listed on the New York Stock Exchange.

Dow Jones Transportation Average (DJTA) is a price-weighted average of 20 transportation stocks traded in the United States.

Gross domestic product (GDP) is the monetary value of all the finished goods and services produced in a country in a given year. GDP is one way of measuring the size of a country's economy.

Inflation is the rate at which the general level of prices for goods and services is rising, and, subsequently, purchasing power is falling.

The **least squares method** is a form of mathematical regression analysis that finds the line of best fit for a dataset, providing a visual demonstration of the relationship between the data points. Each point of data is representative of the relationship between a known independent variable and an unknown dependent variable.

Margin debt is debt a brokerage customer takes on by trading on margin.

Nominal value is the stated value of an issued security.

Price-book (P/B) ratio is a ratio used to compare a stock's market value to its book value. It is calculated by dividing the current closing price of the stock by the latest quarter's book value per share.

Price-earnings (P/E) ratio is a measure of the price paid for a share of stock relative to the annual income or profit earned by the company per share. A higher P/E ratio means that investors are paying more for each unit of income.

Price-sales ratio is a valuation ratio that compares a company's stock price to its revenues.

Put-call ratio is a ratio of the trading volume of put options to call options. It is used to gauge investor sentiment.

S&P 500 Index is an unmanaged index of 500 common stocks chosen to reflect the industries in the U.S. economy.

Short interest is a market-sentiment indicator that tells whether investors think a stock's price is likely to fall.

Stagflation is a condition of slow economic growth and relatively high unemployment – economic stagnation – accompanied by rising prices, or inflation, or inflation and a decline in GDP.

The **U.S. Federal Reserve Board (FRB/US) model** is a large-scale estimated general equilibrium model of the U.S. economy designed for detailed analysis of monetary and fiscal policies.

U.S. Treasurys are marketable U.S. government debt securities with fixed interest rates and maturities.

Valuation is the process of determining the value of an asset or company based on earnings and the market value of assets.