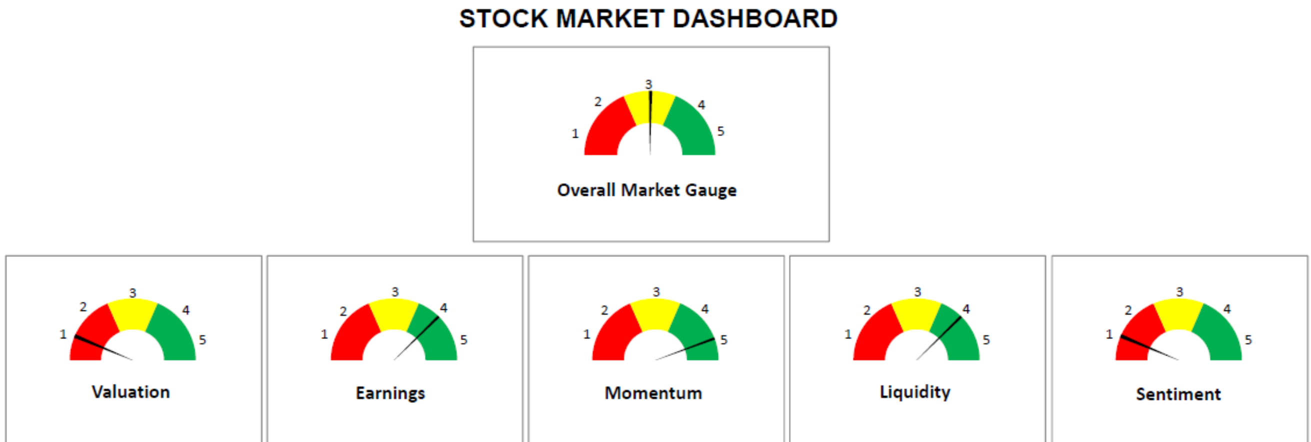
STOCK MARKET DASHBOARD

Last quarter, we shared a brief introduction to our stock market dashboard. In this memo, we provide more details on the underlying indicators, and the history and effectiveness of the dashboard gauge.

Current Gauge: Currently, the gauge is in neutral territory, with a ranking of 3.0 out of 5.0 (down from 3.4 last quarter).



Description of Indicators: The Overall Market Gauge represents the average of the five indicator values, each of which has a value between 1 and 5. We believe these are the most important factors in predicting future market performance:

1. Valuation: This measure uses a 10-year P/E (price to earnings) ratio. It is based on a methodology developed by Nobel Laureate and Yale professor Robert Shiller. It uses 10 years of earnings, adjusted for inflation. It's commonly referred to as the CAPE ratio (cyclically adjusted price to earnings ratio). The current P/E ratio is 30.4, while the average since 1871 is 16.8. This valuation measure has only been higher two times in history: the late 1920s and the late 1990s. Therefore, this gauge is a 1 out of 5, flashing a warning sign. It tends to be the most predictive valuation measure, but only over a 10 year time frame, not so much in the short term.

2. Earnings: This indicator rates the recent growth rate of earnings for companies in the S&P 500 index. It looks at not only the growth rate, but whether or not the earnings growth is accelerating or decelerating. Despite a slow-growing economy, recent earnings growth has been very strong, in the double digit percentages. We have clearly come out of the recent earnings recession, and therefore, the gauge is currently a 4 out of 5.

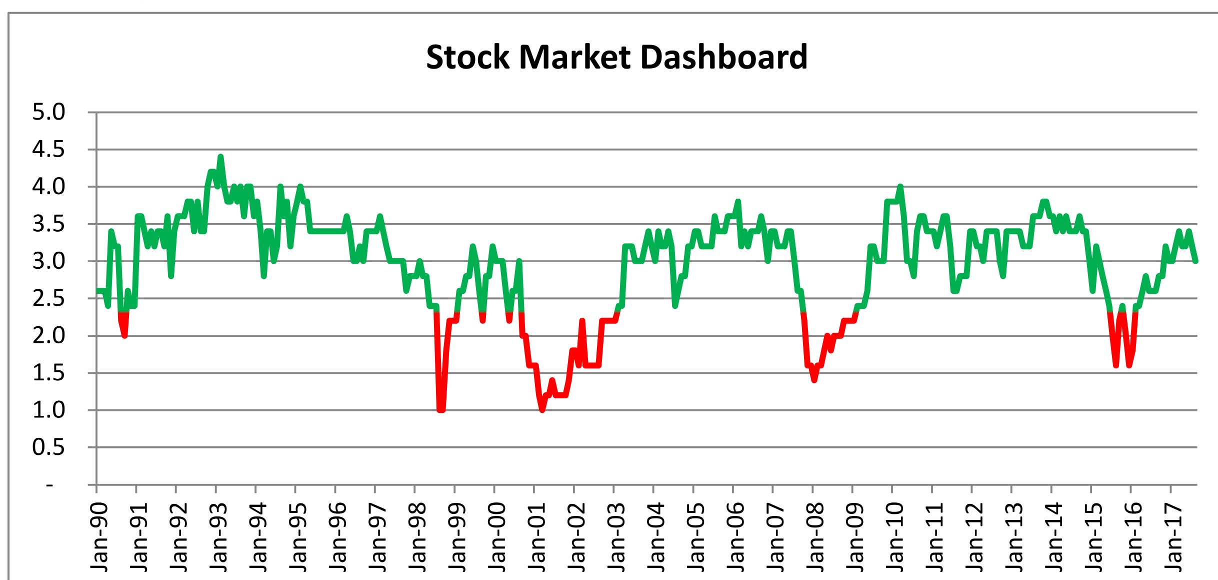
3. Momentum: This dial helps describe the current trend in the stock market. It uses a common technical indicator that involves the relationship between the price level of the

S&P 500 index and its 200 day moving average. The market tends to stay in an uptrend when the value of the index is above the 200 day trend level. When the price breaks down below the 200 day average, more declines often follow. Currently, the market is well above the 200 day moving average, resulting in a 5 out of 5 ranking for this gauge.

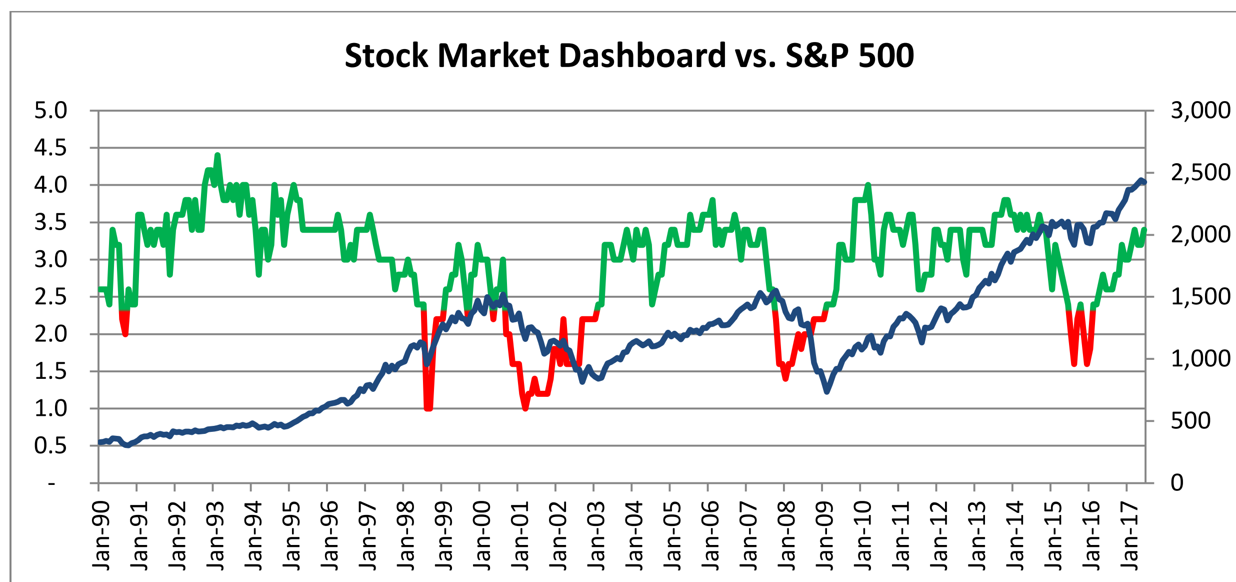
4. Liquidity: Liquidity is a term to describe how easy or difficult it is to access credit, and can be identified by things such interest rates and monetary policy. The market tends to rise while there is ample liquidity, and major market downturns are often preceded by a decline in liquidity. For this indicator, we are using the Bloomberg Financial Conditions Index, which tracks the overall level of financial stress in the US money, bond, and equity markets. A positive value indicates accommodative financial conditions, while a negative value indicates tighter financial conditions. Currently, there is ample liquidity, resulting in a 4 out of 5 ranking.

5. Sentiment: This barometer generally describes the overall attitude of investors toward the stock market and the economy, whether they are feeling positive or negative, bullish or bearish. Importantly, this is a contrarian indicator, meaning that when investors are feeling good, or bullish (as they were in the late 1990s), that is typically a negative signal for the stock market. Conversely, when investors are feeling bad, or bearish (as they were in 2009), that is often a positive sign for the market. We are using the Bloomberg Consumer Comfort Index, which is based on responses to a weekly survey of Americans. Recently, this indicator has been increasing significantly, meaning that consumers are feeling really good again. It has reached the highest level in 16 years, which is a negative sign for the market. The gauge has recently declined to a ranking of 1 out of 5.

History/Effectivness: We re-created the dashboard with monthly data going back to 1990, as seen below.



The average ranking is about 3.0, which is the current level of the gauge. When the level drops 1 standard deviation below the recent average, we consider that a sell signal (the red sections of the chart). As you can see, there have only been a handful of times with sell signals. Most of the time, the market remains in the green areas, with the dashboard providing an "all clear" signal. Importantly, the dashboard indicator turned red in advance of the two major downturns (2000 and 2007), and turned green again shortly after the market bottomed (2003 and 2009). Below is the same chart, but with the S&P 500 price level added to it, so we can see the market declines.



Since 1990, these are the investment returns for the months following shifts to either a Red or a Green condition:

	Average Month	Annualized Return	Standard Deviation
Red	-1.4%	-16.8%	20%
Green	+1.2%	+14.0%	12%

Alternatively, holding stocks when our Overall Market Gauge is above 2.3 (a Green condition) and holding cash when the gauge is below 2.3 (a Red condition), a hypothetical investor would have enjoyed an 11.3% annual return compared to a buy and hold return of 7.5% per year for the S&P 500 since 1990. We also tested the dashboard more loosely going back to 1973, with different but similar indicators that have longer histories. We found that it worked well during that time frame as well.

Conclusion: No investment model works perfectly all the time. There are sometimes false signals, and sometimes models that worked in the past don't work in the future. Therefore, this is just one tool of many that we use. However, given that it has worked well for at least four decades, and we believe that five important factors for the market are Valuation, Earnings, Momentum, Liquidity and Sentiment, this dashboard is a good way to quantify and track changes in real time to help us identify potential market shifts.