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December 2017

THE OVER INDEX

It Ain't Over 'Til "Overs" Are Everywhere

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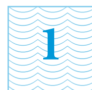
After eight consecutive positive years for stocks, how much longer can this bull market continue? Perhaps just as importantly, what are the warning signs that a bull market is coming to an end? LPL Research believes that to understand what causes markets to crack, you need to study the economic cycle. None of us can forget the experience of the Great Recession of 2008–2009, and since 1970 every bear market except one (1987) has been associated with a recession. Therefore, having a respectful understanding of what ends economic expansions is key to prudent portfolio management.

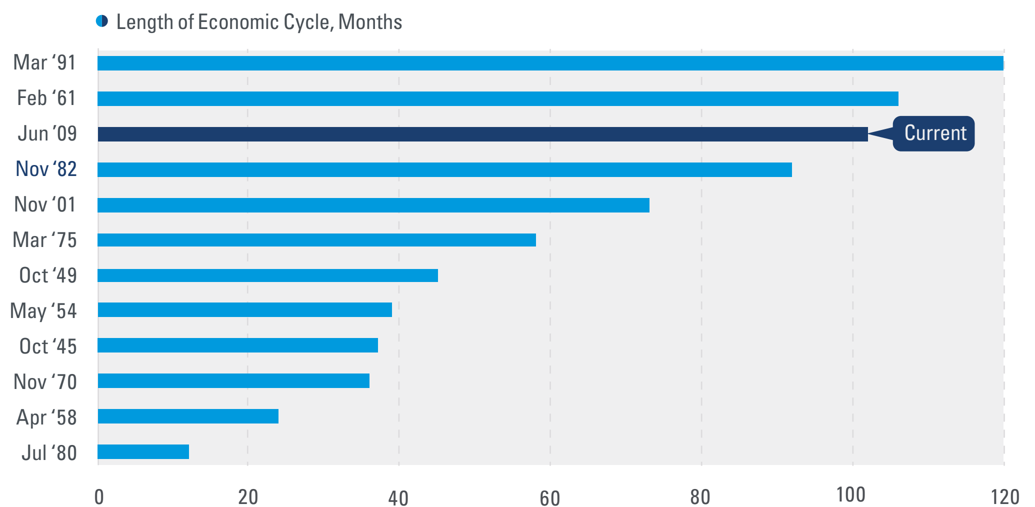
THE MYTHS

Let's start by poking a few holes in some common misconceptions about what triggers the transition from expansion to recession and from bull market to bear. The most common mistake is the belief that bull markets end because of age—they just have a natural lifespan and anything beyond that is borrowed time. But most bull markets are tied to the economic cycle and the economic cycle just doesn't work that way. Our current recovery has been ongoing for almost 102 months, which sounds like a long time. However, the last three economic expansions continued for between 78 and 118 months—indicating there is not a "magic number" at which expansions end [Figure 1]. Therefore, it is not the age or duration of an expansion that triggers its end and helps usher in a bear market.

Another misconception is that market shocks cause recessions. But history shows that market shocks, whether financial, fiscal, or monetary, usually just result in episodic market weakness and a short-term spike in volatility that the market and economy can navigate. In fact, over the last eight calendar years of consecutive positive stock returns, there have been many market shocks, including the U.S. debt downgrade in 2011, concerns about Greece's debt default, and the U.K.'s Brexit vote. Although each of these—and many other market shocks—created short-term volatility, they did not derail the economy or the bull market.



The Current Expansion Is the Third-Longest Post-WWII Expansion



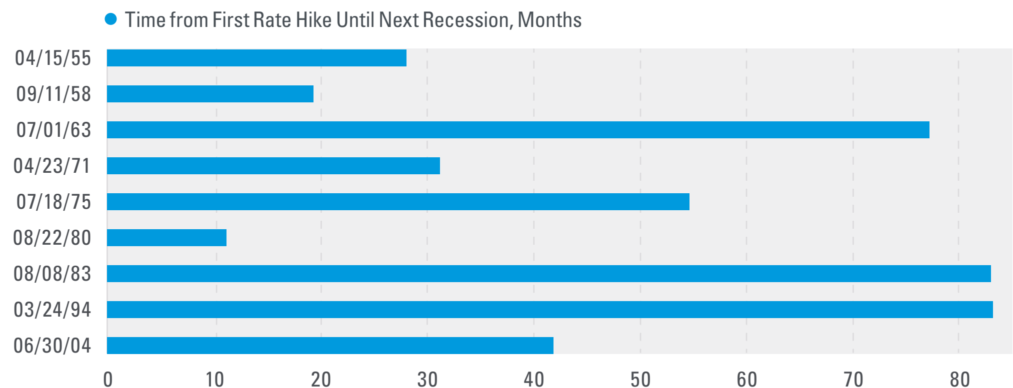
Source: LPL Research, National Bureau of Economic Research (NBER) 12/14/17

One event that had many market participants worried in the past was the Federal Reserve's (Fed) first rate hike of the cycle in December 2015. There was some short-term volatility in the months following the first hike, but markets were able to recover and move higher. Subsequent rate hikes, including the recent hike in December 2017 (the fifth of this cycle), have had little effect on markets. This result is consistent with history, as historically it has taken the U.S. economy an average of 47 months to enter recession after the first rate hike of the cycle [Figure 2].

THE FACTS

If age, market shocks, and interest rate increases are not the typical causes of a bull market's end, then what is? We believe that the answer is an imbalance in the very components that drive economic growth. In a healthy economy, there is a balance of responsible levels of borrowing, confidence, and spending. Confidence in the economy leads to spending by consumers, businesses, and governments, which fuels economic growth; while responsible borrowing allows for larger purchases like a home, car, or a new business venture. Borrowing, confidence, and spending are the keys to growth, and thus, are the catalysts that propel economic expansions.

Historically, the Start of Fed Rate Hikes Signals the Midpoint, Not End, of the Business Cycle



Source: LPL Research, Bloomberg, Federal Reserve 12/14/17

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But we all know that too much of a good thing can take something beneficial and make it harmful. Although responsible levels of spending are essential to a strong economy, overspending leads to overextended consumers and businesses. Healthy levels of confidence by consumers and investors are crucial to a strong economy, but overconfidence leads to poor decisions. The same can be said for overbuilding, overhiring, overborrowing, overleveraging, and just about any other economic activity with the word "over" at the front.

In fact, the primary reason that bull markets end and economic cycles reverse is that the components of economic growth get too overheated—too extended. In other words, the "overs" become too prevalent. In fact, LPL Research would respectfully suggest that to understand why expansions end, we modify Yogi Berra's famous quote, "It ain't over 'til it's over," to, "It ain't over 'til overs are everywhere."

Therefore, the key to identifying when economic cycles are close to being over and the dangers of a recession are building is to measure the level of excesses growing in the economy. These excesses are what ultimately transition the economy from healthy to unhealthy. To assist in identifying the level of excesses in the economy and the expected end of economic cycles, we use the LPL Research Over Index, which measures the most common causes of economic excesses.

Constructing the Over Index

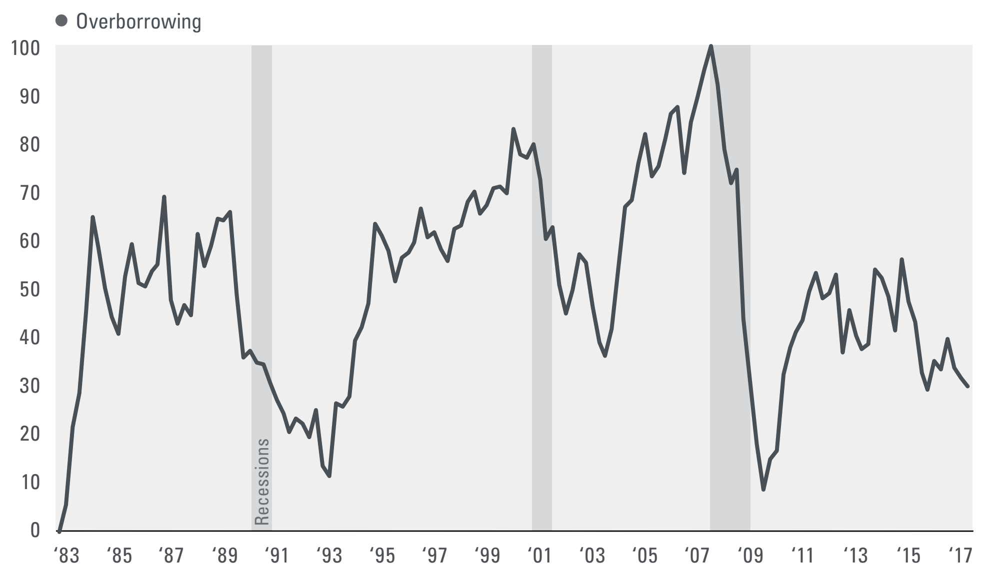
The Over Index measures trends in three broad economic drivers: borrowing, confidence, and spending. For each of these three drivers, we found four subcomponents that best showcase the characteristics of each. The Over Index takes each of the subcomponents and uses a sophisticated statistical process to normalize and index each data series into an overall score for each of the three drivers.

OVERBORROWING

Businesses need to borrow to help expand, innovate, and invest in their future; consumers need to borrow to buy homes or pay for a college education. But overborrowing can lead to a situation where consumers and businesses are unable to pay back debts, causing problems for the borrower, the lender, and by extension, the economy. This concept is still fresh in investors' minds, as this was a key trigger of the financial crisis of 2008 that ended the last bull market. The following indicators are used to track borrowing in the Over Index [Figure 3]:

- **Credit card debt.** Increasing levels of credit card debt (and other forms of unsecured, revolving loans) relative to income is an indicator that consumers may be overborrowing.
- **Consumer debt payments.** Consumer debt payments refer to the total payments households make to pay for their debt obligations relative to income. This measure goes beyond revolving debt, and speaks to the total debt payment burden consumers face each month. Examples include mortgage or car payments. A higher number indicates a higher percentage of income going to debt payments each month, which may be an indication of overborrowing.

The Overborrowing Subindex



Source: LPL Research, Federal Reserve 12/14/17

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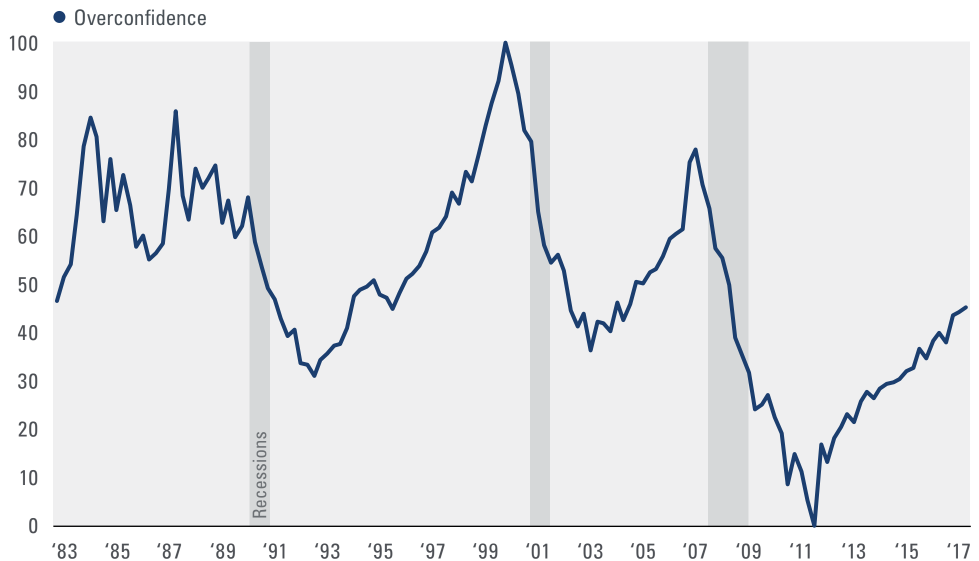
- **Business debt.** The Fed reports the total debt for nonfinancial companies relative to pre-tax income for the previous four quarters, and this number can be used to compare business leverage over time. A higher amount of borrowing on a lower income may be a sign of overborrowing on the part of corporations, similar to how a high amount of revolving debt relative to income may mean the same for consumers.
- **Commercial loan growth.** A sharp spike in commercial loan growth can be an indicator that businesses are overborrowing. Commercial loan growth is also a good complement to the other three borrowing indicators, given that it focuses specifically on the rate of growth, rather than absolute levels of debt.

OVERCONFIDENCE

Confidence is the driving force behind both spending and borrowing. Consumers and businesses that are not confident about the future will be less likely to spend money or borrow more. A balanced attitude toward future prospects

The Overconfidence Subindex



Source: LPL Research, Federal Reserve, Conference Board, U.S. Bureau of Labor Statistics, Standard & Poor's, Robert Shiller 12/14/17.

Data are as of 12/01/17.

leads to a healthy level of spending and borrowing. But unrealistic expectations lead to excesses, and the economy suffers when exuberance meets reality and businesses and consumers swing from excessive optimism to excessive pessimism. The Over Index uses the following indicators to assess the level of both consumer and business confidence [Figure 4]:

- **Consumer confidence.** This is the Conference Board's Consumer Confidence Survey, which attempts to measure consumers' current feelings about business and employment conditions, as well as their expectations for the next six months. Consumer spending is responsible for approximately 70% of U.S. economic activity, making this an important metric to watch.
- **Valuations.** Stock market valuations are important as a market-derived measure of confidence. When market participants are confident, they are willing to pay more for a given dollar of earnings, leading to an increase in valuations. But it is also important to measure stock valuations relative to other asset classes, which is why the Over Index measures valuations in relation to both corporate earnings (i.e., price-to-earnings ratio and 10-year U.S. Treasury notes.
- **Wage growth.** Wage growth is a measure of business confidence, as businesses must trust that they will earn additional returns when increasing labor spending. High wage levels can also help increase consumer confidence. If consumers believe they will earn more in the future, they may be more willing to spend or borrow now.
- **Business leverage.** While borrowing has its own subindex within the Over Index, leverage can also be an indicator of confidence. As risk rises, banks become less confident and less willing to lend. When buyers cannot arrange as much (or any) financing for a purchase, sellers may have to lower prices, leading to declining asset values. The Chicago Federal Reserve has developed its Nonfinancial Leverage Index (a subindex of the National Financial Conditions Index) to measure early signs of this type of financial instability.

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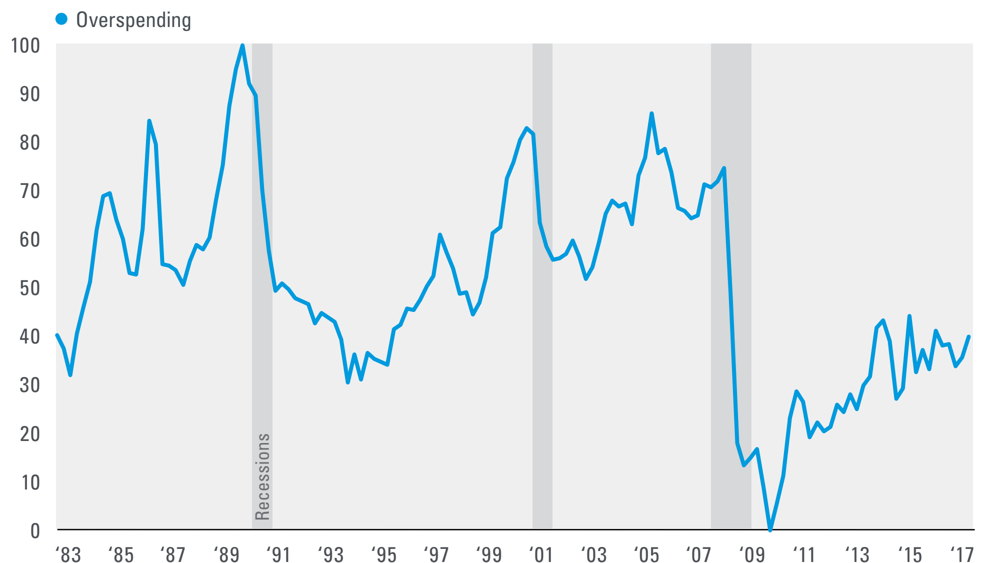
OVERSPENDING

Consumer spending and business investment are two key drivers of economic growth—but too much of either can be problematic. Specifically, overspending on big ticket items by consumers and unusually heavy business investment (i.e., capital spending) by corporations can signal trouble ahead, given that a spike in spending may not be sustained in future quarters as spending levels revert to longer-term averages. The Over Index uses the following indicators to assess the level of both consumer spending and business investment [Figure 5]:

- **Real home prices.** Home prices, adjusted for inflation, have moved steadily higher over time, but have not shown large spikes outside of shorter-run supply-demand situations. A substantial rise in the level of real home prices may be indicative of an overheated housing market, where buyers are willing to overpay.
- **Big ticket purchases.** While a home is certainly considered a major purchase, it is not the only big ticket item that consumers buy. Durable goods is an economic term for goods that are intended to be used for a long period of time. Examples include automobiles, appliances, and consumer electronics. Durable goods tend to be high dollar items, and when an unusual amount of total economic output is spent on consumer durables, it could be a sign of overspending.

The Overspending Subindex



Source: LPL Research, Federal Reserve, Conference Board, U.S. Bureau of Economic Analysis, U.S. Bureau of Labor Statistics, Standard & Poor's, Robert Shiller 12/14/17

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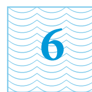
- **Business spending.** Business capital spending (also known as capex) is generally a positive indicator of future business prospects, but businesses may overspend. For example, if a business builds a new factory to keep up with heavy demand, it may be a positive for the economy as it will need to be equipped with additional workers and new equipment. But if demand never materializes, the investment may simply turn out to be a cost, not a revenue generator, and ultimately harm the company's bottom line. Evaluating the ratio of capex to after-tax income can help determine whether businesses are overspending.
- **Commodity prices.** While commodity prices typically fluctuate over time, large upward spikes in prices over a short period indicate that demand is outstripping supply. As this happens, companies are forced to spend more on the basic inputs to their products, which will result in either slimmer profit margins, or price increases for the end consumer that may hurt demand.

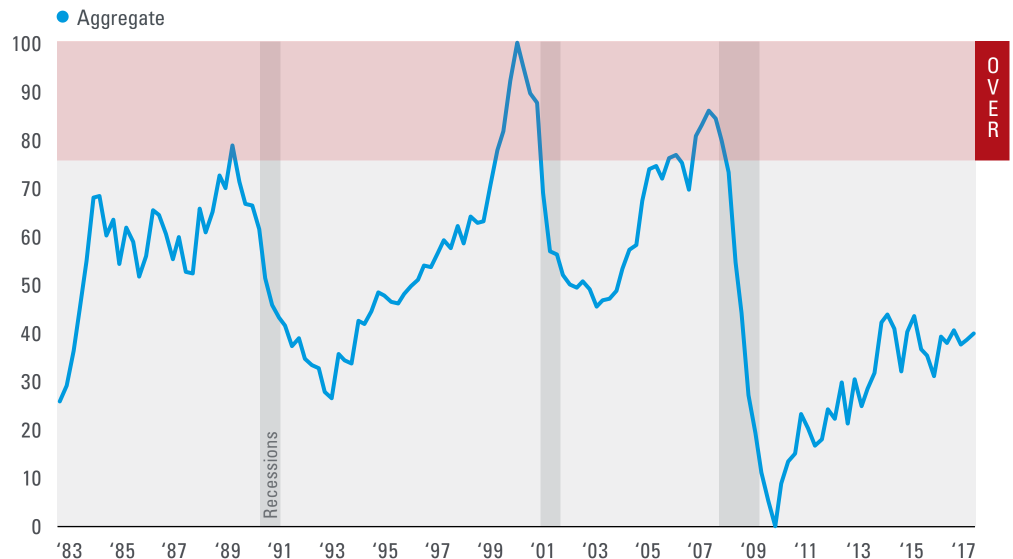
THE OVER INDEX PEAKS PRIOR TO RECESSIONS AND FORETELLS THE LIKELY END TO ECONOMIC CYCLES.

BRINGING IT ALL TOGETHER

The Over Index takes each of the three subcomponents that represent the major drivers of the U.S. economy and uses a sophisticated statistical process to normalize each data series into an index score [Figure 6]. Both the overall index, as well as the normalized subindexes, can still be used to determine where things are and where they might be going in the current economic cycle.



The Over Index



Source: LPL Research, Federal Reserve, U.S. Bureau of Economic Analysis, Robert Shiller 12/14/17

Data are as of 12/01/17.

KEY LESSONS FROM THE OVER INDEX

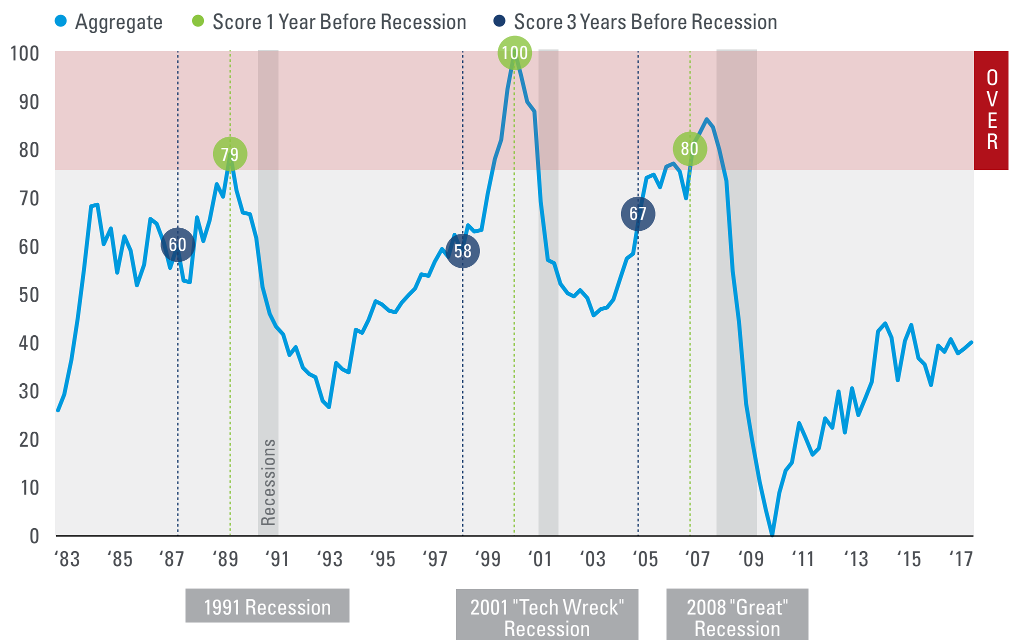
The Over Index peaks prior to recessions and foretells the likely end to economic cycles. After all, the excesses are what ultimately create unsustainable conditions that lead to an unbalanced and unhealthy economy. In examining the last 35 years, which includes three recessions, the Over Index peaked into the overheated zone prior to each recession. In fact, one year before an upcoming recession, the Over Index has averaged a score of 86, with a range of 79–100 [Figure 7]. Three years before a recession, the average score was 62. This makes sense, as the score

of 86 (the average one year before a recession) means that conditions had more excesses than 86% of all periods measured. In other words, a lot of excess had built up.

So, where are we now? Currently, as of December 2017, the Over Index is at a score of 40. This means that despite the market (S&P 500 Index) being up eight (and very likely soon to be nine) consecutive years by a cumulative 370%+ and economic conditions having rebounded significantly since the Great Recession, 60% of all periods had more excesses than we have today.

According to this measure of excesses, the probability of the economic cycle coming to an end and an impending recession unfolding over the next year is very unlikely. This does not mean that markets cannot be volatile or that we won't see pullbacks or corrections. We will. That is the byproduct of a normal market. But what the Over Index is showing, with its relatively modest score, is that we are not currently experiencing the types of excesses that have been associated with the outsized market declines that usually occur at the end of economic cycles.

Over Index Scores One and Three Years Before Recessions of 1991, 2001, and 2008



Source: LPL Research, Federal Reserve, U.S. Bureau of Economic Analysis, Robert Shiller 12/14/17

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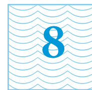
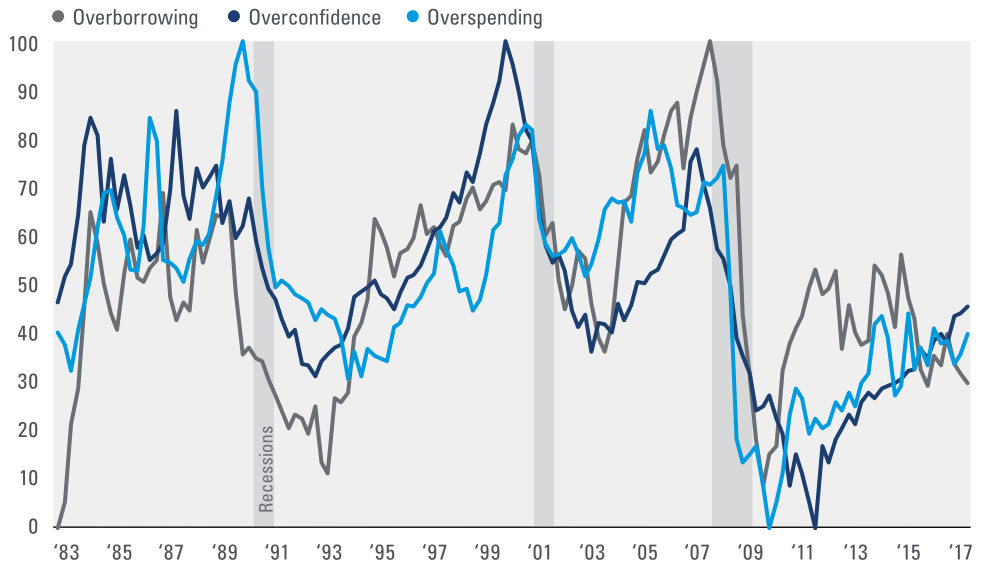
Usually one of the three subcomponents of the Over Index leads the index higher. While the aggregate score of the Over Index certainly helps to foretell the impending end to an economic cycle, there are also interesting findings that come from studying the underlying components. Figure 8 shows all three subindexes in one chart, with the shaded vertical lines indicating recessions. While each of the three subindexes tends to move higher as a recession nears, a different factor peaked prior to each of the most recent recessions, which helps exhibit why all three components matter.

Overspending clearly played the largest role in the 1991 recession, as a wind-down of the runaway inflation of the late 1970s and early 1980s triggered spending sprees from consumers and businesses alike. Prior to the 2001 recession, it was confidence that peaked as overzealous investors chased overvalued dot-com stocks with misplaced conviction. And the Great Recession of 2008 saw subprime loans surge and consumers using their homes as credit cards to propel the overborrowing component to record levels. Therefore, historical



The Overborrowing, Overconfidence, and Overspending Subindexes



Source: LPL Research, Federal Reserve, Conference Board, U.S. Bureau of Economic Analysis, U.S. Bureau of Labor Statistics, Standard & Poor's, Robert Shiller 12/14/17

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data show that not only does the aggregate level of the Over Index indicate the economy is poised for potential trouble due to excesses, but also that vulnerability is usually "triggered" by one of the factors surging to excessive levels.

Although none of the subindexes are nearing danger levels at this point in time, we continue to watch for signs of overheating. Confidence has grown at the fastest rate recently, which makes sense given that consumer confidence readings have been very high. However, slow wage growth and rising interest rates have helped keep the our Overconfidence Subindex from overheating.

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IT AIN'T OVER 'TIL OVERS ARE EVERYWHERE

Make no doubt about it, the business cycle — its move from recession to expansion and the steps along the way — is the highway that the market follows. In fact, when looking at significant and protracted market declines, or bear markets, they are almost exclusively associated with recessions and the end of business cycles.

Business cycles do not die of old age, nor does transitory volatility usually result in anything more than short-term, fear-inspired pullbacks and corrections, which can lead to good entry points into markets.

What ends business cycles, and thus shepherds in the increased likelihood for a bear market, is the accumulation of unhealthy excesses in borrowing, confidence, or spending. Currently, we are not pushing the limits on our overall or subindex components of the Over Index. The *LPL Research Over Index*, along with other factors, leads us to believe that we are likely past the mid-point, but not at the

end, of this economic expansion and bull market. That said, though we've had a year of historically low volatility, periods of uncertainty and increased volatility do emerge periodically, even in the middle of economic cycles. However, volatility can be healthy for markets, as it often represents a time to refresh and reload expectations and confidence that could potentially lead to higher market values.

As investors with long-term horizons, we look for those strong returns that come with long-term market exposure. But to garner those gains, we have to weather short-term volatility. Therefore, we need to maintain our long-term focus and perspective as we move through market bumps. Identifying the difference between transitory volatility and volatility driven by conditions that may signal the onset of a recession, is an important aspect of risk management. Using the *LPL Research Over Index* helps to showcase whether the long-term underlying backdrop for markets is healthy or unhealthy. Where we sit today, there are very few excesses that would warrant concern that the economic cycle is near its end. There are simply very few "overs" in the economy. As a result, LPL Research continues to contend that the U.S. economy remains firmly within the expansionary phase of the business cycle, creating a backdrop that should help markets withstand transitory volatility, while offering the potential for further stock appreciation. After all, it ain't over 'til overs are everywhere. ■

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IMPORTANT DISCLOSURES

The economic forecasts set forth in the presentation may not develop as predicted. The opinions voiced in this material are for general information only and are not intended to provide or be construed as providing specific investment advice or recommendations for any individual security. All performance referenced is historical and is no guarantee of future results. All indices are unmanaged and cannot be invested into directly.

Investing in stock includes numerous specific risks including: the fluctuation of dividend, loss of principal and potential illiquidity of the investment in a falling market.

Because of their narrow focus, specialty sector investing, such as healthcare, financials, or energy, will be subject to greater volatility than investing more broadly across many sectors and companies.

Bonds are subject to market and interest rate risk if sold prior to maturity. Bond and bond mutual fund values and yields will decline as interest rates rise and bonds are subject to availability and change in price.

Commodity-linked investments may be more volatile and less liquid than the underlying instruments or measures, and their value may be affected by the performance of the overall commodities baskets as well as weather, geopolitical events, and regulatory developments.

METHODOLOGY

To complete the Over Index, LPL Research measures trends in three broad economic drivers: spending, borrowing, and confidence. For each of these three drivers, we found four diverse components that reflect the economic activity of that sub-index from a different angle. The Over Index takes each of the subcomponents and uses a sophisticated statistical process to normalize and index each data series into an overall score for each of the three drivers. The combined aggregated data helps to measure the likelihood that the economy is showing signs of overactivity and that we may be approaching a cyclical peak.

Spending is measured by the selected criteria: real home prices, big ticket purchases, business spending, and commodity prices.

Borrowing is measured by the selected criteria: credit card debt, consumer debt payments, business debt, and commercial loan growth.

Confidence is measured by the selected criteria: consumer confidence, valuations, wage growth, and business leverage.

SOURCES

Bloomberg, Conference Board, Federal Reserve, National Bureau of Economic Research (NBER), Robert Schiller, Standard & Poor's, U.S. Bureau of Economic Analysis, U.S. Bureau of Labor Statistics

The Standard & Poor's 500 Index is a capitalization-weighted index of 500 stocks designed to measure performance of the broad domestic economy through changes in the aggregate market value of 500 stocks representing all major industries.

Leverage is the degree to which a company uses fixed-income securities such as debt and preferred equity. The more debt financing a company uses, the higher its financial leverage.

The Consumer Confidence Index is based on consumers' perceptions of current business and employment conditions, as well as their expectations for six months hence regarding business conditions, employment, and income. Three thousand households across the country are surveyed each month. In general, while the level of consumer confidence is associated with consumer spending, the two do not move in tandem each and every month.

The P/E ratio (price-to-earnings ratio) is a measure of the price paid for a share relative to the annual net income or profit earned by the firm per share. It is a financial ratio used for valuation: a higher P/E ratio means that investors are paying more for each unit of net income, so the stock is more expensive compared to one with lower P/E ratio.

The Chicago Fed's National Financial Conditions Index (NFCI) provides a comprehensive weekly update on U.S. financial conditions in money markets, debt and equity markets and the traditional and "shadow" banking systems.

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