Late Cycle Syndrome

September 18, 2019

The current economic expansion recently celebrated its tenth anniversary, becoming the longest period of sustained growth in U.S. history.[1]

With the passing of this milestone, the phrase "late cycle" has grown increasingly popular among strategists and investors alike. Describing the environment this way conveys a certain sobriety ("I know the bull market can't last forever"), but the lack of a clear definition or forecast horizon leaves room for a wide range of potential actions (or inactions). If the hour is late, are we supposed to prepare for the worst or maximize returns while the good times last?[2]

A look at several "late cycle" indicators reveals a surprisingly loose chronological connection with the actual occurrence of downturns. While recession risk likely is higher than usual, that's a far cry from saying investors should shift their asset allocations.

This One Weird Trick Avoids Drawdowns

The state of the economy is always changing, sometimes in subtle ways. But there is nothing subtle about recessions, which are traumatic for workers who experience or fear unemployment and for investors who likely see the value of their equity holdings plunge. In the post-war period, the association between recessions and bear markets is undeniable. U.S. equities were down an average of -1.5% annualized during the past 12 recessions, compared to gains of 9.3% during the expansions.[3] So, it's no surprise that investors are interested in forecasting the end of the business cycle.

However, recession prediction is not an easy task. If it were, equity returns in periods of economic growth likely would not have been so high, nor during contractions, so low. The potential actions of policymakers pose a key challenge to forecasters, as central banks (and occasionally fiscal authorities) see recession prevention as an important goal.[4] Economists are often criticized for failing to predict recessions, but if a downturn is apparent to the teams of economists at the Federal Reserve, then policymakers may be able to lower rates in time to stabilize the economy. The recessions that policymakers fail to prevent might only be those that result from unforeseen shocks or unpredictable negative feedback loops, with recessions from predictable circumstances successfully avoided.[5]

Late Cycle Signposts

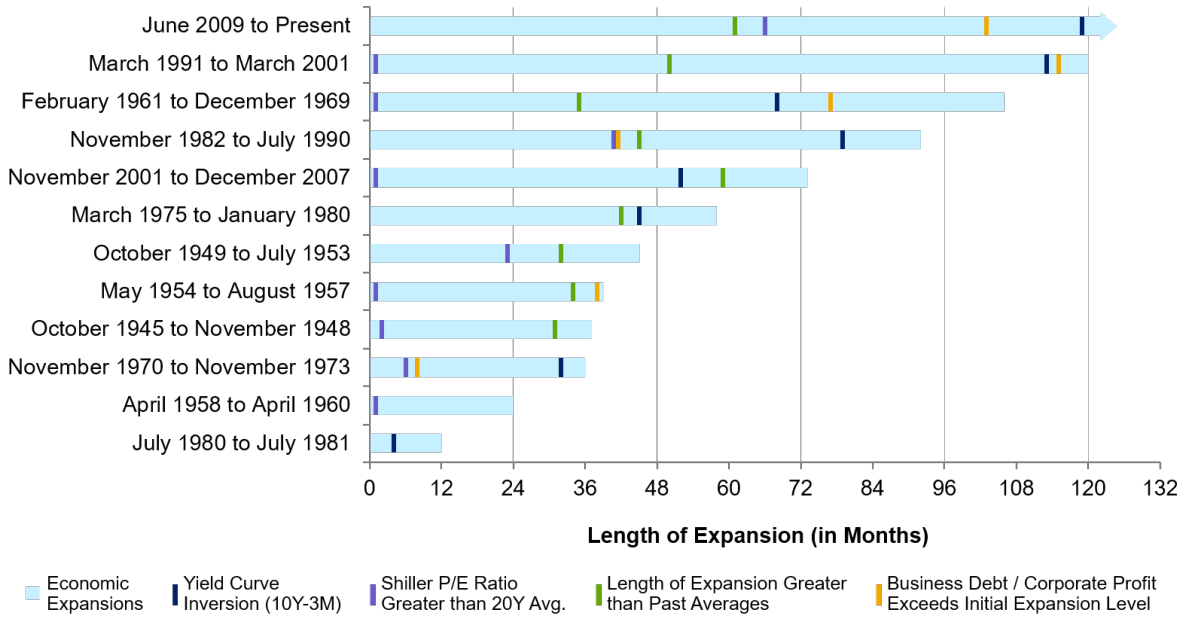
That said, there is information we can use to assess whether we are in a "late cycle" environment with elevated recession risk. First off, there appears to be a relationship between the age of an expansion and the risk of recession. The average length of post-war expansions has been about five years, and lengths have been evenly distributed over a range from one to ten years. The sample size is small,[6] but this flat distribution is not what we would find if recessions were purely random. If recession risk were independent of cycle age, we would expect more expansions that last just a few years and fewer that end late in their first decade.[7] The actual lengths we observe suggest risk is low in the early years of an expansion but becomes quite high after six or seven years of growth.

Despite this finding, most economists believe expansions do not simply "die of old age." Instead, excesses build up as a cycle matures, sowing the seeds of recession. For example, sustained growth may cause the economy to overheat, igniting inflation that forces the Fed to tighten policy and end the expansion. As we discussed last quarter, recent cycles have not featured much inflation. Instead, the recessions in 2001 and 2007-9 resulted from bubbles, which inflated during the preceding expansions only to inflict widespread economic damage when they deflated. In both instances, imbalances emerged in the financial sector and the real economy as households and businesses grew overconfident and engaged in excessive risk-taking.[8]

Economic conditions today do show scattered signs of the excesses seen in prior late cycle periods. Investment in R&D and software has risen to record highs as a share of GDP.[9] Non-financial firms have borrowed heavily over the last few years, with the ratio of non-financial business debt to GDP recently surpassing the 2009 peak.[10] While strong profit growth makes this somewhat less alarming, the ratio of debt to corporate profits has also been rising, a dynamic seen towards the end of several prior expansions.

Investor behavior shows some of the hallmarks of past late cycle excesses, too. Shiller's Cyclically Adjusted Price/Earnings (CAPE) ratio for the S&P 500 has risen to levels not seen since the tech bubble. Dislocations within the stock market have also emerged, with widening valuation gaps between cheap and expensive shares reminiscent of those seen around the ends of other economic and market cycles.[11]

Figure 1: When "Late Cycle" Indicators Triggered in Post-War Economic Expansions



Sources: AQR, Bloomberg, NBER, Global Financial Data, Robert Shiller's Data Library. U.S. expansions based on National Bureau of Economic Research (NBER) business cycle data releases from October 1945 through August 2019. U.S. yield curve indicator triggers in the first month the 10-year Treasury yield minus 3-month T-Bill yield is negative. Shiller P/E Ratio indicator triggers in the first month it exceeds its past 20 year average. Length of expansion indicator triggers when the respective expansion exceeds the average length of prior expansions beginning in December 1900. Business debt to corporate profit ratio indicator triggers in the quarter when it exceeds the value of the ratio at the start of each respective expansion.

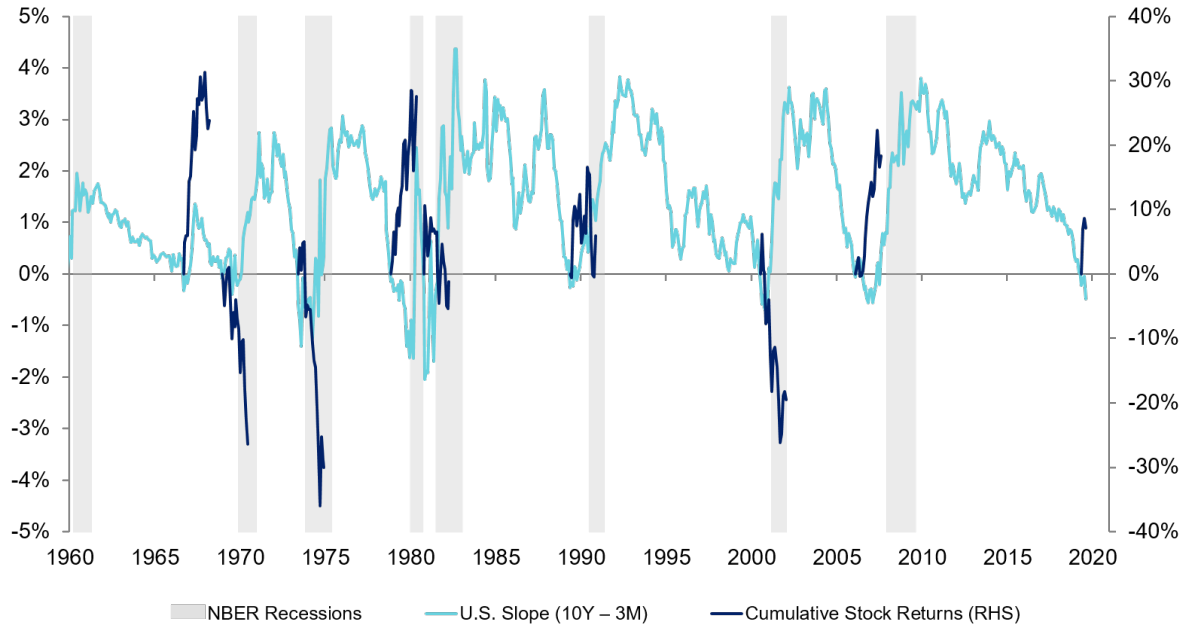
The age of the expansion, tentative signs of economic imbalances, and elevated market valuations all support the common belief that we are indeed late in the cycle. However, historical lags between the emergence of these late cycle markers and the arrival of recession have varied widely. As Figure 1 shows, some indicators may cross into late cycle territory years before the eventual end of the expansion. For example, the ratio of non-financial business debt to corporate profits showed a worrisome increase right before the start of the 2001 recession, but would have sounded a false alarm for several years in the late 1980s. Clearly, using this indicator to time the end of a bull market would have led to significant foregone returns in that latter expansion. In prior research, we have shown that value signals such as the Shiller CAPE are also ineffective for market-timing (and of only limited use when combined with other factors, such as momentum).[12] Other slow-moving measures of cyclical vulnerability appear similarly ill-equipped to guide allocation decisions. A careful look at Figure 1 shows that yield curve inversions have been the most consistent indicator of a late cycle environment. However, as we will discuss below, even curve inversions have not been a reliable sell signal for equities.

What about the Yield Curve?

In the United States, the shape of the yield curve has historically been a consistent sign of recession risk, with long-term yields typically falling below short-term yields in the year or two prior to the onset of a downturn.[13] Investors are only willing to buy long-term bonds at yields below short-term if they are confident yields will fall in the long run, most likely because they expect some combination of slower growth and/or lower inflation. This may be because monetary policy is unusually tight or because the long-run outlook is unusually bleak. Since the Fed began to tighten in 2015, the slope of the curve has flattened, eventually inverting in May as concerns around global growth pushed 10-year yields below 3-month rates.

Does an inverted curve provide more useful market-timing guidance than the other indicators discussed above? Not necessarily. As Figure 2 below shows, curve inversions have reliably indicated that a recession will occur, but not with enough precision to time the top of a bull market. Inversions have been followed by strong equity performance on several occasions, including (as of this writing) the current episode. Yield curve inversions have also not been strong predictors of recession outside the United States, a finding that must reduce our confidence in the signal's predictive power, even in the United States. Acting on yield curve inversions then is not advisable.

Figure 2: Cumulative U.S. Stock Returns 18 months Following Yield Curve Inversion



Sources: AQR, Bloomberg, NBER, Global Financial Data. December 1960 to August 2019. U.S. yield curve inversion when the 10-year Treasury yield minus 3-month T-Bill yield is negative. Stock returns are the cumulative total returns of the S&P 500 Index in the 18 months subsequent to yield curve inversion. U.S. recessions based on NBER business cycle data. For illustrative purposes only.

Listen to the Data, Not the Pundits

For those hoping to tactically reduce equity exposure ahead of the next downturn, other economic data may be more informative. History suggests investors should wait for clear signs of deterioration in fundamental and price trends before taking defensive steps such as reducing equity allocations. Recessions are typically preceded by negative surprises in growth data, downward revisions to economists' growth forecasts, deterioration in sentiment, and tightening in financial conditions.

As of now, U.S. data paints a picture of slower growth but not recession. Consumer spending has been resilient, growing at 2.7% YoY in the second quarter, and government spending has picked up.[14] Declining interest rates may provide a boost to the housing sector, which has been sluggish in recent quarters. Manufacturing activity and equipment investment have been the key areas of concern for the economy, as industrial activity has been weighed down by weak foreign demand and elevated uncertainty over trade policy. Recent escalation in the U.S.-China trade dispute could further derail manufacturing activity and business confidence. Indeed, if the standoff continues to worsen and begins to impact labor market conditions and consumer sentiment, it could become a plausible catalyst for the next recession.

Neither market valuations, nor evidence of economic imbalances, nor high-profile indicators such as the slope of the yield curve have had much success as tools for market-timing. While these indicators give us reasonable confidence we are in fact in a late cycle world, the remaining duration of that environment is uncertain. In other words, even if the late cycle label is accurate, this may not be terribly useful to investors.

So the next time a financial pundit is on the pulpit exclaiming "this is the end," remember that eventually they will be right, but until then, they'll be wrong.

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[1] Source: National Bureau of Economic Research (NBER). Dating of business cycle expansions and contractions extends back to December 1854.

[2] In some ways, "late cycle" pronouncements are reminiscent of the Stark family slogan "winter is coming" in Game of Thrones, which expresses a grim pessimism that may not translate into good decision-making or a high survival rate among its proponents.

[3] Source: AQR, NBER. Average annual S&P 500 Index returns excess of 3-month T-bills in months corresponding to respective economic recessions or expansions.

[4] This has been especially true in the low-inflation environment of recent decades, when central banks have faced more palatable trade-offs between supporting growth and fighting inflation.

[5] The outbreak of the Persian Gulf War and September 11th are good examples of shocks that played a role in recent recessions. Financial crises, such as those that triggered recessions in Asia in the late 1990s and globally in 2007-9, may have identifiable causes but unpredictable behavior. If U.S. policymakers had averted the Lehman bankruptcy as they did for Bear Stearns earlier in the year, the path of the global economy might have been dramatically different.

[6] Normally, a useful way to improve sample size (and appear less Americentric) is to consider the experience of foreign economies as well. There are two obstacles in this case, however. First, most foreign economies do not have officially defined recessions akin to those declared by the NBER, forcing one to resort to blunt rules of thumb such as "two consecutive quarters of negative GDP growth." Recessions are also not truly independent from country to country, so a proper analysis would require more intricate assumptions. See data source in Figure 1.

[7] To keep the average length of an expansion at just over five years, the risk of recession in any given year would be a bit below 20%. If that risk were constant, we would expect nearly half of expansions to last fewer than three years, but only three of twelve post-war expansions have been that short. We would also expect less than 25% of expansions to last more than seven years, but instead find that four of twelve lasted that long.

[8] Bernanke: "The Real Effects of the Financial Crisis," Brookings Papers on Economic Activity 2018

[9] Source: BEA, Bloomberg. We calculate the ratio of intellectual property products levels to nominal GDP levels over time using historical Bureau of Economic Analysis (BEA) data. Per BEA, investment in Intellectual Property Products (IPP) accounted for 4.7% of nominal GDP in 2Q19, the largest share in data going back to 1947.

[10] Federal Reserve Flow of Funds. Riskier pockets of debt markets, such as leveraged loans, have also seen relaxation of lending standards in recent years.

[11] Source: AQR, Bloomberg. Comparing stocks in the same industry according to conventional metrics such as earnings/price, book/price, etc, valuation spreads ended the second quarter in the 84 th percentile going back to 1984. The difference in price/book ratios between rich sectors such as consumer discretionary and information technology and cheap sectors such as financials is at levels last seen in 2000. Valuation trends echo recent aggressive growth in spending on R&D and software, as investors and businesses both seem highly confident new technologies will provide superior returns.

[12] Asness, Ilmanen, and Maloney: "Market Timing: Sin a Little," JOIM 2017.

[13] A recent research note from the San Francisco Fed laid out evidence that the difference between 3-month Treasury yields and 10-year Treasury yields (3m-10yr) has been the most reliable measure for predicting recession in the coming year, narrowly edging out other popular variants such as 2yr-10yr. Federal Reserve Bank of San Francisco Economic Letter: "Information in the Yield Curve about Future Recessions," 8/27/18.

[14] As of 8/29/19. Bureau of Economic Analysis.

be relied on in making an investment or other decision. There can be no assurance that an investment strategy will be successful. Historic market trends are not reliable indicators of actual future market behavior or future performance of any particular investment which may differ materially, and should not be relied upon as such. Diversification does not eliminate the risk of experiencing investment losses.

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