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Keep Your Eyes on the Yield Curve

Inverted Yield Curves Precede Recessions

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Since 1955 there have been nine recessions, each preceded by an inverted yield curve, defined as the yield on the 1-Year Treasury rising above the 10-Year Treasury. There was, however, one period (1967) when an inverted yield curve did not (immediately) lead to a recession.

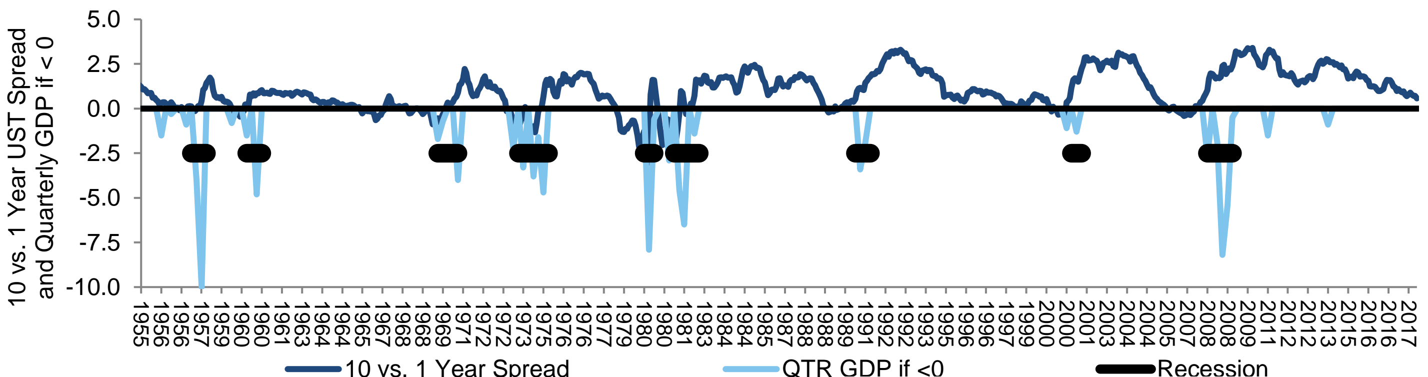
As the yield curve flattens with the 10-Year vs. 1-Year spread falling to 0.50 percent (as of September 30, 2018) and the Federal Open Market Committee (FOMC) telegraphing four more interest rate hikes through 2019 (at 0.25 percent), it's possible the yield curve will invert by mid-to-late 2019.

Something Has to Give…

Since the Great Recession global markets have experienced an unprecedented positive run; with an end to the good times and a recession almost inevitable. However, it's not necessarily around the corner.

A key indicator of an imminent recession is the slope of the yield curve and the spread between short and long-term interest rates. With today's 10-Year versus 1-Year yield spread of +0.50 percent and the FOMC telegraphing four more hikes through the end of 2019 (at a ~0.25 percent clip), there is a reasonable likelihood that the yield curve could invert by mid-to-late 2019.

As the chart below illustrates, it foreshadows the high likelihood of the economy slipping into recession. When the yield curve inverts economic recessions have followed; at varying intervals. Following a curve inversion, the average run-up to a recession is 10 months; although they have been as short as one month or as long as several years.



Source: Federal Reserve Bank of St. Louis

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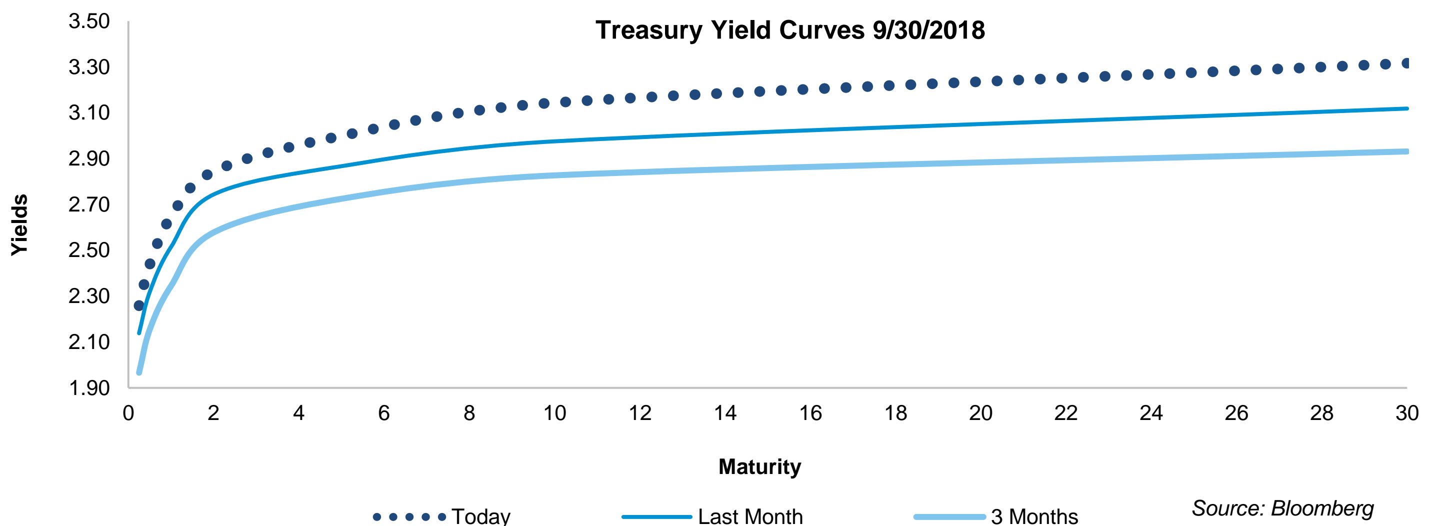
The Next Inverted Yield Curve

So, what could stall the arrival of an inverted yield curve into 2020; or beyond? There are effectively three paths to a curve inversion. One, short-term rates rise to meet long-term rates. Two, long-term rates fall to meet short-term rates. Three, short-term rates rise while long-term rates fall.

In today's environment, there are a couple scenarios that could delay an inverted yield curve's arrival. The first is the Federal Reserve slows its pace for rate hikes below current forecasts. This generally would signal moderating economic growth and inflation. However, the signals would have to be mild enough as to not drive down the long end of the curve. A slowdown in the pace of interest rate hikes by the FOMC would mean the economy was cooling quicker than the FOMC's expectation.

The second scenario is the long end of the curve rises in tandem with the short end of the curve. This means bond buyers catch up to the Federal Reserve regarding concerns about longer-term inflation. Should economic growth avoid meaningful downward revisions in 2018 or 2019, we would expect long-term rates to rise at a pace similar to short-term rates.

So far this year, the trend has been for the short end of the curve to rise without a step-for-step move upward in long-term rates. At the September meeting of the FOMC, the "accommodative" language removed from its minutes may indicate imminent movements upwards in the long-end with the era of easy money policy seemingly over.



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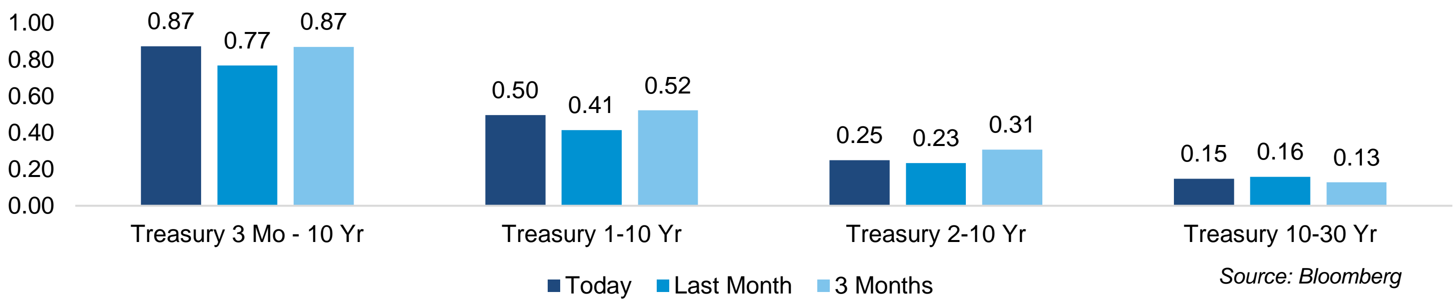
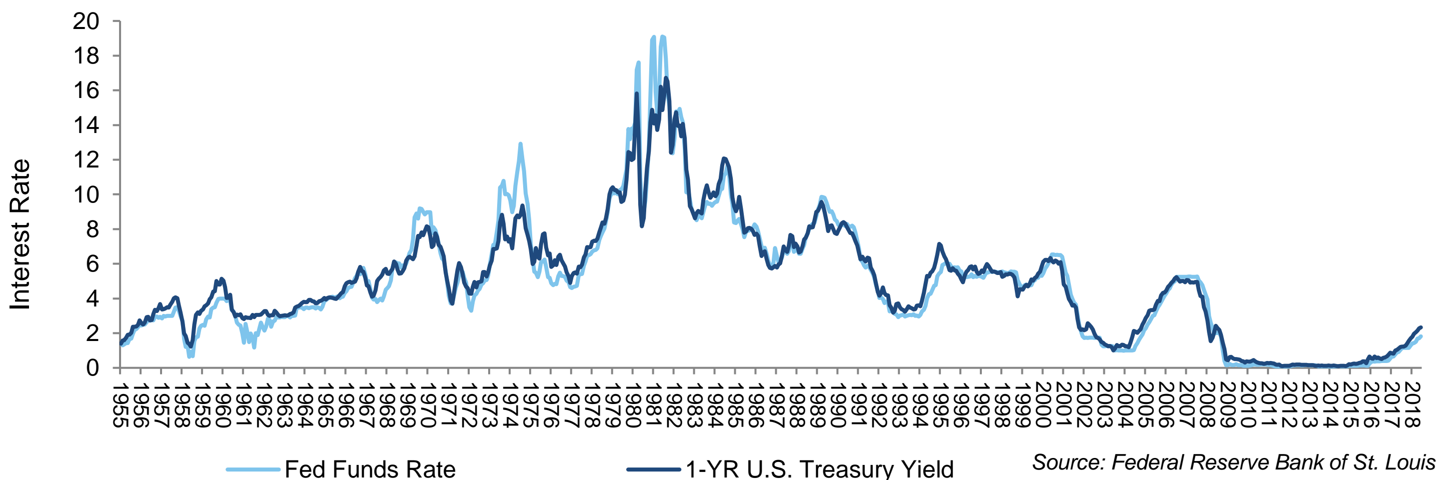
So far in this cycle, the pace of increase for short-term rates exceeded long-term interest rates. Term premiums, the difference between shorter and long-term rates, have compressed marginally over the past three months and indicates a higher probability for an inverted yield curve before the end of 2019.



While curve inversions have been consistent predictors of recessions, the factors, driving each inversion has been inconsistent. It may be constructive to evaluate the drivers of the next inversion compared with past inversions.

Short-term rates are tied to monetary policy and the actions of the Federal Reserve. As illustrated in the chart below, the 1-Year Treasury and the federal funds rate are joined at the hip.



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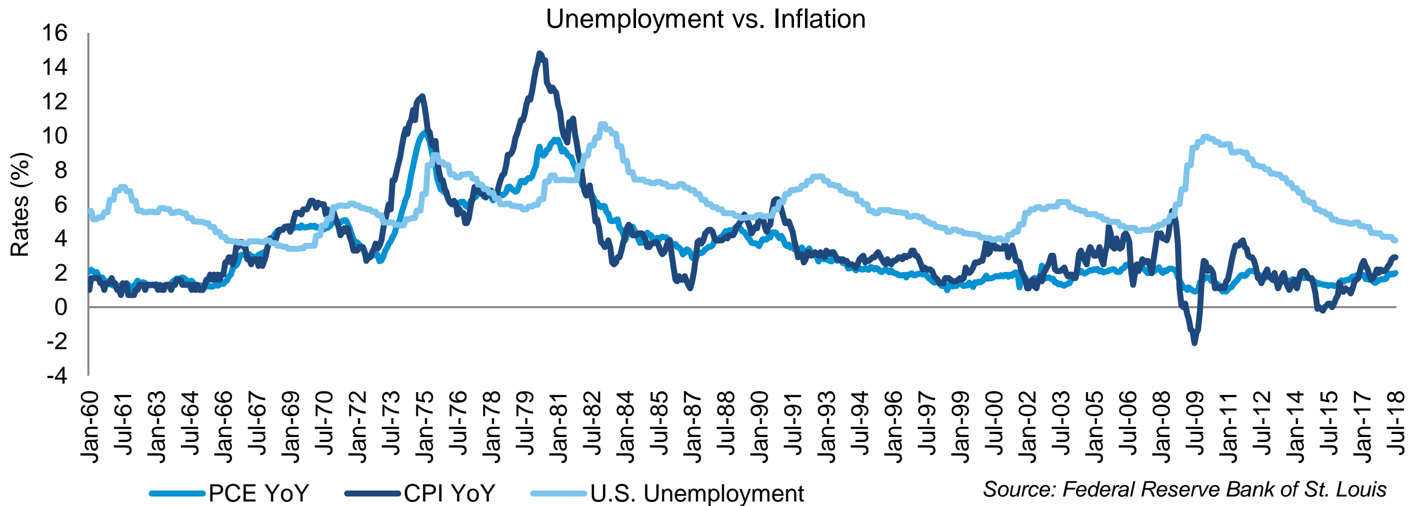
Long-term rates, however, are influenced by a wider range of factors including: inflation, changes in inflation prospects, supply/demand for longer-term Treasuries, and more recently quantitative easing. Traditionally, inflation has had a high correlation with long-term rates (or vice-versa).

Accelerating economic growth usually accompanies employment and wage gains with employees possessing greater negotiating power. With higher employment, greater wage pressures and accelerating economic growth, long-term bond owners are less sanguine about inflation risks and demand a higher yield to hold onto longer-dated treasuries. Anyway, that's the theory.



This relationship, however, hasn't fared as well in recent economic cycles. During the most recent cycle, in the aftermath of the financial crisis, the Fed's bond purchase programs constrained long-term interest rates.

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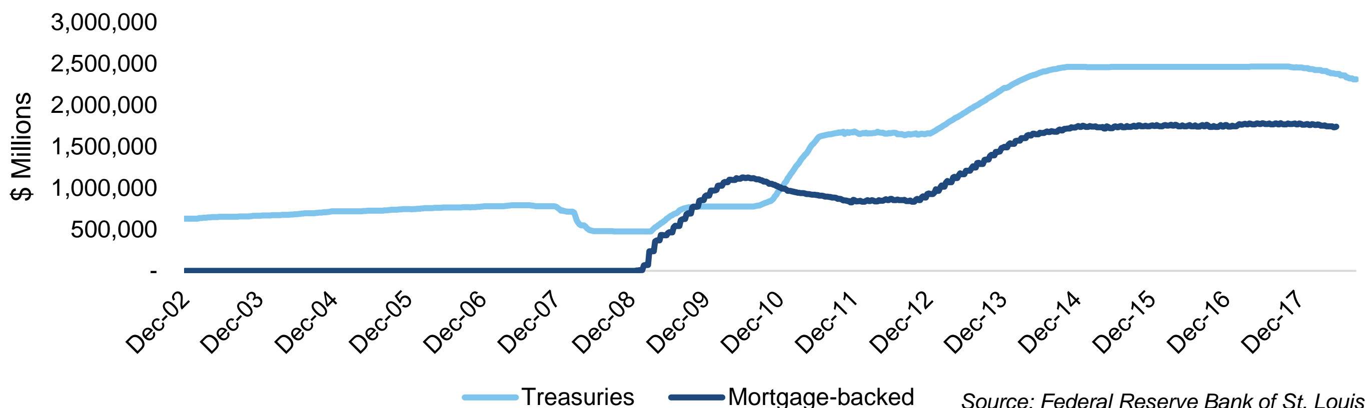

This distortion is likely to disappear (or reverse) as the Fed unwinds its balance sheet. As technical downward pressure (or artificial demand for bonds) on interest rates is removed, we expect the relationship between long-term rates and inflation to revert back to historically normal levels.

Beyond the monetary and quantitative tightening driven by the Fed, recent fiscal policies including tax cuts could have a meaningful impact on long-term rates and inflation pressures. It will be impossible to measure the precise impact, but the fiscal stimulus is expected to boost inflationary forces. The increased inflationary forces will circle back to short-term rates as the Fed determines the rate hikes necessary to constrain inflation over the next several years.

Trade policies too are expected to impact inflationary forces. While the trade disputes with western partners are likely to be resolved in a reasonable time period, a timely resolution to the current impasse with China is not as promising. If there is a protracted trade war with China or other major trading partners, increases in production costs for those goods and services will be passed on to consumers.

Response from the Fed

Now, the Federal Reserve, has a challenge more commonly faced by baseball managers; whether to leave the hot-hand starting pitcher in the latter innings of a tightly contested game or pivot and tap the bullpen.

The FOMC's game plan currently calls for four additional rate hikes over the next five quarters. If executed, the hikes would take the federal funds rate to one percent over (current) inflation levels and return us to normal real interest rates. Aggregating the monetary, fiscal and trade dynamics at play, it's reasonable to conclude interest rates on the short-end and long-end could rise in tandem over the next two years and pushout the dreaded inverted yield curve beyond 2020.

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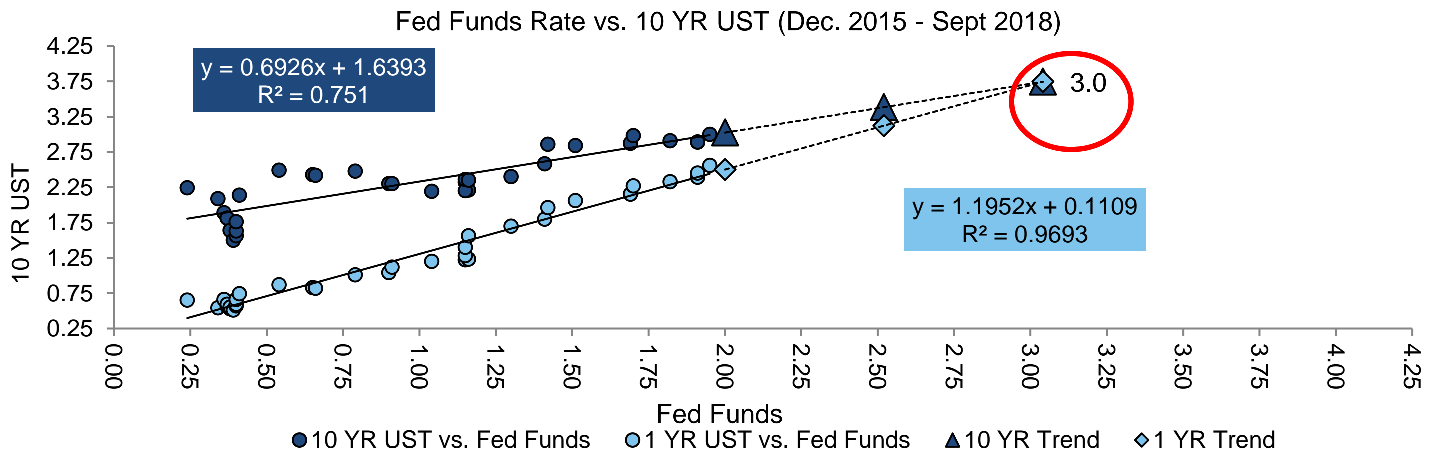
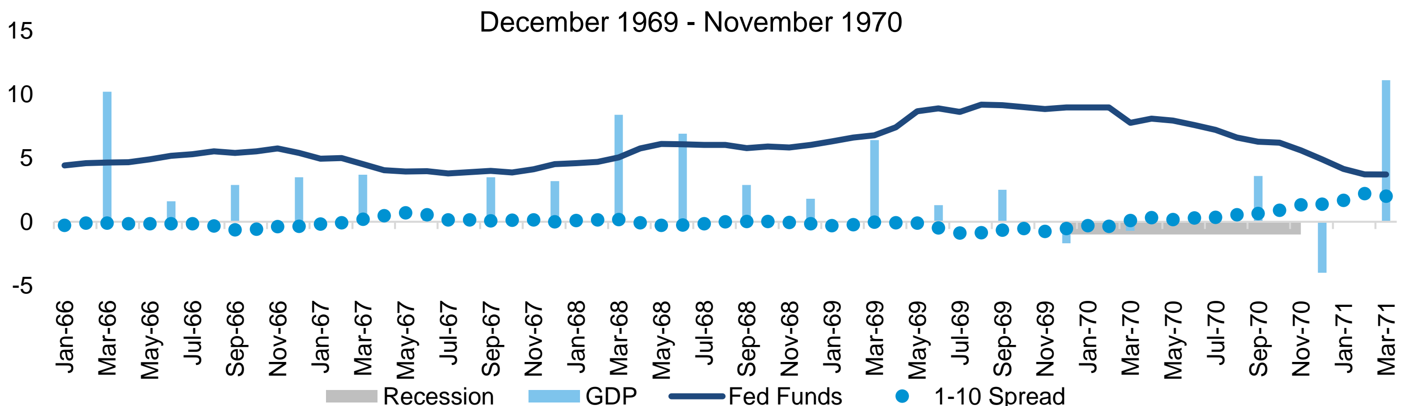
However, based on the trends of short and long-term rates within the most recent rate hike cycle, we expect the yield curve to invert when the federal funds rate crosses 3.0 percent. This is where trends indicate the 1-Year and 10-Year Treasury yields cross at 3.75 percent. With the current federal funds rate at 2.25 percent, this would indicate an inversion could occur after three 0.25 percent rate hikes.



Historical Yield Curve Inversions and Recessions

Let's analyze some past inverted curves and their subsequent recessions to determine if monetary policy decisions impacted both long and short-term yields similarly.

Recession of December 1969 – November 1970



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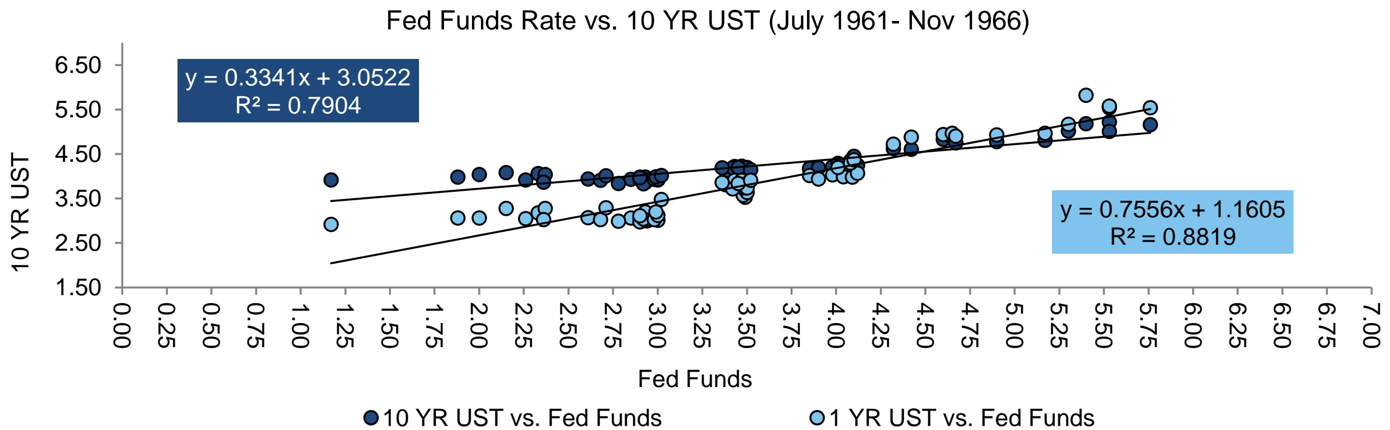
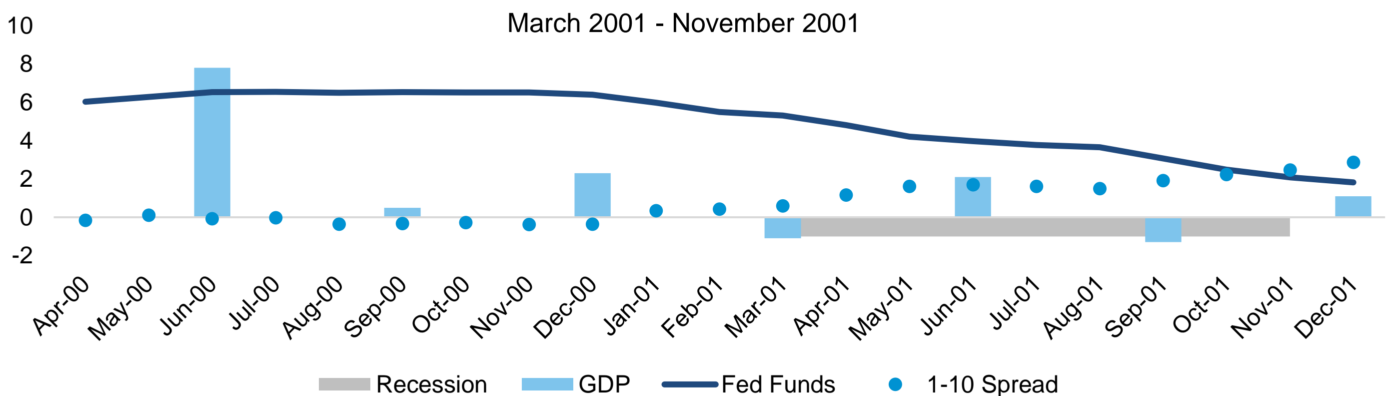
Reexamining the recession that began in late 1969, the yield curve inverted in early 1967; in the wake of a long tightening cycle between mid-1961 and late-1966.

By contrast to the current Fed tightening cycle where the 10-Year and federal funds rate have a relatively close tie (0.69 beta), the beta relationship between 1961 and 1966 was 0.33, which indicates Fed policy decisions had little influence over the long-end of the curve.

Also, this inversion was driven by spending for the Vietnam War which ballooned budget deficits. It was in 1966 the unemployment rate approached an all-time low of 3.6 percent, similar to the current low unemployment environment. As the curve inverted, the Federal Reserve significantly reduced rates from 5.76 percent in November 1966 to 3.70 percent in August 1967.



Recession March 2001 – November 2001



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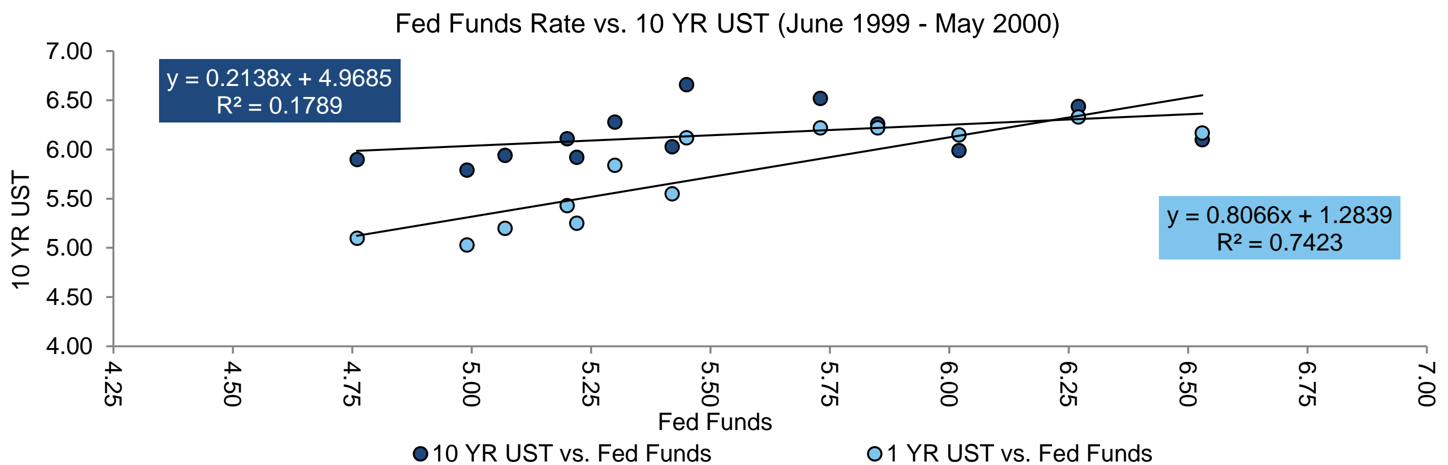
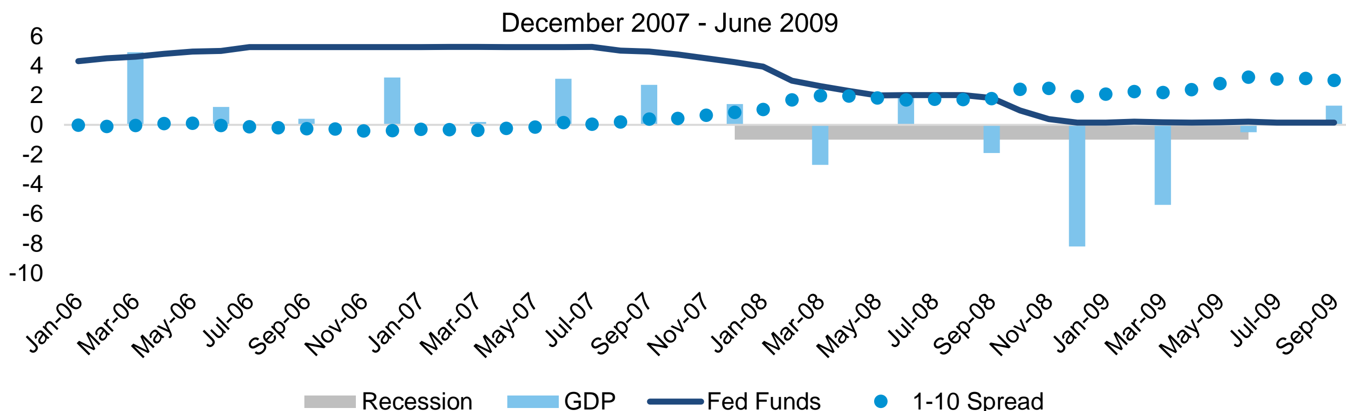
The recession in 2001 came after prolonged economic growth. Similar to the 1960's relationship between interest rates and the federal funds rate, there is little we can tell regarding the curve inversion in the late 1990s and the subsequent recession. During this period, the 10-Year exhibited a low 0.21 beta relative to the federal funds rate and an R^2 of 0.17, demonstrating there was little relationship between the two.

Spurred by heavy investment (and speculation) in technology stocks, to cool the economy, the Federal Reserve raised interest rates six times to 6.50 percent by May 2000.



<u>Great Recession Dec 2007 – June 2009</u>



The most emphatic display of sustained curve inversion, economic contraction and (ultimately dramatic) interest rate cuts came before, during and after the Great Recession. In February 2005, then Chair of the Federal Reserve

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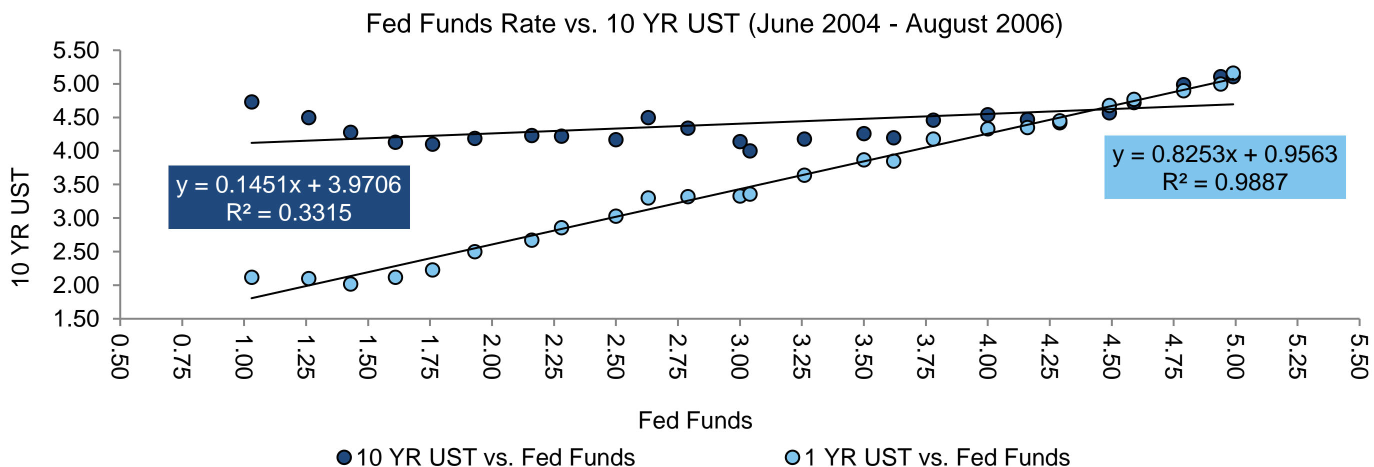
of the United States, Alan Greenspan made his famous remark about a “conundrum” in the bond market. Greenspan was puzzled by how long-term yields declined during a period when the FOMC raised the federal funds rate by 1.50 percent. During this tightening cycle, there was nearly no relationship between the short and long end of the curve.

In December 2007, the economy officially entered a recession but the curve inversion came much earlier; in mid-2006. The FOMC raised rates from 1.00 percent in June 2004 to 5.25 percent by July 2006 attempting to temper the red-hot economy that had been fueled by copious amounts of home mortgage debt.



Conclusion

“*It's tough to make predictions, especially about the future,*” said Yogi Berra, Major League Baseball Hall of Famer and New York Yankees legend.

Although at least a year away, the timing of the next inverted yield curve is as uncertain as is the timing of the next recession. However, we do know for certain that the next recession is a matter of ***when*** rather than ***if***. History suggests the next recession will be preceded by an inverted yield curve. The question remains, what is the path to inversion.

As always, it’s important to maintain a disciplined approach to capital allocation; with an emphasis on diversification. While it’s tempting to expand risk budgets, chase returns and reach for yield in the later innings, doing so can prove unwise with the benefit of hindsight.

For more information, please contact any of the professionals at DiMeo Schneider & Associates, L.L.C.

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About the Author:

Ryan researches and performs operational due diligence on core investment managers. He is a member of our Global Public Markets Team. Prior to joining the firm in 2014, Ryan served as a Research Assistant in U.S. Public Finance for S&P Ratings Services. He received a BS in Management from Indiana University's School of Public and Environmental Affairs. He is a CFA® charterholder and member of the CFA Society of Chicago and CFA Institute. Ryan is a member of the Children's Research Fund Junior Board and enjoys competing in triathlons

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