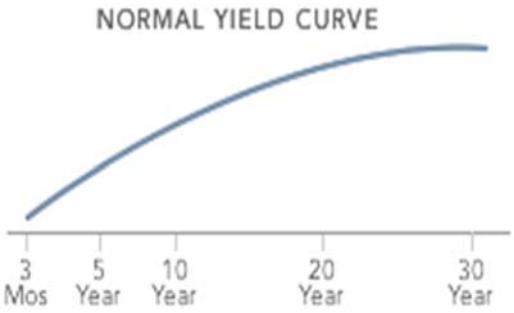
Yield Curve Inversion: Is a Recession Imminent?

The yield curve recently inverted for the first time in over a decade. Does it predict recessions? In this memo, we discuss what a yield curve inversion actually is, the history of inversions, and the predictive power for the future of both the economy and the stock market.

What is a Yield Curve Inversion?

The yield curve represents the level of interest rates for different maturities. Normally, longer-term interest rates are higher than shorter-term rates, as shown below.



For example, you expect to earn a higher interest rate on a 5-year CD than you would on a 1-year CD. Similarly, a 10-year bond investment would normally earn a higher interest rate than a short-term bond, or cash. This makes intuitive sense, since we expect to be compensated more for locking up our money for a longer period.

Occasionally, however, this relationship flips, such that short-term interest rates are higher than long-term rates. This has been the case for the past few months, as yields on money market funds (cash) have been higher than the yield on the 10-year Treasury bond. The yield curve inversion has happened because the Federal Reserve increased short term rates nine times over the last three years. However, bond investors have bid up the price of long-term bonds, pushing down their rates because they see a weaker economy in the future.

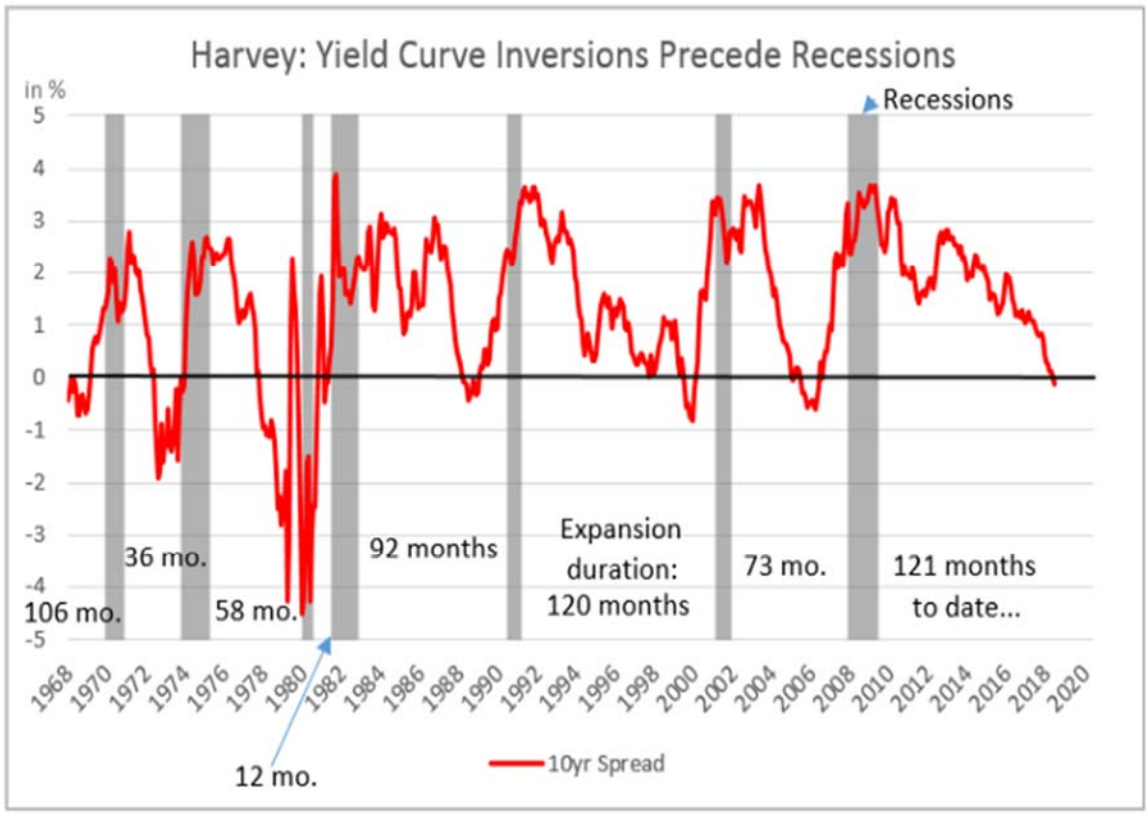
Yield Curve Inversion History

The original research into the relationship between yield curves and future economic growth was done by Cam Harvey in 1986, with his dissertation at the University of Chicago. Harvey, now a finance professor at Duke University, hypothesized that yield curve inversions predict slowdowns in economic growth.

Importantly, he defined a yield curve inversion based on the relationship between either the 10-year Treasury bond and the 3-month T-bill, or the 5-year Treasury bond and the 3-month T-bill. It's unclear if inversions on other parts of the yield curve have the same predictive power. Another important point in his research is that the yield curve, as he defined it, must be inverted for a full quarter for it to have predictive power about the economy.

Based on Mr. Harvey's criteria, there have been 7 yield curve inversions over the past 50 years (until the current one). All 7 inversions have been followed by recessions. Importantly, there have been no false signals. There is typically a lag of 12 to 18 months between the yield curve inversion and a recession.

Below is a chart showing the spread between the 10-year Treasury yield and the 3-month T-Bill yield. When the spread declines below zero, the yield curve is inverted. You can see this happening prior to every recession, which is shown with the shaded vertical bars.



Another observation from this chart is that after inverting, the yield curve always begins to steepen, often dramatically, before the recession actually begins. So, we can expect this to be the next step in our current scenario. Essentially, the Federal Reserve will keep cutting short-term rates until they are below longer-term rates.

Predictive Power on Economic Growth

Will the current yield curve inversion be followed by a recession in 12 to 18 months? With only seven historical data points, there is no statistical basis for such a conclusion. But with its perfect track record, we certainly wouldn't want to ignore this powerful indicator. It is said that the four most dangerous words in finance are "this time is different."

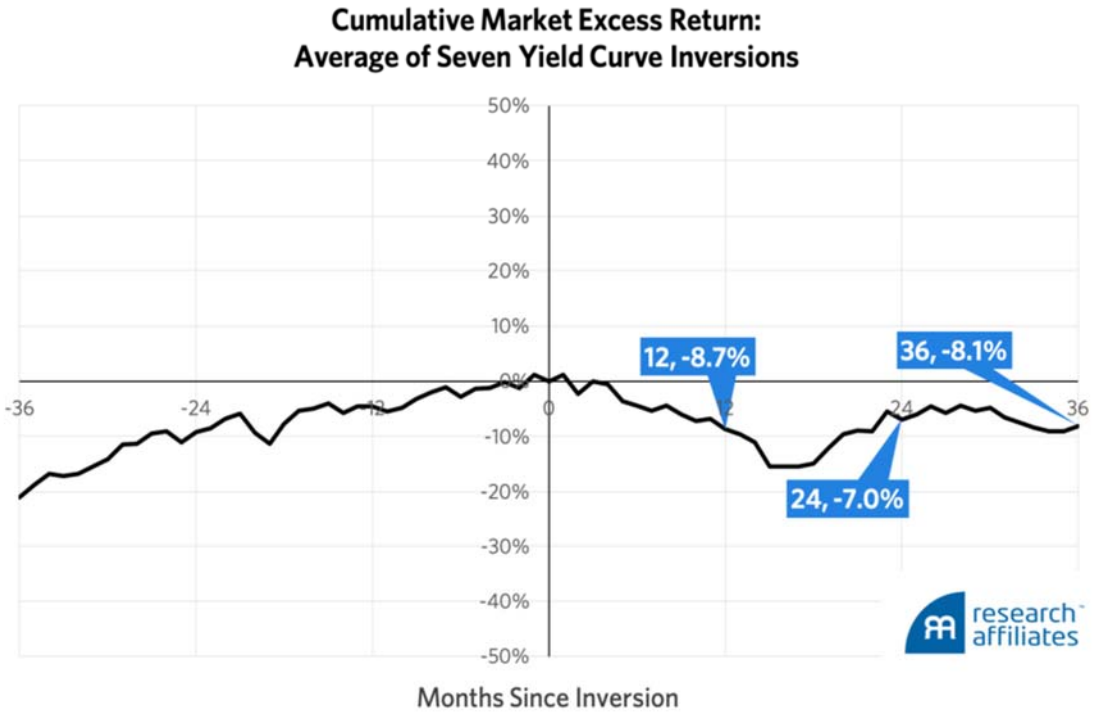
According to Mr. Harvey, “the yield curve is an indicator of sentiment about the future of the economy and the risks we face.” He explained that “the safest asset in the world is the US 10-year Treasury bond. When people believe there is increased risk of a crisis or a recession, they shift their assets into this bond,” which is known as a “flight to quality.” This buying pressure lowers the yield on this bond until it is lower than short-term rates. The Federal Reserve, which has more control over short-term rates, is typically much slower to react to increasing economic risks, so short-term rates stay high for longer. Therefore, the yield curve inversion reflects a combination of monetary policy and investor sentiment.

With that said, there are certainly some reasons why the yield curve may no longer be a perfect indicator of future economic growth. For one, some would say that the Federal Reserve has been manipulating the yield curve for several years. Their buying of longer-term bonds may have led to artificially lower long-term rates than we would normally experience. However, it probably doesn’t matter who is buying bonds, since the reason they are buying is due to economic weakness.

Also, there is reason to believe we will only have an economic slowdown, but not a recession, because the fundamental nature of the US economy has changed dramatically in recent decades. As our economy has become less dependent on manufacturing, and more focused on services (including many modern technology companies), the economy has become less cyclical, without the typical boom and bust cycles of the past. As a result, we have not built up the huge excesses in the economy that typically precede recessions. Either way, we still want to pay attention to this indicator.

Impact on the Stock Market

In the previous 7 yield curve inversion occurrences, the average stock market performance over the 12 months following inversion was a decline of 8.7%. Losses, on average, persisted for 3 years following inversion. These losses followed an average 21% gain in the three years leading up to the yield curve inversion. This is shown in the chart below:



However, in 3 of the 7 instances, the stock market increased following inversion. And so far, this time around, the market is higher since the yield curve initially inverted in March. So, this is an interesting, but not very reliable indicator. Just looking at the last two instances, we saw different results. The last time the yield curve inverted, in July 2006, the stock market increased significantly for more than a year, before ultimately collapsing during the financial crisis, beginning in October 2007. Prior to that, the yield curve last inverted in July 2000. That time, the market had already begun its steep decline, as the dot-com bubble burst.

Conclusion

Based on the original yield curve research criteria, the curve is now inverted, and has been for more than a quarter. Whether this leads to a recession, or just an economic slowdown remains to be seen. Either way, this indicator should not be ignored, as it is a good indicator of expected future economic weakness. We have been gradually getting more conservative with our investment strategy over the past several months, selling some riskier stock and bond funds and buying funds that we would expect to perform better in adverse economic conditions.