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U.S. Economy: Treasury Yield Curve
WHAT DOES A FLATTENING YIELD CURVE MEAN?

KEY POINTS

- The Treasury yield curve tends to flatten as economic expansions age, and it has become inverted before each of the last nine recessions, dating back to 1955.
- However, in the last five such instances, the S&P 500 has delivered positive returns three times over the 12 months following curve flattening.
- As of the end of September of this year, the yield was not yet flat, but it could be by next March if the Fed maintains its tightening pace and the 10-year Treasury rate continues above the 3.0% level.

The U.S. Treasury yield curve—the spread between long- and short-term rates—has flattened sharply this year, raising questions and concerns about the implications of a flat or inverted yield curve for the economy and investing environment (see Figure 1).

Indeed, while the yield curve is usually positively sloped, with long-term rates higher than short-term rates, it tends to flatten as economic expansions age. And it has become inverted—with short rates higher than long rates—before each of the last nine recessions, dating to 1955.

In these cases, the spread between 10-year and three-year Treasury notes flattened, reaching a yield spread of zero, on average 16 months before the onset of each of these nine recessions, as determined by the National Bureau for Economic Research. The lead times ranged from nine months to 28 months.

The record for the more commonly cited 10-year to two-year yield spread—from 1976, when the Treasury began issuing two-year notes—is broadly similar.

That spread has flattened before each of the last five recessions, on average 16 months before the recession begins, with a range of 10 to 22 months. It stood at 0.24% on September 30 of this year, down from a 2018 high of 0.78% on February 12.

MONETARY POLICY

There are causal linkages connecting yield curve changes and the business cycle because these late-cycle episodes of curve flattening and inversion are driven by monetary policy.

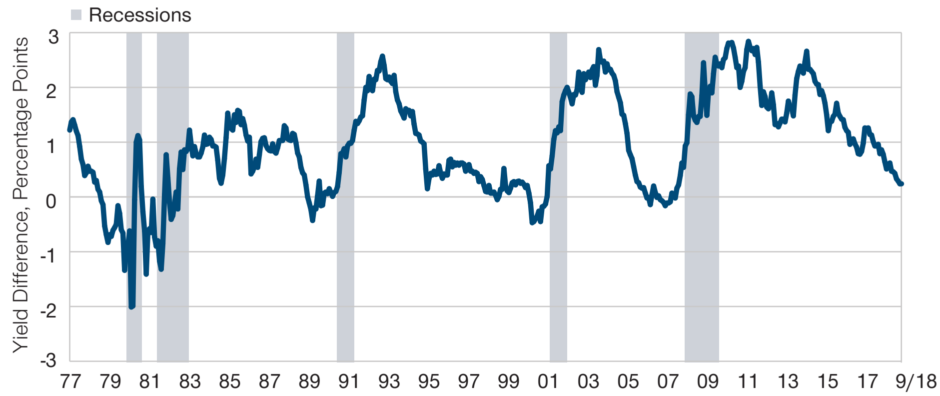
When the Fed raises interest rates to cap inflation or prevent other manifestations of an overheating economy, interest rates generally have tended to rise at all maturities. Short-term rates have tended to rise in these instances more than long-term rates, as the former are more closely tied to the overnight fed funds rate, which is the Fed's policy instrument.

Higher interest rates reduce the demand for credit, and a flatter yield curve reduces the profit margin of

The yield curve is not flat yet...but it could be by next March if the Fed maintains its 0.25% per quarter pace of rate hikes and the 10-year Treasury rate above the 3.0% level. Starting the historical average 16-month clock from the spring of 2019 would raise the specter of a downturn beginning in 2020.

FIGURE 1: **U.S. Treasury Yield Spread Narrowed**

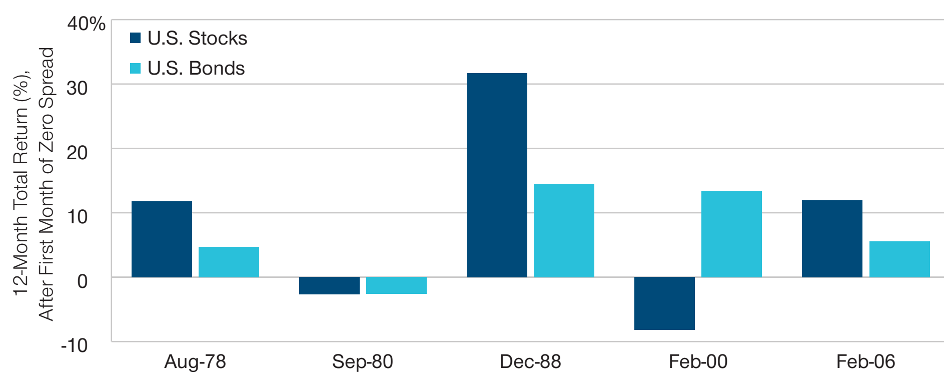
Difference Between 2- and 10-Year Yields



Sources: Federal Reserve, National Bureau for Economic Research, Haver Analytics, and data analysis by T. Rowe Price.

FIGURE 2: **Returns After Yield Spread Hits Zero and Recessions Followed**

U.S. Stocks and Bonds, 12 Months Later



Past performance is not a reliable indicator of future performance.

Indices used are the S&P 500 Index and the Bloomberg Barclays U.S. Aggregate Bond Index.

Sources: Bloomberg Index Services Ltd., Federal Reserve, Standard & Poor's, Haver Analytics, and data analysis by T. Rowe Price.

banks and other borrow-short, lend-long financial intermediaries—thereby restricting the supply of credit.

There also are less direct channels through which Fed rate hikes affect the financial conditions that drive economic decision-making.

For example, rising interest rates can be a headwind for stock prices by reducing the discounted value of expected corporate earnings, and they can boost the foreign exchange value of the dollar, undermining the competitiveness of U.S. exports and reducing the dollar value of multinationals' foreign earnings.

INVESTMENT RETURNS

In part because of the varying time span between complete curve flattening and the onset of recession, there is significant variation in investment returns once the yield curve reaches zero spread.

In the five most recent episodes (for which stock and bond market total return data are available), the Standard & Poor's 500 Index of large-cap U.S. stocks delivered a positive total return three times over the 12 months following curve flattening. Negative total returns were posted in the two cycles that had the shortest time span between curve flattening and recession (see Figure 2).

Returns in the investment-grade bond market were positive in the 12 months following four of the last five times the yield curve flattened. This, in part, reflects the fact that interest rates have been generally near their cycle peaks when the yield curve flattened. That presented a higher current yield for bonds and provided scope for the beginnings of subsequent cyclical declines in rates, which lifted bond prices.

NOT YET

The yield curve is not flat yet as of the end of September of this year, but it could be by next March if the Fed maintains its 0.25% per quarter pace of rate hikes and the 10-year Treasury rate continues above the 3.0% level.

Starting the historical average 16-month clock from the spring of 2019 would raise the specter of a downturn beginning in 2020. But a recession would not necessarily be precipitated by the flat yield curve per se because the underlying stance of monetary policy likely would not be particularly restrictive.

Indeed, if the curve flattens next March as the Fed lifts its fed funds rate target range to 2.5% to 2.75%, the real fed funds rate would still only be 0.5% to 0.75%—more than a full percentage point below the economy's current estimated growth potential.

This would represent a relatively accommodative underlying policy stance. In previous interest rate cycles, the real fed funds rate has been roughly equal to the potential economic growth rate when the yield curve reached zero spread.

In other words, we may expect the potential recession signal of a flat yield curve to be confirmed by further Fed rate hikes that raise real interest rates to the economy's current estimated growth potential of roughly 2.0%.

But, in fact, the curve flattening since February of this year has been driven entirely by higher two-year rates, reflecting that sort of rise in the expected fed funds rate two years later. More than nine years from the mid-2009 recession trough, the current nearly flat yield curve is a sign that the growth cycle is in its later stages, but history counsels against trying to pinpoint the next recession. Similarly, the record of asset market performance in the year following curve flattening argues against hunkering down in anticipation of an imminent recession.

Additionally, it's important to keep in mind that while a flat yield curve will be an important milestone in this long-running economic expansion, there are other indicators to watch for signs of emerging economic fragility.

These include not only the fed funds rate reaching the economy's potential economic growth rate, but also a softening labor market—as a significant downshift in the pace of monthly job growth and a sustained upturn in weekly jobless claims would indicate an inflection point in the economy's growth trajectory.

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