



**PRICE
POINT[®]**

October 2018

In-depth analysis and insights
to inform your decision-making.



Alan Levenson
T. Rowe Price
Chief U.S. Economist

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.

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.

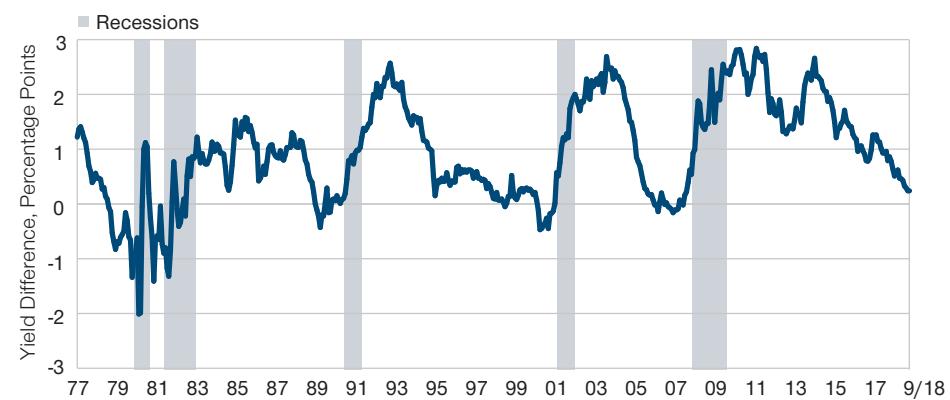
INVESTMENT RETURNS

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

FIGURE 1: U.S. Treasury Yield Spread Narrowed

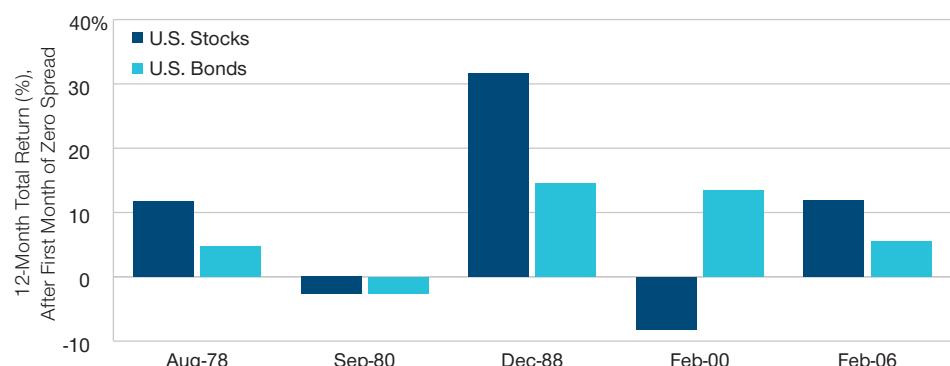
Difference Between 2- and 10-Year Yields



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.

Bloomberg Index Services Ltd. Copyright © 2018. Bloomberg Index Services Ltd. Used with permission.

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.

INVEST WITH CONFIDENCE®

T. Rowe Price focuses on delivering investment management excellence that investors can rely on—now and over the long term.

To learn more, please visit troweprice.com.

Important Information

This material is being furnished for general informational purposes only. The material does not constitute or undertake to give advice of any nature, including fiduciary investment advice, and prospective investors are recommended to seek independent legal, financial and tax advice before making any investment decision. T. Rowe Price group of companies including T. Rowe Price Associates, Inc. and/or its affiliates receive revenue from T. Rowe Price investment products and services. **Past performance is not a reliable indicator of future performance.** The value of an investment and any income from it can go down as well as up. Investors may get back less than the amount invested.

The material does not constitute a distribution, an offer, an invitation, a personal or general recommendation or solicitation to sell or buy any securities in any jurisdiction or to conduct any particular investment activity. The material has not been reviewed by any regulatory authority in any jurisdiction.

Information and opinions presented have been obtained or derived from sources believed to be reliable and current; however, we cannot guarantee the sources' accuracy or completeness. There is no guarantee that any forecasts made will come to pass. The views contained herein are as of the date written and are subject to change without notice; these views may differ from those of other T. Rowe Price group companies and/or associates. Under no circumstances should the material, in whole or in part, be copied or redistributed without consent from T. Rowe Price.

The material is not intended for use by persons in jurisdictions which prohibit or restrict the distribution of the material and in certain countries the material is provided upon specific request.

It is not intended for distribution to retail investors in any jurisdiction.

Australia—Issued in Australia by T. Rowe Price Australia Limited (ABN: 13 620 668 895 and AFSL: 503741), Level 50, Governor Phillip Tower, 1 Farrer Place, Suite 50B, Sydney, NSW 2000, Australia. For Wholesale Clients only.

Canada—Issued in Canada by T. Rowe Price (Canada), Inc. T. Rowe Price (Canada), Inc.'s investment management services are only available to Accredited Investors as defined under National Instrument 45-106. T. Rowe Price (Canada), Inc. enters into written delegation agreements with affiliates to provide investment management services.

DIFC—Issued in the Dubai International Financial Centre by T. Rowe Price International Ltd. This material is communicated on behalf of T. Rowe Price International Ltd. by its representative office which is regulated by the Dubai Financial Services Authority. For Professional Clients only.

EEA—Issued in the European Economic Area by T. Rowe Price International Ltd, 60 Queen Victoria Street, London EC4N 4TZ which is authorised and regulated by the UK Financial Conduct Authority. For Professional Clients only.

Hong Kong—Issued in Hong Kong by T. Rowe Price Hong Kong Limited, 21/F, Jardine House, 1 Connaught Place, Central, Hong Kong. T. Rowe Price Hong Kong Limited is licensed and regulated by the Securities & Futures Commission. For Professional Investors only.

New Zealand—Issued in New Zealand by T. Rowe Price Australia Limited (ABN: 13 620 668 895 and AFSL: 503741), Level 50, Governor Phillip Tower, 1 Farrer Place, Suite 50B, Sydney, NSW 2000, Australia. No Interests are offered to the public. Accordingly, the Interests may not, directly or indirectly, be offered, sold or delivered in New Zealand, nor may any offering document or advertisement in relation to any offer of the Interests be distributed in New Zealand, other than in circumstances where there is no contravention of the Financial Markets Conduct Act 2013.

Singapore—Issued in Singapore by T. Rowe Price Singapore Private Ltd., No. 501 Orchard Rd, #10-02 Wheelock Place, Singapore 238880. T. Rowe Price Singapore Private Ltd. is licensed and regulated by the Monetary Authority of Singapore. For Institutional and Accredited Investors only.

Switzerland—Issued in Switzerland by T. Rowe Price (Switzerland) GmbH, Talstrasse 65, 6th Floor, 8001 Zurich, Switzerland. For Qualified Investors only.

USA—Issued in the USA by T. Rowe Price Associates, Inc., 100 East Pratt Street, Baltimore, MD, 21202, which is regulated by the U.S. Securities and Exchange Commission. For Institutional Investors only.

© 2018 T. Rowe Price. All rights reserved. T. ROWE PRICE, INVEST WITH CONFIDENCE, and the Bighorn Sheep design are, collectively and/or apart, trademarks of T. Rowe Price Group, Inc.