Yield Curve and Predicted GDP Growth, November 2016

Covering September 24—October 21, 2016

11.04.16

Highlights

<table>
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<th>October</th>
<th>September</th>
<th>August</th>
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<tbody>
<tr>
<td>3-month Treasury bill rate (percent)</td>
<td>0.34</td>
<td>0.24</td>
<td>0.30</td>
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<tr>
<td>10-year Treasury bond rate (percent)</td>
<td>1.76</td>
<td>1.66</td>
<td>1.56</td>
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<td>Yield curve slope (basis points)</td>
<td>142</td>
<td>142</td>
<td>126</td>
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<td>Prediction for GDP growth (percent)</td>
<td>1.4</td>
<td>1.5</td>
<td>1.5</td>
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<tr>
<td>Probability of recession in 1 year (percent)</td>
<td>9.24</td>
<td>9.27</td>
<td>11.25</td>
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Overview of the Latest Yield Curve Figures

As we approached Halloween, the yield curve took a parallel jump upwards, with both short and long rates moving up by 10 basis points. The three-month (constant maturity) Treasury bill rate increased to 0.34 percent (for the week ending October 21) from September’s 0.24 percent and exceeded August’s 0.30 percent. The ten-year rate (also constant maturity) rose to 1.76 percent up from September’s 1.66 percent, which itself was up from August’s 1.56 percent. These changes kept the slope at 142 basis points, even with September’s slope and 16 basis points above August’s 126 basis points.

The unchanged spread had a minor impact on predicted real GDP growth, in part because there was a new GDP number, 2.9 percent growth for the third quarter. Using past values of the spread and GDP growth suggests that real GDP will grow at about a 1.4 percent rate over the next year, just a hair below the 1.5 of September and August. Although the time horizons do not match exactly, the forecast perhaps a bit below other forecasts, though like them, it does show moderate growth for the year.
The probability of recession didn’t move much, but it did decrease. Using the yield curve to predict whether or not the economy will be in recession in the future, we estimate the expected chance of the economy being in a recession next October to be 9.24 percent, barely below September’s 9.27 percent, which itself was down from August’s 11.25 percent. So the yield curve is optimistic about the recovery continuing, even if it is somewhat pessimistic with regard to the pace of growth over the next year.
The Yield Curve as a Predictor of Economic Growth

The slope of the yield curve—the difference between the yields on short- and long-term maturity bonds—has achieved some notoriety as a simple forecaster of economic growth. The rule of thumb is that an inverted yield curve (short rates above long rates) indicates a recession in about a year, and yield curve inversions have preceded each of the last seven recessions (as defined by the NBER). One of the recessions predicted by the yield curve was the most recent one. The yield curve inverted in August 2006, a bit more than a year before the current recession started in December 2007. There have been two notable false positives: an inversion in late 1966 and a very flat curve in late 1998.

More generally, a flat curve indicates weak growth and, conversely, a steep curve indicates strong growth. One measure of slope, the spread between ten-year Treasury bonds and three-month Treasury bills, bears out this relation, particularly when real GDP growth is lagged a year to line up growth with the spread that predicts it.
Yield Curve Spread and Real GDP Growth

Note: Shaded bars indicate recessions.
Source: Bureau of Economic Analysis; Federal Reserve Board.

Predicting GDP Growth

We use past values of the yield spread and GDP growth to project what real GDP will be in the future. We typically calculate and post the prediction for real GDP growth one year forward.

Predicting the Probability of Recession

While we can use the yield curve to predict whether future GDP growth will be above or below average, it does not do so well in predicting an actual number, especially in the case of recessions. Alternatively, we can employ features of the yield curve to predict whether or not the economy will be in a recession at a given point in the future. Typically, we calculate and post the probability of recession one year forward.

Of course, it might not be advisable to take these numbers quite so literally, for two reasons. First, this probability is itself subject to error, as is the case with all statistical estimates. Second, other researchers have postulated that the underlying determinants of the yield spread today are materially different from the determinants that generated yield spreads during prior decades. (For a recent example, see the “Recessions Probabilities.”) Differences could arise from changes in international capital flows and inflation expectations, for example. The bottom line is that yield

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Source: Bureau of Economic Analysis; Federal Reserve Board.
curves contain important information for business cycle analysis, but, like other indicators, should be interpreted with caution. For more detail on these and other issues related to using the yield curve to predict recessions, see the Commentary “Does the Yield Curve Signal Recession?” Our friends at the Federal Reserve Bank of New York also maintain a website with much useful information on the topic, including their own estimate of recession probabilities.

Explanation of Revisions
Corrected Data

Headlines

11.16.16
Geographic Mobility and Consumer Financial Health: Evidence from Oil Production
Boom Towns

Rawley Z. Heimer | Timothy Stehulak | Caitlin Treanor

One way a household might handle financial distress is to relocate to another area that offers greater income opportunities. This article examines the impact of geographic mobility on consumer finances by focusing on the residents of “boom towns” - areas that saw a surge of growth in oil-drilling activity around 2010 and a bust thereafter. We find that residents who move after the bust experience stronger consumer financial health than residents who stay put. Read More.

11.15.16
A Faster Foreclosure Option for Vacant, Abandoned Properties

Michelle Park Lazette

Ohio law has been amended to allow for speedier foreclosures of so-called zombie properties, and Forefront asks Cleveland Fed community development experts if the new option will benefit neighborhoods. Read More.

11.14.16
State of the State: Kentucky

Gary Wagner

Annualized payroll employment growth has slowed in the District and the nation, but there are reasons to remain upbeat about the near-term outlook. Read More.

Upcoming Events

12.01.16
Financial Stability Conference

The conference will bring together academics, policymakers, and market participants to discuss financial and technological innovations and their impact on financial stability.

12.07.16
The Community Reinvestment Act (CRA) for Community Based Organizations

This session is designed for those with limited knowledge of CRA but are eager to learn about the exam process. Basic
The concepts and principals of the CRA will be covered.

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