

# The Yield Curve and Predicted GDP Growth, August 2014

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**August 28, 2014**

**Covering July 26, 2014–August 22, 2014**

## Highlights

	August		
3-month Treasury bill rate (percent)	0.03	0.03	0.03
10-year Treasury bond rate (percent)	2.41	2.49	2.63
Yield curve slope (basis points)	238	246	260
Prediction for GDP growth (percent)	1.5	1.5	1.4
Probability of recession in 1 year (percent)		2.46	1.99

## Overview of the Latest Yield Curve Figures

Since last month, the yield curve continued to get flatter, pivoting downward around the short end. The three-month (constant maturity) Treasury bill rate stayed fixed at 0.03 percent (for the week ending August 22), even with July and June's levels. The ten-year rate (also constant maturity) decreased to 2.41 percent, down from July's 2.49 percent and June's 2.63 percent. The pivot dropped the slope to 241 basis points, 5 basis points below July's 246 and 19 basis points below June's 260. By recent standards, the yield curve remains steep.

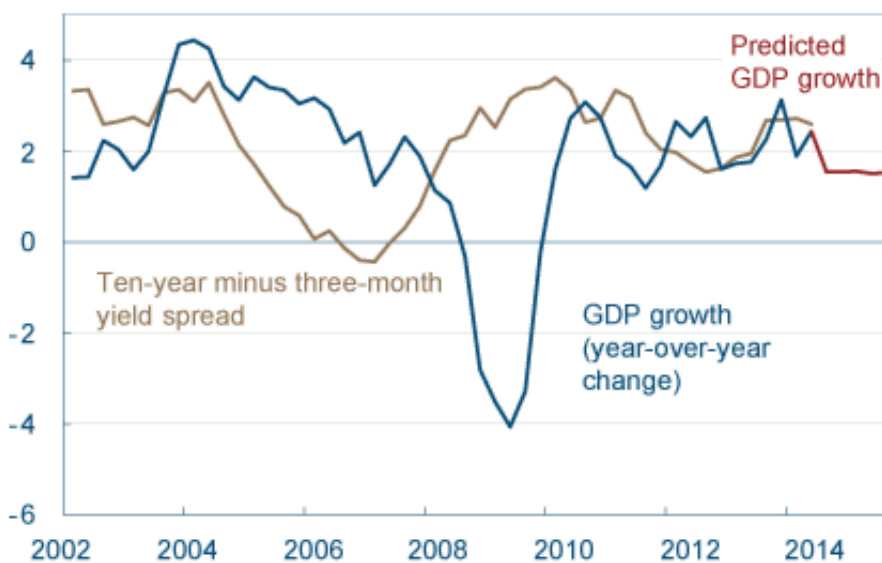
Despite the flatter slope, predicted future growth showed no appreciable change. Projecting forward using past values of the spread and GDP growth suggests that real

GDP will grow at about a 1.5 percentage rate over the next year, even with July's forecast and just up from the 1.4 percent forecast in June. The influence of the past recession continues to push towards relatively low growth rates. Although the time horizons do not match exactly, the forecast is slightly more pessimistic than some other predictions<sup>[1]</sup>, but like them, it does show moderate growth for the year.

[2]

## Yield Curve Predicted GDP Growth

Percent



Sources: Bureau of Economic Analysis, Board of Governors of the Federal Reserve System, authors' calculations.

[3]

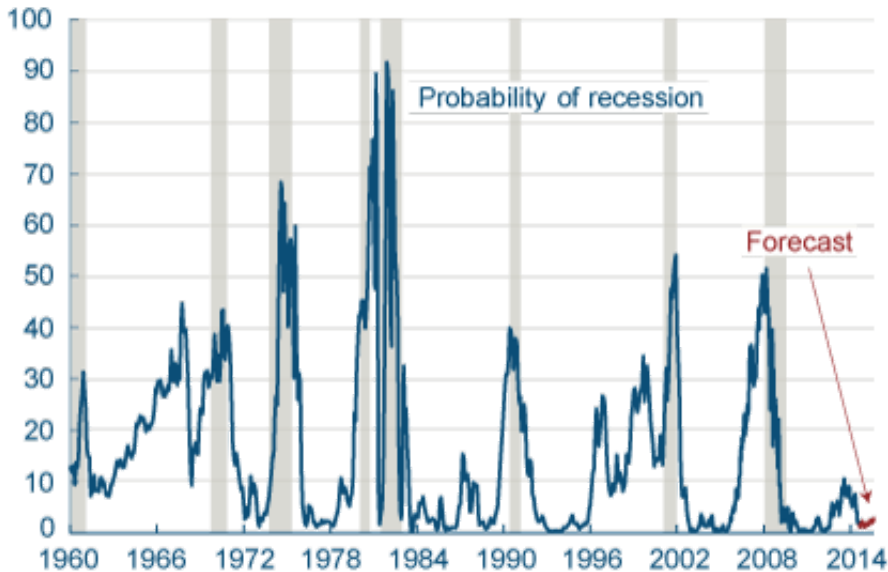
[4]

The flatter slope did increase the probability of a recession, though only slightly. Using the yield curve to predict whether or not the economy will be in a recession in the future, we estimate that the expected chance of the economy being in a recession next August at 2.76 percent, up a bit from July's reading of 2.46 percent and June's probability of 1.99 percent. So although our approach is somewhat pessimistic with regard to the level of growth over the next year, it is quite optimistic about the recovery continuing.

[5]

## Recession Probability from Yield Curve

Percent probability, as predicted by a probit model



Note: Shaded bars indicate recessions.

Sources: Bureau of Economic Analysis, Board of Governors of the Federal Reserve System, authors' calculations.

[6]

[7]

## The Yield Curve as a Predictor of Economic Growth

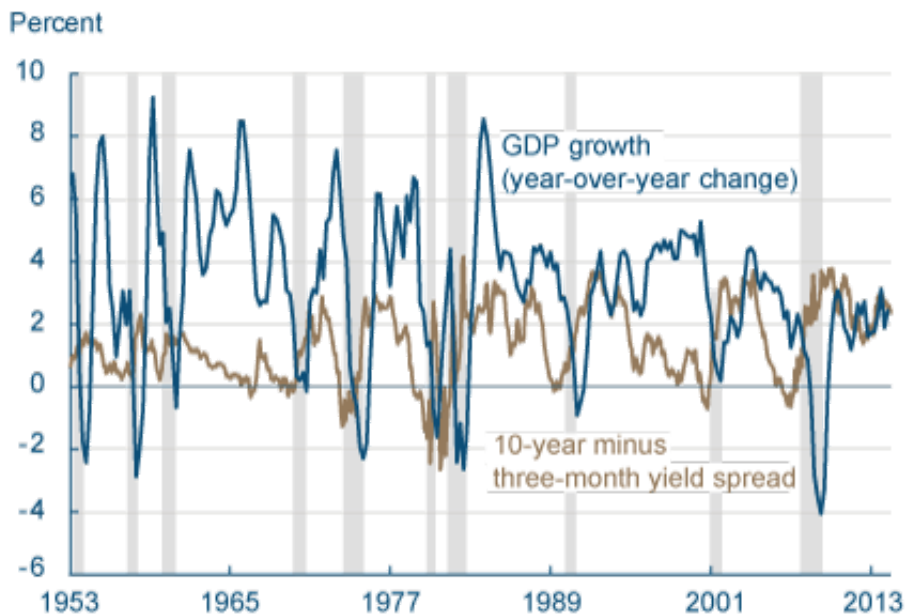
The slope of the yield curve—the difference between the yields on short- and long-term maturity bonds—has achieved some notoriety as a simple forecaster of economic growth. The rule of thumb is that an inverted yield curve (short rates above long rates) indicates a recession in about a year. Yield curve inversions have preceded each of the last seven recessions (as defined by the NBER<sup>[8]</sup>). 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.

[9]

## Yield Curve Spread and Real GDP Growth



Note: Shaded bars indicate recessions.  
Source: Bureau of Economic Analysis, Board of Governors of the Federal Reserve System.

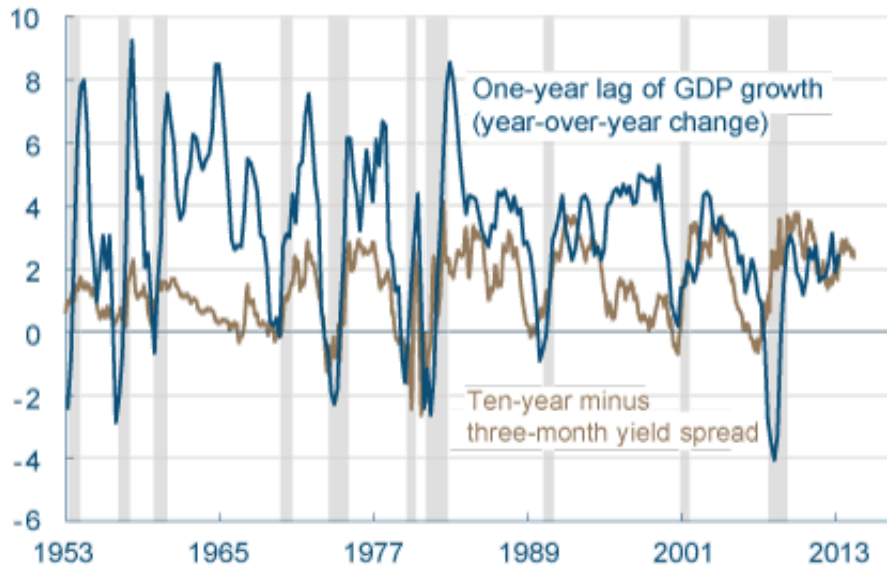
[10]

[11]

[12]

## Yield Spread and Lagged Real GDP Growth

Percent



Note: Shaded bars indicate recessions.

Sources: Bureau of Economic Analysis, Board of Governors of the Federal Reserve System.

[13]

[14]

### 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. Differences could arise from changes in international capital flows and inflation expectations, for example. The bottom line is that yield 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?”<sup>[15]</sup> 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<sup>[16]</sup> of recession probabilities.

1. <http://www.marketwatch.com/economy-politics/calendars/economic?siteId=>
2. [http://www.clevelandfed.org/research/data/yield\\_curve/2014/0914/image3.gif](http://www.clevelandfed.org/research/data/yield_curve/2014/0914/image3.gif)
3. [http://www.clevelandfed.org/research/data/yield\\_curve/2014/0914/image3.gif](http://www.clevelandfed.org/research/data/yield_curve/2014/0914/image3.gif)
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8. <http://www.nber.org/cycles/recessions.html>
9. [http://www.clevelandfed.org/research/data/yield\\_curve/2014/0914/image1.gif](http://www.clevelandfed.org/research/data/yield_curve/2014/0914/image1.gif)
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15. <http://www.clevelandfed.org/Research/Commentary/2006/0415.pdf>
16. [http://www.newyorkfed.org/research/capital\\_markets/ycfaq.html](http://www.newyorkfed.org/research/capital_markets/ycfaq.html)

