



## Should We Fear the Inverted Yield Curve?

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### GLOSSARY

**Bond:** A certificate of indebtedness issued by a government or corporation.

**Coupon (of bonds):** The regular payments received by the buyer of a bond.

**Face value (of bonds):** The dollar amount paid to the bond holder when a bond matures.

**Maturity (of bonds):** The time period during which a bond makes coupon payments.

**Yield curve:** A graph that shows the yields of bonds with different maturity dates.

**Yield (of bonds):** The return from owning a bond. It depends on the price paid for the bond, its coupon payments, and its face value.

“What, me worry?”

—Alfred E. Neuman (*MAD* magazine)

On August 14, 2019, news outlets widely carried news of a “**yield curve inversion**.” Stock market indexes dramatically dropped in value, and Google searches for the word “recession” peaked. What is the yield curve? How does it invert? Why does it matter? Should we worry about it?

### U.S. Bonds and Yields

Both the federal government and corporations borrow money by selling **bonds** when their expenses are larger than their revenue. Bonds are certificates of indebtedness (i.e., IOUs) entitling the buyer of the bond to a regular stream of payments (called **coupons**) for a period of time (called **maturity**). The time until the last payment is called the remaining maturity of the bond. When a bond matures, the issuer of the bond returns to the buyer of the bond the amount borrowed (called the **face value** of the bond). In the United States, the U.S. Treasury issues bonds on behalf of the federal government, and U.S. government bonds are also known as Treasuries.

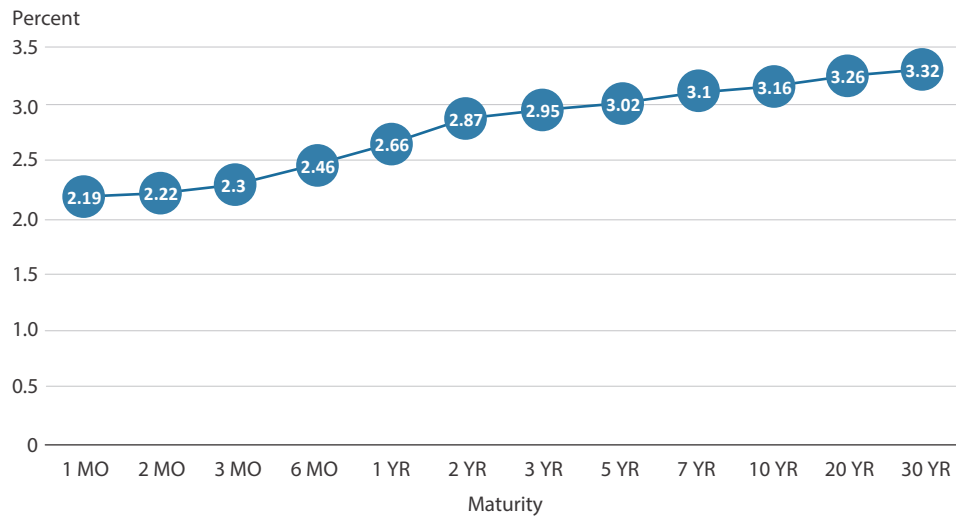
Different bonds have different maturities, which indicate the length of the loans. The U.S. Treasury sells bonds maturing in as early as 30 days and as late as 30 years. The amount of time it takes for bonds to mature influences the return to buying them. These returns are called **yields**.

Usually, bond buyers expect bonds with longer maturities to offer higher yields than bonds with shorter maturities. They want to be compensated for how long they will have to wait to spend their money in the future. In addition, because the future is uncertain, the longer it takes a bond to mature, the higher the default risk. Default risk is the chance that repayment will not be made. The higher the default risk, the higher the expected yield. For these reasons, for example, banks and credit unions offer higher interest rates on certificates of deposit (CDs) with longer maturities.

### The Yield Curve

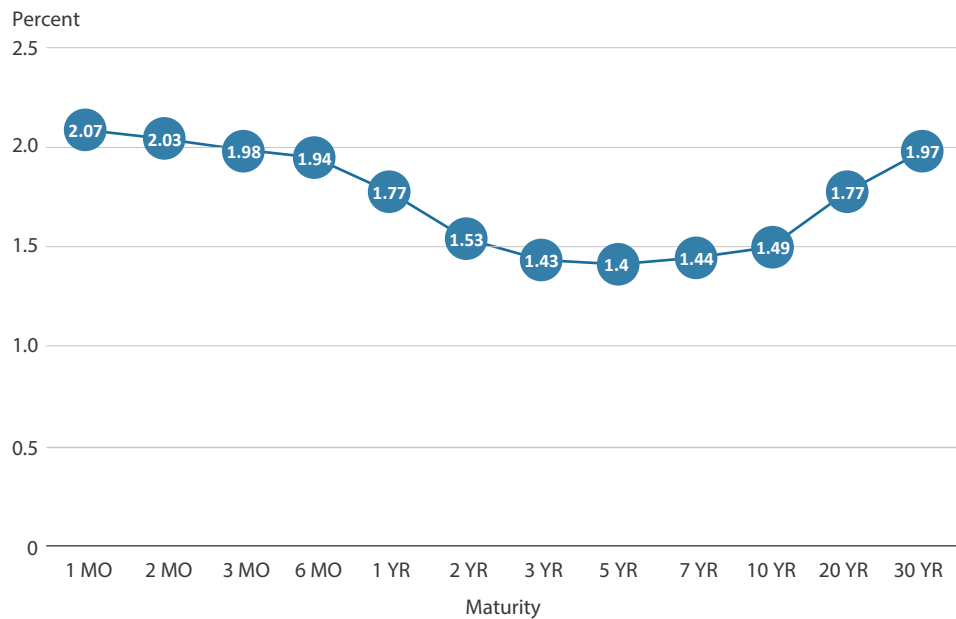
The yield curve is a graph that shows the yields of U.S. government bonds, or Treasuries, with different maturity dates. Under normal conditions, if

Figure 1  
**U.S. Treasury Yield Curve: October 16, 2018**



SOURCE: Daily Treasury yield curve rates, U.S. Department of the Treasury;  
<https://www.treasury.gov/resource-center/data-chart-center/interest-rates/Pages/TextView.aspx?data=yield>,  
 accessed October 15, 2019.

Figure 2  
**U.S. Treasury Yield Curve: August 27, 2019**



SOURCE: Daily Treasury yield curve rates, U.S. Department of the Treasury;  
<https://www.treasury.gov/resource-center/data-chart-center/interest-rates/Pages/TextView.aspx?data=yield>,  
 accessed October 15, 2019.

you plot in a graph the yields of Treasuries of increasing maturity and connect the dots with a line, you will see an upward-sloping line or curve. Figure 1 shows a “normal” yield curve.

### Yield Curve Inversion

The relationship between bond maturity and yield can be turned on its head—invert—at times: Longer maturity bonds can offer lower returns than shorter maturity bonds. That is akin to you receiving a higher interest rate when buying a 12-month CD than when buying a 36-month CD. And such an inversion happened, briefly, on August 14, 2019.

That state of affairs can be explained by the expectations that buyers and sellers of U.S. government bonds have about the state of the U.S. economy. As discussed earlier, bond yields are related to default risk. Defaults are more likely when the economy slows down or when it enters a recession. When bond buyers and sellers expect the U.S. economy to slow down in the near future (more on that later), they are willing to buy and sell bonds maturing further in the future with yields lower than those bonds maturing closer to the present.

Why? Because both bond buyers and sellers expect decreasing short-term interests in the not-so-distant future: They anticipate future weaker economic growth and that the Federal Reserve will enact policy to lower interest rates to promote employment. If their expectations are proven correct, in the near future the financial return from buying and selling bonds—independent of how long it takes them to mature—will decrease.

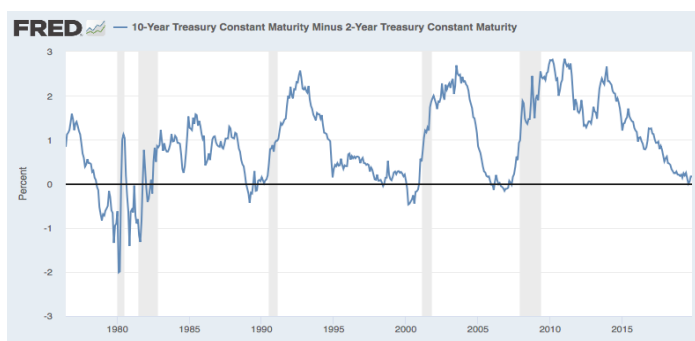
On August 27, as you can see in Figure 2, the yield curve inverted—it sloped downward, at least out to 5-year maturity. Particularly remarkable was the fact that the yield on bonds maturing in 2 years (1.53 percent) was higher than the yield on bonds maturing in 10 years (1.49 percent).

### Business Cycles

Does the behavior of the yield curve at the end of August 2019 signal trouble ahead? Maybe.

In the FRED® graph (Figure 3), you can see the correlation between the inverted yield curve and the onset of economic recessions (the gray bars) in the United States. Specifically, it shows the difference in yields between

Figure 3  
**Difference in Government Bond Yields**



NOTE: Gray bars indicate recessions as determined by the National Bureau of Economic Research.

SOURCE: FRED®, Federal Reserve Bank of St. Louis;  
<https://fred.stlouisfed.org/graph/?g=1ft2>, accessed October 15, 2019.

U.S. government bonds maturing in 10 years and U.S. government bonds maturing in 2 years. This difference is one definition of “the term premium.” Because longer maturity bonds usually offer higher yields than shorter maturity bonds, the line is usually above the horizontal axis at zero. Here, when the yield curve inverts, the 2-year yield is greater than the 10-year yield and the term premium becomes negative: The line dips below the horizontal axis at zero. Historically, such an inversion has predicted a recession in about a year.

Because an inverted yield curve has preceded every recession in the United States since 1955, economists call that phenomenon a stylized fact, which means that a phenomenon occurs with such consistency that it is commonly considered a truth.<sup>1</sup> Although an inverted yield curve has reliably forecasted recession in the past, the inversion of the yield curve does not *cause* a recession, nor must a recession follow every inversion.<sup>2</sup>

Consider a weather analogy: Freezing rain only occurs on cold days, when the temperature is in a particularly low range and there is precipitation. Cold days, however, do not regularly bring freezing rain or the moisture in the atmosphere necessary to precipitate as rain.

### Conclusion

We should not blame the inverted yield curve for current or expected economic conditions. Although the historical record shows a correlation between periods of inversion and recession, one does not cause the other. Neverthe-

less, if an inversion occurs it might be a bad economic sign.

Because the shape of the yield curve reflects a given set of economic conditions and expectations, the latter can and do change in response to economic policies and global economic conditions. Those policies and conditions would be the actual causes of a recession. ■

## Notes

<sup>1</sup> De Backer, B.; Deroose, M. and Van Nieuwenhuyze, Ch. "Is a Recession Imminent? The Signal of the Yield Curve." *NBB Economic Review*, June 2019, pp. 1-25; [https://www.nbb.be/doc/ts/publications/economicreview/2019/ecorevi2019\\_h4.pdf](https://www.nbb.be/doc/ts/publications/economicreview/2019/ecorevi2019_h4.pdf).

<sup>2</sup> Andalfatto, David and Spewak, Andrew. "Does the Yield Curve Really Forecast Recession?" Federal Reserve Bank of St. Louis *Economic Synopses*, 2018, No. 30; <https://research.stlouisfed.org/publications/economic-synopses/2018/11/30/does-the-yield-curve-really-forecast-recession>.

Please visit our website and archives at <http://research.stlouisfed.org/publications/page1-econ/> for more information and resources.

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Name \_\_\_\_\_ Period \_\_\_\_\_

Federal Reserve Bank of St. Louis *Page One Economics*®:  
**“Should We Fear the Inverted Yield Curve?”**

After reading the article, complete the following:

1. Under normal conditions,
  - a. the yields on bonds increase as their maturities increase.
  - b. the yields on bonds decrease as their maturities increase.
  - c. the yields on bonds increase as their maturities decrease.
  - d. there is no typical relationship between bond yields and maturities.
  
2. Under normal conditions, the yield curve
  - a. slopes downward.
  - b. slopes upward.
  - c. is horizontal.
  - d. is vertical.
  
3. When inverted, the yield curve
  - a. is horizontal.
  - b. slopes upward.
  - c. slopes downward.
  - d. is vertical.
  
4. When bond yields are inverted,
  - a. shorter maturity bonds have lower yields than longer maturity bonds.
  - b. longer maturity bonds have higher yields than shorter maturity bonds.
  - c. longer maturity bonds have identical yields to shorter maturity bonds.
  - d. longer maturity bonds have lower yields than shorter maturity bonds.
  
5. Over the past 64 years,
  - a. inversions of the yield curve have preceded recessions.
  - b. inversions of the yield curve have followed recessions.
  - c. inversions of the yield curve have coincided with recessions.
  - d. inversions of the yield curve have preceded expansions.

6. The relationship between the slope of the yield curve and the onset of recession can be best described as a(n)
  - a. causal relationship.
  - b. stylized fact.
  - c. fancy regularity.
  - d. amusing curiosity.
  
7. The shape of the yield curve reflects
  - a. current monetary policy.
  - b. the wisdom of the markets.
  - c. current and expected economic conditions.
  - d. the conduct of fiscal policy.