

Why Do Bond Prices and Interest Rates Move in Opposite Directions?

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GLOSSARY

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

Bond yield: The average return from owning a bond. It depends on the price paid for the bond, its coupon payments, and time to maturity.

Coupon payment: The monthly or annual interest payment that the bondholder receives from the bond's issue date until the bond matures.

Federal funds rate: The interest rate depository institutions charge each other to borrow or lend reserves in the federal funds market; these funds are immediately available.

Maturity (of bonds): The period during which a bond makes coupon payments. At maturity, the face value of the bond is paid. Maturity may be expressed as years, months, or weeks.

Treasury bill: A security issued Treasury with an original maturity of no more than one year. Interest on a Treasury bill is the difference between the purchase price and the value paid at redemption.

Treasury bond: A fixed-rate, interest-bearing security issued by the Treasury with an original maturity of more than 10 years.

Treasury note: A fixed-rate, interest-bearing security issued by the Treasury with an original maturity of more than 1 year but not more than 10 years.

"I used to think if there was reincarnation, I wanted to come back as the president or the pope or a .400 baseball hitter. But now I want to come back as the bond market. You can intimidate everybody."

—James Carville

Bonds. You might tuck them away in a drawer in your house, in a safe deposit box, or in an online portfolio. Retirement advisors encourage holding on to them as part of a diversified portfolio for retirement or investments. **Bonds** are an essential financial instrument for businesses and governments that issue them for capital projects and for investors as a safe investment.

The relationship bonds have with interest rates can be confusing to many people, from students to bankers. To better understand this concept we need to first understand how bonds work, why there is an inverse relationship between the direction of bond prices and interest rates, and what that relationship means for investors, consumers, and the overall economy.

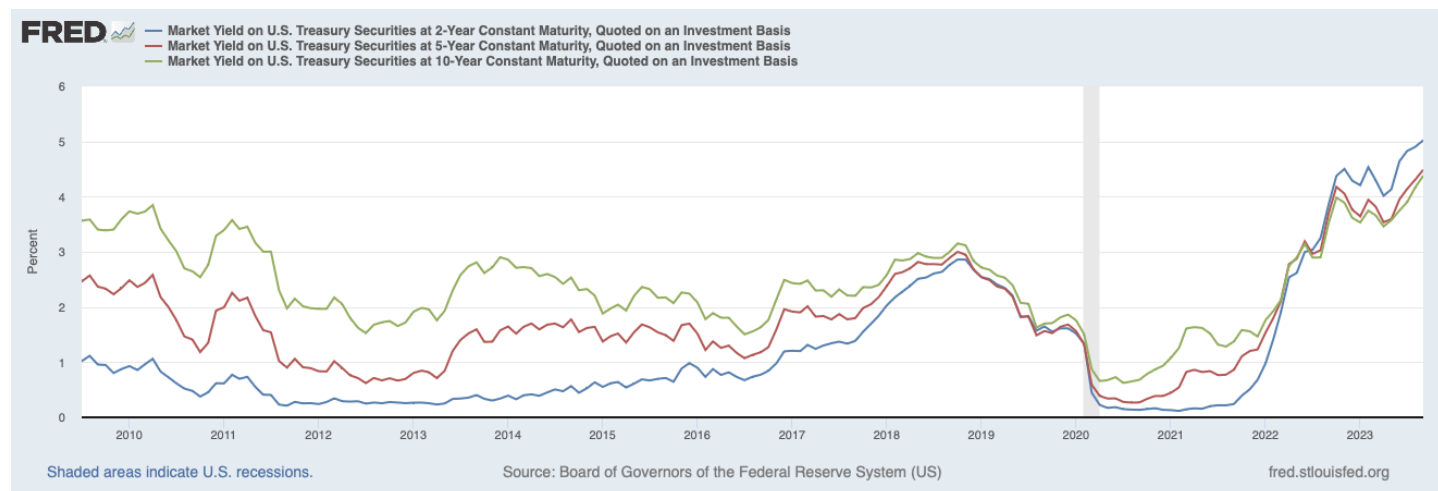
What Are Bonds and How Do They Work?

A bond is a promise by a government or corporation to pay a guaranteed return on money that investors lend to them for a specified length of time. The federal government issues three major types of bonds—**Treasury bills**, which are short term and have a **maturity** period between 4 weeks and 1 year; **Treasury notes**, which offer terms between 2 years and 10 years; and **Treasury bonds**, which have terms from more than 10 years to 30 years. People often buy bonds from either governments or corporations because they are relatively safe investments that pay regular interest payments. Bonds can be bought directly from the government (new issue) or in the secondary market, known simply as the "bond market." They can be held to maturity or sold in the bond market as well.

New Issue (or Original) Bonds

When people buy a newly issued bond, they know exactly what they are getting. The interest payments these investors receive are called **coupon payments**, and they are at the agreed-upon interest (or coupon) rate. Let's say you buy a \$100 US Treasury note at a 2.5% coupon rate paid every six

Figure 1
Market Yields on 2-Year, 5-Year, and 10-Year Treasury Notes



SOURCE: FRED® via Federal Reserve Bank of St. Louis, <https://fred.stlouisfed.org/graph/?g=15liy>.

months with a maturity of 5 years. When the note matures, you will get your original \$100 back plus \$25 in interest (\$5 per year for 5 years). It is a straightforward, low-risk investment.

The Bond Market





But perhaps you don't want to keep the bond for 5 years. This is where the bond market is useful: It acts as a secondary market where bond owners can sell their holdings and new investors can purchase these existing bonds. However, to sell an existing bond, the owner must consider the interest rate for newly issued bonds. This will determine the selling price of the existing bond. For example, if newly issued bonds pay 5.5% interest and yours pays only 5%, no one would want to buy yours with the lower interest rate because its return would be smaller. You would have to offer to sell your bond at a discount—meaning less than face value—for someone to take it off your hands. The reduction of the bond price offsets the higher interest rates available on newly issued bonds. This is the major factor in understanding how and why bond prices and interest rates move in opposite directions.

Many investors never intend to hold a bond until it matures but plan to buy and sell existing bonds in the bond market. They look to measure how the market value of an existing bond compares with that of newly issued bonds by calculating the **bond yield**; this means

dividing the bond's annual coupon payment by its original price. So if an existing \$1,000 bond pays \$50 annually, its yield is 5%. Now suppose the interest rate on newly issued bonds has decreased to 4.5%. You would not want to sell the existing bond at its \$1,000 face value, as its market value would be higher because of its original 5% interest rate. Selling the existing bond at a higher price offsets the market's lower interest rate. And the opposite is true if the interest rate increases above an existing bond's coupon rate: The market value of that bond would be lower than its face value.

The Ups and Downs of the Bond Market After the COVID-19 Pandemic

Between the Great Recession in 2007-09 and the COVID-19 pandemic in 2020, bond yields were relatively stable. Figure 1 shows 2-year, 5-year, and 10-year US Treasury notes and their yields in the market, which stayed within a 2.5% range for close to a decade. (Generally speaking, the longer the bond term, the higher the coupon rate, as investors need to wait longer to get their original investment back.) When COVID-19 presented a major shock to the economy, interest rates fell for newly issued bonds to below 1%. Worried investors, not knowing how long or severely the pandemic would affect businesses or bond values, bought large amounts of bonds as a safe bet even though interest rates were historically low.

Figure 2 Inverse Relationship between Interest Rates and Bond Prices in the Bond Market	
Interest rate trend	Effect on existing bond prices
	
	

As it happened, inflation dramatically increased after the COVID-19 pandemic as the economy opened again. So the Federal Reserve began raising the target range for the **federal funds rate** (its key policy rate) to help rein in high inflation as part of its dual mandate to promote stable prices and maximum employment: from near zero to more than 5% in less than 18 months. This rapid increase of rates presented a problem for investors holding those bonds at low interest rates.

If you had bought a 5-year US Treasury note in May 2020, you would have received a 0.34% coupon rate. If you bought another 5-year bond three years later, you would have received a 3.58% coupon rate. It’s not hard to realize that investors would rather have the higher-yield bond, as it pays more interest over the time the bond is held—also known as a bond’s “yield to maturity.” It would be natural for a bond holder to want to sell their old, low-yield bond and try to purchase a higher-yield bond. To do that, however, the investor would have to sell that low-yield bond at a discount, as it would be less valuable in the market. Simply put, increasing interest rates causes existing bonds to lose market value.

Not only can the inverse relationship between interest rates and bond prices affect individual investors, but it can also affect financial institutions as they struggle with a rapidly changing bond market. Banks and brokerage houses bought bonds as a safe investment during the COVID-19 pandemic when government shutdowns shuttered much of the economy. When interest rates rose rapidly in response to inflationary pressures, many fell victim to the inverse relationship by holding financial instruments that had lost market value.

While interest rates have steadily increased since the end of the COVID-19 pandemic, causing bond prices to decrease, it is important to note that the opposite is true: When interest rates fall, existing bonds increase in market value. Let’s say you have a bond that you bought in May 2023 with a 3.58% coupon rate. If interest rates decline to pre-COVID-19 levels (1-2%), then your bond will become much more valuable in the secondary market, as it pays a higher coupon rate and could sell for above its original purchase price. This is the inverse relationship between interest rates and bond prices. Figure 2 illustrates the general forces at play in the bond market.

Conclusion

Bonds remain an essential and stable investment, but it’s important to consider the effect market forces such as interest rates have on the future holding of bonds. If investors remember the inverse relationship between the direction of bond prices in the market and interest rates, they can make wiser investing and wealth management decisions. ■

References

“Interest Rate Risk: When Interest Rates Go Up, Prices of Fixed-Rate Bonds Fall.” US Securities and Exchange Commission, June 1, 2013; https://www.sec.gov/investor/alerts/ib_interestraterisk.

Name _____ Period _____

Federal Reserve Bank of St. Louis *Page One Economics*®:**“Why Do Bond Prices and Interest Rates Move in Opposite Directions?”****After reading the article, answer the following questions:**

1. There is a(n) _____ relationship between bond prices and interest rates.
 - a. inverse
 - b. unrelated
 - c. positive
 - d. neutral

2. An interest payment paid to an investor with a bond is called a(n)
 - a. coupon rate.
 - b. coupon payment.
 - c. maturity payout.
 - d. investment return.

3. The interest rate earned on a bond is called a(n)
 - a. coupon rate.
 - b. coupon payment.
 - c. maturity payout.
 - d. investment return.

4. Dividing a bond’s annual coupon payment by its original price will calculate its
 - a. payout.
 - b. asset.
 - c. liability.
 - d. yield.

5. What caused the Federal Reserve to increase the target range for the federal funds rate after the COVID-19 pandemic?
 - a. A stock market crash
 - b. A rewriting of tax policy
 - c. A rapid acceleration of inflation
 - d. A spike in unemployment

6. If an existing bond's coupon rate is lower than current interest rates, the price of the bond in the secondary market would be _____ the face value of the bond.
 - a. higher than
 - b. lower than
 - c. the same as

7. As interest rates increased after the COVID-19 pandemic, the market value of bonds purchased during the pandemic
 - a. increased.
 - b. decreased.
 - c. remained steady.

8. If a bond was purchased with a coupon rate of 3.5% and future interest rates decrease to 1%, the bond's price in the market
 - a. increases.
 - b. decreases.
 - c. does not change.