

# Fixed Income FAQ

## Frequently Asked Questions about bond investing



Wealth Management

### What are the differences between stocks and bonds?

A stock represents equity ownership in a company, whereas a bond represents a loan from a lender (bondholder) to a borrower, such as a company or government entity. The table below compares a few of the key differences between the two asset classes.

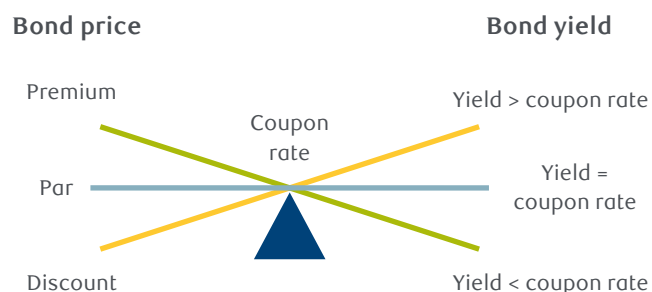
#### Key differences between stocks and bonds

Stocks	Bonds
Share of company ownership	Loan to the issuer
May pay dividends, which can fluctuate in amount	Pays scheduled coupon payments for a predetermined amount of time
Price appreciation potential is theoretically unlimited	Price appreciation potential exists, but price eventually reverts to par, or its stated dollar value
Share price is a function of market capitalization and shares outstanding	Bond prices fluctuate around par value, mostly based on prevailing interest rates and credit risk
Has no maturity date	Has a maturity date at which the issuer will repay the bond in full
In bankruptcy, stockholders are generally the last group to be paid	In bankruptcy, bondholders are generally among the first to be repaid

### What is the difference between a bond's coupon rate and its yield?

The bond's coupon rate, sometimes referred to as the interest rate, is the percentage of the bond's par value that the investor will receive annually. Note that regardless of the bond's purchase price, the coupon payment is always calculated from the par value.

Yield is an annualized measure of an investor's potential return from a bond, taking into consideration the purchase price and coupon payments. When a bond's price is equal to its par value—or price of 100—its yield will be equal to its coupon rate.



While a bond's coupon rate is fixed for the life of the investment, its price will fluctuate in the market. Price and yield are inversely related, so when a bond's price increases, its yield goes down.

For a bond trading at a discount to its par value, its yield will be higher than its coupon rate because the discounted price generates additional return when the bond matures at the par value. Conversely, for a bond trading at a premium, its yield will be lower than its coupon rate.

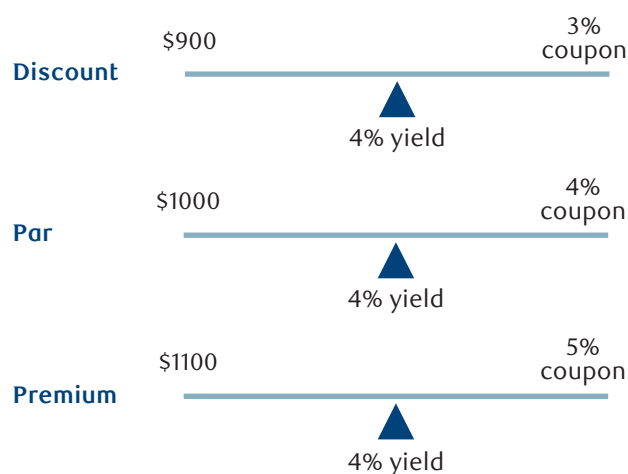
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### How can bonds with different coupons and prices have the same or similar yield?

Bond prices and yields are inversely related; since the coupon rate on a fixed income security does not change, bond prices fluctuate to compensate for changes in prevailing interest rates.

As an example, assuming 4% prevailing interest rates, a bond with a 5% coupon may trade at a premium while a bond with a 3% coupon trades at a discount and a bond with a 4% coupon trades at par, but the differing market prices result in all three bonds yielding 4%.



Figures are for illustration purposes only.

### When an investor purchases a bond at a premium or discount to par, how does that impact the bond's return?

All else equal, bonds with a similar yield and time to maturity will ultimately produce a similar total return if the bond is held to maturity, regardless of coupon rate, as illustrated in the table below. Absent a default, a bond's price generally reverts toward par as the maturity date approaches. This is referred to as "price accretion" for a discount bond and "price amortization" for a premium bond.

One advantage of premium bonds is that the higher coupon rate generally results in additional coupon reinvestment income relative to a lower-coupon discount bond, potentially generating additional return over the life of the bond, particularly in a rising interest rate environment. In a declining rate environment, bonds trading at a premium are more likely to be called and refinanced at a lower rate, so investors should be cognizant of call options.

On the other hand, discount bonds generate higher income for every dollar invested, since an investor can purchase a greater face value of bonds at a discount with the same amount of funds. This is because coupon payments are computed from a bond's face value, not its purchase price.

### Total returns of bonds held to maturity

Coupon rate	Purchase price	Annual cash flow										Total payments received	Net cash flows (total payment received less purchase price)	
		1	2	3	4	5	6	7	8	9	10			
3%	\$900	\$30	\$30	\$30	\$30	\$30	\$30	\$30	\$30	\$30	\$30	\$1030	\$1300	\$400
4%	\$1000	\$40	\$40	\$40	\$40	\$40	\$40	\$40	\$40	\$40	\$40	\$1040	\$1400	\$400
5%	\$1100	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$1050	\$1500	\$400

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### Summary

	Coupon rate		
	3%	4%	5%
Purchase price	(\$900)	(\$1000)	(\$1100)
Total coupon payments	+\$300	+\$400	+\$500
Principal repaid at maturity	+\$1000	+\$1000	+\$1000
Price accretion/amortization	+\$100	\$0	(\$100)
<b>Total return</b>	<b>\$400</b>	<b>\$400</b>	<b>\$400</b>

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## How is the price of a bond determined?

While several factors influence the price of an individual bond, there are generally two key risk factors. The first is interest rate risk—an existing bond’s price will fluctuate relative to prevailing interest rates. When interest rates fall, the value of an existing bond will likely rise, and vice versa.

The second is credit risk, which is determined by the issuer’s perceived ability to repay the debt obligation when due. Less perceived credit risk will likely increase the bond’s price, and vice versa.

Other factors include supply and demand, time to maturity, and a bond’s call structure, if any.

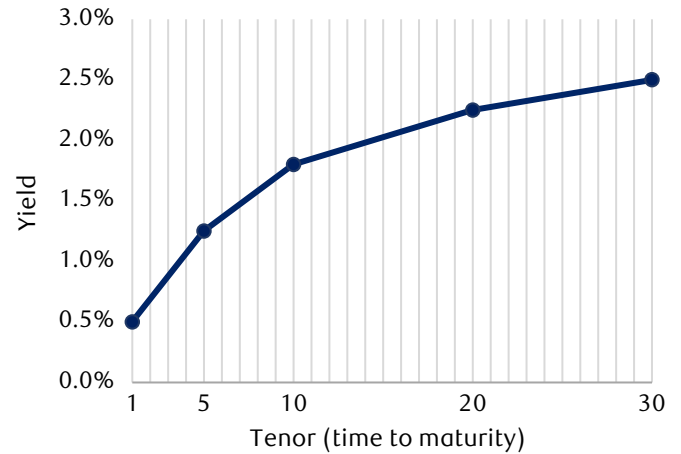
### Major factors impacting a bond’s price

<p><b>Interest rate risk</b></p> <p>The risk associated with a change in prevailing interest rates that may reduce the value of a fixed income investment.</p>	<p><b>Credit risk</b></p> <p>The risk that the issuer may fail to make interest payments or repay the principal value at maturity.</p>
<p><b>Supply and demand</b></p> <p>At any point, a bond’s price may be driven by excess supply or demand factors for a particular bond or fixed income class.</p>	<p><b>Time to maturity</b></p> <p>Typically, investors demand a higher coupon rate to compensate for locking up their money for longer periods.</p>
<p><b>Call structure</b></p> <p>A call feature will influence a bond’s price depending on the price at which the issuer can call the bond and the call schedule.</p>	

## What causes changes in market yields?

Yields fluctuate for various reasons, but some areas of the yield curve—or the graphical representation of yields for different maturities, as seen below—are more sensitive to certain factors.

### Normal yield curve



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The short end of the yield curve—or maturities one year or less—tends to shift due to changes, or expected changes, in monetary policy set by the Federal Reserve. While the influence of monetary policy is most apparent at the short end of the curve, longer-term yields may also rise in tandem.

The long end of the yield curve—or maturities between 10 and 30 years—generally fluctuates in response to economic growth prospects and inflation expectations.

Other factors such as supply and demand may also impact yields. For example, if the U.S. Treasury Department issues a large amount of Treasury notes and bonds, the influx of supply may push prices lower—and thus yields higher—to match the level of demand. On the other hand, economic uncertainty may spur a “flight to quality,” or an increase in demand for low-risk assets, which may push yields lower.

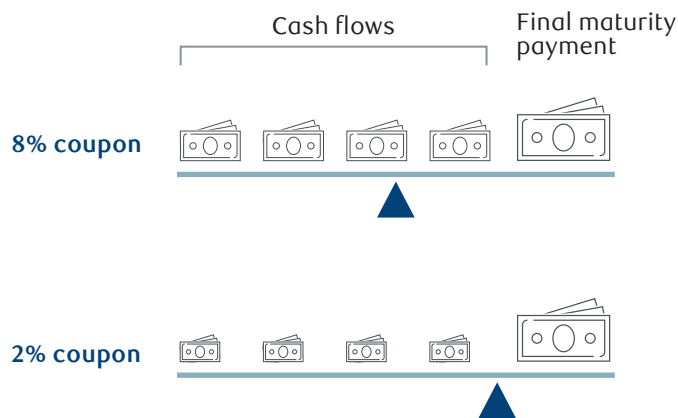
### What is duration?

Duration estimates a bond’s price sensitivity to changes in prevailing interest rates. Higher duration indicates greater price sensitivity, and vice versa.

For example, a bond with a duration of “3” would experience a roughly 3% change in market value for each 1% shift in prevailing interest rates.

A bond’s duration is a function of three characteristics: its coupon, yield, and time to maturity. As an example, in the illustration to the right, a higher coupon rate results in lower duration given the same time to maturity.

In addition to a higher coupon rate, a shorter time to maturity and a higher yield generally result in a lower duration.



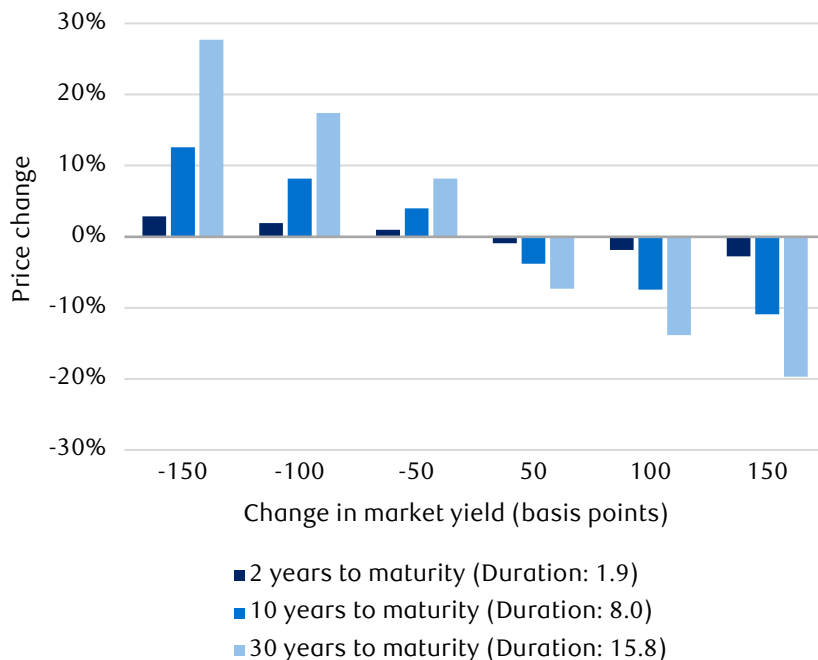
### How does duration impact a bond portfolio?

A higher-duration bond portfolio will generally experience greater price fluctuations. As illustrated in the chart, a 30-year bond experiences much greater price swings for a given change in prevailing interest rates compared to bonds with shorter maturities.

For hold-to-maturity investors, price fluctuations may be less of a concern because absent a default, bond prices revert to par value as the maturity date approaches.

In a rising rate environment, investors may want to consider lower-duration investments; in a declining rate environment, higher-duration bonds may be appropriate for investors seeking price appreciation potential.

Effect of changes in prevailing interest rates on 5% coupon par bonds



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