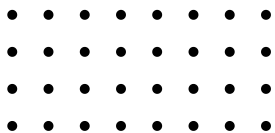


WHAT ABOUT  
**BONDS**

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# What About Bonds?

## Here's What You Need to Know

### Introduction

Bonds matter. According to the Securities Industry and Financial Markets Association, (SIFMA) the value of the global bond markets was greater than the value of global equity markets at the end of 2021 (\$126.9 trillion vs \$124.4 trillion).

This article will discuss why institutions and private investors invest in bonds and why 2022 has been the worst year ever for bonds. We'll also discuss how bonds and the bond market work and introduce you to the arcane "language" of the bond world. Is this a good time to buy bonds? For that we need to understand "Duration", which we'll get to as well.

### The Basics (Very)

When you buy a bond, you are simply lending money to a borrower, which may be the U.S. Treasury, a corporation or a municipality, among others. A bond has three basic components:

1. Principal (aka the Face amount or Par value): The amount you have loaned to the borrower.
2. Term: The period of time from the issue date to the Maturity date, e.g. two years. At maturity your principal will be returned to you.
3. Coupon: (aka interest rate): The annual rate of interest paid to you over the term of the bond in annual or semi-annual installments.

The largest issuer of bonds is the U.S. Treasury. They come in three flavors: Bills, with terms from four to 52 weeks; Notes, which have maturities between two and 10 years and Bonds with maturities of 20 and 30 years. (Collectively, "treasuries".)

New Treasury bills, notes and bonds can be purchased directly from the Treasury by you, or an advisor acting on your behalf. ([www.TreasuryDirect.gov](http://www.TreasuryDirect.gov)) Treasuries, and corporate and municipal bonds can be purchased through your brokerage firm.

Brokerage firms and banks provide access to the secondary market where millions of dollars of bonds are traded daily. The price of a bond in the secondary market will likely be higher or lower than its par value. (Selling at a "premium" or a "discount".) If a bond with a \$1,000 par value is purchased at a discount, say \$900, it will mature at par and the investor's rate of return calculation would reflect that \$100 gain. Conversely, had the bond been purchased at a premium, say, \$1,100, the \$100 loss at maturity would be recognized in the investor's rate of return calculation.

## Why invest in Bonds?

To receive a known stream of income for a fixed period of time. To reduce overall portfolio risk as bonds prices are less volatile than stock prices. To diversify; bond returns, with rare exceptions, do not correlate with equity returns. A reason to hold a company's bond versus stock is preference upon liquidation. If company goes bankrupt, holders of senior debt, including bondholders and banks, are likely to be paid off first, ahead of stock holders.

## Bond Risks

**Credit/Default Risk:** The risk that the interest and principal payments will not be made by the issuer. Treasuries are popular because they have virtually no default risk. Other borrowers must offer higher yields to attract investors. The credit of corporate issuers is rated by multiple agencies. Issuers with low credit must offer especially high interest rates leading to "high yield" or possibly "junk" bonds. The good news is that investors can choose from a wide variety of credits to suit their own desire for income and tolerance for risk.

**Liquidity Risk:** Liquidity refers to the ability to sell a bond quickly and at an efficient price, as reflected in the bid-ask spread. If there is a large difference between the prices buyers are bidding, and the prices sellers are asking, there may not be the opportunity for a quick sale. There is always a ready market for treasuries, but there may not be for some corporate bonds due a thin market with few buyers and sellers.

**Interest Rate Risk:** Interest rates and bond prices have an inverse relationship. When interest rates rise, bond prices fall. Conversely, when interest rates fall, bond prices rise. Interest rate increases are of no concern to an investor who buys a bond at issue and holds it until maturity. Yes, the price of her bond may have fallen while she held it, but at maturity she will receive her principal in full. If rates had fallen, she would have had the opportunity to sell and receive more than her initial investment, but would have sacrificed remaining interest payments.

**Prepayment Risk:** Some bonds may be issued with a "call" provision enabling the issuer to prepay the principal and avoid future interest payments. This is often bad news for the bond holder, as the company would likely have called the note because interest rates had fallen, enabling it to issue a new bond with lower interest payments. The investor is now left to reinvest in a lower interest rate environment.

**Reinvestment Risk:** See Prepayment Risk.

**Inflation Risk:** in a period of rising inflation, the principal payment received at maturity, say five years into the future, would have much lower value (purchasing power) than today. Inflation may also contribute to falling bond prices during the holding period as discussed below.

## Bond Yields

There are a number of ways to calculate or express bond yields. But first, let's get to know the "Bond Yield Curve".

**Bond Yield Curve:** A yield curve is a graphical representation of the yield on bonds of equal credit quality over a range of maturities. It plots yields (vertical axis) against maturities (horizontal axis). Its slope and shape measure investors' feelings about risk and the direction of the economy. Generally, longer maturities have higher yields than shorter maturities as investors want a higher return when they are taking longer term risks. Consequently, the yield curve is usually upward sloping and gradually flattens out as maturities get longer. The most widely used yield curve is for U.S. Treasuries.

The current yield curve is inverted as yields on short term treasuries are higher than longer term treasuries: 2 year 4.284%; 10 year 3.492%. A sign that investors expect further rate increases and a slower economy. Inverted yield curves are unusual and often precede a recession by nine months, plus or minus.

**Nominal Yield:** The Coupon rate of the bond at issue, relative to its par value. If the coupon is 6%, that is the nominal yield. A \$1,000 bond with a 6% coupon would pay interest of \$60 per year.

**Current Yield:** If the bond discussed above had fallen in price to \$900, it would still pay interest of \$60. The current yield would be \$60 divided by \$900, or 6.67%. If the price had increased to \$1,100, the current yield would be \$60 divided by \$1,100, or 5.45%.

**Yield to Maturity ("YTM"):** YTM measures what the return on a bond would be if held to maturity and interest payments are reinvested at the yield to maturity rate. The calculation includes coupon payments and any gains or losses resulting from purchases made at a premium or a discount. It is an estimate, as an investor is not likely to reinvest the interest payments at the YTM rate. Essentially, a bond's YTM is the present value of its cash flows.

YTM is the most commonly noted yield measurement. It is used to compare bond purchase options. It is also useful when evaluating a basket of bonds, e.g. a mutual fund or ETF. The YTM of these portfolios is the weighted average of the YTM's of the bonds held in them.

**Yield to Worst:** This is YTM with a wrinkle. Callable bonds have a date when the issuer can first exercise its call privilege. The yield to worst calculation assumes that the bond, (or multiple bonds in a portfolio or fund) is called at that date and future coupon payments are foregone.

## Why Bond Prices Rise and Fall Inversely with Interest Rate Movements.

The secondary market pricing mechanism essentially works to set prices so that YTM's equate to nominal returns currently available on new issues. Let's look at a few simplified examples:

If you had purchased a five year, \$1,000 bond two years ago, with a coupon of 4% and want to sell it in the secondary market today. Assuming that new bonds offer 6% coupons, you would be hard pressed to find a buyer. Your only option would be to sell it at discount so that your \$40 coupon payments and the appreciation at maturity, would provide the buyer with a 6% return.

Conversely, if new issues were going at a 2% coupon rates, you would offer to sell at a premium such that her \$40 income payments and principal loss at maturity, would give her a 2% return.

In more simple terms, bond prices in the secondary market are driven by supply and demand. Yield, current interest rates and the bond's rating are the factors that most influence a bond's price.

## What Happened in 2022?

Through the first nine months of the year, the Bloomberg Aggregate Bond Index returned -19.89%. The worst start to a year ever since records began in 1871. In the 45 years of the Bloomberg U.S. Aggregate Index, bonds have fallen in value only five times, and the most significant decline was 2.9% in 1994. The "AGG" index includes treasuries and corporates.

What has made this year unique is the combination of economic events all coming together at once. We've had high government spending, high consumer demand, supply chain issues and the Russian invasion of Ukraine, all of which contributed to inordinately high inflation. Another contributing factor is that the FED has kept interest rates artificially low for many years, rather than allowing rates to find their own levels through normal market forces.

Bond investors are concerned that inflation will result in negative real returns on bond income and destroy the value of future principal payments. Issuers must offer increasingly high coupon rates to overcome those concerns and attract new investors, contributing to lower prices and higher yields in the secondary market.

The Federal Reserve was late to realize that inflation wasn't transitory and was slow to react. It has since increased short term rates at an unprecedented rate, which appears to have had some effect on inflation in the last month. The expectation of future rate increases is raising already high fears of a recession. That possibility increases bond default risk, further increasing the yields investors will want from bonds.

Severe stock market corrections like we have this year, usually, reflect a failing economy leading the FED to reduce rates to spur the economy. Bond prices would rally. But this time, the economy is not failing, yet the FED has raised rates to fight inflation, causing bond rates to increase and prices to go down. So, equity and fixed income investors have both been impacted.

### Is This a Good Time to Invest in Bonds?

To answer that, we first need to understand duration. We saved this definition for last, because it, and yield to maturity, inform our thoughts regarding current opportunities in bonds.

**Duration:** Duration measures how much bond prices will likely move when interest rates move. It is a way to quantify the interest rate risk defined earlier. Duration is expressed in years, but is not the same as maturity, although a bond's maturity is a factor in determining its duration. Essentially, the higher a bond's duration, the larger the change in its price when interest rates change. Mathematically, duration measures how long it takes for an investor to receive the bond's present value based on the expected future cash flows.

A rule of thumb: For every one percent increase or decrease in interest rates, a bond's price will change one percent in the opposite direction for *every year* of duration. For example, if a bond has a duration of five years and interest rates increase by one percent, the bond's price will fall by approximately five percent. The price of a ten year bond would fall by 10%. Longer maturities obviously increase duration while higher yields decrease duration.

The duration of a bond portfolio, a bond fund for example, is the weighted average of the durations of all of the bonds in the fund.

**Effective Duration:** Like the yield to worst calculation, effective duration incorporates the impact of call options on the expected cash flows from a bond or bond portfolio.

Fed rate increases have the greatest effect on short term rates and influence long term rates over time. The sharp increases in FED rates has driven two year treasury above 4%.

As noted earlier, these notes can be purchased directly from the treasury.  
([www.TreasuryDirect.gov](http://www.TreasuryDirect.gov))

I'm reminded of something from my college days: "Well, thank you for all the interesting, but utterly useless information." While you can find the formulas for calculating YTM, Duration, etc., on the web, you don't need to. When you explore a bond fund or ETF, for example, that information is readily available. So, you can put what you've seen here to work immediately.

Overall, we expect bond returns to be limited to their YTM's over the next few years at least, with little or no appreciation potential. But opportunities do exist.

There are a number of short duration mutual funds and ETFs with YTM's ranging between four to six percent with durations ranging between 2 and 2.5 years. If a mutual fund's duration is 2 years and interest rates increase by 1% the portfolio's value would decrease by approximately 2%. This may be an acceptable degree of interest rate risk, if the fund's YTM is 4% or higher. An investor could reinvest the yield in the fund or take it as income. In the longer term, *if* the FED lowers interest rates, perhaps a few months into a recession (third quarter of 2023?), there could be the opportunity for price appreciation as well.

Interestingly, selected high yield bond funds and ETF's are also a consideration. Their YTM's range from six to nine percent. These high yields shorten duration. Look for Funds or ETF's with durations of less three years.

Let's not forget credit risk. Only consider funds or ETF's holding quality credits. Fortunately, that information is also available. As we have learned, credit quality not only lessens default risk, but also factors into pricing. This will be especially important if you consider high yield options.

Finally, we prefer an ETF over a bond fund, all other things being equal because they can be traded throughout the day.

## **Conclusion**

Bonds will continue to have a role as a risk modifier and a source of income in most portfolios. Short duration treasuries and mutual funds and ETF's offer opportunities for investors at this time.

We hope this has added to your understanding of bonds and bond markets, at least to some small degree.



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