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Bonds 101

Along with the other major asset classes, bonds are a vital building block for many portfolios. As a result, it's important to understand what they are, how they work, and why investors purchase them. Here are some basics:

Bonds Are Debt Investments

When you buy a bond, you become a lender to the issuing corporation or government entity. In return, the issuer agrees to pay you interest (usually semi-annually) and the bond's par value (which may be the same as, more than, or less than what you paid) in the future. It is important to remember that the issuer may default on either one or both.

Bonds Offer Income

Bonds are particularly attractive to retirees because their interest payments are a potential source of regular income, which can be used to augment other retirement income sources (Social Security, pensions, on-the-job earnings, etc.).

Bonds Can Bring Stability

Bonds' appeal goes well beyond retirees, in part because their market prices have been more stable than stocks over long time periods. (On the other hand, the returns of most bond classes have historically been lower than stocks.) By adding bonds to a portfolio, an investor may be able to reduce the amount of volatility in its total value over time.

Interest Rates Impact Bonds' Market Prices

Market prices of existing bonds and interest rates tend to move in opposite directions. When rates increase, the market prices of existing bonds often decrease. The opposite is true when rates go down.

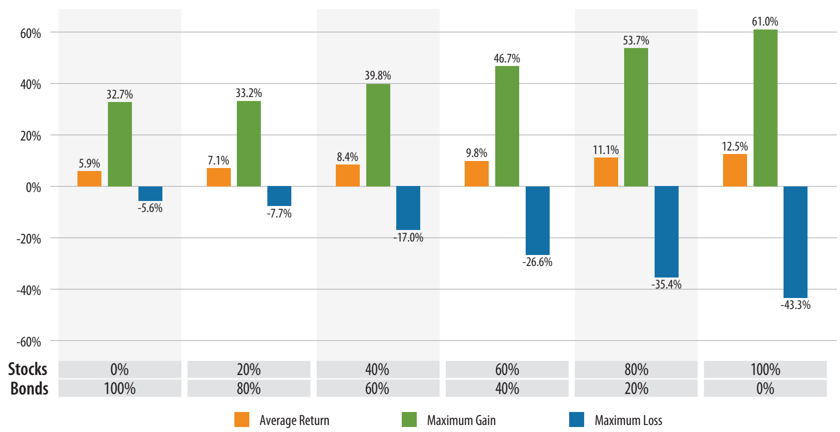
What Role Can Bonds Play in a Portfolio?

Key Takeaways

- Bonds can offer investors both income and tax advantages.
- Fixed-income holdings can help smooth portfolio returns over the long term.
- Although fixed income can play a vital role in many portfolios, it is important to avoid overexposure to this, or any other, asset class.
- To help balance risk and return, it is helpful to diversify fixed-income holdings broadly—spreading exposure across sectors and global issuers.

Fixed Income Can Help Smooth Returns

Including an allocation to fixed-income investments can diversify a portfolio to help manage the overall volatility of returns, as shown in the chart below.



Period: January 1950 – December 2018

Analysis based on 817 one-year rolling returns using monthly intervals.

Source: Wells Fargo Investment Institute; Morningstar Direct. As of December 31, 2018. Stocks represented by the S&P 500 Index total returns; bonds by the Ibbotson Associates Stocks, Bonds, Bills and Inflation U.S. Intermediate-Term Government Bond Index total returns. Chart is for illustrative purposes only. Index returns reflect general market results and do not represent actual portfolio returns, the experience of any investor, or the impact of any fees, expenses or taxes applicable to an actual investment. Returns are historical and assume the reinvestment of dividends and other distributions. **Past performance is no guarantee of future results.** Indices are unmanaged and not available for direct investment. Please see pages 3 and 4 for asset class risk disclosures and index definitions.

Bonds Have Historically Returned Less Than Stocks

Bonds appeal to many investors because their returns have generally been more stable than those of stocks. It's important to remember that bonds' returns have also been significantly lower than those of stocks over the long term.

Asset Class Returns, 1940-2018

Source: Morningstar Direct

U.S. Treasury bills are represented by the Ibbotson Associates Stocks, Bonds, Bills, and Inflation (IA SBBI) U.S. 30-Day Treasury Bill Index total returns; U.S. intermediate bonds by the IA SBBI Intermediate-Term Government Bond Index total returns; large-cap stocks by the S&P 500 Index total returns. **Past performance is no guarantee of future results.** An index is unmanaged and unavailable for direct investment. Please see page 3-4 for asset class risk disclosures and index definitions.

Understanding the Yield Curve

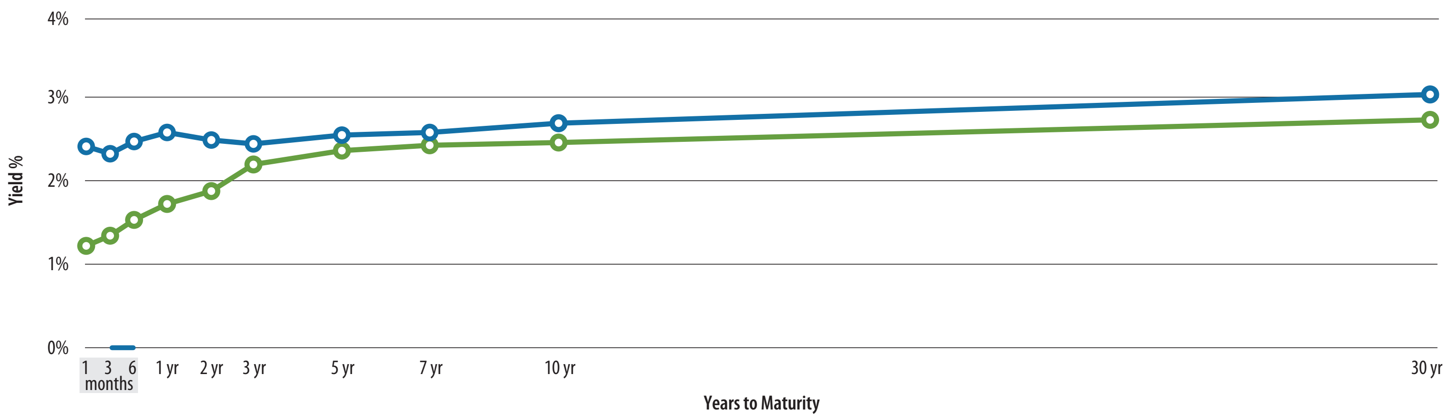
Because longer-maturity bonds often experience greater price volatility than shorter-maturity holdings, investors will typically demand higher yields for longer-term bonds to compensate for taking on this additional risk.

If you plot the yields across fixed-income maturities at a particular point in time, the result is the yield curve. Typically, yield curves are shaped like those in 2017 shown in the chart below with the yields increasing as the maturities lengthen. However, they can also be inverted, in periods when rates are expected to fall, or can be flat when the same yield is offered for all bond maturities. This is similar to the current period.

The chart shows how yield curves can shift over time. Between December 31, 2017, and December 31, 2018, the curve shifted upward as rates increased. But the shape, afterwards, looks flatter as longer-maturity rates increased less than shorter-maturity rates. Factors such as the fed funds rate set by the Federal Reserve typically influence changes in shorter-maturity investments' prices while longer-maturity bonds are impacted by many factors, including changes in inflation.

The current yield curve shown by the blue line in the chart shows that as of December 30, 2018, the yield on a 10-year Treasury was 2.7% while the yield for a 30-year Treasury was 3.0%. That meant an investor needed to lock his or her money in for an additional 20 years to get a mere 0.3% in additional yield. Was the added return worth the increased risk? That's up to each investor to decide.

U.S. Treasury Yield Curve Examples



	1 month	3 month	6 month	1 year	2 year	3 year	5 year	7 year	10 year	30 year
As of 12/31/18	2.43%	2.36%	2.48%	2.60%	2.49%	2.46%	2.51%	2.59%	2.69%	3.02%
As of 12/31/17	1.23%	1.38%	1.53%	1.74%	1.89%	1.97%	2.21%	2.33%	2.41%	2.74%

Yields represent past performance. **Past performance is no guarantee of future results.** Yields fluctuate with market conditions. Current yields may be higher or lower than those quoted. **Source:** Bloomberg

Consider Government Bonds' Potential Tax Advantages

Investors seeking tax relief may find help in municipal bonds and U.S. Treasury securities. Interest payments from municipal and Treasury securities generally are not subject to state taxes, while municipal bonds' interest payments typically are not subject to federal taxes, as shown in the table below. Keep in mind these tax advantages apply only to interest payments, not any capital gains.[1]

Issuer	Interest Payments Generally Subject to …	
	Federal Taxes	State Taxes
U.S. Treasury	Yes	No
States and municipalities	No	Potentially[2]

[1] Wells Fargo and its affiliates do not render tax advice.

[2] If the investor is a resident of the state issuing the bond or if the municipality issuing the bond is located in the investor's state, the interest payments generally are tax-free at both the federal and state level.

Knowing Some Terms and Potential Risks

Investing in fixed income should be done with an understanding of the terminology and potential risks. The table below provides a brief sampling of both.

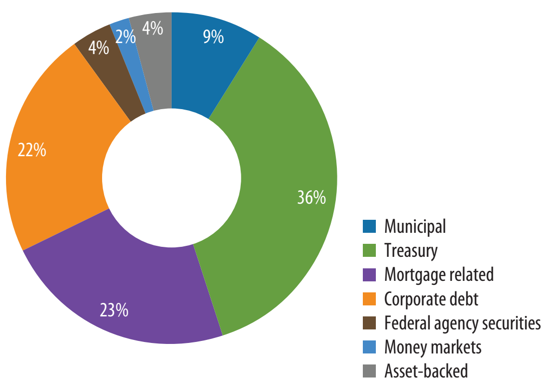
Terms	Potential Risks
Bond ladder is a bond portfolio constructed so the bonds' maturity dates are spread across several months or years and the bonds mature at regular intervals. Proceeds received at maturity are typically reinvested in other bonds.	**Credit risk** is the risk the bond issuer will not make full and timely payments of interest and/or principal at maturity.
Coupon rate is the interest rate (as an annual percentage of par value or face value) on the bond when issued.	**Default risk** is the risk the issuer will be unable to cover interest payments, and, potentially, principal repayment.
Current yield is the annual interest rate a bond is paying based on its current market price. For example, a $1,000 bond with a 10 percent coupon rate would pay $100 per year in interest. If its market price was $1,250, its current yield would be 8 percent ($100 ÷ $1,250).	**Downgrade (credit quality) risk** is the risk a bond rating firm, such as Standard & Poor's or Moody's, will downgrade a bond's credit quality, which can affect its market price and possibly the security of principal repayment.
Duration is a measure of a bond's sensitivity to movements in interest rates. In general, the longer the duration, the more sensitive a bond is to interest-rate changes.	**Foreign-exchange (currency) risk** arises when purchasing bonds that pay interest and principal in another country's currency. It's the risk the payments will lose value when the local currency is exchanged for U.S. dollars.
High-yield bonds have credit ratings that imply lower credit quality. They typically will have higher yields than investment-grade bonds.	**Inflation risk** is the risk that the overall prices of goods and services will increase, which can often lower "real" fixed-income asset returns.
Investment-grade bonds have credit ratings that imply higher credit quality (and lower credit risk) than below-investment-grade or high-yield bonds.	**Interest-rate risk** is the risk that changes in interest-rate levels will negatively impact a fixed-income security's market value.
Maturity is the time period during which a bond remains outstanding if not called or put. For example, a bond issued on September 30, 2018, with a September 30, 2022, maturity date would have a four-year maturity. Some bonds are perpetual and have no maturity date.	**Liquidity risk** is the risk of being unable to sell a bond quickly due to a thin market (few buyers and sellers) for the bond.
Par or **principal value** is the both bond's face value when issued and the amount the issuer promises to pay bondholders at maturity. (If the issuer defaults, the full amount may not be paid at maturity.)	**Market risk** is the risk of a change in a bond's price in response to a change in interest rates or market/economic data.
	Reinvestment risk is the risk of having to invest bond proceeds into lower-earning bonds than those that were called or reached maturity.

Diversification Opportunities Within Fixed Income

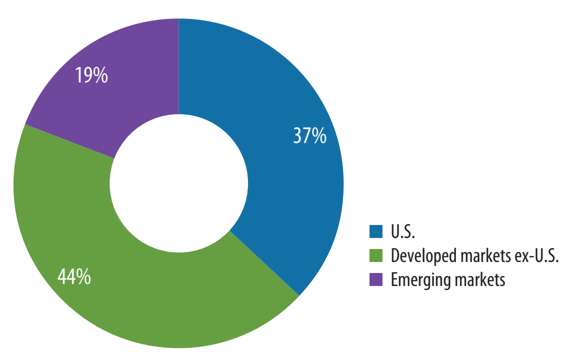
Diversifying a portfolio to include fixed-income investments can help you manage risk and return. In addition, it's important to think about diversifying your fixed-income holdings.

Fixed-income investments can be diversified by sector, quality, country, currency, tax sensitivity, and duration. These charts show the compositions of the U.S. and global bond markets. Note the wide variety of diversification choices.

U.S. Bond Market Composition



Global Bond Market Geographic Composition



Data sources: U.S. bond market: Securities Industry and Financial Markets Association (SIFMA as of September 30, 2018); global bond market: Bank for International Settlements (BIS).
Data as of June 30, 2018. Diversification does not guarantee a profit or protect against loss.

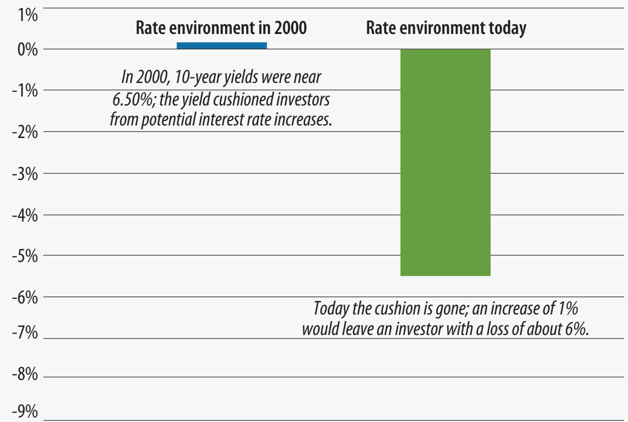
Charts are for illustrative purposes only and do not represent any particular investment portfolio.

Diversification does not guarantee investment returns or eliminate risk of loss

Mitigating the Impact of Rising Interest Rates on Fixed-Income Securities

This hypothetical chart demonstrates how the income cushion for fixed-income holdings has declined. The left bar shows a one percent increase in interest rates back in 2000 would have resulted in a 10-year Treasury having a slightly positive one-year total return (interest payments combined with market price changes). However, given the same interest-rate increase today, the result could be a total return of approximately negative six percent (right bar). This situation can make 10-year Treasury securities more susceptible to rising rates (keep in mind rising rates can impact all types of bonds). However, having a well-diversified portfolio can potentially increase its average yield and help to mitigate rising rates' potential impact.

Hypothetical one-year total return of 10-year Treasury securities if interest rates increase by 1%



Source: Wells Fargo Investment Institute

Hypothetical and past performance are no guarantee of future results.

Disclosures and Definitions

Asset Class Risk Disclosures

Stock markets, especially foreign markets, are volatile. A stock's value may fluctuate in response to general economic and market conditions, the prospects of individual companies, and industry sectors. International investing has additional risks including those associated with currency fluctuation, political and economic instability, and different accounting standards. This may result in greater share price volatility. These risks are heightened in emerging and frontier markets.

Cash alternatives are short-term debt securities that are extremely liquid and less affected by interest rate changes than other bonds. Maturities range from one day to one year and include Treasury Bills, certificates of deposit, commercial paper, banker's acceptances, and other short-term instruments.

Government securities, unlike stocks, are guaranteed as to payment of principal and interest by the U.S. government if held to maturity. Although free from credit risk, they are subject to interest rate risk.

Fixed-income securities are subject to market, interest rate, credit/default, liquidity, inflation and other risks. Bond prices fluctuate inversely to changes in interest rates. Therefore, a general rise in interest rates can result in the decline in the bond's price. Credit risk is the risk that an issuer will default on payments of interest and/or principal. High yield fixed income securities (junk bonds) are considered speculative, involve greater risk of default, and tend to be more volatile than investment grade fixed income securities. If sold prior to maturity, fixed income securities are subject to market risk. All fixed income investments may be worth less than their original cost upon redemption or maturity.

Mortgage-related and asset-backed securities are subject to the risks associated with investment in debt securities. In addition, they are subject to prepayment and call risks. Changes in prepayments may significantly affect yield, average life and expected maturity. If called prior to maturity, similar yielding investments may not be available for the Fund to purchase. These risks may be heightened for longer maturity and duration securities.

Municipal bonds offer interest payments exempt from federal taxes, and potentially state and local income taxes. These bonds are subject to interest rate and credit/default risk and potentially the Alternative Minimum Tax (AMT). Quality varies widely depending on the specific issuer.

Index Definitions

Ibbotson Associates Stocks, Bonds, Bills, and Inflation U.S. 30-Day Treasury-Bill Index is an unweighted index that measures the performance of 30-day maturity U.S. Treasury bills.

Ibbotson Associates Stocks, Bonds, Bills, and Inflation U.S. Intermediate-Term Government Bond Index is an unweighted index that measures the performance of five-year maturity U.S. Treasury bonds. Each year, a one-bond portfolio containing the shortest non-callable bond having a maturity of not less than five years is constructed.

S&P 500 Index is a capitalization-weighted index calculated on a total return basis with dividends reinvested. The index includes 500 widely held U.S. market industrial, utility, transportation, and financial companies.