Bond investing demystified

Your guide to fixed income investments

BANK OF AMERICA

The fixed income market is the largest securities market in the world, and its size and diversity offer many attractive opportunities.[1] In this guide, we review key features and risks of corporate bonds, municipal bonds, and other fixed income investments that can help you build a well-diversified investment portfolio.

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[1] Lustig, Yoram. "Chapter 2: Fixed Income." *The Investment Assets Handbook*. Harriman House Limited, 2014. Print.

Investment products:

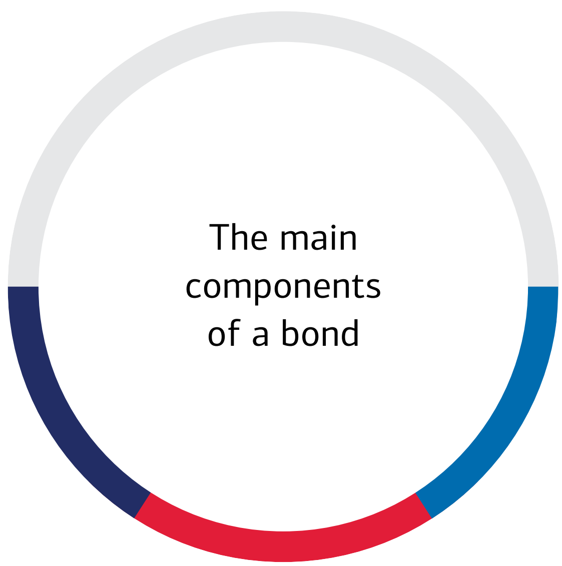
Are Not FDIC Insured	Are Not Bank Guaranteed	May Lose Value

Please see page 14 for additional important disclosure information.

The main components of fixed income securities

Fixed income securities, or bonds, are contractual obligations between a borrower and lender.

When you purchase a bond, you are lending money to a corporation, government entity or municipality (also called the issuer). In return, the issuer promises to pay you — the bondholder — coupon payments, and to repay you the bond's face value when it matures.



Maturity

The date when a borrower must repay the principal amount of the loan to the bondholder.

Coupon

The amount of the interest payment that the bondholder (lender) will receive from the borrower (issuer). The coupon can be a fixed or variable amount, and is stated as a percentage of the par value, (e.g., a 5% coupon).

Par value (also called the face value or the principal amount)

The amount of money the bondholder will get back when the bond matures. The face value of most bonds in today's market is $1,000.

Understanding these three components will help you calculate a bond's return, and be able to compare it to other potential investments.

Why you should consider investing in bonds

Bonds can play an integral role in your long-term investment strategy by helping to diversify your portfolio and providing a predictable income stream.

Most investors choose to buy bonds because:

They can provide principal protection[2] relative to equity. If you hold a bond until the date it matures, you can expect to receive the principal amount back from the issuer of the bond, assuming no default.

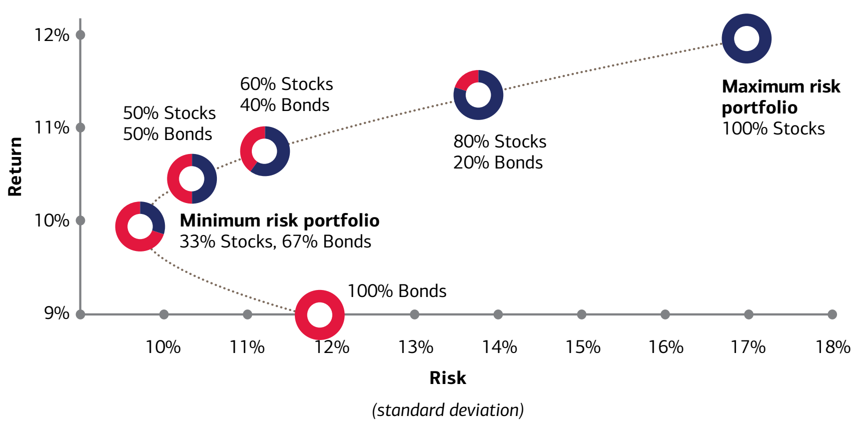
They help to offset potential downturns in equities. Bond returns are generally not as volatile and have low correlation with many other asset classes. That means bonds don't necessarily move in sync with other asset classes in reaction to market events — while some negative economic news may hurt the stock market in general, the bond market may not react in the same way.

They can provide steady income. Coupon payments provide a stable, ongoing source of income and can partially offset the declines in bond prices that occur if yields increase.

It is important to diversify even within your fixed income strategy.[3] A broadly diversified portfolio should include securities from multiple sectors of the fixed income market — including different issuers, maturities, quality ratings and types of bonds.

The risk and return of stocks and bonds[4]

The graph below contrasts the historical risk and return of fixed income securities with equities.



About the data: Past performance is no guarantee of future results. Stocks in this example are represented by the Ibbotson® Large Company Stock Index, and bonds by the 20-year U.S. government bond. Risk and return are based on annual data over the 1970–2018 period and are measured by standard deviation and arithmetic mean, respectively. Standard deviation measures the fluctuation of returns around the arithmetic average return of the investment. The higher the standard deviation, the greater the variability (and thus risk) of the investment returns. An investment cannot be made directly in an index. The data assumes reinvestment of all income and does not account for taxes or transaction costs.

[2] Not guaranteed.
[3] Diversification cannot ensure a profit or protect against loss in declining markets.
[4] Example is for illustrative purposes only.

The basics of bond yields and returns

To evaluate what you can expect to earn from a bond, it's important to understand the difference between bond yields and returns.

The annual return you can expect to receive over the life of a bond may be different from the bond's coupon rate. Your total return from a bond will be best indicated by three metrics:

1

Yield-to-maturity (YTM): The YTM is the most common and complete measure of expected annual return. It accounts for all future cash flows, including the reinvestment of all coupon proceeds. The yield-to-maturity assumes that any interim cash flows are being reinvested at the same yield, which is unlikely to be the case in a dynamic interest rate environment.

2

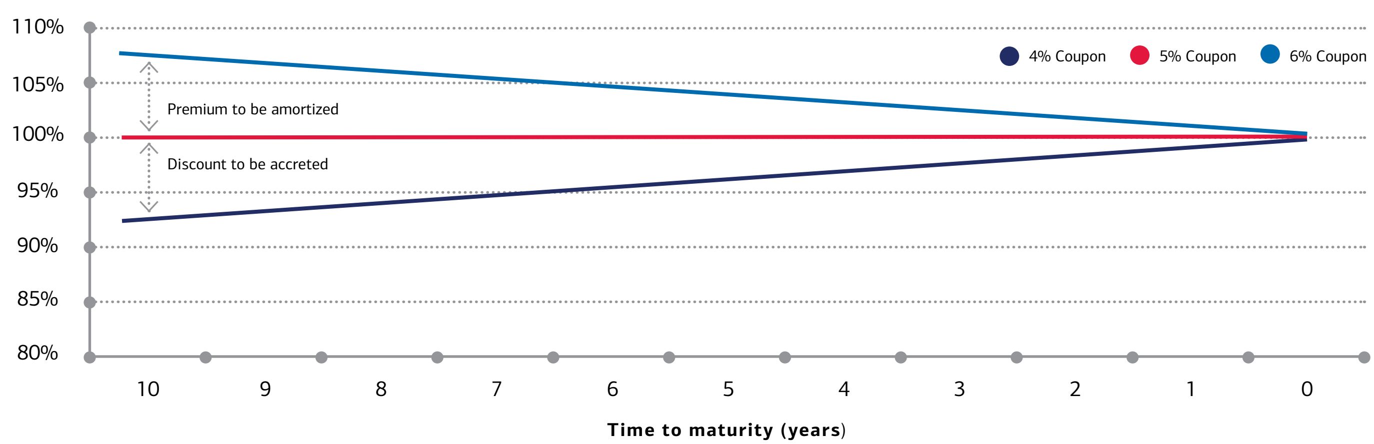
Current yield: Current yield is the annual income of a security divided by its current market price. This is the best measure of current income, because it measures annual coupon payments against the price of the bond. The current yield will be higher than the coupon rate when a bond trades below par value, and will be lower than the coupon rate when a bond trades above par value.

3

Capital gain or loss: A capital gain or loss occurs as the discount or premium of a bond is accreted/amortized over the life of the bond or investment holding period. Capital amortization can have important tax implications.

Price of bonds with a 5% YTM[5]

The graph below illustrates how a premium bond and discount bond are amortized over their lives until they reach maturity.



[5] Example is for illustrative purposes only.

The relationship between bond prices and yields

Bond prices and yields have an inverse relationship. That's because when interest rates rise due to market conditions, bond prices fall.

When a taxable bond is issued, its price is typically set to par (e.g., $1,000) because the coupon rate is set equal to the discount rate, which is the yield investors require to lend money. Over the life of the bond, if this required yield doesn't change, the price will remain at par and the investor will earn a return equal to the initial discount rate (i.e., yield-to-maturity). However, a municipal bond is usually issued at a premium for tax purposes. If the required yield does not change, the premium will amortize and the price will move to par over the life of the bond.

Once a bond begins to trade on the market, its price can rise above par or fall below it:

A discount bond trades below par because the coupon rate is lower than the prevailing market rate.

A par bond trades at par when its coupon rate is equal to the prevailing market rate.

A premium bond trades above par because the coupon rate is higher than the prevailing market rate.

The bond's premium or discount is amortized/accreted over the life of the bond. When coupon rates are drastically different from market rates, it is difficult to find bonds that are priced close to par.

Changes in interest rates, credit fundamentals, liquidity and other market conditions affect the rate at which future cash flows are discounted. As the yield increases, the present value of the future cash flow — and thus the bond's price — decreases and vice versa. In other words, all-in yields will rise and prices will fall when risks such as inflation, credit quality or volatility increase.

Bond prices at 10 year maturity[6]

The table below shows an example of premium, par and discount bond prices.

	Yield	Coupon	Price
Premium-price	3%	3.50%	101.00
Par-price	3.50%	3.50%	100.00
Discount-price	4%	3.50%	99.12

[6] Example is for illustrative purposes only.

The risks of fixed income investing

Fixed income securities offer many benefits, but can also carry risks as a result of interest rate changes, liquidity limitations and other market factors.

Here are the most prominent risks that you should consider before investing:

Interest rate risk	Interest rates change over time, and that impacts the price of a bond (or the value of your portfolio). The sensitivity of a bond's or portfolio's value to interest rate changes is known as duration. It is expressed in years, but really represents the rate sensitivity and estimate of the percentage change in a bond's value that would occur from a 1% change in interest rates. If all else is equal, bonds with more time to maturity and/or lower coupons are more sensitive to changes in interest rates and therefore have higher durations. As interest rates rise/fall, bonds with the highest duration will experience the greatest declines or increases in price.
Reinvestment risk	When you invest coupon payments and maturities in a changing interest rate environment, you run the risk that you won't be able to capture a similar yield if interest rates fall. Bonds that are callable may be redeemed before maturity by the issuer under specific conditions, and have higher reinvestment risk. That is because they are more likely to be called in lower interest rate environments, which forces investors to reinvest the entire principal in lower-yielding securities.
Liquidity risk	You may not be able to buy or sell a bond at an acceptable price when you want to. Among fixed income assets, Treasuries are the most liquid (which means, they have the least liquidity risk). Leveraged loans and high yield bonds, which trade less frequently and with higher bid/ask spreads, are less liquid and therefore have more liquidity risk.
Market risk	The risk that the bond market as a whole may decline as a result of geopolitical, macroeconomic, and other market factors.
Credit risk	The risk that a bond issuer may not be able or willing to pay interest and principal payments on a timely basis. This could be a result of many factors, including macroeconomic headwinds, mismanagement, or overly elevated leverage.

To help mitigate credit risk, bond indentures have restrictions, or covenants, designed to limit what management can do to increase the credit risk and the debt load (leverage) that the company can take on. This helps protect bondholders from aggressive financial policies (such as leveraged buy-outs or special dividends to senior management) that can reduce credit quality or create wider trading spreads and greater price volatility. The strength of a covenant can vary greatly, and is included in a credit analysis.

Credit ratings for bonds

Credit ratings are a useful way to compare fixed-income securities. Rating agencies such as S&P and Moody's measure a debtor's ability to pay back debt, and how likely it may be to default.

Investment grade bonds

In general, investment grade bonds have strong credit quality and a high probability of meeting their obligations. These are rated Baa or BBB and above by the major credit rating agencies.

Investment grade bonds' lower credit risk means narrower spreads and less volatility. Relative to high yield issuers, investment grade issuers tend to have lower leverage, more revenue diversity, stronger cash flows, better liquidity and more conservative financial policies. As a result, default rates on investment grade bonds tend to be lower than default rates on high yield bonds, with spread volatility more muted.

Speculative grade bonds

Also known as "high yield" or "junk" bonds, these non-investment grade bonds have lower credit quality, increased risk and a higher probability of defaulting on their obligations. High yield bonds are rated Ba or BB and below by the major credit ratings agencies.

Ratings chart spectrum

This table illustrates how rating agencies distinguish credit quality.

Investment Grade • Lower Yield • Lower Risk

Moody's	S&P
Aaa	AAA
Aa	AA
A	A
Baa	BBB
Ba	BB
B	B
Caa	CCC
Ca	CC
C	C
	D

Speculative Grade • Higher Yield • Higher Risk

Fixed income subsectors

The fixed income universe is typically divided into bonds that pay taxable interest and those that are exempt from income tax. Your personal situation will determine which may deliver the greatest value.

Taxable bonds

Taxable bonds are typically subject to taxes at the local, state or federal levels, or even all three levels. These are the major types of taxable bonds:

U.S. Treasuries are issued and backed by the full faith and credit of the United States government. They are generally viewed as a risk-free asset, although Treasuries may fluctuate in value based on changes in market interest rates. Treasury bonds provide tax-free income at the state and local level, which can offset high marginal tax brackets.

Treasury Inflation-Protected Securities (TIPS) are U.S. government bonds designed to hedge against rising inflation. The principal amount of TIPS is adjusted up or down to reflect changes in inflation, and the coupon payment (fixed at issuance) is calculated from this adjusted principal. TIPS are redeemed at the greater of par or inflation-adjusted par.

Agency bonds are direct obligations of U.S. government agencies (other than the U.S. Treasury) or government-sponsored enterprises (GSEs). With the exception of Ginnie Mae (GNMA) securities, agency bonds are not explicitly backed by the full faith and credit of the U.S. government, and therefore offer a higher yield.

Corporate bonds are issued by private and public corporations as a means of raising capital. Companies may decide to issue bonds rather than additional shares of stock because bonds are generally less expensive and non-dilutive to shareholders, and bonds may entail fewer restrictions on corporate activity than bank loans.

Leveraged loans are also known as “bank loans” and are issued to speculative grade companies. They are generally floating rate and backed by assets of the corporation (e.g., inventory).

Preferred securities generally pay fixed dividends instead of interest. In the corporate capital structure, they rank below debt, but above common equity.

Mortgage-backed securities pay interest based on the cash flows from an underlying pool of residential or commercial mortgage loans. Fannie Mae (FNMA) and Freddie Mac (FHLMC) are the most common issuers of mortgage-backed securities in the United States.

Corporate bonds vs. treasuries

Corporate bonds offer higher yields than some other investments, such as Treasuries, but also carry greater risks. To be compensated for the incremental risks of owning corporate bonds instead of Treasuries, investors demand a greater yield, or “credit spread”.

The size of the spread generally reflects the degree of credit risk, relative liquidity and market volatility. Several factors, including revenue diversity and stability, leverage, and financial policy all play a part in determining the credit quality and relative security of a corporation’s debt.

Fixed income subsectors (cont'd)

"Choosing whether to diversify or buy only in-state munis"

Investors continue to look for tax-exempt income that is free from federal income tax, and in some cases, state and local taxes too. If you live in the same state as the municipal issuer, you may be able to avoid state and local taxes and your portfolio manager can help you decide whether to exclusively buy in-state municipal bonds or diversify out of state. Because the after-tax yields and returns for investors who buy exclusively in-state compared with those who diversify will depend on tax status and sensitivity, ask your portfolio manager to help evaluate options based on your personal situation.

Tax-exempt bonds

Tax-exempt bonds, also known as municipal bonds or "munis," are issued by states, local governments and certain not-for-profit entities, generally to fund capital expenditures. The interest paid on these bonds is usually exempt from federal income taxes, and sometimes from state and local taxes as well.

General obligation (GO) bonds are backed by the full faith and credit of the issuer. As you assess the credit quality of general obligation bonds, consider the entity's economy, financial status, debt and management characteristics.

Revenue bonds are secured by revenues generated from a municipal-owned enterprise, such as a water treatment facility or a public power authority, or a 501(c)(3) entity, such as a not-for-profit college or hospital. Other types of tax-exempt revenue bonds include industrial development bonds, which are issued by corporations through a municipal conduit, and structured securities such as affordable housing bonds, student loans and tobacco settlement revenue bonds.

When assessing revenue bonds, consider:

- The financial sustainability of the enterprise
- Debt service coverage
- The stability of the revenue stream
- Structural features (e.g., senior or subordinate lien)
- Additional legal features, such as a rate covenant, an additional bonds test or a debt service reserve fund

Pre-refunded bonds take advantage of lower interest rates, allowing a municipal issuer to refinance an outstanding bond. The proceeds of the refunding bond go into an escrow account that is used to pay off existing bondholders when the bonds mature or can be called. The escrow backing the pre-refunded bonds is typically invested in U.S. government and agency bonds, so pre-refunded bonds are considered to be among the highest quality bonds in the tax-exempt market.

Tax advantages of municipals. Because of their special tax-exempt status, municipal bond yields are often lower than those of taxable bonds. However, they can still be more attractive on an after-tax basis, particularly for investors in a high tax bracket. For example, an investor with a 43% federal and state marginal tax rate would find that a corporate bond with a YTM of 3.05% would only yield 1.74% after taxes. By contrast, a 2.10% municipal bond would maintain that 2.10% yield due to its tax-exempt treatment.

The performance of municipal bonds can be affected by technical considerations, such as supply and demand, as well as by creditworthiness. Some municipalities face greater risks, such as rising unfunded pensions and other post-employment benefit liabilities, which could cause credit deterioration for borrowers that have not adequately funded these programs.

Three bond investment strategies

Investors can help balance their bond portfolios and protect themselves from interest rate risk by using several different bond investment strategies.

These strategies can be customized to fit the specific needs of the investor — focusing on current income, or matching expected future cash flow needs. Below are three portfolio construction strategies that we can use to customize a solution for you.

Barbelling

A barbell strategy involves building a portfolio with short-term and long-term bonds while avoiding intermediate-term bonds. The large position in short-term maturities drives better performance in a rising interest rate environment because these maturities have low duration and the opportunity to reinvest at higher yields. The short-term bonds also provide good liquidity. If the shape of the yield curve is expected to flatten (short rates rise, long-end rates fall), the concentrated position in long-term bonds with greater duration will outperform.

Laddering

A laddered portfolio is constructed with bonds that mature at regular intervals. The structure offers you a consistent cash flow, lower reinvestment risk and ongoing liquidity to help meet your needs.

Bulleting

A bullet strategy concentrates investments in bonds with the same maturity. This is the most effective approach to use for an investor who needs the bond proceeds at a specific point in time.

Considerations of managed bond funds

For some investors, using managed bond funds may help manage their fixed income investments. These funds are generally available through two vehicles: mutual funds and exchange-traded funds (ETFs).

Mutual funds are pooled investment vehicles designed to achieve specific investment objectives. Managed on the investor's behalf by a professional asset manager, they offer:

- A diversified mix of securities
- Daily liquidity allowing investors easy access to their money
- An automatic reinvestment of dividends and capital gains
- Typically low investment minimums

Before investing, you should also be aware that:

- Expenses are deducted from the fund, reducing the return of the portfolio
- Some mutual funds charge a fee for buying or selling shares
- Mutual funds distribute taxable capital gains and dividends to shareholders each year, making them potentially less tax-efficient than other vehicles
- Investment returns will fluctuate and are subject to market risks

ETFs are much like mutual funds, but trade on an exchange throughout the day, instead of being sold directly by the fund manager. In addition, ETFs offer:

- A diversified mix of securities
- The ability to buy and sell throughout the trading day
- Typically lower fees and more tax efficiency than mutual funds
- No investment minimums or sales charges
- Trading flexibility such as short selling and buying on margin

Before investing, you should also be aware that:

- Trading ETFs may incur commission charges
- Expenses are deducted from the fund, reducing the return of the portfolio
- Some ETFs employ sophisticated trading strategies that may not be suitable for all investors
- ETFs have bid/ask spreads that mean they may trade at a premium or discount
- Investment returns will fluctuate and are subject to market risks

The Bank of America approach

At Bank of America we apply our best thinking about today's markets to help achieve your individual objectives.

We take an active approach to create portfolios that are customized for your unique situation and specific goals.

We believe that developing a fixed income strategy requires having a complete understanding of your full financial picture.

Our team of fixed income professionals is highly experienced in all areas of portfolio management, research analysis and trading.

Your fixed income team draws on specialized investment expertise, extensive experience and deep intellectual capital from within Bank of America.

Building on your wealth plan, we will work closely with you, your private client advisor and portfolio manager to design a portfolio driven by your personal and financial objectives and to craft an asset allocation specifically designed to help meet them.

Your team will work with you to:

Create an overall asset allocation strategy and investment policy statement that reflect your objectives, risk tolerance, cash flow needs, tax situation and wealth aspirations, and serve as a blueprint for your portfolio.

Align your asset allocation tactically to evolving opportunities in the global financial markets.

Construct a portfolio that uses optimized combinations of solutions to help identify ideas that are consistent with Bank of America's fixed income strategy.

Regularly monitor your portfolio to make sure it conforms to your investment policy statement and financial objectives, which will be updated whenever there are significant changes in your life or goals.

Glossary

Accretion/Amortization is the process of applying the discount or premium paid for a bond over the lifetime of the investment for tax purposes. For example, if an investor paid a $100 premium on a bond with a maturity of 5 years, the premium would be amortized to $20 per year. This amortized premium can be used to reduce the amount of taxable interest earned from the bond.

Additional bonds test is a standard that a company must pass before issuing a new bond. The additional bonds test helps ensure that the issuer is able to service debt on the new bond by showing what assets the issuer has available. The test increases the transparency of the market and helps investors accurately gauge the risk of the new bond issue.

Bond indenture is a legal and binding contract between the issuer and the holders of a bond. The indenture specifies all the terms, conditions and important features of a bond, such as maturity date, timing of interest payments, method of interest calculation, any callable/convertible features, etc.

Covenant is a legally binding term of an agreement between the issuer and the holders of a bond. Bond covenants are designed to protect the interests of both parties.

Credit spread measures the difference in yield between a U.S. Treasury security and a non-Treasury security of similar maturity. For example, if the 10-year Treasury note is trading at a yield of 6% and a 10-year corporate bond is trading at a yield of 8%, the credit spread is 2%. The credit spread represents the premium investors require for the extra credit risk inherent in the corporate bond.

Debt service reserve fund carries funds that will be applied to pay debt service if secured revenues are insufficient.

Duration is a measure of the sensitivity, expressed as a number of years, of the price of a bond to a change in interest rates. Typically, rising interest rates mean falling bond prices, while declining interest rates mean rising bond prices.

Escrow account is an account kept by a 3rd party that holds assets on behalf of the two parties in a transaction. The funds are held by the escrow service until it receives the appropriate instructions or until obligations have been fulfilled.

Floating rate is an interest rate that is allowed to move up and down with the rest of the market or along with an index. This contrasts with a fixed interest rate, which stays constant for the duration of the agreement.

General obligation (GO) bonds are municipal bonds backed by the full faith and credit (taxing and borrowing power) of the municipality issuing the bonds. Unlike revenue bonds, which can only be repaid using the revenue generated by the specific project the bonds are issued to fund, GO bonds give municipalities a tool to raise funds for projects that will not provide direct sources of revenue, such as roads and parks.

Leverage is the use of borrowed money to increase the amount of capital to be invested, with the belief that the return from the investment will be more than the cost of borrowing.

Revenue bonds are municipal bonds supported by the revenue from a specific project the bond is issued to fund, such as a toll bridge or local stadium.

Rate covenant is a provision for a municipal revenue bond issue that sets requirements for charging revenue on the facility that is being financed. A rate covenant is included in a bond agreement to protect the bondholders' interests.

Subordinate lien describes debts that are "junior" to other debts of the same issuer. If a borrower defaults, subordinate debts are secondary to higher lien debts in terms of rights to collect proceeds from the collateral.

Yield curve is a line that plots the yields of various bonds with different maturity dates but equal credit quality. The most frequently reported yield curve compares the three-month, one-year, three-year, five-year, ten-year and 30-year U.S. Treasury debt.

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