

Institutional Insights

Factor Investing in Fixed Income Markets

A factor-based approach to investing has long been applied to the equity markets, but the merits of factors span across asset classes.

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KEY TAKEAWAYS

- A factor-based approach to investing, which has long been applied to equity portfolios, may also enhance the properties of fixed income portfolios.
- Style factors, such as value, quality, momentum, low volatility, and carry, are individual asset characteristics that have been proven drivers of security risks and returns.
- There are many ways to define style factors, and the metrics used to target them can differ significantly both across and within asset classes, thus leading to varied results.
- Macroeconomic factors, such as interest rates, inflation, credit spreads, and economic growth are broad economic variables that also influence the risks and returns of securities.
- Combining factor exposures may help investors enhance returns and mitigate risks through greater diversification.

Investors have been employing factors for decades when seeking higher returns or greater control over exposures in their portfolios. Reinforced by extensive academic research and long-standing use by practitioners, style factors such as value, quality, momentum, low volatility, and carry are distinguishing characteristics of individual securities or issuers that drive risks and returns. Some of these factors have outperformed over the long term, while others have served to mitigate portfolio risk. Although some style factors have outperformed over time, their returns tend to be cyclical and they can behave differently across and even within asset classes. Meanwhile, macroeconomic ("macro") factors are broad economic variables that are persistent and pervasive drivers of returns. Some examples include interest rates, inflation, credit spreads, and economic growth.

Constructing portfolios that target exposure to a single or multiple factors can enhance returns, reduce risks, and provide the opportunity for greater diversification. This factor-based approach to investing applies not only to equities, where these concepts have been broadly employed, but also to fixed income. In this article, we will explore common style and macro factors and the theory behind them, discuss their potential benefits within fixed income markets, and illustrate how their risk and return profiles may differ when applied to investment-grade versus high-yield bonds.

Style factors: Not just for equities

The theory behind common style factors is often consistent across equities and fixed income, but factor definitions and the metrics used to target them can be distinct. Even within fixed income, factor definitions and their risk and return profiles can vary between investment-grade and high-yield bonds, and within the same markets. While differences in how factors are defined can lead to distinct risk and return profiles, the following style factors play a prominent role in driving the risks and returns of fixed income securities.

Value

The theory behind value investing is that investors have often been rewarded with higher returns for buying and holding assets considered cheap relative to their intrinsic value. Assessing a bond's intrinsic value may involve evaluating the capacity of its issuer to generate cash flows and profits over time. A bond may also be identified as a value opportunity simply because it is trading at a lower price than other comparable bonds.

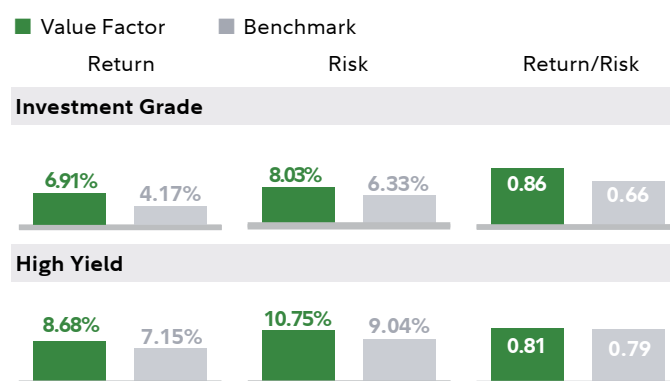
There are many ways to target the value factor, and the performance profile can vary significantly depending on the metrics used. There may also be nuances to consider when assessing value between bond markets. For example, controlling for duration is critical when seeking value opportunities within the investment-grade universe. Conversely, incorporating a risk component into a value definition is essential within high yield because default risk¹ is a central consideration.

When considering bonds of similar credit quality, one approach to value investing is to target those securities with wider credit spreads, which measure the difference between a security's yield and the U.S. Treasury yield.² Within high yield, value investors often control for leverage (an issuer's outstanding debt relative to its assets or profitability) as a gauge of default risk. Exhibit 1 shows that the value factor as defined here has exhibited higher absolute and risk-adjusted returns than both the investment-grade and high-yield benchmarks.

Quality

A tilt toward high quality securities within a given investment universe has historically reduced risk by favoring companies or issuers with stronger balance sheets and cash flows. When applied to equities, the quality factor has both reduced risk and enhanced returns. When applied to fixed income, the quality factor has exhibited lower returns than common benchmarks but may still be an effective risk management tool.

EXHIBIT 1: The value factor has historically generated higher absolute and risk-adjusted returns than the broader investment-grade and high-yield markets.

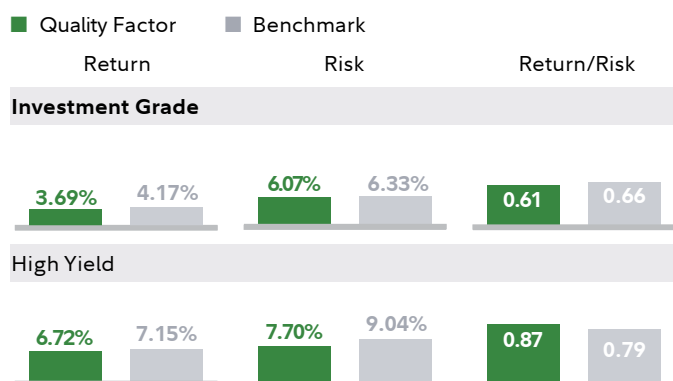


Past performance is no guarantee of future results. Annualized returns, 1/1/03–5/31/23. Risk: volatility (standard deviation of returns). Investment-grade value: top quintile by option-adjusted spread of the corporate subset of the Bloomberg Barclays Aggregate Bond Index, controlling for credit rating and duration. High-yield (non-investment-grade) value: top quintile by option-adjusted spread, controlling for leverage (total debt outstanding divided by earnings before interest, taxes, debt, and amortization) of the Bank of America Merrill Lynch (BofA ML) High Yield Constrained Index. All factor portfolios are sector neutral. Source: Bloomberg Finance L.P., Fidelity Investments, as of 5/31/23. Not intended to represent the performance of any Fidelity fund.

High quality bonds generally exhibit less volatility, and are therefore more likely to hold their value during economic downturns.

The quality factor may be less useful when applied to investment-grade bonds, which are already, by definition, high credit quality. For example, lower yielding, high quality investment-grade bonds may reduce a portfolio's total returns without a meaningful reduction in volatility that is due to changes in interest rates. Within the high-yield market, higher credit quality bonds have also narrowly underperformed the benchmark due to their generally lower yields, but they have generated higher risk-adjusted returns as a result of their lower volatility relative to that market (Exhibit 2).

EXHIBIT 2: A tilt toward the quality factor has historically helped fixed income investors mitigate risk.



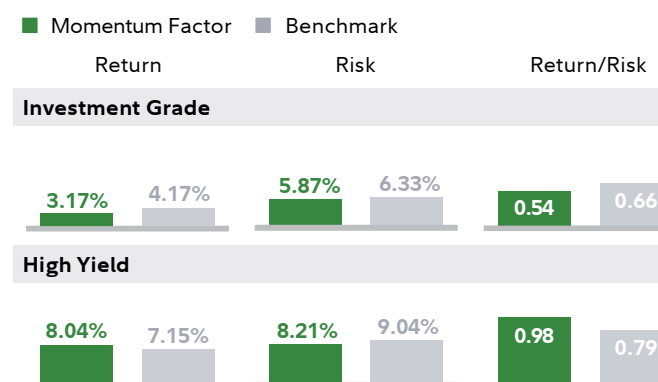
Past performance is no guarantee of future results. Annualized returns, 1/1/03–5/31/23. Risk: volatility (standard deviation of returns). Investment-grade quality: securities with a credit rating of A or better within the corporate subset of the Bloomberg Barclays Aggregate Bond Index, controlling for duration. High-yield quality: securities with a credit rating of BB- or better within the BofA ML High Yield Constrained Index. Source: Bloomberg Finance L.P., Fidelity Investments, as of 5/31/23. Not intended to represent the performance of any Fidelity fund.

Fixed income investors might assess quality using a similar approach to equity investors, screening for corporate issuers with strong underlying fundamentals. This may include examining profitability, cash flows, leverage, or earnings quality. But simply looking at a bond's credit rating is one of the most common measures of quality in fixed income.

Momentum

The concept of momentum investing relies on the expectation that recent performance trends will continue into the near future. The premise behind this approach is that investors' behavioral biases create market inefficiencies. For example, investors generally do not react immediately to changes in investment fundamentals. Therefore, there is often a delay before all available information is fully incorporated into asset prices. As a result, securities that have been appreciating can continue to rise in value as investors digest and respond to the improving fundamentals.

EXHIBIT 3: High-yield momentum investors have historically been rewarded with higher risk-adjusted returns over time.



Past performance is no guarantee of future results. Annualized returns, 1/1/03–5/31/23. Risk: volatility (standard deviation of returns). Investment-grade momentum: favoring securities with the greatest spread tightening based on percentage change in option-adjusted spread over a 3-month period within the corporate subset of the Bloomberg Barclays Aggregate Bond Index, controlling for duration. High-yield momentum: the bottom quintile by 3-month relative option-adjusted-spread momentum of the BofA ML High Yield Constrained Index. Source: Bloomberg Finance L.P., Fidelity Investments, as of 5/31/23. Not intended to represent the performance of any Fidelity fund.

As in the equity markets, there are a number of ways to define momentum in fixed income, and depending on the methodology used, results can vary meaningfully. Some investors consider momentum at the security level, others at the sector level. Simply analyzing recent returns is one approach, but momentum may also be captured by analyzing equity momentum signals at the issuer level or by considering spread momentum, which involves targeting those securities experiencing the most spread tightening,³ and thus relative price appreciation, over a given period.

This approach to defining momentum had compelling results in the high-yield market, generating higher absolute and risk-adjusted returns than the benchmark (Exhibit 3, page 3). However, this expression of momentum produced weaker results within the investment-grade universe because the further spread tightening, if any, was generally not significant enough to offset the reduced yield.

Low volatility

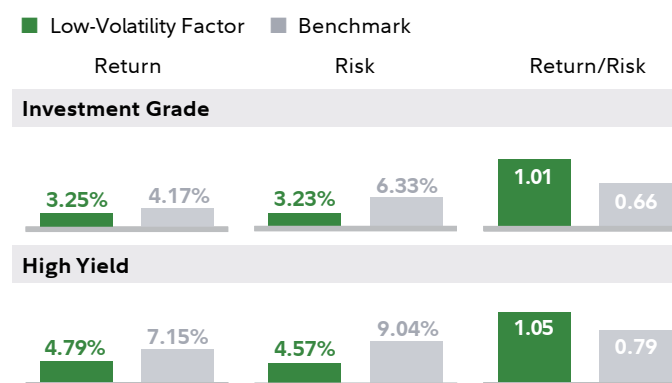
As its name suggests, the primary objective of low-volatility investing is to target securities with less return volatility. Such an approach tends to result in higher risk-adjusted returns over time. More conservative investors who find it challenging to weather the ups and downs of the markets may find low-volatility portfolios appealing.

In fixed income (and investment-grade bonds, in particular), return volatility is often linked to duration—a measure of the sensitivity of a bond’s price to changes in interest rates. Shorter-duration securities tend to have lower volatility because their prices fluctuate less amid changing interest rates. Because investment-grade credit spreads are generally less volatile than interest rates, the return volatility of investment-grade bonds is predominantly driven by changes in interest rates. Conversely, high-yield credit spreads are more volatile than interest rates; therefore, high-yield return volatility is driven more by changes in credit spreads than by changes in interest rates.

There are many ways to define low volatility. One approach is to target securities with the shortest duration, another is to target those with the lowest historical return volatility. As its name suggests, duration times spread (DTS) is the product of a bond’s duration and its credit spread, and is yet another common metric used to measure the sensitivity of a bond’s price to market moves. Securities with a low DTS have historically generated less volatile returns over time.

Exhibit 4 shows that although the low-volatility factor as defined here trailed the investment-grade and high-yield benchmarks on an absolute basis over the period measured, its total volatility was significantly lower in both markets. As a result, its risk-adjusted returns were superior.

EXHIBIT 4: Low-volatility fixed income portfolios have tended to trail their benchmarks on an absolute return basis, but have historically generated superior risk-adjusted returns.



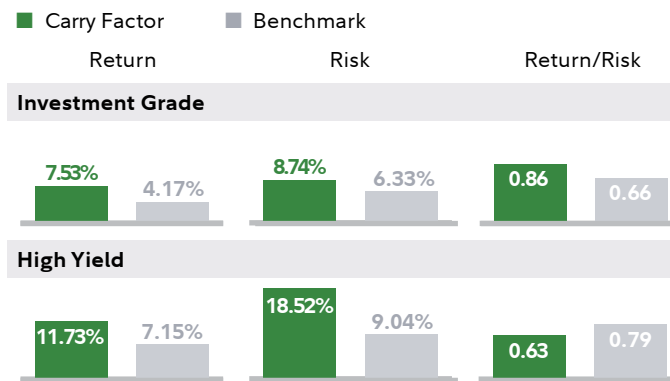
Past performance is no guarantee of future results. Annualized returns, 1/1/03–5/31/23. Risk: volatility (standard deviation of returns). Investment-grade low volatility: the 1–5 year bucket of the corporate subset of the Bloomberg Barclays Aggregate Bond Index. High-yield low volatility: bottom quintile by duration times spread of the BofA ML High Yield Constrained Index. Source: Bloomberg Finance L.P., Fidelity Investments, as of 5/31/23. Not intended to represent the performance of any Fidelity fund.

Carry

Carry is based on the concept that securities with higher yields may provide superior returns over time. In essence, carry is the return investors expect to receive simply from the passage of time, based on the yield earned. In a sense, carry could be considered similar to dividend yield in the equity markets. Within fixed income, higher carry is a result of coupons paid or accrued, combined with price changes over time, while in equities, the yield is simply a function of the dividends paid. In the fixed income markets, carry is often measured either by looking at a bond's yield or credit spread.

Higher carry exposure has generated excess returns relative to both the investment-grade and high-yield benchmarks over the period measured (Exhibit 5). Because bonds with higher carry (and higher yields) are inherently more volatile, exposure to carry can generate higher volatility in both markets and lower risk-adjusted returns within the high-yield universe.

EXHIBIT 5: The carry factor has historically outperformed both the investment-grade and high-yield benchmarks, but also generated higher volatility.



Past performance is no guarantee of future results. Annualized returns, 1/1/03–5/31/23. Risk: volatility (standard deviation of returns). Investment-grade carry: top quintile by option-adjusted spread of the corporate subset of the Bloomberg Barclays Aggregate Bond Index, controlling for duration. High-yield carry: top quintile by option-adjusted spread of the BofA ML High Yield Constrained Index. Source: Bloomberg Finance L.P., Fidelity Investments, as of 5/31/23. Not intended to represent the performance of any Fidelity fund.

Macroeconomic factors: Key inputs into the investing process

Unlike style factors, macroeconomic factors are not based on characteristics of individual securities. Instead, they are broad economic variables that can influence returns. Examples include interest rates, inflation, credit spreads, and economic growth. Of course, these macroeconomic factors affect each asset class differently. For instance, interest rates are more significant drivers of fixed income returns, even though they also influence the equity markets. Conversely, economic growth tends to have a greater impact on the returns of stocks than on bonds due to its significant influence on corporate earnings. Based on the distinct levels of exposure the two asset classes have to these factors, investors can achieve greater diversification by combining them.

Interest rates

The real interest rate in an economy is the risk-free rate of return less the expected rate of inflation. Fixed income returns depend heavily on changes in real interest rates—a bond's value increases when interest rates fall, and declines when rates rise. Exposure to this factor is evident in fixed income securities, where a component of the return investors earn is compensation for the risk that real interest rates could rise during the life of the bond. U.S. Treasuries provide exposure to nominal interest rates, which combine real interest rates and inflation.

Inflation

Inflation reflects the rate at which the prices of goods and services within an economy are rising and thus the rate at which the purchasing power of its currency is declining. Both inflation and inflation expectations are key drivers of fixed income returns. For example, if inflation rises substantially but a security's coupon payments remain unchanged, that security will become less attractive. Inflation-protected bonds such as U.S. Treasury inflation-protected securities (TIPS) are structured to mitigate this risk factor, particularly for buy-and-hold investors.

Credit spreads

Credit risk stems from an issuer's potential inability or unwillingness to make principal and/or interest payments on time. In practice, investors are commonly exposed to the credit risk factor through corporate bonds, the returns of which are driven in part by credit spreads. As discussed earlier, a credit spread represents the difference between a security's yield and the U.S. Treasury yield. By investing in corporate bonds, investors collect this risk premium over time for bearing the credit risk associated with these securities.

A multifactor approach: Combining factors to reduce risks and improve returns

Factor-based solutions can offer compelling benefits to a portfolio, but no single factor is rewarded all the time. Because factors are generally not highly correlated with one another, investors can gain the potential benefits of diversification by thoughtfully combining them. Although some factors have exhibited different returns and risks in fixed income relative to equities, this multifactor approach can add value in both asset classes.

Combining value and quality exposure

Value exposure tends to pay off early in an economic cycle when growth is accelerating. A value investing approach may lag, however, during periods of stress—when quality investors tend to be rewarded. In contrast, tilting toward quality alone may create a portfolio with higher risk-adjusted returns than the benchmark, but potentially lower absolute returns in fixed income markets due to the lower yield. This trade-off of lower absolute returns may not be appealing to some investors.

Therefore, combining exposures to value and quality can enhance fixed income portfolios, just as such a combination has done for equity portfolios. By first screening for quality, investors can remove the securities with the highest risk from the starting universe and select cheaper bonds from those that remain.

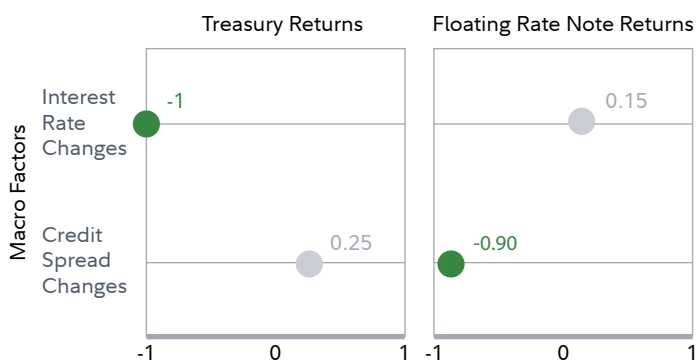
Combining rates and credit exposure

Just as diversification across asset classes can yield important benefits, diversification across macro factors within a fixed income portfolio seeks to enhance returns and mitigate risks. Since macro factors are a reflection of macroeconomic conditions, they exhibit structural relationships with one another that make intuitive sense. For example, in a volatile market environment when uncertainty is high, demand for safe-haven assets such as high quality U.S. Treasuries is heightened, while demand for riskier assets such as high-yield bonds and equities is reduced.

The opposite trend is generally observed when market volatility is low. This complementary relationship can be observed empirically through the historical negative correlation (-0.25) between interest rate changes and credit spread changes.⁴ By combining measured exposures to these two negatively correlated macro factors, the level of risk in a portfolio may be reduced.

EXHIBIT 6: U.S. Treasuries are sources of isolated exposure to nominal interest rates, while FRNs provide targeted exposure to credit spreads.

Correlations between Macro Factors and Bond Returns



Correlation coefficient: a statistical measure that calculates the strength of the relationship between two variables, expressed between -1 and 1 . A correlation of -1 reflects a perfect inverse correlation and a correlation of 1 represents a perfect positive correlation. Interest rate changes: represents the change in the 10-Year U.S. Treasury yield. Treasury returns: 10-Year U.S. Treasury returns. Credit spread changes: represents the change in FRN option-adjusted spread. FRN returns: return of the Bloomberg Barclays U.S. Floating Rate Note < 5 Years Index. Period studied: 1/1/03–5/31/23. Source: Bloomberg Finance L.P., Fidelity Investments, as of 5/31/23.

Investors can allocate to individual asset classes to target macro factors, and each asset class's returns will be affected by its sensitivity to one or more of these macro factors. For example, traditional corporate fixed-rate bonds offer exposure to both nominal interest rates and credit spreads. On the other hand, U.S. Treasuries represent isolated exposure to nominal interest rates, as illustrated in Exhibit 6 by the perfect negative correlation between interest rate changes and Treasury returns. Corporate floating rate notes (FRNs) pay a variable coupon that typically resets quarterly,⁵ and because of the frequent resets, FRNs have little sensitivity to interest rates. However, a typical FRN has several years to maturity and therefore its sensitivity to credit spreads can be significant. Exhibit 6 illustrates this relationship by the strong negative correlation between changes in credit spreads and FRN returns. Thus, FRNs can provide nearly isolated exposure to credit spreads.

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Investment implications

Employing style and macroeconomic factors may help investors better manage risk exposures and seek enhanced returns in their portfolios. But due to the inherent complexities of the fixed income markets and the nuances that exist between bond sectors, investors must pay careful attention to the construction of factor-based bond portfolios. Some of the key considerations include determining how to target each factor, address bond liquidity and trading costs, reduce portfolio turnover, and control for unintended sector, credit, and duration exposures. Variations in approaches to addressing these challenges can lead to vastly different risk and return profiles. Therefore, investors should carefully evaluate factor-based fixed income strategies to ensure they complement their existing portfolios and align with their desired risk and return objectives.

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Fidelity Thought Leadership Vice President Christie Myers provided editorial direction for this article.



Endnotes

1. Default risk: the risk that a bond issuer will be unable to make interest payments or pay off the face value of a bond once it matures.
2. Typically measured by the option-adjusted spread: the spread relative to a risk-free interest rate that removes the effects of embedded optionality on future returns.
3. Spread tightening: when a security's yield declines and thus the difference (or spread) between its yield and the risk-free rate is reduced.
4. Period studied: 1/1/23–5/31/23. Source: Bloomberg Finance L.P., Fidelity Investments, as of 5/31/23.
5. Corporate floating rate notes (FRNs) pay a variable coupon that is calculated by adding a spread over a benchmark rate, such as the London interbank offered rate (LIBOR)—the rate at which banks offer to lend funds to one another in the international interbank market.

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In general the bond market is volatile, and fixed income securities carry interest rate risk. (As interest rates rise, bond prices usually fall, and vice versa. This effect is usually more pronounced for longer-term securities.) The fund may invest in lower quality debt securities that generally offer higher yields but also involve greater risk of default or price changes due to potential changes in the credit quality of the issuer. Lower quality bonds can be more volatile and have greater risk of default than higher quality bonds. Leverage can increase market exposure and magnify investment risk.

Fixed income securities carry inflation, credit, and default risks for both issuers and counterparties.

There is no guarantee that a factor-based investing strategy will enhance performance or reduce risk. Before investing, make sure you understand how a factor investment strategy may differ from more traditional index based or actively managed approach. Depending on market conditions, factor based investments may underperform compared to investments that seek to track a market-capitalization weighted index or investments that employ full active management.

Investing involves risk, including risk of loss.

Past performance is no guarantee of future results.

Diversification and asset allocation do not ensure a profit or guarantee against loss.

All indices are unmanaged. You cannot invest directly in an index.

Index definitions

Bloomberg Barclays U.S. Aggregate Bond Index is a broad-based, market-value-weighted benchmark that measures the performance of the investment-grade, U.S. dollar-denominated, fixed-rate taxable bond market. • BofA ML U.S. High Yield Constrained Index is a market capitalization-weighted index of U.S. dollar-denominated below-investment-grade corporate debt publicly issued in the U.S. domestic market. • The Bloomberg Barclays U.S. Floating Rate Note < 5 Years Index is a subset of the U.S. Floating-Rate Note Index, which measures the performance of USD-denominated, investment-grade, FRNs across corporate and government-related sectors.

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