Product Strategy

FIDELITY INSTITUTIONAL INSIGHTS

Why Bond Investors May Benefit from Actively Managed Mutual Funds and ETFs

Active funds have outperformed in several fixed income categories.

Ford O'Neil
Portfolio Manager

Celso Muñoz, CFA
Portfolio Manager

KEY TAKEAWAYS

- Passive index investment strategies are designed to mirror the composition and performance of a benchmark index. In contrast, active strategies can differ from the index in the pursuit of better returns.
- Active bond funds and ETFs have the potential to outperform passive index funds, using intentional approaches for selecting bonds or setting sector weights.
- Investment firms with deep resources can support the efforts of macroeconomic, fundamental, and quantitative research, and expert trading, all of which may help actively managed funds outperform their benchmarks.
- Several additional active strategies for bonds may also increase opportunities for total return in excess of the benchmark, in a variety of interest rate, volatility, and credit environments.

Bond funds can offer income, diversification, and liquidity to an overall portfolio—important features when investors are considering the right mix of assets for achieving their investment objectives. This article describes how experienced managers of active bond mutual funds and active exchange-traded funds (ETFs), drawing on expert research and trading support, can add value by discovering attractive investment opportunities caused by bond market inefficiencies. Moreover, active bond fund managers can choose bonds from a broader "opportunity set" (i.e., range of potential investments) than a passive index fund can, and employ other investing strategies that may contribute to improved overall performance. These advantages exist in a variety of market environments, including periods of rising interest rates.

Experienced active managers, supported by research and trading experts, seek to earn "excess returns" (returns greater than those of the benchmark index). In contrast, passive investment strategies seek only to match the return and risk of a benchmark index, by attempting to mirror the characteristics (sector, issuer, credit quality, and yield-curve exposure) of the underlying index, and are limited to securities that meet the index's inclusion criteria. Active managers can consider a much broader spectrum of potential investments, and can act on informed assessments and market outlooks, to construct a portfolio that may differ from the benchmark-driven exposures of a passive strategy. These advantages have allowed the majority of active managers in various bond fund categories to outperform fixed income benchmarks (Exhibit 1). Also, passive fixed income ETFs benchmarked to broad fixed income indices, such as the Bloomberg U.S. Aggregate Bond Index, may not necessarily deliver returns that match the index.[1] Investors need to understand that tendency as they make allocations to various fixed income strategies and vehicles.

A large and diverse bond market is inefficient, offering active managers the opportunity to add value

Pricing inefficiency refers to the possibility that the prevailing market price of a security may not match its intrinsic value. Active managers may seek to capitalize on market inefficiency by buying bonds that they view as underpriced and selling bonds they deem overpriced—in other words, buying low and selling high. Index managers seek to replicate index exposures rather than consider valuations and fundamentals.

Another potential source of inefficiency stems from the bond market's size and complexity. According to the Securities Industry and Financial Markets Association (SIFMA), the U.S. bond market had an aggregate value of $52 trillion as of Dec. 31, 2021, a notable increase from $33 trillion as of the end of 2011 (Exhibit 2). Note also that the proportions of various sectors within the bond market have changed significantly over the past 10 years. For example, U.S. Treasury bonds have grown from 27% of the market to 44%.

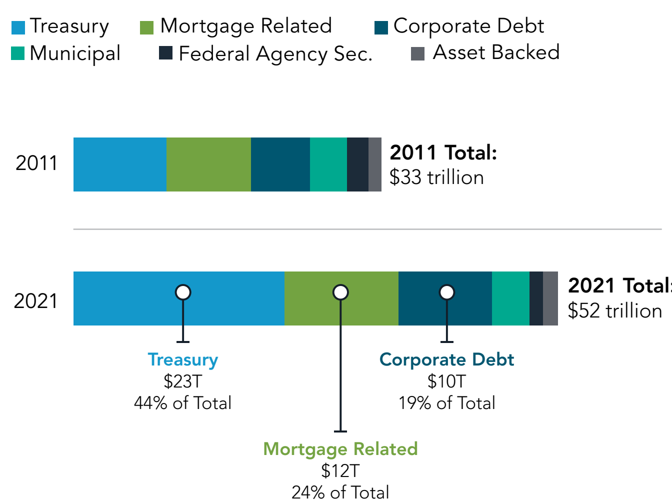
EXHIBIT 1: Historically, a majority of actively managed fixed income funds have outperformed benchmark indices in several categories.

% OF ACTIVELY MANAGED FUND SHARE CLASSES BEATING BENCHMARK (AFTER EXPENSES)

Morningstar Category	1 Year	3 Years	5 Years	10 Years
Short-Term Bond	75%	60%	77%	72%
Intermediate Core Bond	61%	68%	75%	74%
Intermediate Core-Plus Bond	83%	79%	89%	90%
Multisector Bond	94%	69%	90%	91%

Data as of Dec. 31, 2021. Considers share classes of each actively managed fund within each respective Morningstar Category. Share classes of funds with less than $50M in net assets were excluded from the analysis. May include some degree of survivorship bias, in that closed and merged funds existing for partial periods are not included. **Past performance is no guarantee of future results.** See appendix for important index definitions. All indices are unmanaged. It is not possible to invest directly in an index. Source: Morningstar, Fidelity Investments.

EXHIBIT 2: The bond market's size, complexity, and variable sector composition contribute to its inefficiency.



Money market securities excluded from calculation. Data for 2011 as of Dec. 31, 2011, and data for 2021 as of Dec. 31, 2021. Percentages may not agree due to rounding. Source: Securities Industry and Financial Markets Association (SIFMA), Fidelity Investments.

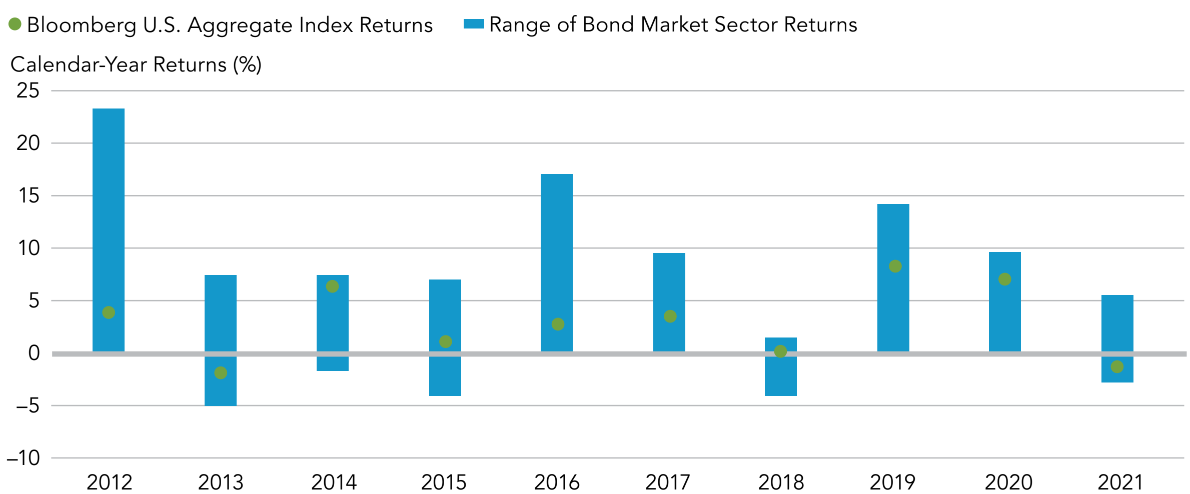
In such a large market, a wide variety of borrowers issue bonds, and these securities can differ by sector, subsector, credit quality, seniority, collateralization, payment structure, coupon, coupon type, maturity, optionality, and expected secondary market liquidity—each of which can affect the market price of a bond. Indeed, the market values of many of these factors are not predetermined; they are subject to the market's evaluation, and can change over time. Experienced active portfolio managers can use macroeconomic, fundamental, and quantitative research to make qualitative assessments about security selection, which may lead to outperforming the benchmark index. Passive managers seek to structure a portfolio to match a benchmark's composition and are typically not influenced by research. (See "How do equity and bond indices differ?" page 4.)

An active bond strategy's holdings are informed and intentional

One important quality of active bond funds and ETFs is that the composition of investments is intentional. In contrast, the composition of a passively managed portfolio is intended to replicate the exposures and the performance of a benchmark index and evolve with that benchmark in line with bond market issuance trends, which may not reflect an active fund manager's assessment of intrinsic value.

How important might this intentional composition be? As an illustration, consider the sector-level dispersion of bond market returns shown as a range around the annual return of a generally representative and widely used index, the Bloomberg U.S. Aggregate Bond Index (Exhibit 3). Over each one-year span, different sectors of the bond market have had a range of returns relative to the aggregate market overall. An active portfolio manager may seek to generate excess return by overweighting (holding more of) sectors the manager perceives to be likely to generate better returns, while underweighting (holding less of) the remaining sectors.[2]

EXHIBIT 3: With a wide dispersion among bond sector returns, active managers have the potential to generate excess returns by overweighting particular sectors and underweighting others relative to the benchmark index.



Dispersion of Bond Returns: 10 Full Calendar Years	
MEDIAN	8.75%
HIGH	21.8%
LOW	6.1%

Calendar year performance from 2012 to 2021. Range of bond market sector returns represented by Bloomberg U.S. Aggregate Bond Index, Bloomberg U.S. Treasury Index, Bloomberg U.S. Agency Index, Bloomberg Emerging Markets USD Aggregate-Investment Grade Index, Bloomberg Emerging Markets USD Aggregate–High Yield Index, Bloomberg U.S. Corporate Investment Grade Index, Bloomberg U.S. Mortgage Backed Securities Index, S&P/LSTA Leveraged Loans Index, and ICE BofA U.S. High Yield Constrained Index. All indices are unmanaged. It is not possible to invest directly in an index. **Past performance is no guarantee of future results.** Not intended to represent the performance of any Fidelity fund. Source: Bloomberg Finance LLC and Fidelity Investments, as of Dec. 31, 2021.

In contrast, a passively managed portfolio would be expected to maintain sector allocations that closely mimic that of its benchmark index. In other words, the sector allocations of a passive index fund are based on the current proportions of various sectors within the benchmark—which is related primarily to which sectors have issued the most index-eligible securities—rather than on an active assessment of the fundamental characteristics and value of any one sector relative to another.

Like that of the overall bond market itself, an index's composition by sector may change over time, which can have a meaningful impact on the performance and characteristics of the index. A comparison of the 10-year change in sector proportions of the Bloomberg U.S. Aggregate Bond Index shows U.S. Treasury bonds expanded from 35% in 2011 to 39% in 2021. This shift in sector weighting was directly related to federal-deficit financing rather than compelling values versus other bond types. A passive index strategy would move in lockstep with bond market issuance trends, likely changing the return and risk expectations of the portfolio over time. In contrast, an actively managed fund or ETF can draw on research and trading insights to determine which sectors are most likely to maintain an optimal balance of risk and return.

How do equity and bond indices differ?

Proponents of passive approaches for equity investors often argue that the index itself reflects an efficient measurement of the market's valuation of the stocks in the index. Because the most commonly used equity indices are weighted by market capitalization and maintain a finite list of constituents, a company increasing its market cap faster than its peers will be represented in increasing proportion in the index. This occurs when investors bid up the price of a company's stock. Passive strategies based on an index will therefore own more of the higher capitalization securities within the index, and will increase or decrease exposure to a stock as the market increases or decreases the stock's price—thereby reflecting, at least in part, the market's current sense of a company's value.

Indices for fixed income have some important differences from their equity counterparts, which may make them less efficient as reflections of the overall market's views. For example, although bond indices are also weighted by the market cap of the underlying securities, the pricing of individual bonds is "over the counter," making price movements less driven by the transactions of a wide population of investors trading on a public exchange.

Additionally, in a broad-based index such as the Bloomberg U.S. Aggregate Bond Index (which includes more than 12,000 securities in total), many individual securities might not trade on any given day. As a result, the market capitalization for some bonds is estimated through pricing models that use actively traded similar securities for guidance. This approach can create market uncertainty about an accurate value for the index.

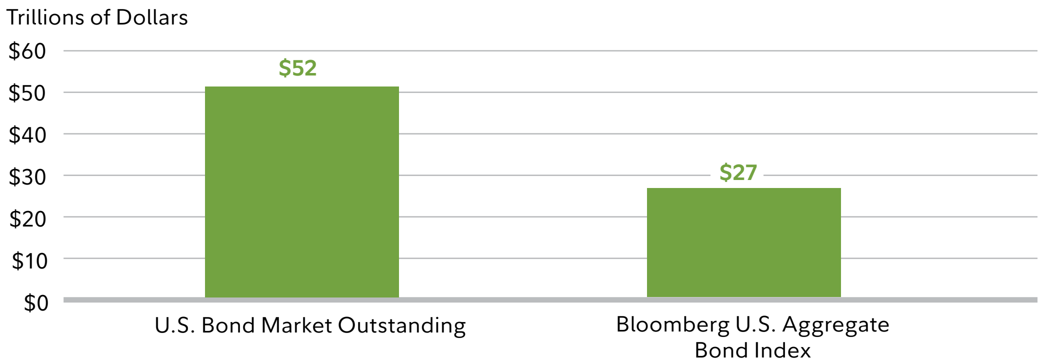
Further, while an equity index will reference only one security per issuer (the company's common stock), a bond index incorporates all of an issuer's debt securities that meet the inclusion criteria. For example, as of Dec. 31, 2021, the Bloomberg U.S. Aggregate Bond Index included more than 270 different notes and bonds issued by the U.S. Treasury.

> "Active managers have the flexibility to deviate from the index to structure a portfolio that seeks to maximize returns by focusing on the most promising sector, issuer, and yield-curve positioning."

An active manager has a much larger opportunity set

Even though the Bloomberg U.S. Aggregate Bond Index contains more than 12,000 securities, it represents just a subset of the broader bond market. As noted earlier, SIFMA estimates that the U.S. bond market had an aggregate market cap of $52 trillion as of Dec. 31, 2021. In contrast, the comparable value for the Bloomberg U.S. Aggregate Bond Index was $27 trillion (Exhibit 4). Therefore, an actively managed portfolio could have an opportunity set that is much larger than that of a passively managed portfolio benchmarked against the Bloomberg U.S. Aggregate Bond Index.

EXHIBIT 4: An actively managed portfolio may have a much larger opportunity set than that of a passively managed portfolio.



Data as of Dec. 31, 2021. Source: SIFMA (U.S. bond market), Bloomberg Finance LLC (index), Fidelity Investments.

Why some investors choose passive bond funds

Passively managed bond funds and ETFs have seen dramatic inflows since they were first introduced in the 1970s and in 2002, respectively. For certain investors, some passive index funds may be more appropriate than actively managed funds for their objectives.

Index funds offer constrained sets of portfolio holdings, making them good building blocks for investors seeking precise exposures to different sectors or different maturity ranges within the bond market. Also, the volatility of the monthly returns experienced by a passive strategy should closely match that of its benchmark; active strategies, in the pursuit of higher returns, may experience higher or lower volatility.

Given that index funds seek to match their benchmarks rather than outperform them, they might employ fewer analytical resources, which may lead to lower operating expenses and lower fees. Moreover, because many index funds do not buy and sell securities as frequently as do actively managed funds, they may incur lower trading costs. In addition, limited trading activity might make index funds more tax efficient for some investors.

Overall, passive bond strategies aim to deliver returns that closely approximate those of a benchmark index (minus fees) in all market environments, with risk profiles very similar to those of the benchmark.

This difference in opportunity sets arises from Bloomberg inclusion criteria (see Appendix on page 9). These criteria are firmly (and appropriately) adhered to by the passive portfolios that attempt to mirror it. Maintaining clear criteria supports the transparency and usefulness of the index, contributing to its popularity as a benchmark. Active managers are not bound by these criteria and can access a wider opportunity set, which allows active bond funds and ETFs to hold index- and non-index-eligible investments similar to those within the benchmark but, due to higher yields or pricing inefficiency, have greater potential for return.[3]

Choosing the right active bond fund or ETF

For conscientious investors, choosing the right bond mutual fund or ETF involves some research. Past performance is no guarantee of future results, but investors have several other aspects to consider in addition to previous returns and the expense ratio. Some key considerations in choosing an active bond fund or ETF include:

- **The choice of vehicle: mutual fund or ETF.** Each has its own advantages, and may not be equally suitable for every investor.
- **The research and trading resources of the manager.** Does the manager have sufficient credible resources to analyze the credit risk of various bonds, find and take advantage of market inefficiencies, and achieve lower trading costs through expert trading?
- **The benchmark of the strategy.** Does the return and risk profile of the benchmark index—and of the active strategy measured against it—align with the investor's objectives? For example, if the primary objective for investing in a bond fund is to diversify a portfolio that is invested in equities, an investor might prefer a strategy that has shown lower correlations to equity returns.
- **The overall level of risk within the strategy.** How much risk is an active manager taking relative to the fund's return? Is the risk similar to that of the benchmark index? If not, is risk consistent with investors' expectations about the fund, as formalized in the fund's prospectus? If an active manager is earning higher returns than the benchmark by investing in much riskier bonds or sectors, it may be appropriate to consider whether the additional returns are worth the extra risk.
- **The sources of risk within the strategy.** Two of the primary sources of risk in a bond fund or ETF include credit risk (the possibility that bonds will default or lose value due to credit deterioration) and duration (sensitivity to interest rate changes). A benchmark index, and passive approaches tied to it, will have a certain credit risk and duration that is determined purely by the set of available bonds that fit within the index guidelines. For an active bond fund or ETF, however, the level of credit risk and a duration target can be intentionally determined by the manager. Therefore, investors may want to understand how and why an active fund's sources of risk differ from those of the benchmark index.
- **Other elements of the fund or ETF mandate, including any guidelines or restrictions.** How much flexibility does the manager have in choosing the sector exposure, credit-quality exposure, and interest rate sensitivity of the holdings? An investor primarily seeking diversification may benefit from different guidelines than an investor mainly seeking income.
- **The structural risk controls.** How are investment decisions made and monitored at the firm managing the fund or ETF? What incentives are put in place to maintain appropriate risk levels?

It may seem counterintuitive, but because passive bond strategies can be challenging to implement, investors in passively managed bond funds or ETFs may also be well served by performing similar due diligence. In particular, investors should always be careful to select bond strategies that are well matched to their specific investment objectives, risk tolerance, and time horizons, whether they are choosing passive or active approaches.

The benefit of macroeconomic, fundamental, and quantitative research, and trading expertise

Because the opportunity set is so wide, an active bond strategy can benefit from the broad and deep expertise of portfolio managers and research analysts. We have discussed how the size of the bond market and its complexity can present an advantage to active managers who can identify and invest in bonds that the market may have undervalued. However, the extent of this advantage is partly determined by the quality and quantity of research (a top-down macroeconomic assessment and bottom-up, fundamental and quantitative research), as well as by the trading expertise of an actively managed fund team. The fees that active managers charge are typically higher than those of passive index funds, which is often necessary to build and maintain the research, analysis, and trading capabilities intended to augment returns.[4]

The Role of Research Analysts

Macro analysts evaluate top-down considerations such as central bank policy, global economic trends, cross-border flows, and currency markets. Macro analysis helps to assess risk and evaluate tail risks, and can influence credit, liquidity, and valuation perspectives on bond purchases. Fundamental analysts are charged with developing informed views of the issuers, industries, and sectors that they follow. This fundamental research can help assess whether a bond is undervalued or overvalued by the market. Quantitative analysts develop sophisticated models that help assess risk relative to potential return and to manage risk in an overall portfolio. With input from all of these types of analysts, an active portfolio manager can assess how to invest fund assets to try to increase returns while maintaining an intentional level of risk.

The Role of Bond Traders

Experienced and well-resourced bond traders may also play an important role, because the majority of the bond market trades "over the counter" (i.e., pricing is determined on a case-by-case basis), often requiring that buyers and sellers negotiate.

Specialized trading experts covering all sectors of the bond market can help an active fund manager stay informed about up-to-the-minute market valuations and trends, and can help ensure that the quality of trade execution remains high. Also, expert traders can monitor the flow of trading and find occasions for purchasing specific bonds opportunistically (such as when, for various reasons, other investors may be required to sell).

Active strategies have additional tools to generate excess returns and manage risk

In the current bond market environment, many investors see low yields and the specter of higher rates as a threat to returns from bond allocations. However, active bond managers can use many strategies to help investors generate returns and manage risks, even within a rising-rate environment. The key concept is that active managers have the flexibility to change some important characteristics of the portfolios they manage, and can also benefit from trading opportunities.

Because of the dynamic nature of the holdings of an active bond fund or ETF, active managers can use a toolbox of strategies with the potential to enhance total return (the return generated from both interest income and capital appreciation) in a variety of different market environments. In particular:

- As a bond approaches maturity, it changes position on the "yield curve" (which is the curve generated by plotting time-to-maturity on the x-axis with the market's required yield on the y-axis). The change is called rolldown because, in general, investors require higher yields to lend money for longer periods of time—as a bond moves closer to maturity, it tends to "roll down" the yield curve as the required yield for that bond tends to fall. For bonds, a falling yield means a rising price. An active manager can potentially generate returns by selling bonds that have appreciated in price due to rolldown.

- Changes in the overall level of interest rates or in the shape of the yield curve can also contribute to total return. Because bond prices fluctuate as interest rates change, an active manager can use various strategies to take advantage of shifts in rates, or hedge against the potential adverse effects of these moves. Interest rate changes can be very volatile at times, and often require substantial research and trading resources to help position a portfolio appropriately.
- Some bond yields include a credit spread, which is a yield premium relative to U.S. Treasury bonds, intended to reflect a higher level of risk associated with the bond issuer. For example, the market almost always requires a higher yield from corporate bonds, mortgage-backed securities, and asset-backed securities than it does from Treasury bonds with comparable terms to maturity. But because this spread reflects subjective assessments that can change over time, active fund managers have the opportunity to generate excess returns from various effects, including rolldown in relation to the credit spread, absolute and relative spread changes, and reshapings of the overall spread curve. These "spread returns" can be volatile, and active managers may utilize substantial fundamental and quantitative research support in managing risk while seeking excess return through these strategies.

The general point, however, is that active bond funds have many ways to help generate excess returns, even in an environment of rising interest rates.

Investment implications

Many investors seek exposure to bonds for three key characteristics: income, portfolio diversification, and liquidity. How they achieve this exposure should be consistent with their overall objectives. Passive index funds offer the ability to invest in a set of bonds chosen to be representative of the benchmark index—both the risk and the return of a passive fund are expected to be congruent with that of the benchmark. In contrast, active bond funds offer investors the potential for returns exceeding those of the index. Active managers can take advantage of pricing inefficiency, a wider opportunity set of possible investments, and the flexibility to make qualitative judgments about the weighting of various bond sectors within a fund's holdings. For well-resourced active bond funds, macroeconomic, fundamental, and quantitative research may help to identify undervalued and overvalued bonds, while expert traders may help to negotiate better prices. In addition, various active strategies can augment total returns for active bond funds and ETFs, even in a rising-rate environment. Overall, many different types of investors may benefit from including active bond funds and ETFs in their portfolios.

Appendix

When adhering to their mandates, some passive strategies based on an index might exclude many opportunities that active strategies may find attractive.

CATEGORY	BLOOMBERG U.S. AGGREGATE BOND INDEX REQUIREMENT
Sectors	Allows U.S. Treasuries, government-related bonds, corporate bonds, certain securitized instruments. ***Does not allow other sectors, and sector weights are determined by issuance and redemption activity.***
New Issues, Additions, and Deletions	Addition of qualifying new bonds, other additions, and deletions can occur only at month-end. ***Market composition may be reflected with a lag.***
Security Format	Allows SEC-registered securities, or those that qualify for certain exemptions. ***Excludes a significant percentage of bonds brought to market for sale only to qualified institutional buyers (i.e., without registration rights).***
Ratings	If there is only one rating, it must be investment grade; if there are two ratings, they both must be investment grade; if three ratings, at least two must be investment grade. ***Excludes some bonds with conflicting ratings and all bonds without any investment-grade ratings. Also does not account for advanced outlooks from ratings agencies, and must rebalance holdings only at month-end following a rating change.***
Ratings Agencies	Securities must be rated by at least one of Moody's, S&P Global Ratings, or Fitch Ratings. ***Excludes bonds rated by other agencies.***
Size of Bond Issue	Generally includes securities with at least $250 million of par value outstanding (rules differ for securitized instruments). ***Excludes smaller issues.***
Coupon Type	Fixed-rate only. ***Excludes bonds with floating-rate coupon payments.***
Maturity	Must have a remaining term to maturity (or a remaining weighted-average maturity) greater than one year. ***Excludes bonds with shorter remaining terms.***
Currency	U.S.-dollar-denominated only. ***Excludes bonds denominated in other currencies.***

Source: Bloomberg Finance LLC, Fidelity Investments, as of Dec. 31, 2021.

Author

Ford O'Neil

Portfolio Manager

Ford O'Neil has been a portfolio manager in the Fixed Income division at Fidelity Investments since 1992, and is responsible for managing multiple retail and institutional bond portfolios.

Celso Muñoz, CFA

Portfolio Manager

Celso Muñoz is a portfolio manager in the Fixed Income division at Fidelity Investments. In this role, Mr. Muñoz serves as a member of the Core/Core Plus team and is responsible for managing multiple retail and institutional bond portfolios.

Thought Leadership Vice President Martine Costello Duffy provided editorial direction for this article.

Endnotes

1. Broad-based fixed income indices can be difficult to replicate. As a result, passive ETFs frequently utilize a stratified sampling methodology to approximate index exposures, and exposures that don't exactly mirror the index can lead to performance differences. Also, other frictions during implementation in addition to fees can impact performance. Past performance is no guarantee of future results. **2.** Manager flexibility is always assumed to be within the specific constraints of the mandate of the fund or ETF, which allows investors to understand the general investment characteristics and the target levels of risk undertaken by the fund. **3.** There are many different bond indices in existence. In this article, we focus on the Bloomberg U.S. Aggregate Bond Index because of its wide adoption as a benchmark. As of Dec. 31, 2021, data compiled by Morningstar indicate that more than $1.5 trillion of actively managed mutual funds or ETFs, and more than $1 trillion of passively managed mutual funds or ETFs, used this index (or its closely related float-adjusted version) as their benchmark. Other indices may have selection criteria that are more or less inclusive than those described in the Appendix on page 9. **4.** Passively managed portfolios may also benefit from the expertise of fundamental research, quantitative analysis, and dedicated sector traders, because constructing an appropriately representative bond portfolio can be a complex task. However, the driving focus of a passive index fund is matching the index in both risk profile and return, rather than the maximization of risk-adjusted total return.

Index Definitions

Ice BofA U.S. High Yield Constrained Index is a market capitalization-weighted index of U.S. dollar-denominated, below-investment-grade corporate debt securities publicly issued in the U.S. domestic market. **Bloomberg Emerging Markets (EM) USD Aggregate Index** is a flagship hard currency emerging-market debt benchmark that includes USD-denominated debt from sovereign, quasi-sovereign, and corporate EM issuers; **Bloomberg EM USD Aggregate Investment Grade (High Yield) Index** includes the subset of securities within the Bloomberg EM USD Aggregate Index considered to be investment grade (high yield). **Bloomberg U.S. Agency Bond Index** is a market value-weighted index of U.S. Agency government and investment-grade corporate fixed-rate debt issues; to be included in this index, debt issues must have maturities of one year or more and, as a portion of the index, total a minimum amount outstanding of 150 million U.S. dollars. **Bloomberg 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; sectors in the index include Treasuries, government-related and corporate securities, MBS (agency fixed-rate and hybrid ARM pass-throughs), ABS, and CMBS. **Bloomberg U.S. Credit Index** comprises the U.S. Corporate Index and a non-corporate component that includes foreign agencies, sovereigns, supranationals, and local authorities. **Bloomberg U.S. Corporate Investment Grade Bond Index** is a broad-based benchmark that measures the investment-grade, fixed-rate, taxable, corporate bond market; it includes USD-denominated securities publicly issued by U.S. and non-U.S. industrial, utility, and financial issuers that meet specified maturity, liquidity, and quality requirements. **Bloomberg U.S. 1-3 Year Government/Credit Index** is a market value-weighted index of investment-grade fixed-rate debt securities with maturities from one to three years from the U.S. Treasury, U.S. Government-Related, and U.S. Corporate Indices. **Bloomberg U.S. Mortgage Backed Securities Index** is a market value-weighted index of fixed-rate securities that represent interests in pools of mortgage loans, including balloon mortgages, with original terms of 15 and 30 years that are issued by the Government National Mortgage Association (GNMA), the Federal National Mortgage Association (FNMA), and the Federal Home Loan Mortgage Corp. (FHLMC). **Bloomberg U.S. Treasury Bond Index** is a market value-weighted index of public obligations of the U.S. Treasury with maturities of one year or more. **Standard & Poor's/Loan Syndications and Trading Association (S&P/LSTA) Leveraged Performing Loan Index** is a market value-weighted index designed to represent the performance of U.S. dollar-denominated institutional leveraged performing loan portfolios (excluding loans in payment default) using current market weightings, spreads, and interest payments.

708244.14.2 1.9860202.104