

This paper serves as a primer on “core” bonds, which are often referred to as investment grade bonds. Few investors question whether investment grade bonds can provide portfolio benefits. High quality bonds have historically been used as “anchors to windward” in diversified portfolios.

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In this paper, we briefly discuss the composition of the core bond market, as proxied by the Bloomberg Aggregate Index. We discuss how the market has evolved over time, and what those changes imply for investors. We further discuss the diversification benefits of investment grade bonds and their potential role in a diversified portfolio. Finally, we address implementation options, including the active versus passive decision.

Key takeaways

- The universe of “core bonds” is composed of investment grade fixed income securities issued in the US. It includes US government and government-related securities, corporate and non-corporate credit securities, residential and commercial mortgage-backed securities, and asset-backed securities.
- Core bonds can provide diversification, stability, and liquidity, especially during market downturns, acting as a hedge against equity volatility. As such, they can serve a role in many different types of portfolios.
- The composition and characteristics of the core bond universe have fluctuated over time. Some changes, such as yields, exhibit greater volatility, while others, such as the change in duration (and thus interest rate sensitivity) tend to be more gradual.
- Active managers often seek to outperform via higher yields, which typically entails taking on more credit risk. This may include investing in securities outside of their benchmark.

What are core bonds?

In broad terms, core bonds are fixed income securities issued in the US that carry an investment grade rating. For most institutional investors, the Bloomberg Aggregate Index is used as a proxy for the investment grade bond market in the United States.

Containing over 10,000 individual securities from several hundred issuers, the Bloomberg Aggregate Index is a market-weighted representation of the investment grade, domestic bond market.¹ In particular, the Bloomberg Aggregate Index is composed of four major types of fixed income securities: US government and government-related securities (e.g., Treasuries and agencies), corporate and non-corporate credit securities, residential and commercial mortgage-backed securities, and asset-backed securities.²

¹ To be considered investment grade, a security must achieve a rating of at least Baa3, BBB-, or BBB- from credit agencies such as Moody's, Standard & Poor's, or Fitch Ratings respectively.

² Non-corporate securities generally refer to debt issued by regional governments, international organizations, or supranational unions (e.g., the IMF or the European Union).

US government and government related securities

United States government securities serve as the primary debt financing instruments of the federal government. Maturities range from thirty days on Treasury bills to thirty years on Treasury bonds. Government-related securities include primarily US agency debt issued by certain government-sponsored enterprises ("GSEs") such as Fannie Mae and Freddie Mac. These debentures are not mortgage-backed securities; rather, they are debt issued by GSEs to fund their financial operations.

Most investors consider the likelihood of a US government or government-related bond defaulting to be extremely low. However, the holder of a nominal Treasury or agency security does bear interest rate and inflation risks.

Corporate and non-corporate credit securities

Like the federal government and government-sponsored enterprises, corporations and other non-governmental entities may issue bonds to raise capital or refinance existing debt. Since these entities are often considered to have a higher chance of default than the government, their bonds usually offer higher interest payments compared with Treasuries (or agencies) of similar maturity.

Residential and commercial mortgage backed securities

A mortgage-backed security is a security whose value and fixed income payments are derived from a pool of underlying mortgages. In the case of residential mortgage-backed securities ("RMBS"), banks or mortgage lenders issue home loans and then group the individual mortgages into a pool that they sell, typically to a GSE. The GSE then packages the pool into a single security. They then sell these mortgage-backed securities to investors and use the proceeds to repeat the process. In the case of commercial mortgage-backed securities ("CMBS"), the packaged mortgages are written on commercial property (i.e., not private residences). In theory, bundling multiple mortgages together diversifies the underlying credit risk, because each underlying mortgage represents only a small fraction of the entire pool of assets, and bundling also helps to diversify by location in addition to other factors. Since these vehicles have traditionally exhibited credit risk and pre-payment risk, they usually offer higher interest payments compared with Treasuries (or agencies).

Asset backed securities

Similar to a mortgage-backed security, an asset-backed security (“ABS”) is a security whose value and fixed income payments are derived from a pool of underlying assets. However, in the case of ABS, private companies securitize a variety of paying assets, including credit card payments, automobile loans, home equity loans, and small business loans. Once again, since these vehicles may default, they usually offer higher interest payments compared with Treasuries (or agencies).

The evolution of the core bond market

The core bond market, similar to many other financial markets, tends to move in cycles. This includes changes to the composition of the market in terms both of credit quality and sector, as well as the overall level of interest rates. While these changes tend to happen gradually, it is important for investors to be aware of them so that they understand what they are exposed to when they own a portfolio of core bonds.

Yield

Perhaps the most important cycle for bonds is the level of interest rates. The market moves in short-term cycles as well as long-term cycles. Examples of both types of cycles are evident in Figure 1, which displays the yield on the 10-year US Treasury bond since 1953. For example, the market experienced a long downward trend in interest rates starting in the early 1980s that lasted approximately 40 years. But there were many cycles during this period during which interest rates rose by more than 1%.

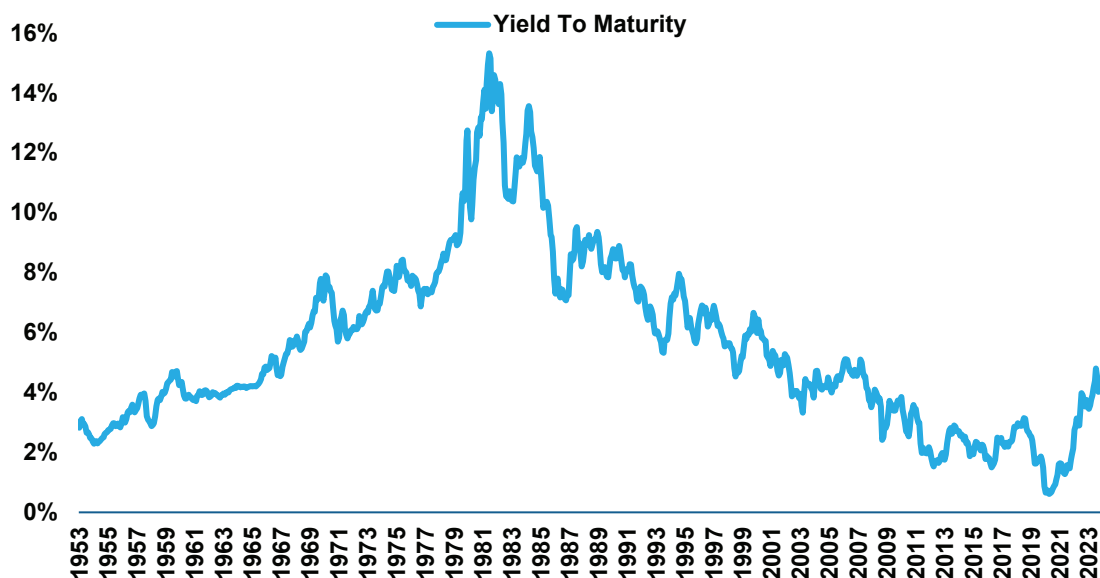


FIGURE 1
Yield on the 10-Year US Treasury Bond

Source: FRED. Represents the period from April 1, 1953, through July 31, 2024. Market Yield on US Treasury Securities at 10-Year Constant Maturity, Quoted on an Investment Basis.

These yield fluctuations are largely influenced by monetary policy. For example, the Fed effectively maintained a “zero interest rate policy” for short-term borrowing for seven years beginning in 2009. While the Fed subsequently sought to gradually (and tentatively) increase rates, they reversed course in response to the COVID pandemic, bringing short rates back to zero until they started aggressively raising rates in 2022. The result is that, as of this writing in early fall of 2024, the yield for the core bond market is higher than it has been since the Global Financial Crisis (“GFC”).

Duration and convexity

Duration measures the time it takes for an investor to recoup a bond’s price through its cash flows. It is commonly used as a measure of a bond’s sensitivity to interest rate changes. Higher yields imply a shorter duration, all else being equal, as income will comprise a larger proportion of the total return an investor expects from the bond. Conversely, lower yields often lead to higher duration. Hence it is not surprising to observe that duration for the broad investment grade bond market gradually increased in the low-rate environment that followed the GFC, rising from a nadir of less than four years during the GFC to a peak of 6.8 years as of December 31, 2021 (see Figure 2).³

As of early fall 2024, the duration for the core bond market remains above six years. This is well above the trailing 20-year average of 5.4 years. High duration implies heightened sensitivity to interest rate shifts, potentially resulting in significant price fluctuations for bonds. This can be a good thing if interest rates decline, as it will drive meaningful price increases. But it also implies that the bond market remains sensitive to rising interest rates. However, it is worth noting that the current yield of ~5% provides much more of a buffer to bondholders than they had when rates started to rise in 2022, and yields were less than 2%.

³ In addition, the sectors that typically have a higher duration, US Treasuries and corporate bonds, increased as a percentage of the bond market.

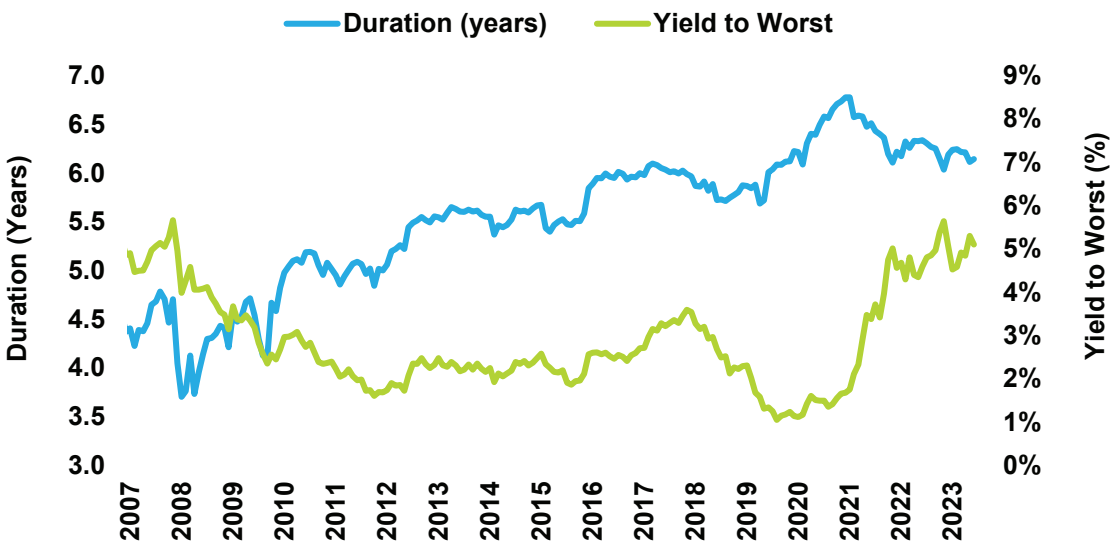


FIGURE 2
Duration and Yield to Worst of Bloomberg Aggregate Index

Source: Bloomberg, as of May 31, 2024. Data pulled on June 11, 2024. Index: Bloomberg US Aggregate.

One positive impact has been the change in convexity. Convexity for the bond market has been on an upward trend for more than a decade and flipped from negative to positive (see Figure 3). This is jointly due to the decreasing proportion of mortgage-backed securities, which have negative convexity profiles, and the increasing proportion of US Treasuries and corporates, which are positively convex. Positive convexity is generally considered beneficial, as it indicates that bond prices will not likely fall as sharply as implied by duration when interest rates rise.⁴

⁴ Please refer to the Appendix for more details on convexity.

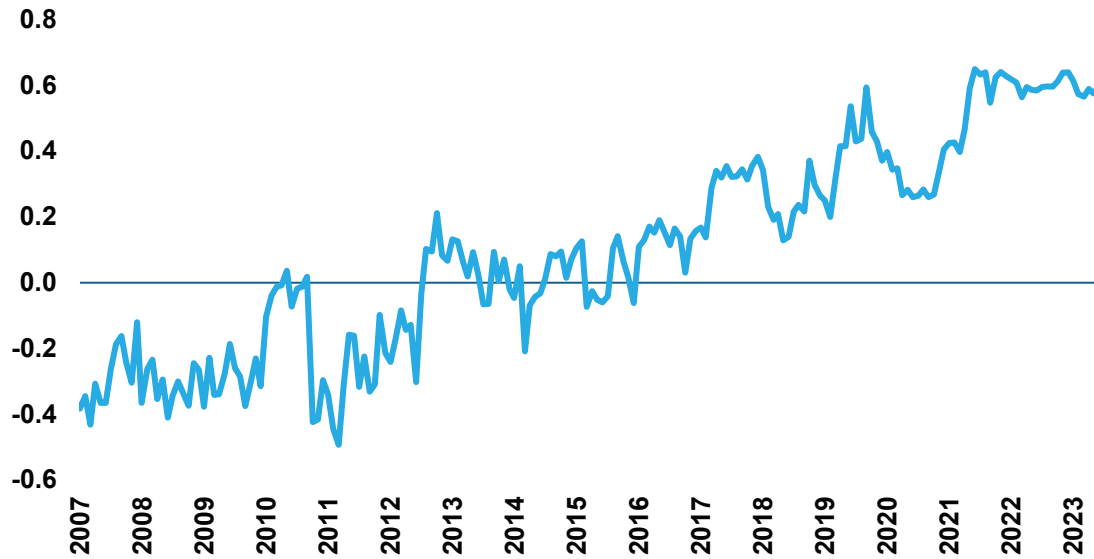


FIGURE 3
Convexity of the Bloomberg Aggregate Index

Source: Bloomberg, as of May 31, 2024. Data pulled on June 1, 2024.
Index: Bloomberg US Aggregate.

Sector allocation

Since 2008, US Treasuries grew from roughly 25% of the core bond market to more than 40% of the market (see Figure 4). This coincided with a decrease in MBS from 40% to approximately 26% of the market over the same period. This trend is likely to continue if government deficits persist, as they would require ever greater amounts of Treasury issuance.

To a lesser extent, a similar relationship has existed with corporate and agency debt. Corporate issuers took advantage of the prolonged period of low rates to issue additional debt, and the corporate portion of the market grew from ~18% to ~25% over the same period. Meanwhile, agency debt shrank from ~14% to ~5% of the market. Corporations may be less keen to take on additional debt in a higher interest rate environment, hence the corporate share of the market may not resume its growth until rates decline.

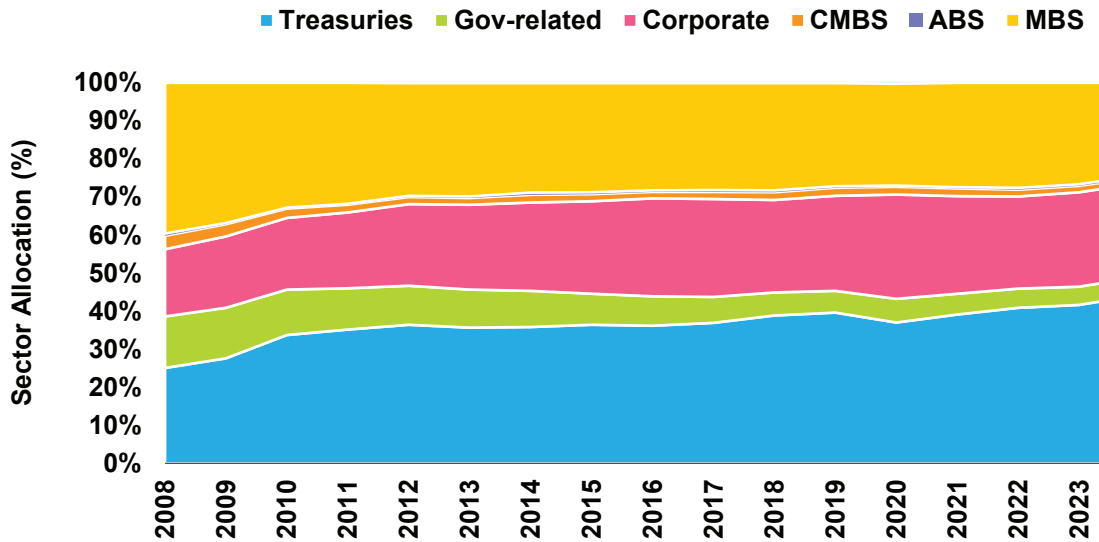


FIGURE 4
Sector Allocation of the Bloomberg Aggregate Index

Source: Barclays Live, as of May 31, 2024. Data pulled on June 21, 2024. Index: Bloomberg US Aggregate.

Credit spreads

As noted earlier, bonds not issued by the federal government tend to offer higher yields than those available from Treasuries of a similar maturity due to the perceived greater credit risk of the issuers. The difference in yield between the two is known as the credit spread, and like interest rates, credit spreads for the market tend to fluctuate. However, these oscillations tend to stay within a range rather than exhibiting long-term downward or upward trends.

As Figure 5 illustrates, the average spread for the corporate bond market has ranged from below 1% pre-GFC to as high at 6% during the GFC. The spread for securitized debt (MBS, CMBS, and ABS) has experienced similar movement, though it has not been as extreme, with the spread peaking at less than 3% during the GFC. Hence, investors in corporate bonds can typically expect a yield that is 1-2% higher than for Treasuries, while investors in securitized debt can usually expect yields that are 0-1% higher than Treasuries.

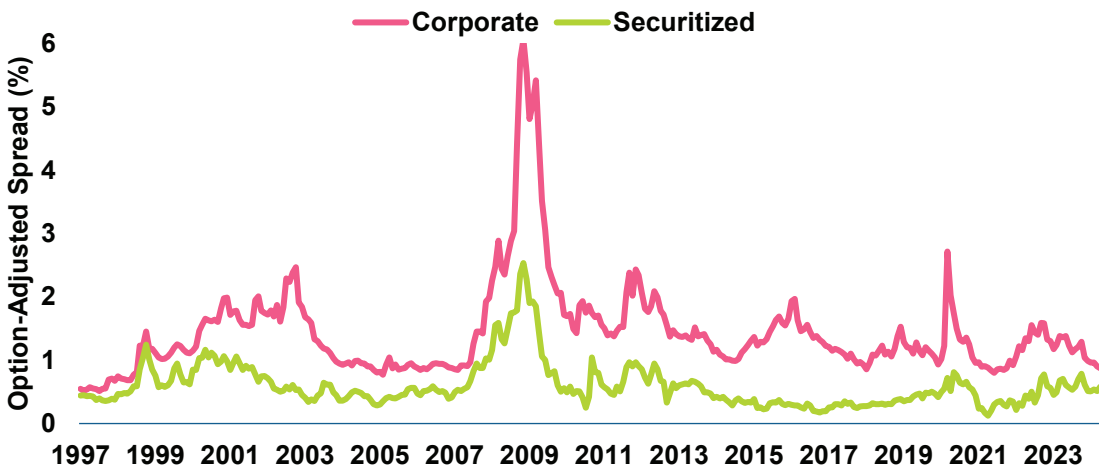


FIGURE 5
OAS of Corporate Bonds and Securitized Products

Source: Bloomberg, as of May 31, 2024. Data pulled on June 25, 2024. "OAS" refers to option adjusted spreads. Index: Bloomberg US Corporate Bond Index, Bloomberg US Securitized: MBS, ABS, and CMBS.

The role of core bonds

The role of a fund's investment grade bond portfolio is to dampen volatility, provide diversification benefits (especially during a crisis), and to offer a reliable source of liquidity.

Most institutional portfolios are dominated by equities and other riskier assets because investors expect those assets to deliver, over the long term, returns that should meet the objectives of those institutions. On the downside, higher returns from equities are generally accompanied by higher volatility, so equity-dominated portfolios may suffer severe declines during periodic, inevitable short-term crises. To mitigate some of this risk, a well-constructed portfolio can allocate to assets such as investment grade bonds. These assets can also be a source for required outflows during such periods, potentially providing equities more time to recover.

A "flight to quality" often occurs during a sharp equity market downturn, as investors shift capital from riskier assets to the relative safety of high-quality bonds. This increased demand can drive up the prices of investment grade bonds during such periods. Hence, investment grade bonds are expected to retain value or appreciate in most such periods, and they have done so historically (see Figure 6). The exception tends to be periods when equity downturns are accompanied by rising rates, as happened in the most recent cycle of increasing interest rates that began in 2022.

Historical Scenario	US Equities	Investment Grade Bonds
Post-COVID Rate Hikes	-11.6%	-15.4%
COVID-19 Market Shock	-35.0%	-0.9%
Global Financial Crisis	-45.8%	8.5%
Popping of TMT Bubble	-43.8%	28.6%
LTCM	-15.4%	1.8%
Crash of 1987	-29.5%	2.2%

FIGURE 6
Cumulative Returns
During Historical US Bear
Equity Markets

Source: Bloomberg and Meketa calculation. Returns are cumulative for the time period over which the scenario occurred. Market downturn dates are: Crash of 1987 September-November 1987, LTCM July-August 1998, Popping of TMT Bubble April 2000-September 2002, Global Financial Crisis October 2007-March 2009, COVID-19 Market Shock February 2020-March 2020, Post-COVID Rate Hikes January 2022-October 2023. US equity is proxied by the Russell 3000. Investment Grade Bonds is proxied by the Bloomberg US Aggregate Bond Index.

Correlations

Figure 7 shows the historical correlations between core bonds and two other categories of high-quality bonds, as well as with US equities. Core bonds have exhibited a consistently high correlation with long-term government bonds (averaging 0.87) and TIPS (averaging 0.78). The relationship with US equities is quite different. The correlation with stocks tends to shift between positive and negative, but it tended to be centered around zero for most of the period (averaging 0.10). However, during the period of rising rates that began in 2021, correlations with equities likewise increased.

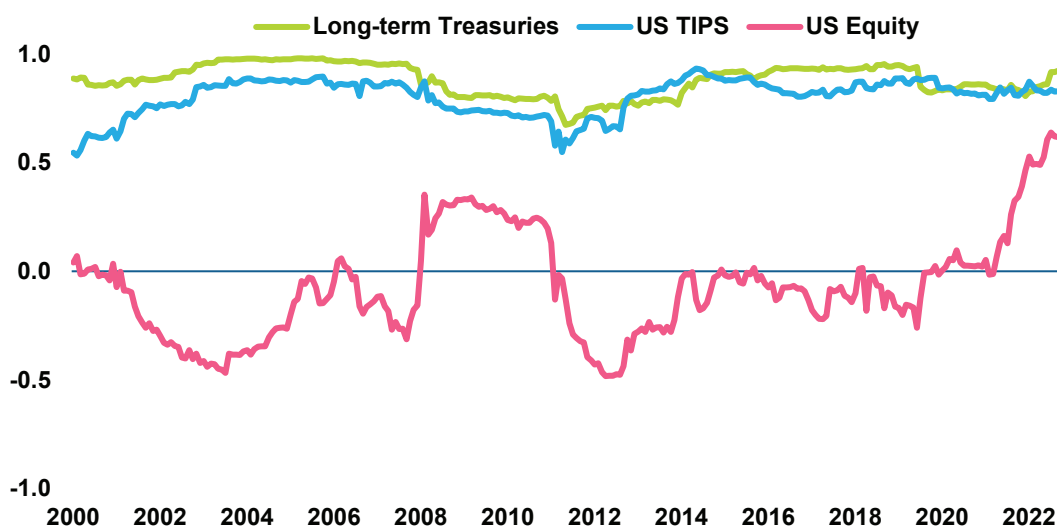


FIGURE 7
Rolling 3-Year
Correlations to
Investment Grade Bonds

Source: Investment Metrics, as of July 31, 2024. Indexes: Bloomberg US Treasury: Long Index, Bloomberg Global Inflation-Linked: US TIPS, Russell 3000, Bloomberg US Aggregate.

TIPS and long-term Treasuries can be used to complement a core bond allocation and potentially serve distinct roles. For example, an investor who seeks some inflation hedging might want to allocate to TIPS or short-term TIPS. An investor who is looking to add more of a tail-risk hedge to their core bond portfolio might be inclined to allocate to long-term Treasuries. Such allocations may include trade-offs, for example, by adding interest rate risk.

Risks

Yields (in the form of coupon returns) offer investors a cushion during periods of rising rates – the higher the yield, the thicker the cushion. As of mid-2024, the core bond market offers more substantial compensation for interest rate risk compared to its position three years prior. This is exemplified by the yield per unit of duration, a metric that gauges the risk/return tradeoff. As of May 2024, this figure stood at 0.8%, closely aligning with the long-term average of 0.9% (see Figure 8). The yield per unit of duration, typically expressed as a percentage, sheds light on the return an investment yields in relation to its duration.

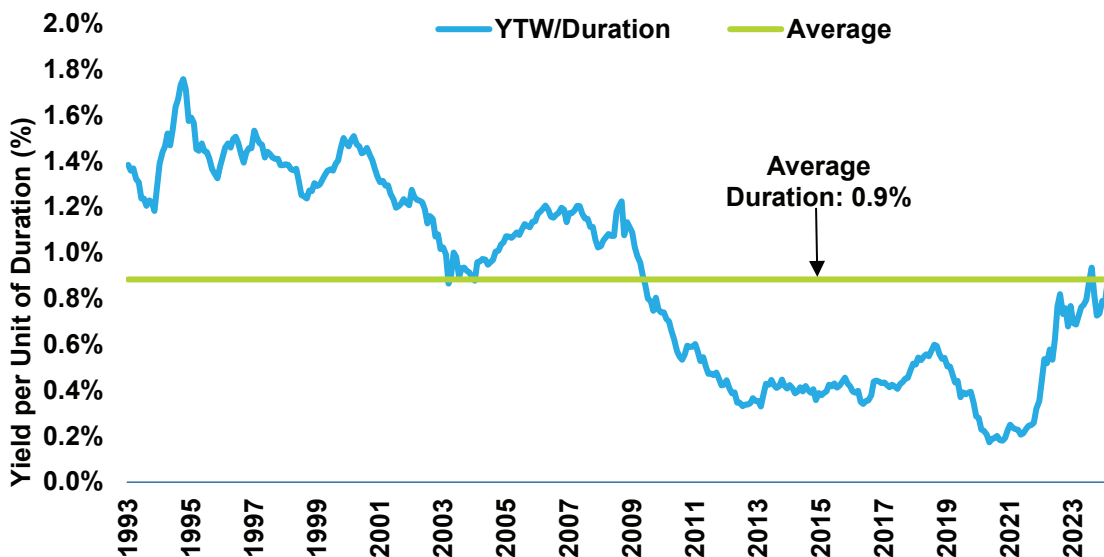


FIGURE 8
Yield per Unit of Duration
of Bloomberg Aggregate
Index

Source: Bloomberg, as of May 31, 2024. Data pulled on June 11, 2024. Index: Bloomberg US Aggregate. Average yield per unit of duration of 0.9% is over the period from March 1, 1993, to May 31, 2024.

Ultimately, the majority of core bond investors are currently facing diminished interest rate risk while simultaneously receiving more compensation for it. Still, it is important to note that other elements, including credit risk and inflation, are also vital in the returns earned in the bond market.

Active and passive management

As in most public markets, both active and passive management strategies are available to investors. Outperforming the market via security selection is arguably harder than it is in the stock market given the lower amount of return dispersion in high quality bonds relative to stocks. Hence, many active core bond managers seek to outperform by increasing the yield of their portfolio to above that of the benchmark.

The most common way investment managers achieve this is through an underweight to Treasuries and an overweight to corporate bonds. As of mid-2024, the median weights to US Treasuries and corporates for active core fixed income strategies are 26% and 30%,⁵ respectively, versus the Bloomberg Aggregate Index's 43% and 25%, respectively.⁶ Increased credit exposure may also come from an overweight to bonds further down the credit quality spectrum or that are not included in the benchmark.

⁵ Source: Meketa analysis of data from eVestment Alliance, as of August 6, 2024. Filtered by Gov: Treasury/ Sovereign Total sector and Investment Grade Corporate sector.

⁶ Source: Barclays Live, as of May 31, 2024. Index: Bloomberg US Aggregate.

Hence, most active bond managers are partially mitigating interest rate risk by taking on greater credit risk. This should be a concern to some investors in any environment, particularly those investors who treat their core bond portfolios as their "anchor to windward." A bond portfolio that is highly exposed to credit risk is unlikely to provide the desired level of hedge in an equity bear market. In fact, it will be even more sensitive to the prevailing risk in most institutional portfolios, namely, equity risk. As shown in Figure 9, historical manager outperformance in the core bond asset class has been significantly affected by macro events.

Two of the largest periods of underperformance by the median active manager have been associated with major bear markets (i.e., the GFC and the outbreak of COVID), illustrating the prevalence of credit risk in the typical actively managed core bond portfolio.

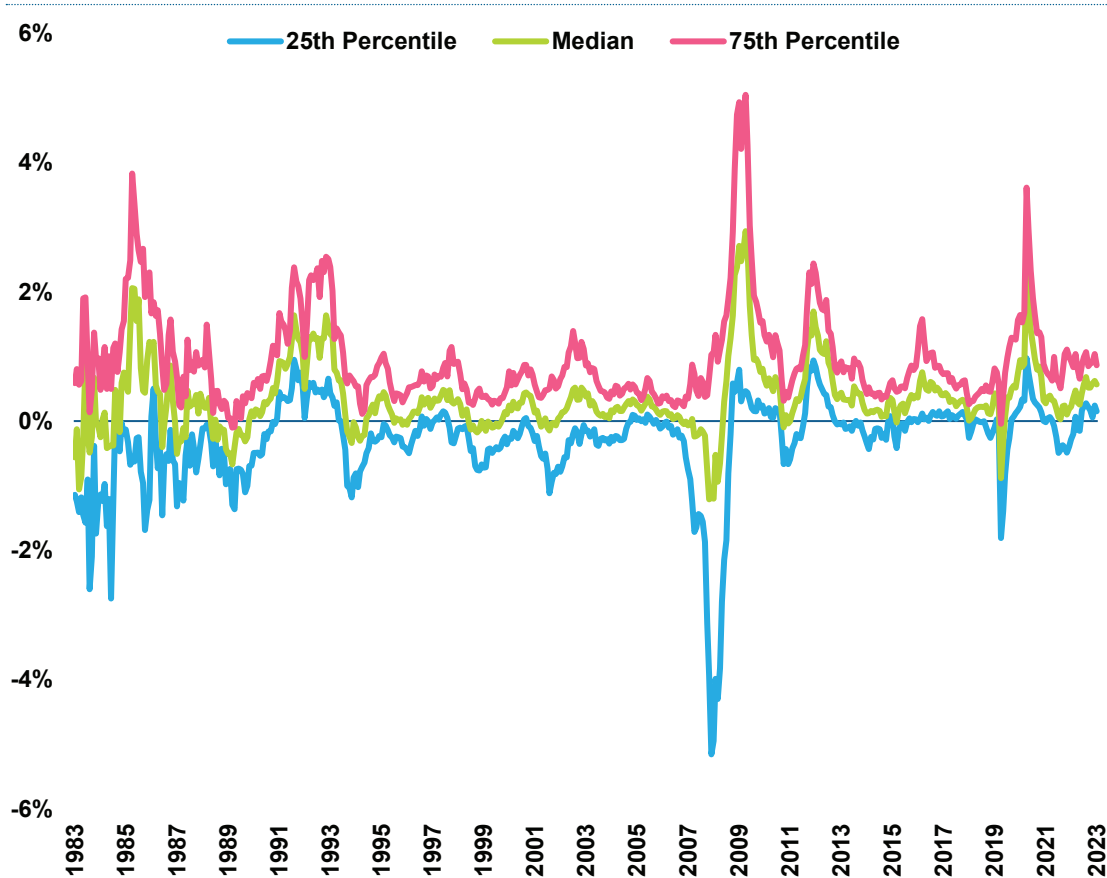


FIGURE 9
Rolling 12-month
Outperformance of Active
Core Bond Managers

Source: Meketa analysis of data from eVestment Alliance. Data as of December 31, 2023. Gross of fees. Outperformance represents the geometric mean of manager returns over one year minus the benchmark return for the period where data is available. Inception date starts when there are at least 10 funds to evaluate and goes through December 31, 2023. Due to the small number of funds at inception, some of the asset classes' early year relative returns may be skewed. Outperformance is defined as the geometric mean of the manager performance minus the benchmark performance (of the Bloomberg US Aggregate) over a rolling 12-month period. For more information see Meketa's Manager Alpha Whitepaper.

The yield advantage has, on average, paid off in the long run for these managers. The median outperformance of the eVestment investment grade bonds (i.e., core bond) universe since inception was 35 basis points. Importantly, this outperformance is gross of fees. The typical level of fees consumes most of this margin, as the median "rack rate" fee is 28 basis points (see Figure 10). Fees for passively managed portfolios typically run in the low single digits. However, depending on the situation and size of the mandate, some investors may be able to negotiate a lower fee for either active or passive portfolios.⁷

⁷ Traditionally, active management fees are often much higher than passive management fees, so an active manager would have to outperform the benchmark by its higher fee for the investor to break even.

Median Gross Excess Annualized Return (bp)

Median Fee on \$100 M

Median Net Excess Annualized Return (bp)

+35

28

+7

Interquartile spreads can be interpreted as how much potential value lies in selecting superior active managers within each asset class. In the past ten years, core bonds' interquartile spread of 0.9% was lower than US large cap's 4.8% and US small cap's 6.3% (see Figure 11). This may imply that core bonds provide less opportunity to generate manager selection alpha compared to both small and large cap US equity.

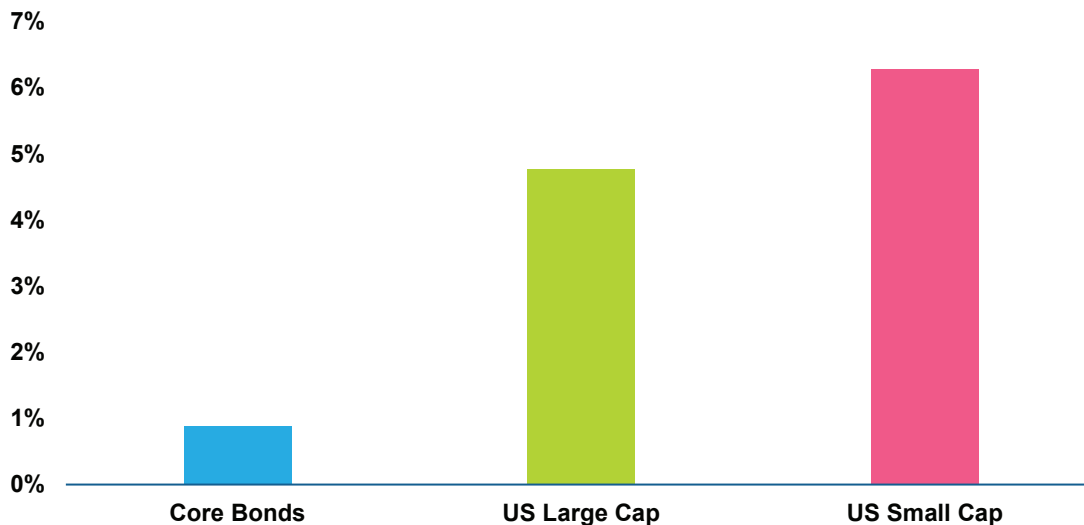


FIGURE 10
Manager Alpha and Fees for Core Bonds

Source: Meketa analysis of data from eVestment Alliance. Data as of December 31, 2023. Gross of fees. Outperformance represents the geometric mean of manager returns over one year minus the benchmark return for the period where data is available. Inception date starts when there are at least 10 funds to evaluate and goes through December 31, 2023. Outperformance is defined as the geometric mean of the manager performance minus the benchmark performance (of the Bloomberg US Aggregate) over a rolling 12-month period. Median sliding fee on \$100mn for all product types as of June 2024. Backdated fee information is unavailable."

FIGURE 11
Trailing 10-Year Interquartile Spreads

Source: Meketa analysis of data from eVestment Alliance. Gross of fees. Data is for the trailing ten years as of December 31, 2023. Interquartile spreads are evaluated by taking the difference between the geometric average of the 75th percentile return and the 25th percentile over a rolling 12-month period.

Conclusion

The core bond market has witnessed a remarkable transformation in recent decades. The shift in monetary policy and the subsequent rise in interest rates to post-GFC highs have reshaped the investment landscape. Investors are now navigating a market with altered sector allocations within the Bloomberg Aggregate Index, which demands a strategic approach to portfolio management.

In response to these changes, investors have options: they can increase their US Treasury exposure, reduce portfolio duration, or maintain their current positions while staying alert to risks. The decision hinges on balancing the pursuit of yield against the backdrop of an evolving market. Despite a recent decrease, the duration of the Bloomberg Aggregate Index remains elevated, signaling the need for ongoing caution.

Looking ahead, the investment community must remain adaptable and informed. As the bond market continues to adjust to economic indicators and policy changes, a prudent investment strategy may be key to capitalizing on the opportunities that core bonds offer.

Structuring an investment grade bond portfolio to track the Bloomberg Aggregate Index is often an effective way for many investors to achieve diversification and stability in the broad bond market. Though not without shortcomings—mainly driven by composition drift—an investment in a portfolio resembling the Bloomberg Aggregate Index is likely to satisfy the primary goals of many bond portfolios: diversification, stability, and liquidity.

Investors should be aware of the current risk profile inherent in the investment grade bond market: low yields used to provide little compensation for the increased duration risk, but current high yields reduce duration risk to some extent, and increased credit exposure could decrease the diversifying effects of an allocation to the core bond asset class.

Appendix

Bond issues in the United States

Following the Global Financial Crisis, issuance for US Treasury and corporate securities increased significantly, partly due to monetary and fiscal policy, while mortgage-related security issuance declined (see Figure 12).

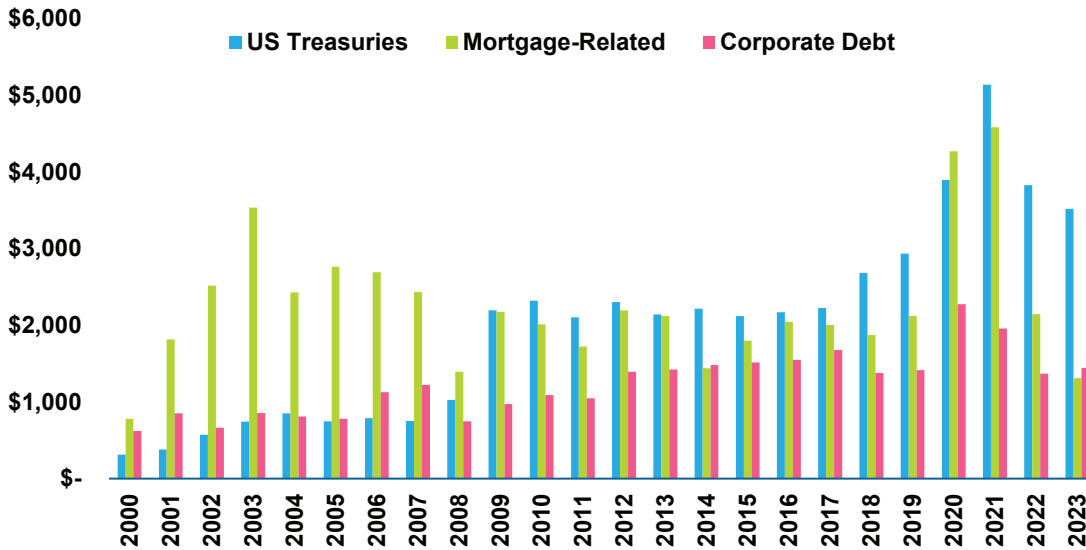


FIGURE 12
US Treasury, Mortgage, and Corporate Bond Issuance (bn USD)

Source: Securities Industry and Financial Markets Association, Fixed Income Issuance, as of December 31, 2023.

Future returns

Yields have historically been a particularly good predictor of future returns for core bond portfolios (see Figure 13). The starting yield has been a strong indicator of what returns an investor can expect from the asset class over the subsequent ten years.

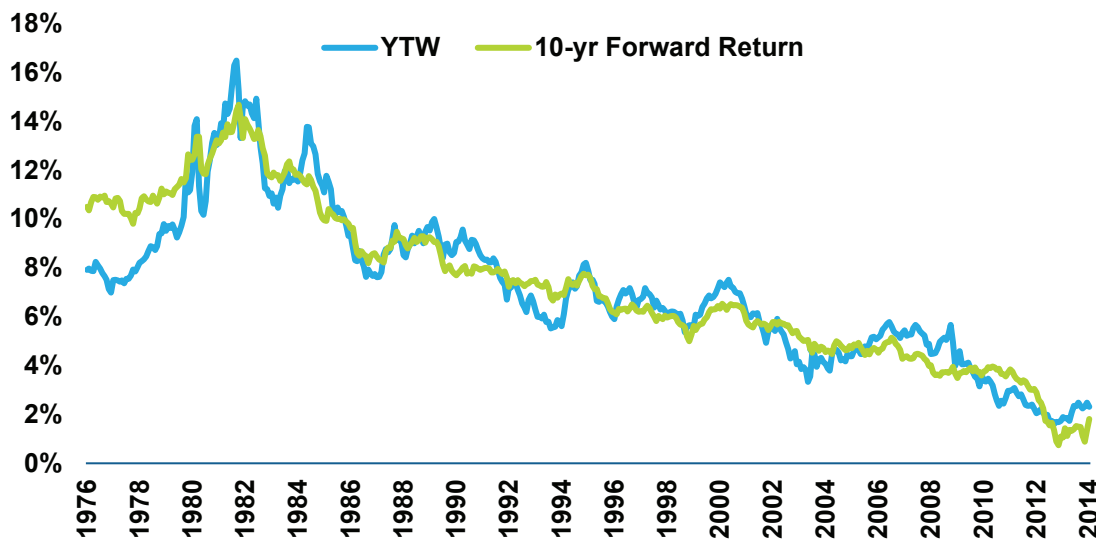


FIGURE 13
YTW and Forward Returns for Core Bonds

Data source is FRED for the 10-year Treasury yield, Investment Metrics for Core Bond performance, and Bloomberg for yield-to-worst. The Bloomberg Aggregate index was used for Core Bonds. Data is as of December 31, 2023.

Scenario	Cash	Core Bonds	US Equity
Post-COVID Rate Hikes	5.48%	-15.42%	-11.60%
Covid-19 Market Shock	0.43%	-0.94%	-34.96%
Global Financial Crisis	2.65%	8.52%	-45.80%
Popping of the TMT Bubble	9.88%	28.56%	-43.75%
LTCM	0.77%	1.84%	-15.37%
Rate Spike	3.90%	-2.92%	1.31%
Early 1990s Recession	3.28%	3.78%	-14.70%
Crash of 1987	1.40%	2.17%	-29.53%
Volcker Recession	2.92%	-8.71%	-4.07
Stagflation	13.50%	7.92%	-42.63

FIGURE 14
Scenario Analysis

Source: Bloomberg and Meketa calculation. Returns are cumulative for the time period over which the scenario occurred. Market downturn dates are: Post-COVID Rate Hikes Jan 2022-Oct 2023, COVID-19 Market Shock Feb 2020-Mar 2020, Global Financial Crisis Oct 2007 - Mar 2009, Popping of the TMT Bubble Apr 2000-Sep 2002, LTCM Jul - Aug 1998, Rate spike 1994 Calendar Year, Early 1990s Recession Jun - Oct 1990, Crash of 1987 Sep - Nov 1987, Volcker Recession Jan - Mar 1980, Stagflation Jan 1973 - Sep 1974. Indices include: Bloomberg US Treasury Bill Index, Bloomberg US Aggregate Bond Index, Russell 3000.

Scenario	Cash	Core Bonds	US Equity
Inflation meaningfully higher than expected	-0.05%	-3.18%	-9.43%
Low growth and low inflation	0.24%	-2.51%	-9.91%
Low growth and high inflation	0.60%	-4.33%	-13.80%
Brief, extreme inflation spike	0.62%	-1.71%	-12.20%
Extended, extreme inflation spike	0.78%	-1.28%	-17.24%

FIGURE 15
Inflation Scenario Analysis

Source: Reflects average, annualized asset class returns. These figures are from Meketa's scenario analysis based on data from Bloomberg and FRED from February 1973 to December 2023. See below for more details on and descriptions of the inflationary periods included in Meketa's scenario analysis.

Meketa's inflation scenario analysis

- Meketa's Inflation Scenario Analysis is for the period February 1973 - December 2023.
- The Scenario Analysis is based on a generalized linear regression (GLS) model that estimates the effects of realized and surprise inflation on monthly asset returns, controlling for the economic environment. The GLS model assumes a residuals autocorrelation of 1. Quadratic independent variables are added to the regression model to account for potential non-linearity between an asset class and inflation. Estimated scenario returns at the asset class level are then calculated as the expected value of asset class returns, conditional on the inflation scenario.
- Inflation is the monthly change in CPI from the 3-month rolling average CPI, surprise inflation is the difference between this month and last month's inflation rate, and GDP Growth is the percent change in GDP from the previous quarter. Inflation and GDP data are taken from the St. Louis Federal Reserve Bank's FRED database. Meketa backdated all asset class returns whose inceptions were after February 1973 with the closest available proxies.
- Inflation meaningfully higher than expected is when surprise inflation is in the 75th percentile of positive, historical surprise inflation.
- Low Growth and Low Inflation is when real GDP growth is the 25th percentile of historical GDP growth and inflation is in the 25th percentile of historical inflation.
- Low Growth and High Inflation is when real GDP growth is the 25th percentile of historical GDP growth and inflation is in the 75th percentile of historical inflation.
- Brief, extreme inflation spike is when inflation is in the 95th percentile of historical inflation and lasts for 4-8 months.
- Extended, extreme inflation spike is when inflation is in the 95th percentile of historical inflation and lasts for 12+ months.
- Indices Used: Bloomberg US Treasury Bill Index, Bloomberg US Aggregate Bond Index, Russell 3000.

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