



The power of tax-equivalent yield

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While municipal bonds are well-recognized for their tax-exempt income generation, the potential magnitude of after-tax benefit can still go underappreciated by investors. In this commentary, we explore how municipal bond tax-equivalent yields expand in high rate environments, compare favorably against taxable fixed income alternatives, and can be further maximized through active management.

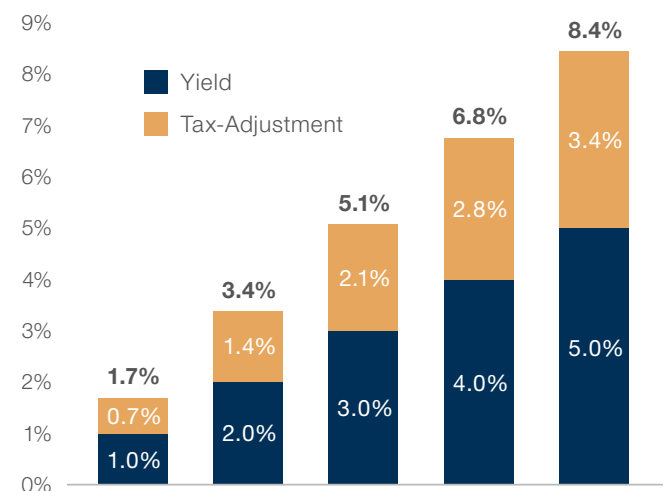
Tax-equivalent yield calculations are amplified by higher rates

Tax-equivalent yield is calculated by dividing a municipal bond investment's yield by one minus the investor's federal tax bracket, producing a yield figure that can be directly compared against taxable bonds. In effect, the muni tax-equivalent yield represents what an investor should require from a taxable yield alternative, all else equal. Throughout this piece, we will assume a top federal tax rate of 40.8% for tax-equivalent yield calculations.

In the chart below, we diagram tax-equivalent muni yields at various interest rate levels. This hypothetical illustration demonstrates how the size of the tax-equivalent yield adjustment becomes more substantial as rates increase. For example, the 1% municipal yield increases by just 0.7% on a tax-equivalent basis, while the 5% municipal yield receives a much larger boost of 3.4%.

Figure 1. Hypothetical tax-equivalent yields at top tax bracket

The benefit of tax-exempt income increases at higher rates

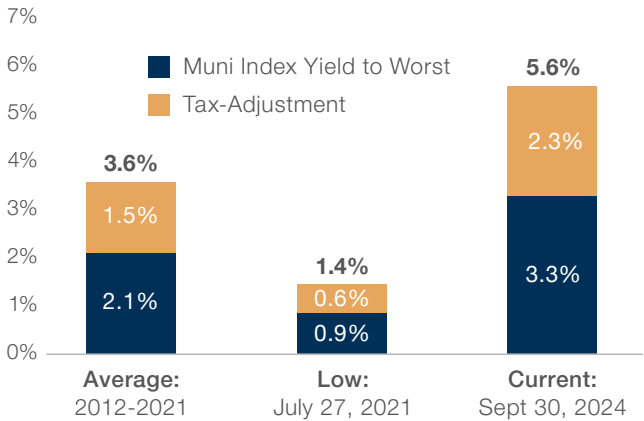


Source: Barclays, as of 9/30/24. Tax-equivalent yield based on 40.80% tax level (37% highest federal tax bracket plus the 3.8% Medicare surcharge). The taxable equivalent yield of a hypothetical yield is calculated as: hypothetical yield ÷ 1 minus 0.408.

Applying this concept to our current rate environment, we see that muni yields are now well above what has been previously available. Prior to the high rate environment enjoyed since 2022, the investment grade muni index averaged a yield of just 2.1% for the 10-year period from 2012-2021, including a low point of approximately 0.9%. Investors should consider locking in tax-exempt income streams at these higher levels while they are available.

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Figure 2. Today's tax-exempt income levels are the most attractive in years



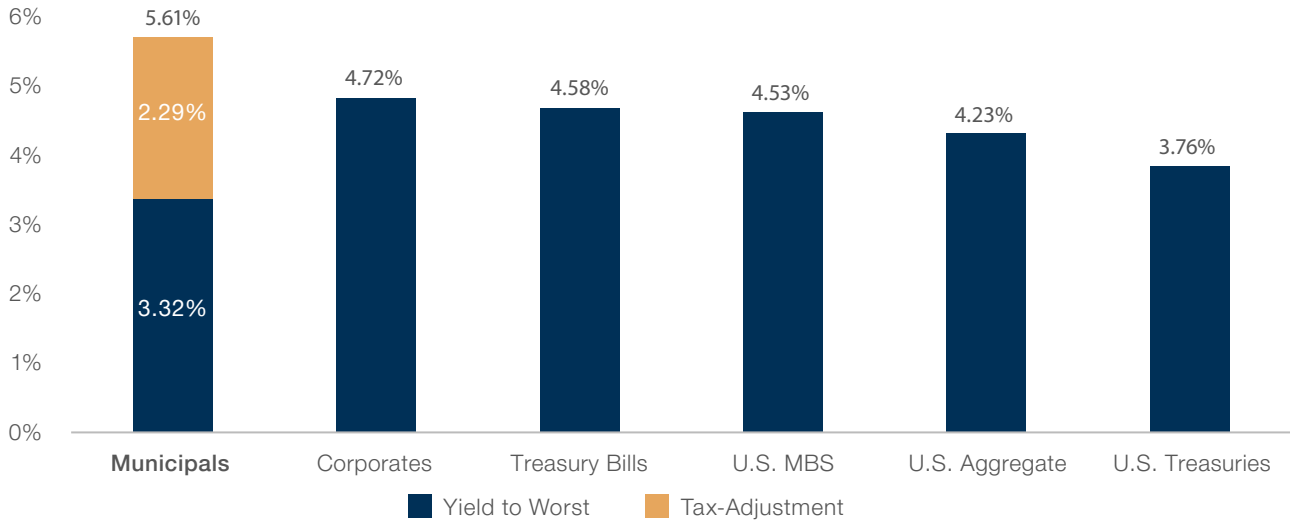
Source: Barclays, as of 9/30/24. YTW is Yield to Worst. Muni Index: Bloomberg U.S. Municipal Bond Index. An investment cannot be made directly into an index. Past performance is not a guarantee of future results. Tax-equivalent yield based on 40.80% tax level (37% highest federal tax bracket plus the 3.8% Medicare surcharge). The taxable equivalent yield of a hypothetical yield is calculated as: hypothetical yield ÷ 1 minus 0.408.

Tax-equivalent muni yields are attractive versus taxable alternatives

When we consider how municipals stack up against taxable bond markets, we again see that munis appear attractive on a tax-equivalent basis. Investment grade munis' tax-equivalent yield of 5.61% is over 130 basis points above the Bloomberg U.S. Aggregate Bond Index's 4.23%.

We can then break out the aggregate bond index further to compare municipals against various taxable markets, where we find muni tax-equivalent yields are elevated versus U.S. corporates, mortgage-backed securities, and Treasury bonds, as well as T-bills. For investors in higher tax brackets with taxable investment accounts, munis appear well-positioned from an income perspective, compared to investment grade taxable alternatives.

Figure 3. High earners benefit from tax-exempt muni income versus IG taxable fixed income



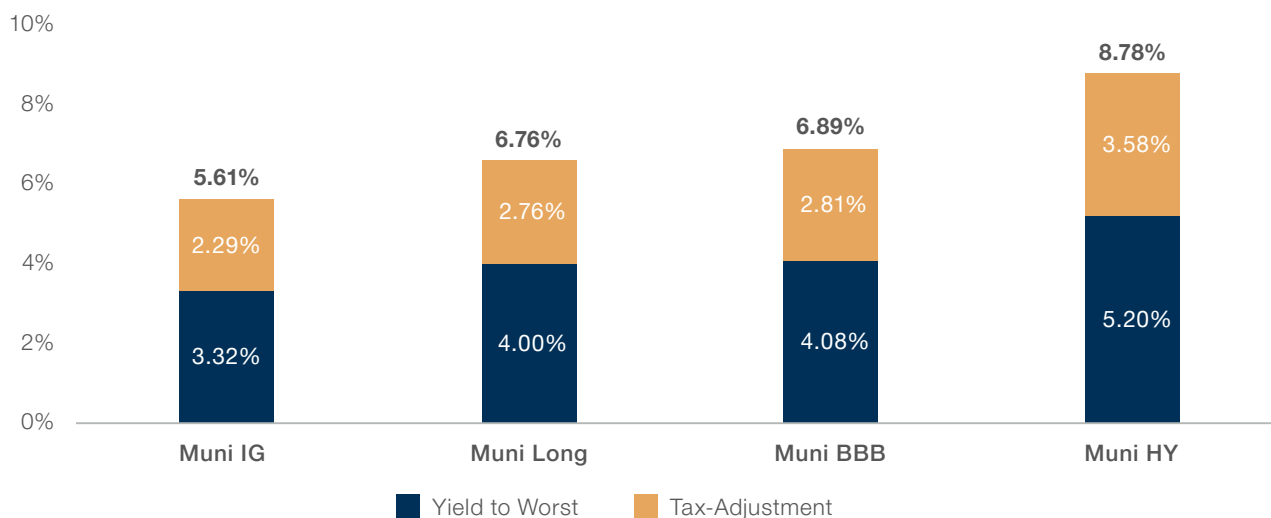
Source: Barclays, as of 9/30/24. Municipals: Bloomberg U.S. Municipal Bond Index, Corporates: Bloomberg U.S. Corporate Index, Treasury Bills: Bloomberg 1-3 Month U.S. Treasury Bill Index, US MBS: Bloomberg U.S. MBS Index, U.S. Aggregate: Bloomberg U.S. Aggregate Bond Index U.S. Treasuries: Bloomberg U.S. Treasury Index. An investment cannot be made directly into an index. Past performance is not a guarantee of future results. Treasury Securities are backed by the full faith and credit of the United States government as to payment of principal and interest if held to maturity. Interest income on these securities is exempt from state and local taxes. Tax-equivalent yield based on 40.80% tax level (37% highest federal tax bracket plus the 3.8% Medicare surcharge). The taxable equivalent yield of a hypothetical yield is calculated as: hypothetical yield ÷ 1 minus 0.408.

Sourcing attractive municipal yields beyond the index

An active approach to municipal investing can seek even greater yields than what has been demonstrated at the index level. As example, the chart below shows that additional spread was found in longer-maturity or lower-

grade exposures, providing the potential for a significant pick-up in tax-equivalent yield. Sector allocation, yield curve positioning, and bond structure analysis may also provide potential for yield enhancement.

Figure 4: Additional yield potential can be sourced from longer maturities or lower-grade debt



Source: Barclays, as of 9/30/24. Muni IG: Bloomberg U.S. Municipal Bond Index, Muni Long: Bloomberg Municipal Bond Long Term Index, Muni BBB: Bloomberg Municipal Baa Index Muni HY: Bloomberg High Yield Municipal Index. An investment cannot be made directly into an index. Past performance is not a guarantee of future results. Tax-equivalent yield based on 40.80% tax level (37% highest federal tax bracket plus the 3.8% Medicare surcharge). The taxable equivalent yield of a hypothetical yield is calculated as: hypothetical yield ÷ 1 minus 0.408.

Rely on skilled active managers

Professional active managers such as MacKay Municipal Managers employ potential market expertise, credit research, and relative value analysis to seek opportunities for additional return.

We believe it may be prudent to lock in current attractive tax-exempt municipal yields, which for high earners can equate to mid to high single-digit tax-equivalent income streams.

ABOUT RISK:

Municipal securities risks include the ability of the issuer to repay the obligation, the relative lack of information about certain issuers, and the possibility of future tax and legislative changes, which could affect the market for and value of municipal securities. Securities that are liquid at the time of purchase may subsequently become illiquid due to events relating to the issuer of the securities, market events, economic conditions, or investor perceptions.

Bonds are subject to interest-rate risk and can lose principal value when interest rates rise. Bonds are also subject to credit risk, in which the bond issuer may fail to pay interest and principal in a timely manner. A portion of the municipal bond's income may be subject to state and local taxes or the alternative minimum tax. Events in California, including fiscal or political policy changes, tax base erosion, and state constitutional limits on tax increases, budget deficits, and other financial difficulties, are likely to affect investments in municipal bonds issued by or on behalf of the State of California and its political subdivisions, agencies, and instrumentalities. California may experience financial difficulties due to the economic environment. Any deterioration of California's fiscal situation and economic situation of its municipalities could cause greater volatility and increase the risk of investing in California.

DEFINITIONS:

Active management is the use of a human element, such as a single manager, co-managers or a team of managers, to actively manage a fund's portfolio. Active management strategies typically have higher fees than passive management. **Yield to Worst** is the lowest potential yield that can be received on a bond without the issuer actually defaulting and is calculated by making worst-case scenario assumptions on the issue by calculating the return that would be received if the issuer uses provisions, including prepayments, calls, or sinking funds. Index results assume the reinvestment of all capital gain and dividend distributions. An investment cannot be made directly into an index. **Bloomberg U.S. Aggregate Bond Index** is a broad-based benchmark that measures the investment-grade, U.S. dollar-denominated, fixed-rate taxable bond market, including Treasuries, government-related and corporate securities, mortgage-

backed securities (agency fixed-rate and hybrid adjustable-rate mortgage pass-throughs), asset-backed securities, and commercial mortgage-backed securities. **Bloomberg U.S. Corporate Index** is publicly issued U.S. corporate and specified foreign debentures and secured notes that meet the specified maturity, liquidity, and quality requirements.

Bloomberg U.S. Treasury Index is public obligations of the U.S. Treasury with a remaining maturity of one year or more. Must be a U.S. Treasury security. The **Bloomberg U.S. MBS Index** covers the mortgage-backed pass-through securities of Ginnie Mae (GNMA), Fannie Mae (FNMA), and Freddie Mac (FHLMC). Must have a weighted average maturity (WAM) of at least one year. Must have at least \$300 million par amount outstanding. Must be fixed rate. **Bloomberg U.S. Municipal Bond Index** is considered representative of the broad market for investment-grade, tax exempt bonds with a maturity of at least one year. Bonds subject to the alternative minimum tax or with floating or zero coupons are excluded. **Bloomberg High Yield Municipal Index** is an unmanaged index of municipal bonds with the following characteristics: fixed coupon rate, credit rating of Ba1 or lower or non-rated using the middle rating of Moody's, S&P, and Fitch, outstanding par value of at least \$3 million, and issued as part of a transaction of at least \$20 million. In addition, the bonds must have a dated-date after December 31, 1990 and must be at least one year from their maturity date. The **Bloomberg Municipal Baa Index** uses a rule-based methodology. A well-defined set of rules has been established to minimize arbitrary exclusion of securities, assure that the issues included have reasonable trading availability, and allow for maintenance of complete market data. This approach ensures that the Baa Municipal Bond Index is consistent, objective, replicable, reliable, and that it is representative of the marketplace. The **Bloomberg Municipal Bond Long Term Index** is a rules-based, market-value-weighted index engineered for the long-term tax-exempt bond market. To be included in the index, bonds must be rated investment-grade (Baa3/BBB- or higher) by at least two of the following ratings agencies: Moody's, S&P, Fitch. The **Bloomberg 1-3 Month U.S. Treasury Bill Index** (the "Index") is designed to measure the performance of public obligations of the U.S. Treasury that have a remaining maturity of greater than or equal to 1 month and less than 3 months.



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