nuveen
A TIAA Company

May 2024

Enhance a municipal bond portfolio using leverage

Municipal bond investors typically seek to maximize both tax-exempt income and total returns. Skilled managers employing leverage may improve the chances of achieving those goals. While recent market conditions have compressed the income earned from using leverage, those conditions may be setting markets up for attractive upside over the long term.

FUNDS CREATE LEVERAGE BY BORROWING AT SHORT-TERM RATES

Financial leverage is created whenever a common shareholder in a fund has investment exposure (both reward and risk) equivalent to more than 100% of his or her investment capital. Funds create leverage by borrowing at short-term rates or issuing preferred shares that pay dividends at short-term rates, then using that money to invest in bonds that are generally paying higher long-term interest rates, or by investing in leveraged securities.

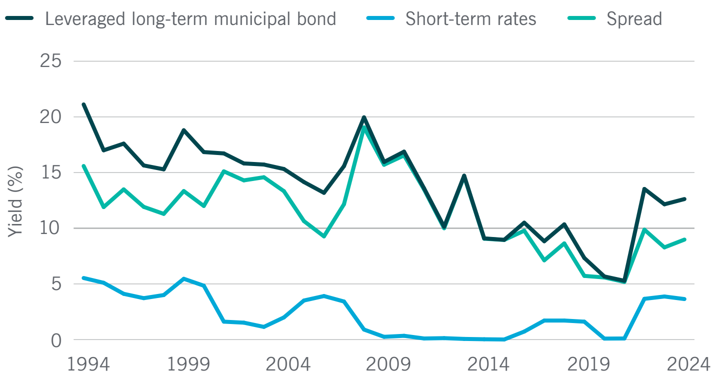
The intent is to create a positive difference between the longer-term rate earned and the short-term cost of borrowing. A positive difference between the two could help increase returns and income. If the difference is negative, or even close to level, leverage may hurt shareholder returns and distributions.

LEVERAGE CONTINUES TO BENEFIT INVESTORS

U.S. Federal Reserve interest rate hikes have kept short-term rates elevated, which has increased the cost of leverage and decreased yields generated from leveraged positions. Nevertheless, leveraged bonds may still provide excess yields over funding costs, producing incremental income that contributes positively to total return.

For example, a long-term AA rated municipal bond, leveraged 3:1, currently yields just over 12%. The trend over time has been lower yields and lower spreads relative to funding costs as short-term rates increase, but leveraged yields remain positive beyond funding costs.

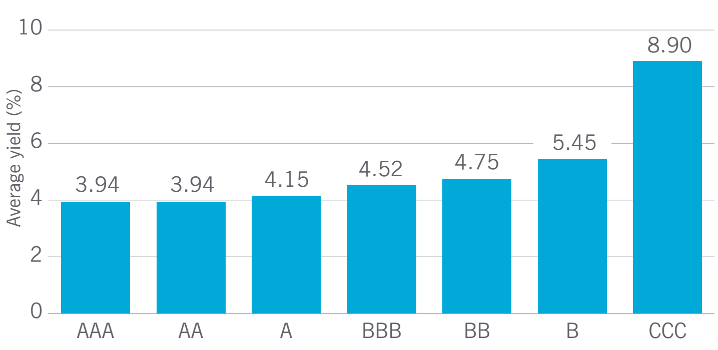
Figure 1: Leveraged yields have trended lower, but remain positive



Source: Bloomberg, L.P., 31 Dec 1994 – 31 March 2024. **Performance data shown represents past performance and does not predict or guarantee future results. Representative indexes: municipal bond:** Bloomberg Municipal Long Bond Index; **short-term rates:** Securities Industry and Financial Markets Association (SIFMA).

To generate yields similar to leveraged long-term AA rated bond yields, an investor would need to move much lower in credit quality, which would increase the portfolio's credit risk. Furthermore, high-grade bonds are highly liquid, allowing an active manager to quickly adjust leverage in response to changing market conditions.

Figure 2: Generating yields similar to leveraged yields would require moving lower in credit quality



Data source: Bloomberg, L.P., 31 March 2024. **Performance data shown represents past performance and does not predict or guarantee future results.** Representative index: Bloomberg Municipal Universal Index, 25- to 30-year maturities.

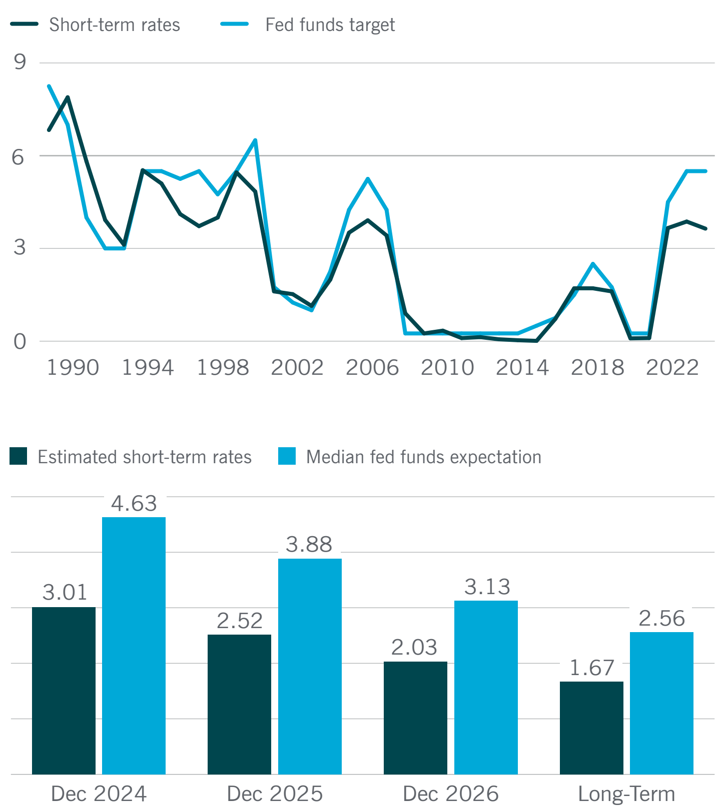
WE SEE OPPORTUNITY AS THE FED FUNDS RATE DECLINES

While today's lower incremental income levels may make leverage less appealing, our long-term view is optimistic. A potential decrease in the fed funds rate would likely lead to a decline of the Estimated short-term rate. Such a decline would increase the relative yields of leveraged bonds by reducing funding costs.

A declining rate environment would further benefit a portfolio, as the additional bond exposure would likely generate increased total returns. With short-term rates at recent highs, now may be an opportune time for investors to consider taking advantage of the potential upside of lower front-end rates.

Figure 3: A declining rate environment would increase the relative yields of leveraged bonds

Rates (%)



Data source: Bloomberg, L.P., 31 March 2024. **Performance data shown represents past performance and does not predict or guarantee future results. Representative indexes: fed funds target:** Federal Fund Target Rate Index; **short-term rates:** Securities Industry and Financial Markets Association (SIFMA). Estimated SIFMA rate based on historical beta of SIFMA versus the fed funds rate.

A MANAGER'S SIZE AND SCALE MATTERS

Investment managers with broad market presence and sophisticated risk management capabilities may be more likely to use leverage as a means of adding value for clients' portfolios. Adequate market access allows a manager to source higher yielding bonds while a large market presence provides extensive counterparty relationships that allow the flexible use or wind down of leverage as market conditions evolve.

Nuveen uses tender option bonds (TOBs) for portfolio management goals such as adding opportunistic exposure to a certain bond sector or portion of the municipal bond yield curve, and/or to create long-term, strategic leverage exposure for the overall fund.

TOBs are special purpose trust investments that create leverage by borrowing primarily from money market funds or other cash-like investors and using the funds to purchase high-quality municipal bonds. A manager can adjust each characteristic of a TOB — coupon, credit, liquidity, etc. — to support the ongoing issuance of any TOB amount. Using high-grade bonds may also allow Nuveen to increase underlying yields of the portfolio by reinvesting into higher yielding bonds as market rates increase.

While leverage may magnify the volatility of returns, TOBs increase a portfolio manager's flexibility in managing investments, as well as boost income and return potential. A TOB trust can be terminated relatively easily if a manager no longer sees value in leverage. Nuveen has processes, procedures and investment teams in place to mitigate these risks for fund shareholders. When employed prudently by a skilled manager, leverage may continue to benefit investors seeking to maximize income and return potential.

For more information, please visit nuveen.com.

nuveen
A TIAA Company

GWP-3558646PG-Y0324P 1426228