

Understanding

leverage in closed-end funds

Most closed-end funds use leverage in an effort to enhance the fund's return, income or both. On the following pages we provide an overview of how leverage works, strategies used to create leverage and their inherent costs, as well as the potential benefits and risks that leverage entails.

Why are closed-end funds well-suited for leverage?

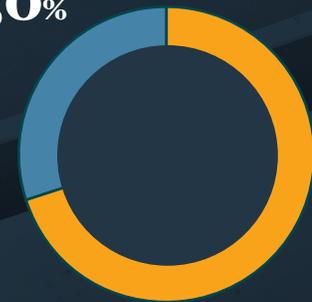
A closed-end fund (CEF) raises capital by selling a fixed number of shares at one time through an initial public offering (IPO). Once the initial capital is raised, the fund is “closed” and typically no longer directly offers its shares for sale. Instead, following its IPO, the fund’s shares trade on an exchange, such as the NYSE or the NASDAQ. Unlike a typical mutual fund, CEF shares are neither created nor redeemed in response to investor activity, which means the fund is better able to maintain a steady asset base.¹

Regulations limit the ratio of a fund’s leverage to its total assets, and the relatively steady asset base of a CEF makes staying within that ratio easier and more consistent. For this reason, leverage is generally more prevalent in CEFs than in other retail investment products.

Leverage in closed-end funds

Not leveraged

30%



Leveraged

70%

As of 09/06/2024
Source: Morningstar

Leverage seeks to benefit from the difference or “spread” between short-term and longer-term rates



Leverage generally entails borrowing at lower, short-term interest rates and investing the proceeds in longer-term securities which typically have higher rates of return, increasing the fund’s investment exposure and potentially, its income and return.

For illustrative purposes only. Assumes an upward sloping yield curve where short-term rates are lower than long-term rates. If short-term rates are higher than long-term rates, leverage can be detrimental to returns. There is no assurance that a fund’s leveraging strategy will be successful.

¹ Relative to investments that receive new cash and redemption requests each day.

Why do CEFs use leverage?

CEFs use leverage in an effort to enhance a fund's income and return. It's important to note that leverage magnifies portfolio performance, whether positive or negative:

- If the underlying portfolio return is positive, a leveraged fund typically will have higher returns than an unleveraged fund with the same portfolio.
- Conversely, if the underlying portfolio return is negative, a leveraged fund will have greater losses than an unleveraged version.

The hypothetical example below shows how leverage can magnify a closed-end fund's returns. It's worth noting that historically, leverage has often delivered incremental income that more than compensated for the associated cost and added volatility. What's more, a long-term view is important to realizing the potential positive results leverage is intended to provide.

Leverage can magnify a portfolio's performance

	Unleveraged fund	Leveraged fund
Net assets (\$millions)	\$1,000	\$1,000
Shares outstanding (millions)	100	100
NAV	\$10.00	\$10.00
Leverage (\$millions)	\$0	\$500
Managed assets (\$millions)	\$1,000	\$1,500
Leverage ratio (managed assets - net assets)/ total assets	0%	33%
Effects of a 5% increase in managed assets		
Increase in managed assets	\$50	\$75
New managed assets	\$1,050	\$1,575
New net assets	\$1,050	\$1,075
New NAV	\$10.50	\$10.75
Resulting return	5.00%	7.50%
Effects of a 5% decrease in managed assets		
Decrease in managed assets	-\$50	-\$75
New managed assets	\$950	\$1,425
New net assets	\$950	\$925
New NAV	\$9.50	\$9.25
Resulting return	-5.00%	-7.50%

For illustrative purposes only. Managed assets typically refers to the total assets of the fund, including assets attributable to the use of leverage, minus the sum of its accrued liabilities (other than fund liabilities incurred for the express purpose of creating leverage). Net assets typically refers to the fund's managed assets minus the value of the fund's assets attributable the leverage.

How does a CEF leverage itself?

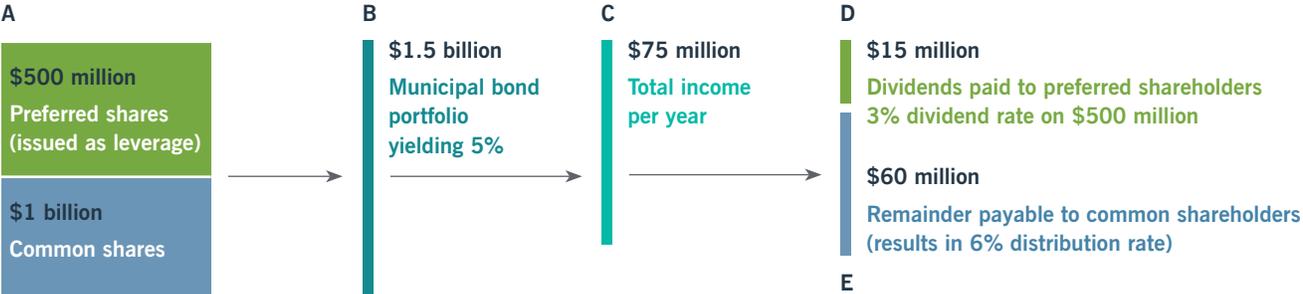
To create leverage, a CEF raises capital by borrowing at short-term rates, then uses the proceeds to make additional investments for its portfolio. The fund may also leverage itself by issuing senior securities (preferred shares of the fund) that pay variable or fixed dividends at short-term rates. Holding certain investments within the portfolio – portfolio leverage – is another leverage strategy.

The primary costs associated with leverage are ongoing dividend and interest expenses, but there may also be expenses for issuing or administering leverage. A fund’s leverage strategy is successful when, after considering the associated costs, common shareholders obtain higher distributions or total return than they would have without leverage.

While leverage may help increase distributions and return potential for the fund, it also increases the volatility of the fund’s net asset value (NAV), and potentially increases volatility of its distributions and market price as well.

An example of leverage*

Illustration assumes a 5% yield on the bond portfolio and 3% dividend rate (the cost of leverage) required by the fund’s preferred shares issued as leverage.



- A Fund issues common shares first, then leverages itself by issuing preferred shares that pay short-term dividend rates
- B Combined proceeds are invested in the portfolio strategy
- C Combined portfolio generates income*
- D Preferred share dividends are the main cost of leveraging and must be paid first
- E Remaining fund income is paid to common shareholders

* The chart is a hypothetical example for illustration purposes only and does not represent any Nuveen fund. Different economic periods, methodologies and market conditions will produce different results that may be lower than the results illustrated above. The 3% cost of leverage assumed represents the interest payable to holders of the preferred securities and doesn’t include public or private market offering and remarketing costs or the cost of liquidity guarantees or fund expenses. Any actual fund’s income may not be sufficient to make leveraging successful over certain time periods. The above chart illustrates the impact of leverage on income and does not include assumptions of loss which would lower returns.

Nuveen's core approach to leverage

Nuveen uses a variety of leverage strategies in its CEFs, and may sometimes use more than one type for a fund. Each type of leverage has characteristics that can make it well suited to specific products and market environments.

Regulatory leverage

Regulatory leverage changes a fund's capital structure by issuing preferred shares and/or debt. Both are senior to common shares in priority of claims, which means preferred share dividends and debt interest must be paid before any distributions can be made to common shareholders. The amount of regulatory leverage is limited by the Investment Company Act of 1940 to a maximum of 50% and 33 1/3% of overall fund assets for preferred shares and debt, respectively, at the time of issuance.

DEBT (BORROWINGS)

Debt commonly involves a loan or other debt arrangement with a bank or financial institution to the fund. The fund may also issue debt in public or private markets. The cost of debt leverage is considered interest expense, and is reported as part of the fund's overall expenses. Interest costs can be matched against certain types of fund income, potentially reducing overall tax liabilities for common shareholders.

Debt leverage may be suitable if the fund's strategy is expected to experience meaningful capital appreciation or volatility over time, since borrowings are relatively easy to adjust.

PREFERRED SHARES

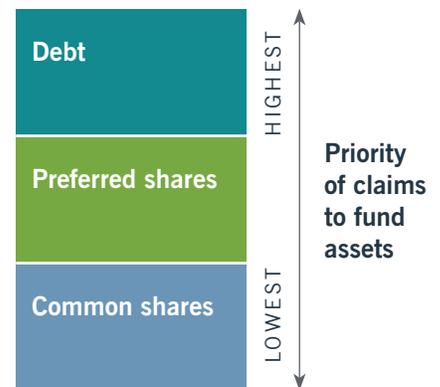
The cost of preferred-share leverage is mainly the dividend rate demanded by preferred shareholders. Historically, CEF preferred share dividend rates are similar to other short- to intermediate-term rates, and may be fixed or floating. Dividends usually receive the same tax treatment as the fund's underlying portfolio income, so preferred shares are often used for municipal bond funds.

Preferred shares often seek ratings from national rating agencies, which can affect dividend rates: shares with higher credit ratings typically pay lower dividend rates, and the cost of leverage is lower.

Portfolio leverage

Certain securities are inherently leveraged; when a fund buys them for its portfolio they are often referred to as portfolio leverage. Examples include inverse floating rate securities issued by Tender Option Bond trusts, and certain futures, forwards and swaps. These investments give the fund investment exposure that is economically greater than the amount invested. Portfolio leverage may offer lower costs, more efficient implementation, or both.

Priority of payment



Managing the risks associated with leverage

Leveraging a CEF introduces additional risks. While historically leverage has often increased returns, optimal results depend on a fund manager's ability to use tools and strategies that can increase the fund's likelihood of success.

Nuveen's integrated leverage management processes are designed to mitigate risks and build a foundation for potential long-term success of the leveraged fund. These include:

- Leveraging funds that invest in asset classes or strategies Nuveen believes offer the greatest potential to benefit from leverage over the long term.
- Setting internal operating guidelines that are monitored daily, including leverage target levels and internal minimum and maximum levels that are well within regulatory and rating agency requirements.
- Managing leverage costs via swaps and hedges as needed, seeking to minimize potential volatility in future fund earnings.
- Creating new forms of leverage and expanding the set of partners who provide debt or purchase preferred shares, with a goal of reducing leverage costs.

When applied with proven investment principles and managed consistently, we believe leverage is a sound strategy that is additive to the performance of many closed-end funds.

Where to learn more about leverage in Nuveen CEFs

Nuveen publishes detailed information about leverage in its CEFs. Visit [nuveen.com/cef](https://www.nuveen.com/cef) for:

- Fund-specific leverage amounts and costs (Search by fund name or ticker)
- List of all leveraged funds and the types of leverage used (See the CEF Leverage Reference Grid)
- Our full suite of CEF offerings and which use leverage (See the Closed-End Fund Product Guide)

Key takeaways

- A CEF's structure makes it particularly well suited to use leverage.
- Most CEFs use leverage in an effort to enhance the fund's return and distributions to shareholders.
- There are many different types of leverage, each with its own features, limitations and costs.
- Leverage typically magnifies the total return of a fund's portfolio, whether that return is positive or negative.
- A long-term view is important to realizing the potential positive results leverage is intended to provide.

Why closed-end funds?



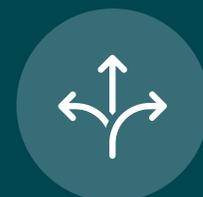
INCOME POTENTIAL

Designed for regular cash flow



DIVERSIFICATION

Via a broader investable universe



GREATER FLEXIBILITY

Through fully-invested portfolios

Why invest with Nuveen?

A trusted closed-end fund provider for more than thirty-five years, Nuveen offers advisors and investors dedicated client service with a legacy of integrity and innovation.

Market leadership

A pioneer in long-term income and cash flow solutions

Focused expertise

Active management from Nuveen and its independent investment affiliates

Deep commitment

Pursuing long term, lasting value for advisors and investors

To learn more about Nuveen CEFs:

Investors: Contact your Financial Advisor or call Nuveen at 800.257.8787.

Financial Advisors: Contact your Nuveen Advisor Consultant Team at 800.752.8700.

Visit us on the web at nuveen.com/cef.

Glossary

Capital structure is how a fund or firm finances its overall operations and growth through different sources. Debt, which may be in the form of bonds, loans, or notes, is senior to equity, which is classified as common stock (shares), preferred stock, or retained earnings.

Effective leverage represents the extent to which both the return and the risk of investing in a fund's shares is magnified. In dollar terms, it is the sum of regulatory leverage and portfolio leverage. In percentage terms, effective leverage is the ratio of this dollar sum divided by a fund's total investment exposure.

Inverse floater is the residual interest security associated with a Tender Option Bond (TOB) trust. Both the inverse floater and the complementary floating rate security are issued by the TOB trust, which is a special purpose trust created to leverage a municipal bond investment.

Investment exposure is the total economic exposure of a fund in dollar terms.

Portfolio leverage is created by when a fund purchases leveraged portfolio investments such as inverse floaters, certain forwards, or swaps, or when a fund engages in a financial arrangement, such as a reverse repurchase agreement, that increases its investment exposure.

Regulatory leverage is created when the fund borrows or issues debt or preferred shares. It is regulated by the Investment Company Act of 1940. In dollar terms, it is the sum of all debt and preferred shares issued by the fund. In percentage terms, it is the ratio of this dollar sum divided by the fund's managed assets.

Swaps are derivatives in which two parties exchange benefits or exposures of different financial investments or index movements.

Important information on risk

Neither Nuveen nor any of its affiliates or their employees provide legal or tax advice. Please consult with your personal legal or tax advisor regarding your personal circumstances.

Tax rates and IRS regulations are subject to change at any time, which could materially affect the information provided herein.

For tax-exempt funds, income is generally exempt from regular federal income tax and may be subject to state and local taxes as well as the alternative minimum tax. Capital gains, if any, are subject to tax.

There are risks inherent in any investment, including the possible loss of principal. There can be no assurance that fund objectives will be achieved. Closed-end funds frequently trade at a discount to their net asset value.

Closed-end fund historical distribution sources have included net investment income, realized gains, and return of capital.

This material is not intended to be a recommendation or investment advice, does not constitute a solicitation to buy, sell or hold a security or investment strategy and is not provided in a fiduciary capacity. The information provided does not take into account the specific objectives or circumstances of any particular investor, or suggest any specific course of action. Investment decisions should be made based on an investor's objectives and circumstances and in consultation with his or her advisors. Nuveen Securities, LLC, member FINRA and SIPC.

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