

GEARED INVESTING

An Introduction to Leveraged and Inverse Funds

Investors have long used leverage to increase their buying power and inverse strategies to profit during or protect a portfolio from declines. Leveraged and inverse mutual funds were introduced to the United States in 1993, and the first such exchange traded funds (ETFs) were launched by ProShares in 2006. Also known as “geared” funds, leveraged and inverse funds have helped to democratize investing, as they provide more ways for investors to access these strategies.

Leveraged and inverse investing is not for everyone. Geared funds are generally riskier than funds without leveraged or inverse exposure. Before investing, read each fund’s prospectus to fully understand all the risks and benefits. For a prospectus and other information, visit [ProShares.com](https://www.proshares.com) or [ProFunds.com](https://www.profunds.com).

BASICS OF LEVERAGED INVESTING

Investors commonly use leverage to seek magnified gains, to increase buying power and to overweight segments of the market.

Investors who believe a stock will go up may wish to increase their exposure to it. Through leverage, investors can increase their buying power and borrow additional exposure (sometimes double or triple the exposure) on margin. They can seek magnified gains as the stock price rises, while spending less cash to do it.

Similarly, investors who want to overweight a sector might buy a leveraged investment that magnifies exposure to the market segment. Leverage lets them overweight their holdings within that sector, while using less cash.

In both cases, leverage can also free capital resources for other purposes, such as increasing diversification or maintaining a cash reserve.

Traditionally, investors have obtained leverage in a variety of ways, each with advantages and disadvantages.

MARGIN: When brokerage firms lend investors the cash to purchase securities, it is called buying "on margin." Investors typically pay interest and are asked to keep a certain minimum level of assets in the brokerage account.

BUYING CALL OPTIONS: Options give investors the opportunity to buy an asset at an agreed-upon price during a certain time period. "Buying a call" is one way to use options to get leverage. For the price of the call contract, investors can control more shares than investing directly in the stock, earning a larger percentage profit if the stock rises. If it falls, call buyers could lose the amount paid for the contract.

BUYING FUTURES: Futures contracts obligate investors to buy or sell an asset in the future at a price level set now. As with buying calls, investors buying futures may control a larger position than they could by buying the asset itself and could earn a larger percentage of profit if the asset's value increases. Investors may be required to maintain a certain account balance, and losses could be more than the amount invested.

Increased upside potential can also mean increased downside potential. Investors should understand and accept the potential risks and costs before using leverage.

LEVERAGED FUNDS

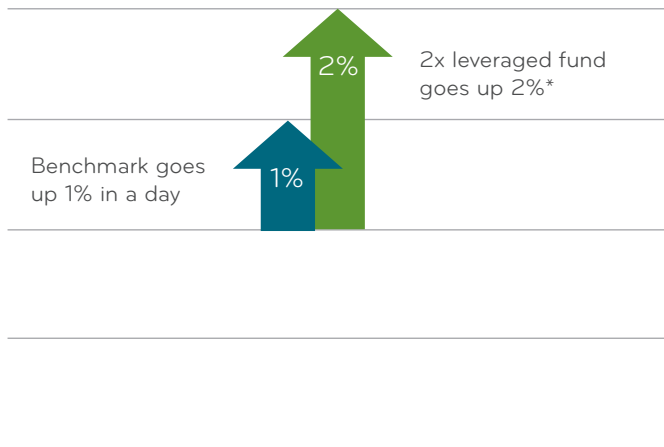
Leveraged funds are designed to magnify exposure to an index or other benchmark each day.

Leveraged funds and other leveraged investments share many similar risks. However, with funds, losses are limited to the amount invested. And, unlike the other leveraged investments described, leveraged funds generally seek to provide their target return for one day.

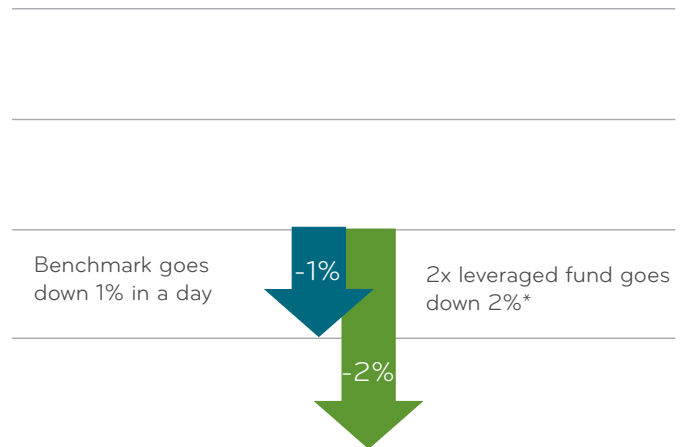
Leveraged funds track broad market indexes or benchmarks like the S&P 500® or narrow sectors and industries like biotechnology. There are funds that offer leveraged exposure to U.S. and foreign stock markets, bonds, commodities, currencies and volatility.

Many leveraged funds are designed to provide double (2x) the one-day return of a benchmark, before fees and expenses. A 2x leveraged fund, for example, should go up about 2% on a day when its benchmark goes up 1%, and it should go down about 2% when the benchmark goes down 1%.

UP DAY FOR BENCHMARK



DOWN DAY FOR BENCHMARK



* Before fees and expenses

For illustrative purposes only; not representative of an actual investment.

BASICS OF INVERSE INVESTING

Investors commonly use inverse exposure to seek profit from or to hedge against declines, or to underweight segments of the market.

Investments that provide inverse exposure are designed to increase in value as the stock or benchmark they follow falls. Investors who believe a stock will fall can buy inverse exposure, known as “shorting” the stock, in order to seek profit as it declines in value.

Investors who already own a stock they think will decline but who don't wish to sell it can buy inverse exposure to hedge against its decline. If the stock declines in value, the short investment should rise in value and at least partially offset the lost value of the falling stock.

Similarly, investors who think a sector of the market may decline can use inverse exposure to reduce, or underweight, their exposure to that sector's decline.

Investors have obtained inverse exposure in a number of ways and, like obtaining leverage, each has individual advantages and disadvantages.

SHORT SELLING: “Shorting” is a transaction that reverses the order of a financial trade—a stock or other asset is sold before it's bought. Typically, investors borrow shares, immediately sell them, and later buy them back to return to the lender. If the price has fallen in that time, investors profit from the difference (selling high and buying back low), less the borrowing costs and any dividends paid. If the price rises, investors pay more for the shares and lose money. Short selling usually requires a margin account, in which investors need to maintain a certain level of assets.

BUY PUT OPTIONS: A common way to get inverse exposure using options is to buy “puts.” Put contract owners have the option to sell an asset at an agreed-upon price during a specified time period. Like investors who sell short, they hope to profit from a decline in the value of the asset. The inverse exposure to the asset is often leveraged (i.e., -2x). For put buyers, the amount at risk if the asset's price rises is the amount paid for the contract.

SELLING FUTURES: Selling a futures contract obligates investors to sell an asset in the future at a price level set now. Investors are typically required to keep a certain amount of assets in a margin account. Investors looking for inverse exposure might sell futures contracts hoping to benefit if the asset's value goes down. These positions are typically leveraged. If the value of the asset rises, it is possible to lose more than the amount invested.

Before taking an inverse position, investors should weigh the cost of the inverse investment and how their portfolios will be affected if the stock or other securities shorted go up.

INVERSE FUNDS

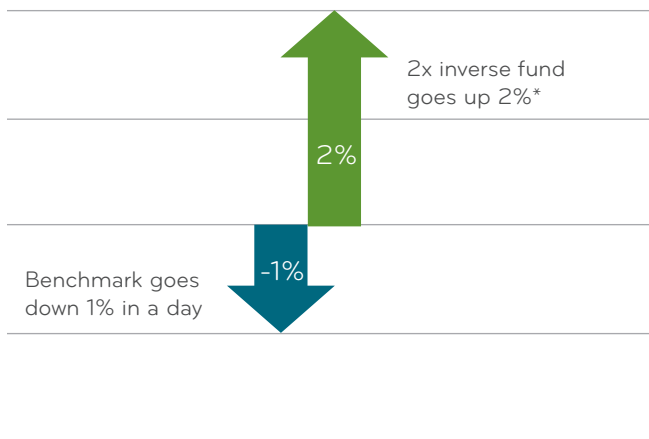
Inverse funds are designed to provide short exposure to an index or other benchmark each day.

Inverse funds and other inverse strategies share many similar risks. However, when investing in funds, losses are limited to the amount invested. Another key difference from the other inverse investments described is that inverse funds generally seek to provide their target return for one day.

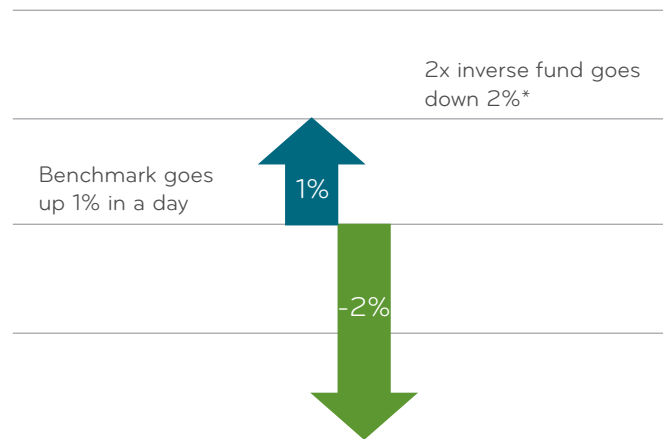
Inverse funds provide short exposure by moving in the opposite direction of an index or benchmark. There are funds that offer inverse exposure to U.S. and foreign stock markets, bonds, commodities, currencies and volatility, on both broad market indexes and narrow market segments.

Inverse funds seek the inverse—or a multiple of the inverse—of the one-day return of a benchmark, before fees and expenses. A -2x fund, for example, should go up about 2% on a day when its benchmark falls 1%. And it should go down about 2% if the benchmark rises by 1%.

DOWN DAY FOR BENCHMARK



UP DAY FOR BENCHMARK



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ONE-DAY INVESTMENT OBJECTIVES

Most geared funds aim to provide a multiple of the return of an index or other benchmark for one day, before fees and expenses.

Conventional index funds are designed to match the performance of their underlying index over any time period. Most leveraged and inverse funds, however, are designed to meet their investment objective, or their multiple, for a single day only. This is to ensure that a geared fund delivers its stated multiple for each day. Without this one-day objective, gains and losses might result in compounded returns, which could cause the fund's exposure to its index or benchmark to float unpredictably.

A geared fund's one-day performance is measured by the change in value from one net asset value (NAV) calculation to the next. For many funds, the calculation is at the close of the U.S. stock market, but some funds vary (check the fund's prospectus). Make certain to look at the right one-day period when comparing fund and benchmark returns.

To maintain their investment objectives, geared funds rebalance their exposure to their underlying benchmarks each day by trimming or adding to their positions. The table below illustrates a hypothetical 2x fund's one-day performance with and without this daily adjustment. If the fund did not adjust its exposure, investors coming in the next day would not get 2x exposure (\$220 versus \$240).

HYPOTHETICAL 2X FUND ON A DAY ITS BENCHMARK RISES 10%

Beginning Assets	\$100
Beginning Exposure	\$200 (2 x \$100)
Fund Gain	20%
Ending Assets	\$120
Ending Exposure	\$220
New Exposure Needed	\$240 (2 x \$120)

This example shows extreme benchmark movement to illustrate the point. Returns would be lower after fees and expenses. The illustration does not reflect the performance of any specific fund.

EFFECTS OF DAILY REBALANCING AND COMPOUNDING

Investors holding a leveraged or inverse fund longer than a single day are unlikely to continue to receive the fund's stated objective.

Daily fund rebalancing means that investors holding a geared fund longer-term are unlikely to continue to receive the fund's multiple times the return of the index or other benchmark. As long as the fund is held, compounding can cause the investor's exposure to the underlying benchmark to continue to deviate from the fund's stated objective. In trending periods, compounding can enhance returns, but in volatile periods, compounding may hurt returns. Generally speaking, the greater the multiple or more volatile a fund's benchmark, the more pronounced the effects can be.

The table below illustrates hypothetical returns for a 2x fund in upward trending, downward trending and volatile markets. In an upward trending period, two days of 5% gains produces a 10.25% return for the benchmark, which is better than adding up each day's individual return, and a 21% return for the 2x fund—more than twice the benchmark return. In a downward trending market, two days of 5% losses produces a -9.75% return for the benchmark, which is less than adding up each day's negative return, and -19% return for the 2x fund.

However in a volatile market, a 5% gain followed by a 5% loss does not result in a 0% return, but a negative return of -0.25% for the benchmark and a -1% return for the 2x fund. Investors using geared funds over periods longer than one day are encouraged to actively monitor their investments, as frequently as daily, and to consider a rebalancing strategy for their holdings.

	BENCHMARK RETURN	2x FUND RETURN
UPWARD TREND		
Day 1 Return	+5.00%	+10.00%
Day 2 Return	+5.00%	+10.00%
Compounded 2-Day Return	+10.25%	+21.00%
DOWNWARD TREND		
Day 1 Return	-5.00%	-10.00%
Day 2 Return	-5.00%	-10.00%
Compounded 2-Day Return	-9.75%	-19.00%
VOLATILE PERIOD		
Day 1 Return	+5.00%	+10.00%
Day 2 Return	-5.00%	-10.00%
Compounded 2-Day Return	-0.25%	-1.00%

This example shows extreme hypothetical benchmark movement to illustrate the point.

Actual benchmark movements can be very different, and returns would be lower after fees, expenses and taxes.

USING GEARED FUNDS OVER LONGER PERIODS

Although most geared funds have one-day objectives, there are several approaches investors can take to use them for longer periods.

Some investors may decide they want to hold a geared fund for more than a day. There are several strategies that either mitigate the effects of daily rebalancing and compounding or seek to take advantage of the way leveraged and inverse funds can perform over time. Each has unique risks and benefits, and it's important to monitor the investments as frequently as daily.

HOLD FOR A SHORT PERIOD: For many investors, the most direct way to mitigate the effect of holding geared funds over time is to simply limit the holding period. Remember, returns for short periods (that are longer than a day) can still differ in amount and possibly direction from the target return for the same period.

ADJUST HOLDINGS: Investors looking to approximate a fund's multiple for longer than one day may need to rebalance their holdings by increasing or decreasing the investment to maintain a desired exposure. Rebalancing may result in transaction costs and tax consequences. Of course, rebalancing can reduce the negative effects of compounding on performance, but it may reduce the positive effects as well.

SEEK TO TAKE ADVANTAGE OF COMPOUNDING: An investor who has a conviction about the volatility and direction of a benchmark may use geared funds to seek to benefit from the effect of the compounding of the daily returns of the fund—for example, when expecting a low-volatility, trending period. However, investors should consider the cost of the investment and how their portfolios will be affected if the investment goes in the opposite direction of what they were expecting.

ESTABLISHING A REBALANCING STRATEGY

Rebalancing involves periodically increasing or decreasing an investment in a fund to realign its value to the position originally intended.

To reduce the difference between a benchmark's return and a fund's return over time—sometimes called the “gap”—add to or trim the position to help keep exposure in line with the fund's stated objective. Rebalancing can buffer the negative effects of compounding, but it can also reduce the positive effects. In addition, because rebalancing involves buying and selling shares, it may require additional cash and can result in transaction costs and tax consequences.

There are two common rebalancing strategies: trigger-based and calendar-based. No matter which rebalancing approach is used, investors should monitor their positions as frequently as daily.

TRIGGER-BASED REBALANCING

CALENDAR-BASED REBALANCING

HOW IT WORKS

Rebalance each time the difference between the benchmark's return and the fund's return reaches a certain threshold, such as when the gap reaches 10%.

Rebalance at predetermined intervals such as weekly, monthly or quarterly.

ADVANTAGES

Attuned to market conditions—triggers a rebalance more frequently in volatile periods.

Convenience of knowing exactly when and how often to rebalance.

DISADVANTAGES

May require frequent rebalancing, especially with inverse funds and funds with volatile benchmarks or larger multiples.

Not attuned to market conditions, and performance may stray significantly from the benchmark return times the fund multiple between rebalances.

REBALANCING GEARED FUNDS STEP BY STEP

STEP 1: Decide when to rebalance using a trigger- or calendar-based rebalancing strategy.

STEP 2: Calculate the gap between the benchmark's return and the fund's return.

$$\text{Benchmark Return} - \text{Fund Return} = \text{Gap}$$

The example below shows the returns of an inverse fund and its underlying benchmark. Each started at an initial value of \$100. Over time, the benchmark return was 5%. The fund return was -10%, making its current value \$90. $5\% - (-10\%) = 15\%$.

STEP 3: Calculate the rebalance trade.

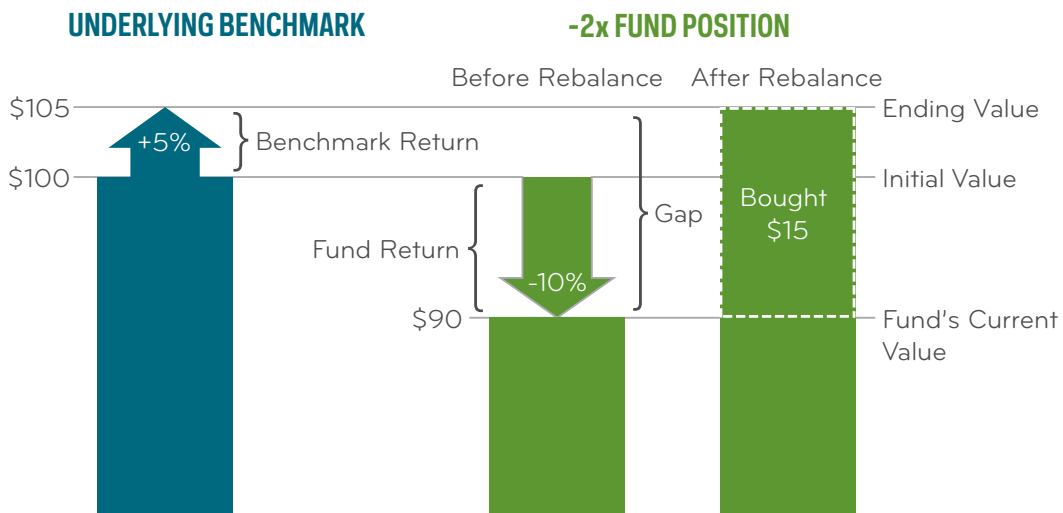
$$\text{Initial Value} \times (1 + \text{Benchmark Return}) - \text{Fund's Current Value} = \text{Rebalance Trade Amount}$$

When it is time to rebalance, calculate how much to increase or decrease the position as shown using the example below.

$$\$100 \times (1 + 0.05) - \$90 = \$15$$

STEP 4: Monitor and repeat if necessary.

REBALANCING AN INVERSE FUND POSITION



For illustrative purposes only.

CONSIDERATIONS FOR USING GEARED FUNDS

- Most geared funds have a one-day investment objective. That is, they aim to provide a multiple of the return of a benchmark for a single day, before fees and expenses.
- Due to the effects of daily rebalancing and compounding, investment results over time can be significantly more or less than a geared fund's stated objective.
- Leveraged and inverse fund positions should be actively managed and monitored, as frequently as daily. Investors holding a geared fund longer than one day may want to rebalance on a regular basis to maintain consistent exposure.
- There are many ways to use leveraged and inverse funds, but, generally speaking, geared funds should not compose a large portion of most investors' portfolios.
- There are advantages, disadvantages and risks with all geared investments. Carefully read the prospectus before investing in any geared fund to understand all the risks and benefits.

FROM THE LEADER IN LEVERAGED AND INVERSE FUNDS

ProShares and its affiliates have been at the forefront of the indexing revolution since 1997. ProShares offers one of the largest lineups of ETFs, with more than \$27 billion in assets. The company is the leader in strategies such as dividend growth, alternative and geared (leveraged and inverse). ProShares continues to innovate with products that provide strategic and tactical opportunities for investors to manage risk and enhance returns. ProFunds, the affiliated mutual fund company to ProShares, manages index funds across a wide spectrum of asset classes, including broad-based equities, sectors, fixed income, commodities and currencies.

ProShares is the world's largest provider of geared (leveraged and inverse) ETFs according to Lipper, based on a worldwide analysis of all known providers of funds in these categories; the analysis covered ETFs and ETNs by assets and number of funds (as of 12/31/2016).

Geared ProShares ETFs and ProFunds seek returns that are a multiple of (e.g., 2x or -2x) the return of an index or other benchmark (target) **for a single day**, as measured from one NAV calculation to the next, before fees and expenses. Due to the compounding of daily returns, Geared ProShares and ProFunds returns over periods other than one day will likely differ in amount and possibly direction from the target return for the same period. These effects may be more pronounced in funds with larger or inverse multiples and in funds with volatile benchmarks. Investors should monitor their holdings consistent with their strategies, as frequently as daily. For more on correlation, leverage and other risks, please read the ProShares or ProFunds prospectus.

Investing involves risk, including the possible loss of principal. ProShares ETFs and ProFunds mutual funds each entail certain risks, which may include risk associated with the use of derivatives (swap agreements, futures contracts and similar instruments), imperfect benchmark correlation, leverage and market price variance, all of which can increase volatility and decrease performance. Geared ProShares ETFs are generally non-diversified. There is no guarantee any investment will achieve its investment objective. **Past performance is no guarantee of future results. Diversification may not protect against market loss.**

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