HEDGING BOND RISK WITH INVERSE ETFS

While not the only factor to affect bond prices, U.S. interest rates have possibly the greatest influence. And in the current environment, bond investors should be wary of interest rate risk. An increase in rates could trigger potentially significant losses in unprepared bond portfolios.

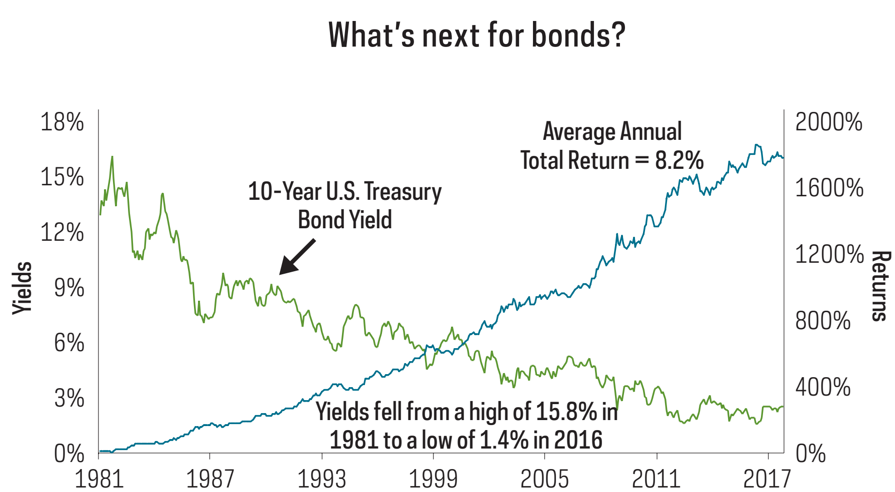
A bond hedge can decrease your exposure to interest rate changes by moving counter to bond prices. Here we discuss how a bond hedge, particularly using inverse bond ETFs, could work.

Your Bond Portfolio May Be at Risk

Bonds are often viewed as a critical component of a diversified asset allocation strategy, potentially providing a steady income stream and stability to a portfolio.

And bonds have performed well for more than 35 years. The 10-year U.S. Treasury Bond returned approximately 8.2% annually from 1981 to 2017—relative to the S&P 500's annualized return of 11%.

Bond prices generally move opposite bond yields and interest rates. Over the past few decades bond prices have climbed while bond yields have fallen to historic lows—but bond prices don't always go up.



Source: Bloomberg. For illustrative purposes only. Past performance does not guarantee future results.

Measuring the Impact of Rising Rates

To quantify the potential impact of rising rates on your portfolio, it is helpful to look at duration. Duration is an approximate measure of the sensitivity of the price of a bond (or bond portfolio) to a change in interest rates. Higher duration generally means greater sensitivity. Longer fixed-rate maturities that are not callable tend to have higher durations, while floating-rate bonds, bonds with shorter maturities or bonds that are callable in the near term tend to have lower durations.

As a hypothetical example, long-term (20+ year) U.S. Treasury bonds with a duration of 18 will be about twice as sensitive to a change in interest rates as intermediate-term (7-10 year) U.S. Treasury bonds, which have a duration of 8. So, a 1% rise in long-term U.S. Treasury rates could cause the price to decline by approximately 18%, whereas a similar increase in intermediate-term U.S. Treasury rates could cause the price to decline by about 8%.

How Sensitive Is Your Portfolio to Changes in Interest Rates?

Consider a hypothetical $100,000 bond portfolio with a duration of 6.0. Just a 1% rise in interest rates could cause the value of the portfolio to decline by 6% to $94,000—possibly offsetting years' worth of interest income. A 2% increase could drive the value down to $88,000. So even a small shift in interest rates could trigger a substantial change in the value of your bond portfolio. Of course, bonds and bond portfolios can be negatively or positively influenced by other factors as well.[1]

$100,000 bond portfolio with a duration of ...

Change in Yield	4.0	5.0	6.0	7.0	8.0	9.0	10.0
+2%	-$8,000	-$10,000	-$12,000	-$14,000	-$16,000	-$18,000	-$20,000
+1%	-$4,000	-$5,000	-$6,000	-$7,000	-$8,000	-$9,000	-$10,000
-1%	$4,000	$5,000	$6,000	$7,000	$8,000	$9,000	$10,000
-2%	$8,000	$10,000	$12,000	$14,000	$16,000	$18,000	$20,000

Source: McGraw-Hill Financial Communications. Values are approximate; there is no guarantee the actual changes in portfolio values would equal amounts shown here. In addition, larger rate increases will likely result in smaller changes in value than indicated by duration, as duration is accurate only for small changes in yields.

[1] Bonds and bond portfolios can also be influenced by credit risk, reinvestment risk, inflation risk, prepayment risk and liquidity risk.

Preparing Your Portfolio for Rising Rates

Duration and interest rates may not concern individual bond holders who plan to keep them until maturity. However, if you invest in bond funds or might need to liquidate your bonds prior to maturity, you may want to manage interest rate risk. There are two general approaches for a rising-rate environment.

Restructuring Your Portfolio

Restructuring looks to mitigate interest rate risk by changing your portfolio's core strategy. You might reallocate your bond holdings to other asset classes, or switch to shorter-maturity or lower-duration bond investments with less rate sensitivity. Keep in mind, selling bonds could trigger tax consequences and affect your income.

Hedging Your Bond Portfolio

Many investors choose to hedge instead of or in addition to restructuring. It's a tactical approach to managing interest rate risk. A hedge aims to move in the opposite direction to the investment at risk. When bond prices fall, the value of your hedge should rise to partially offset your losses. Of course, if bond prices rise, a hedge would reduce returns. Two common ways to hedge your bond portfolio include short selling or buying an inverse bond ETF.

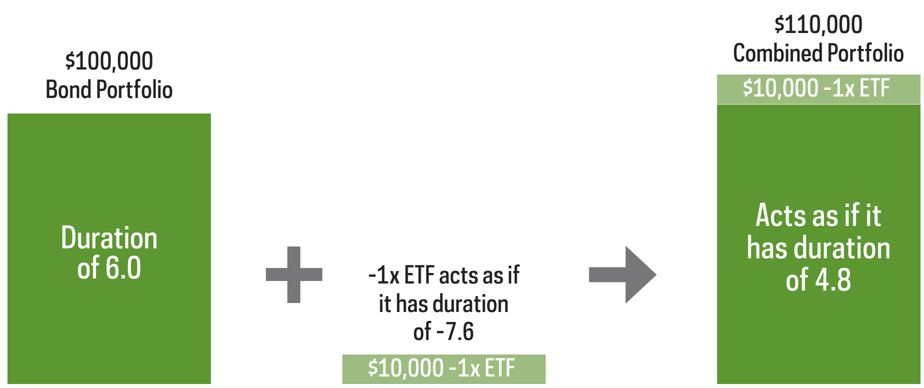
- **Short selling** a bond investment can provide a hedge against rising rates. But, short selling may require opening and funding a margin, options or futures account, and you can lose more than you invest.
- **Inverse bond ETFs** are designed to move opposite their indexes. They seek investment results that are the inverse (e.g., -1x or -2x) of the daily performance of a Treasury or other fixed-income benchmark. Bond ETFs are easily accessible—they trade on exchanges like stocks—and losses are limited to the value of the investment. But inverse bond ETFs do require careful monitoring. They may also need frequent rebalancing, which can entail costs and tax consequences.

Hedging with an Inverse Bond ETF

The illustration below starts with a hypothetical $100,000 bond portfolio. An investor may want to add $10,000 in an inverse bond ETF to act as a hedge. In this example, the existing $100,000 unhedged bond portfolio has a duration of 6.0, and the inverse bond ETF acts as if it has a duration of -7.6. The new combined $110,000 bond portfolio behaves as if it has a less rate-sensitive duration of 4.8.

To quantify this, let's reference the table on page two. A 1% rise in rates could cause a hypothetical $100,000 bond portfolio with a duration of 6.0 to lose $6,000. At the same time, a 1% rise in rates could cause the hypothetical $10,000 hedge to gain $760. The net loss for the combined portfolio, then, would be reduced to $5,240 and the duration reduced to 4.8.

Remember, when using inverse bond ETFs, it is important to understand where your fixed income portfolio falls on the yield curve and to consider the appropriate exposure of a corresponding hedge.



This example is hypothetical, and there can be no guarantee an actual investment product or strategy will perform as shown.

Advantages of Using Inverse Bond ETFs

Using inverse bond ETFs to hedge interest rate risk is an approach that can complement and enhance longer-term strategic moves. This approach:

- Helps preserve capital
- Helps keep your asset allocation in line with your long-term investment goals
- May not trigger a taxable event from selling appreciated bonds, as long as you have cash on hand to purchase the ETF and rebalance when necessary
- Offers flexibility—ETFs can be applied and removed as needed without disturbing your core strategy
- Unlike short selling, does not require opening a margin, options or futures account and maintaining a certain level of assets in the account
- Investors cannot lose more than the value of the investment
- There are disadvantages and risks with inverse ETFs too—read the prospectus for a more complete description

Considerations for Using Inverse ETFs

Most inverse ETFs aim to provide a multiple of the return of a benchmark for a single day, before fees and expenses. To maintain their investment objectives, inverse ETFs rebalance their exposure to their underlying benchmarks each day. As a result of daily fund rebalancing, an investor holding an inverse ETF longer term is unlikely to continue to receive the fund's multiple times the benchmark's returns. As long as the ETF is held, compounding can cause the investor's exposure to the underlying benchmark to continue to deviate from the ETF's stated objective. Investors using inverse ETFs 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.

Inverse investing is not for everyone. Inverse ETFs are generally riskier than ETFs without 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.