

February 2005

Bond Ladders

Overview: This article introduces bond ladders and explains why they can be an excellent option for the fixed income portion of many investors' portfolios. Ladders can be a prudent solution for investors who wish to lessen the effects of price risk and reinvestment risk. A laddered approach also allows investors to stop worrying about the rise and fall of short-term interest rates, which can overwhelm some investors. In fact, this could be among the greatest benefits of a bond ladder, since evidence indicates that most investors are unsuccessful when they try to forecast interest rates. Over time, the ladder will contain bonds purchased in both low and high interest rate environments but the income stream will remain relatively constant because only a small portion of the portfolio matures each year.

Who might benefit from bond ladders? Investors with more than \$400,000 allocated to fixed income who are seeking an investment vehicle that more closely matches their risk tolerance and specific financial objectives can receive added value from constructing a bond ladder with the help of their advisor. As always, it is prudent for investors to explore any investment strategy thoroughly with their advisor before implementing a plan.

What is a Bond Ladder?

A bond ladder is a portfolio of individual bonds that have different maturities. For example, a bond ladder could be constructed with equal numbers of bonds with maturities across 1–10 years, or it could consist of bonds that mature in 2–7 years. Since buying small lots of individual bonds will increase costs, the number of bonds and the number of maturities used in a ladder might be influenced by the dollars available to invest.

Minimizing Exposure to Fixed Income Risks

At least three types of risk are related to fixed income investing, including: 1) price risk, 2) reinvestment risk and 3) credit risk. Creating a bond ladder can minimize price and reinvestment risk. The longer the maturity of an instrument (and the greater its duration), the greater the price risk will be. Reinvestment risk is the risk that a bond will mature when interest rates are lower than when the bond was originally purchased. Thus, when an investor reinvests the proceeds from the maturing instrument, he or she could receive a lower rate of return. Minimizing price risk comes at the cost of accepting reinvestment risk, and vice versa.

Finally, it is possible to reduce credit risk by purchasing bonds with higher credit quality. This does not apply solely to laddering. An investor can reduce the credit risk of any fixed income purchase by choosing U.S. government debt and upper investment grade instruments (such as, municipal bonds rated AAA and AA from low default sectors) instead of high yield bonds.

Advantages of Ladders

Ladders can provide the following benefits:

- Investors can match maturities to known/desired cash flow needs.
- Investors can avoid the expense of a mutual fund or an active separate account manager.
- Tax loss harvesting can be performed in taxable accounts.
- The income stream stays relatively constant because only a small portion of the portfolio matures each year.
- A ladder approach allows investors to stop worrying about forecasting interest rates.
- Investors can control which bonds they own, which is not possible with a bond fund. For example, investors can allocate a portion of the ladder to state-specific bonds or those with alternate-minimum tax restrictions.

Disadvantages of Ladders

Instead of choosing short-term bonds with less price risk, investors who choose bond ladders accept more risk by choosing bonds with extended maturities. Some of the disadvantages of using bond ladders include the following:

- An investor's portfolio will be exposed to more volatility risk (as shown by higher standard deviation) than associated with shorter-term bonds, such as one-month T-bills.
- It is not advisable to build a ladder with less than \$400,000 allocated to fixed income.
- Such portfolios require additional administration/monitoring by an advisor.
- After a certain point on the yield curve, the expected returns begin to level off but the bond's maturity continues to extend, so the additional yield may not sufficiently compensate an investor for the additional risk of holding the bonds for a longer period.

Designing Bond Ladders

Before deciding on a specific bond ladder, an investor and his or her advisor should create some general guidelines to direct the construction of the bond ladder. Some issues to consider when determining the appropriate length and makeup of a ladder include the following:

- How much an investor has allocated to fixed income
- An investor's time horizon, which can be a factor when deciding the length of the ladder
- An investor's risk tolerance, which can be a factor when deciding how many bonds (rungs) to include on the ladder
- An investor's liquidity needs (For example, an investor who needs to raise cash may wish to hold bonds with shorter maturities instead of purchasing long-term bonds or creating a bond ladder.)
- An investor's income needs (For example, some investors who need a large stream of income might wish to develop a ladder that seeks to earn a specific expected yield.)

Every bond ladder should be based on an investor's specific financial objectives. If an advisor suggests a shorter bond ladder based on the investor's unique financial situation, a 2–7 year ladder (with fewer rungs) may be more appropriate than a 3–10 year ladder (with more rungs) that exposes the portfolio to more price risk (but less reinvestment risk).

Gathering and analyzing the information mentioned above can help an advisor choose certain bonds over others. For example, an advisor might be more concerned about choosing bonds that are exempt from state taxes in the portfolio of a client who lives in California but place less emphasis on seeking state-specific bonds for clients who live in Florida.

Ladder Examples

Example 1: How to Maintain the Original Strategy

This example explains how a bond ladder remains at its original length over time. An investor with \$500,000 allocated to fixed income purchases 10 individual bonds worth \$50,000 each with maturities from 1–10 years. The average maturity of the portfolio is 5.5 years. At the end of the first year, the one-year bond matures and the ladder now has a value of only \$450,000 with maturities from 1–9 years. The average maturity has fallen from 5.5 to five years. To maintain the original strategy of 1–10 years, the investor should purchase a replacement bond by using the proceeds from the one-year bond that just matured to purchase another bond that will mature in 10 years.

Example 2: How Price Risk and Reinvestment Risk Can Affect a Bond Ladder

This example discusses how a bond ladder can minimize but not eliminate price risk and reinvestment risk. Assume that the current yield curve provides the following opportunities: one-year Treasuries are yielding 2 percent; five-year Treasuries are yielding 3 percent; and 10-year Treasuries are yielding 4 percent. To limit price risk, perhaps because the investor has a shorter time horizon, he or she purchases a one-year Treasury. However, the investor must then accept the risk that in one year all interest rates will be lower.

When an investor reinvests the proceeds at maturity, he or she could receive a lower rate of return. On the other hand, if the investor extends the maturity to 10 years and interest rates rise dramatically, the value of the bonds with longer maturities would fall sharply. This loss would only apply if the investor sells before maturity. Otherwise, bonds will mature at par. This example illustrates how investors cannot simultaneously minimize price risk and reinvestment risk but can mitigate the two risks with a bond ladder because some bonds may be purchased in both high and low interest rate environments instead of attempting to forecast future rate environments and control the risks.

Summary

Constructing a bond ladder is a prudent approach to fixed income portfolio design. The shorter maturities balance the price risk of the longer maturities, and the longer maturities balance the reinvestment risk of the shorter maturities. Over time, investors will purchase bonds in both high and low rate environments. Thus, a bond ladder is an effective way to diversify some of the price and reinvestment risk associated with fixed income.

The laddered approach allows investors to meet current income requirements while preserving capital and keeping interest rate risks at acceptable levels. Using a laddered approach, investors can stop worrying about forecasting interest rates, which could be one of the greatest benefits of a bond ladder since most investors are not successful when they try to forecast interest rates. The key to the success of a laddered portfolio strategy is to have the discipline to ignore the noise of the market — noise that can lead investors to abandon their carefully considered strategy for a less prudent plan.

This material is derived from sources believed to be reliable, but its accuracy and the opinions based thereon are not guaranteed. The content of this publication is for general information only and is not intended to serve as specific financial, accounting or tax advice. To be distributed only by a registered investment advisor. Copyright © BAM Advisor Services, 2005.