Building Bond Ladders for Income

Schwab Center for Financial Research

Synopsis

- **Bond ladders can help investors earn current income and have the flexibility to reinvest in higher-yielding bonds if interest rates rise.**
- **Bond ladders can help generate predictable cash flow and help reduce some of the volatility resulting from rising or falling interest rates.**
- **Find out how to build a bond ladder, and the benefits it can help provide**

Bonds can potentially offer benefits to an investor's portfolio through steady income, stability of principal, and diversification.

For investors who choose to purchase individual bonds to manage their fixed income allocation, a bond ladder can help balance the desire for income today with the challenge of timing interest rates and whether they will rise or fall.

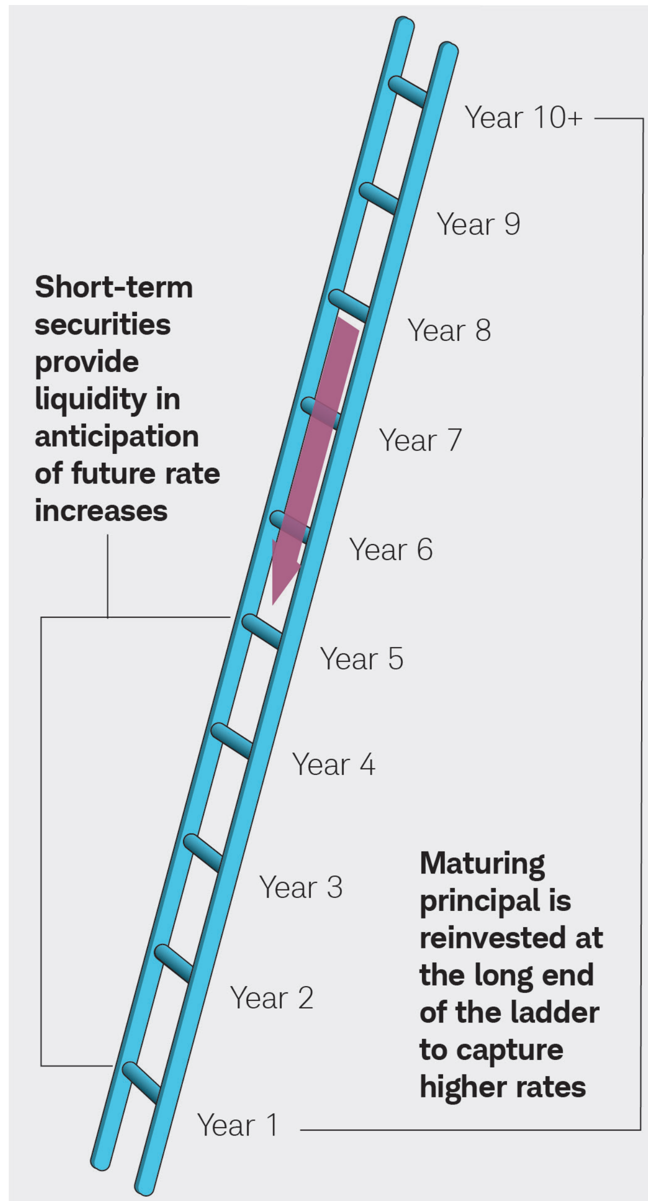
What is a bond ladder?

A bond ladder is a portfolio of individual bonds that mature on different dates. Picture a ladder with several rungs and spacing between the rungs. The individual bonds are the rungs and the time between maturities is the spacing between the rungs. A bond ladder is built with two primary goals in mind:

- Reduce risk. By staggering maturity dates, investors avoid getting locked into a single interest rate. For example, say an investor bought a single five-year bond. If interest rates were to rise two years from now, the bond would still be paying interest at the lower rate.

  However, a ladder helps smooth out the effect of fluctuations in interest rates because there are bonds maturing every year, quarter or month, depending on the number of rungs and spacing of the ladder. When a bond matures, an investor could reinvest that principal in a new longer-term bond at the end of a ladder. If bond yields have risen, they'll benefit from a new, higher interest rate and keep the ladder going.
- Manage cash flow. A bond ladder also helps to manage cash flows for particular needs. For example, since many bonds pay interest twice a year on dates that generally coincide with their maturity date, investors can structure the ladder so that they receive monthly income from the various coupon payments. Bonds in the ladder also mature periodically, and investors can use the proceeds to reinvest into new bonds to extend their ladder or as a source of cash to fund spending.

A bond ladder in action



Source: Schwab Center for Financial Research

The table below shows a hypothetical ten-rung bond ladder, comprised of a mix of short- and long-term bonds that generate income every month. Investors can benefit from higher rates on longer-term bonds to boost income, and can reinvest principal maturing on shorter-term bonds if rates rise.

Ten-rung bond ladder can mean income every month

Rung ($)	Maturity	Coupon	Jan. and July	Feb. and Aug.	March and Sept.	April and Oct.	May and Nov.	June and Dec.
25,000	Jan. '18	1.30%	$163					
25,000	Feb. '19	1.60%		$200				
25,000	March '20	1.90%			$238			
25,000	Apr '21	2.20%				$275		
25,000	May '22	2.40%					$300	
25,000	June '23	2.70%						$338
25,000	Jan. '24	2.90%	$363					
25,000	Feb. '25	3.00%		$375				
25,000	Mar. '26	3.20%			$400			
25,000	Apr. '27	3.30%				$413		
Total			$525	$575	$638	$688	$300	$338

Note: Total portfolio of $250,000 with weighted average yield of 2.44%, producing annual income of $6,088.
Source: Bloomberg, as of January 3, 2017. Yields shown are representative yields for AA corporate bonds for respective maturities. Hypothetical example for illustrative purposes only. For adequate diversification, Schwab generally recommends at least 10 individual bond positions in an investor's portfolio.

As shown in the table, when interest rates are low, generating enough income solely from a bond ladder is difficult—the sample $250,000 bond ladder above generates just $6,088 in annual income. It would likely take a large portfolio to meet all of an investor's income needs with a bond ladder alone. But over time, if interest rates rise and the principal of the maturing bonds is reinvested, income would rise. A bond ladder can be used to help preserve capital and generate income with less interest-rate risk if rates change.

How to build a ladder

The bond ladder itself is fairly straightforward to create. The overall length of time, spacing between maturities, and types of securities are primary considerations when building a bond ladder. Even in a low or rising interest rate environment, bond ladders can help to balance the need for income while managing interest-rate risk.

- **Rungs.** Take the total amount that an investor plans to invest, with the goal of extending the ladder as long as possible. For example, in the table above, a total of $250,000 was invested in ten rungs, with ten individual bonds purchased for $25,000 each. A benefit to having at least six rungs is that an investor can create a ladder structured to generate income every month of the year.
- **Spacing.** The distance between rungs is determined by the span of time between the maturities of the respective bonds, which can range from months to years. Generally, the spacing should be roughly equal. In the table above, one-year spacing was chosen to help extend the ladder further with the amount of money invested.

  The longer the ladder, the higher the income is likely to be, since yields generally increase with longer maturities. But interest rate risk—the risk that the value of a fixed income security will fall if interest rates rise—is also higher. Shortening the maturity or decreasing the time span between the rungs generally reduces both the income and the interest rate risk, but an investor usually has a greater ability to reinvest principal from maturing bonds at higher rates should interest rates rise.
- **Materials.** Just like a real ladder, investors can build their ladders with different materials—in other words, different types of bonds. Investors can utilize the potential tax advantages of municipal bonds, the credit guarantee of U.S. Treasuries or the generally higher yields of corporate bonds.

We suggest that investors limit the number of callable bonds (those that can be redeemed early by the issuer) in their ladders, if possible. If a bond is "called" by the issuer, the principal would be returned to an investor at the issuer's discretion. When this happens, it's usually after interest rates have fallen, so principal may have to be reinvested in a lower interest rate environment. With some bond sectors, like municipals, the majority of longer-term bonds may be callable, so the non-callable option may not be available for all bonds in a portfolio. We also don't recommend taking too much credit risk, like using high-yield corporate bonds, for bond ladders. Credit risk is the risk that a security will default or that its credit rating is downgraded, resulting in a decrease in value for the security.

How much does an investor need to invest?

For the most basic ladder with six rungs using relatively “safe” investments such as Treasuries or (for shorter maturities) Certificates of Deposit (CDs), investors could start with the bare minimum of $6,000 (both CDs and Treasuries typically must be purchased in $1,000 minimums). While some bond investments may be made in denominations as low as $1,000 per bond, the appropriate amount to invest is best determined by an individual’s investing goals and objectives.

To help boost income, investors may want to add more rungs to increase the maturities on the ladder (remember, longer-term bonds tend to pay higher interest rates), or add higher-yielding securities like investment grade corporate bonds. Municipal bonds also may be added for the potential tax advantages—interest payments from municipal bonds are generally exempt from federal income taxes as well as some state and local taxes. If an investor does add municipal bonds, we suggest considering holding them in taxable accounts. It’s important for investors to remember, also, that adding higher-yielding or longer maturity bonds generally adds risk to the portfolio. We suggest finding a proper balance between desired income goals and each individual’s risk tolerance.

Building a ladder that includes municipal or corporate bonds may increase the initial investment to around $30,000 at a minimum for a six-rung ladder, as municipal and corporate bonds generally trade in $5,000 minimums. While the minimums for buying corporate and municipal bonds may be relatively low, there are typically benefits to investing larger amounts into individual bonds, such as greater liquidity. For relatively small investments, fixed income mutual funds or exchange-traded funds (ETFs) may make more sense.

That said, if an investor chooses munis or corporates, they may desire more rungs (or issuers) for more diversification—we’d suggest at least 10 to help manage the risk of any individual issuer or bond defaulting.

Whatever path an investor takes, a bond ladder can help ensure that his or her eggs aren’t all in one basket, and give:

- Better control over exposure to interest rate risk.
- Predictable access to principal and ability to reinvest it when some bonds mature.
- The opportunity to help manage an ever-changing interest rate environment.

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