

Maturity-targeted Bond Funds Lock in Anticipated Yield to Maturity

How fund investors can benefit from the permanence and definition of portfolios of bonds, held to their maturity.

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A commenter on a previous white paper I wrote asked me the following question about maturity-targeted bond ETFs:

“I understand [with respect to maturity-targeted bond ETFs] that the stated NAV and the interest will vary with the market. But let's say that I invest \$1000 dollars today. Assuming no defaults, will I get this principal back ... if I hold to [maturity]?”

The short answer to this question is that if you buy and hold a maturity-targeted bond ETF until maturity, and assuming no default or reinvestment risk or ETF management fees, you will receive back all of your investment capital plus the net yield to maturity of the ETF's portfolio at the time you make your investment.

Depending upon how the ETF's portfolio yield changes over time, however, the timing of the return of your investment capital may change. Let me provide an example to explain the accounting. To make things simple, we'll assume that all bonds in this example mature on December 31, 2011, and pay an annual coupon on the last calendar day of the year.

Let's say it is January 1, 2011, and Investor A purchases 100 shares of a maturity-targeted bond ETF of which he is the sole shareholder and the ETF's sole holding is a \$1,000 par amount bond with a 3% coupon. Prevailing interest rates for bonds of this term and type are 3%, meaning the fair market value of the ETF's bond is \$1,000 at prevailing interest rates. The net asset value (NAV) of the shares Investor A holds in the ETF would be computed as follows:

Net Assets in ETF:	\$1,000.00
ETF Shares Outstanding:	100
NAV/Share:	\$10.00

Suppose that for some reason, prevailing interest rates immediately jump from 3% to 5%. This means the fair market value of the bond held by the ETF drops to \$980.95, since this is the value that results in a 5% yield to maturity for the bond given its 3% coupon and \$1,000 par amount. The impact on the ETF's NAV of the change in interest rates is shown in the table below:

Net Assets in ETF:	\$980.95
ETF Shares Outstanding:	100
NAV/Share	\$9.8095

Let's stop for a moment and consider Investor A's perspective assuming that (1) he remains the sole shareholder of the ETF and (2) the ETF holds the bond until maturity and then liquidates, distributing the proceeds to Investor A. Even though the rise in interest rates has caused the fair market value of the ETF's bond to decline by nearly 2%, if Investor A holds on to the ETF until maturity, he will receive what he originally bargained for: the return of his investment principal plus income of 3% on December 31, 2011.

But consider what happens when a new investor — let's call him Investor B — becomes a shareholder of the ETF by making an in-kind investment of a \$1,000 par amount bond with a 5% coupon shortly after interest rates increase. Since Investor B is contributing a bond worth \$1,000 to the ETF and the ETF's NAV per share is \$9.8095, he will receive 101.9417 newly issued shares in the ETF. While this transaction has no impact on the ETF's NAV per share, it increases the ETF's net assets and shares outstanding:

Net Assets in ETF:	\$1,980.95
ETF Shares Outstanding:	201.9417
NAV/Share	\$9.8095

The addition of a new bond at a higher prevailing interest rate increases the amount of income the ETF will earn in 2011. Instead of receiving \$30 in interest payments on December 31, 2011, the ETF will now receive \$80 in interest payments. Assuming the ETF liquidates immediately upon the maturation of its bonds on December 31, 2011, aggregate distributions for the ETF on December 31, 2011, will be as follows:

Type of Distribution	Amount
Income	\$80.00
Return of Capital	\$2,000.00

Since Investor A now owns approximately 49.5% (100/201.9417) of the ETF's outstanding shares, he will be entitled to receive this percentage of the ETF's distributions. The impact of the change in Investor A's cash flows caused by Investor B's contribution of the higher yielding bond to the ETF's portfolio is illustrated in the table below.

Date	Original Cash Flows	New Cash Flows
Investment @ 1/1/2011	(\$1,000.00)	(\$1,000.00)
Income @ 12/31/2011	\$30.00	\$39.62
Return of Capital @ 12/31/2011	\$1,000.00	\$990.38
IRR of Cash Flow Stream	3.00%	3.00%

While Investor A's income has increased as a result of the increase in the yield of the ETF's bond portfolio, this increase has been offset by a reduction in the return of capital Investor A receives upon liquidation of the ETF. From a financial perspective, these changes cancel out and Investor A's pre-tax realized yield is exactly the same as it was expected to be before Investor B contributed the higher yielding bond to the ETF.

While the example above is a one-period scenario where each bond only has one coupon remaining to be paid, the same result would hold if the bonds in the example matured in 2017 and each bond had seven coupons remaining to be paid. After accounting for the reinvestment of income received from the ETF, Investor A's pre-tax realized yield will be the same regardless of whether Investor B contributes a higher yielding or lower yielding

bond to the ETF. Investor A effectively locks in an anticipated pre-tax yield to maturity (assuming no default or reinvestment risk) when he purchases a maturity-targeted bond ETF.

Unlike maturity-targeted bond ETFs, traditional bond ETFs have no maturity date and constantly swap out short-term bonds with long-term bonds in order to maintain a constant duration. As a result of this continuous portfolio shuffling, the term structure of a traditional bond ETF's portfolio (and therefore its sensitivity to changes in interest rates) is in a constant state of flux, making it impossible for investors to forecast what their anticipated yield to maturity will be at the time of purchase.

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