

YTM AND RETURNS

Consider your risk profile, not just YTM

Ability to earn market-linked returns, liquidity and transparency have made debt funds popular among investors, who were traditionally skewed towards bank deposits. But choosing a debt mutual fund is not that simple. Debt mutual funds, being market linked, do not declare the rate of return, like in the case of bank deposits. But they do declare indicators such as yield to maturity (YTM). Though YTM indicates the return that investors can get if they hold the portfolio till maturity, it is not comparable with what really the investor will get. In this article, we try to explain how YTM gives only a measure of actual returns, and other factors should be considered while investing in debt mutual funds.



What is YTM and how is it computed?

YTM is the total rate of return an investor earns if he/she holds the bond until maturity. It is assumed that the bond is held till maturity, and all the coupon/interest payments are made on time and reinvested at the same rate as the bond's current yield.

YTM is calculated using the following formula:

$$YTM = \frac{\frac{\text{Annual coupon rate} + \text{face Value of the bond} - \text{Market Value of the bond}}{\text{Remaining years of maturity}}}{\frac{\text{Face Value of the bond} + \text{Market Value of the bond}}{2}}$$

Example:

Face value of the bond
Rs 1,000

Annual coupon rate
7% or Rs 70 (7% of face value of the bond)

Market value of the bond
Rs 900

Time to maturity
5 Years

It should be noted that this YTM is just for one bond. In case of a Debt Mutual Fund, weighted average yield of all such bonds invested by the scheme, will be computed to generate the portfolio yield. The YTM obtained will denote the total rate of return that an investor can earn if he/she holds the portfolio till maturity

In this case, YTM will be= $\frac{\frac{(70+1000-900)}{5}}{\frac{(1000+900)}{2}} = 9.47\%$

Why don't YTM and actual returns match?

Except for close-ended debt mutual funds such as fixed maturity plans and interval funds, the YTM and actual returns from the larger pie of open-ended debt mutual funds don't match. There are statistical reasons to it.

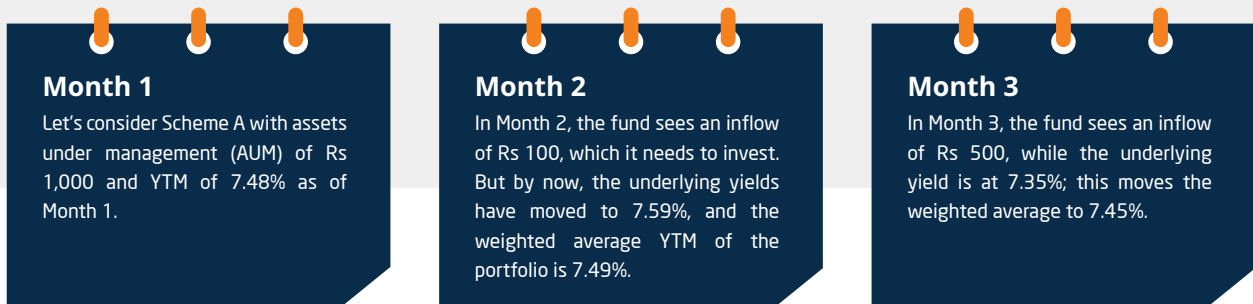


A change in portfolio constituents results in a change in the underlying YTM for the portfolio. Let us look at a simple example. Imagine buying 12 apples for Rs 120, i.e., each apple costing Rs 10. Now, you come across a vendor selling apples that are better in quality, and you buy another dozen, this time for Rs 12.5 each.

Now, if you want to the cost of apples, you will have to add the cost of the first 12 apples with the new ones and divide it by the total number of apples.

$$\text{Cost per apple} = ((12 \times 10) + (12 \times 12.5)) / 24 = \text{Rs } 11.25$$

This same logic applies to the YTM of an open-ended debt mutual fund portfolio.



Illustrative example of portfolio churn

	Portfolio value (Rs)	Flows	Prevalent market yield*	YTM
Month 1	1,000	-	7.48%	7.48%
Month 2		100	7.59%	7.49%
Month 3		500	7.35%	7.45%

Note: This example does not include the coupon from the underlying bonds
*represents 10-year g-sec yield

As can be seen here, cash inflow and outflow from the debt fund, resulting in portfolio churn at various yield levels, affect the YTM of the debt fund.

Market Movement (interest rate change, valuation, rating changes)

Portfolio churn due to inflows and outflows forms only one part of the story. Change in bond prices caused by movement in the underlying market due to interest rate, valuation and rating changes, also have an important impact on the YTM and portfolio returns.

To understand this, let us go back to the first example, where the YTM of the bond was 9.47% for a market value of Rs 900. Say, due to interest rate changes in the underlying market, the market value of the bond changes to Rs 920. Consequently, the YTM calculation will include the new price.

Example:



Similarly a rating change also has its impact on the portfolio YTM, for instance during the recent rating downgrade crisis in India, there were few funds which had high YTM of double digits, but this signified the erosion of prices cause by the falling of the underlying bond prices. This is in financial parlance is also called as haircut taken by mutual funds for the underlying bonds.

$$\text{In this case, YTM will be} = \frac{\frac{(70+1000-920)}{5}}{\frac{(1000+920)}{2}} = 8.96\%$$

For instance, a bond with market value of Rs 1000, might get a haircut of 50%, due to rating downgrade, thus shaving off its price to Rs 500, now considering all other factors similar viz., the coupon an years to maturity,

The YTM of this bond would change to =
$$\frac{\frac{(70+1000-500)}{5}}{\frac{(1000+500)}{2}} = 15.20\%$$

This however might not be actual return of the bond, or of the fund that has invested. Thus, the change in bond price due to market movement too has an impact on the bond portfolio YTM.

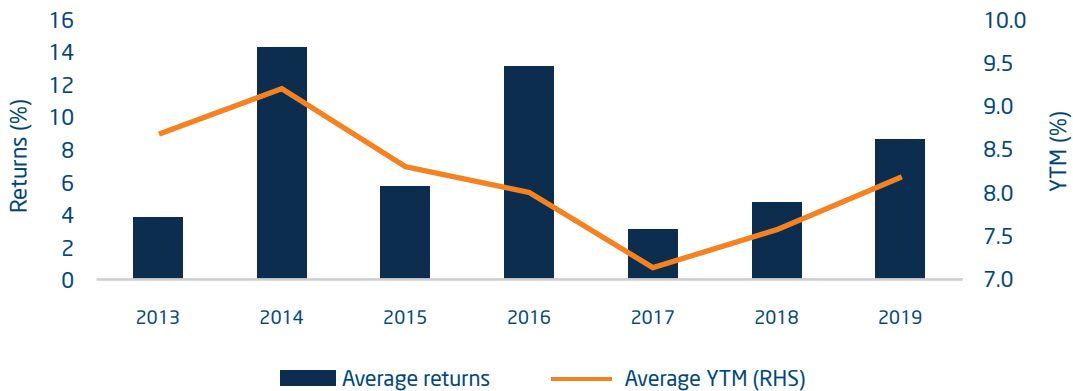
Is YTM related to returns for investors?

As seen above, multiple factors play out in the computation of the YTM of funds. Thus, YTM is not the best indicator of returns of debt mutual funds. This can be seen from the scenario analysis of debt funds across multiple calendar year returns and YTM over the past few years.

For the analysis, we have considered CRISIL-ranked medium- to long-duration funds and CRISIL-ranked short-duration funds and compared their calendar-year wise returns return and YTM at the start of this period (end month value of December of previous year), as declared by the respective schemes. For instance, the YTM of December 2012 is taken as base while comparing returns of the calendar year of 2013 and so on and so forth.

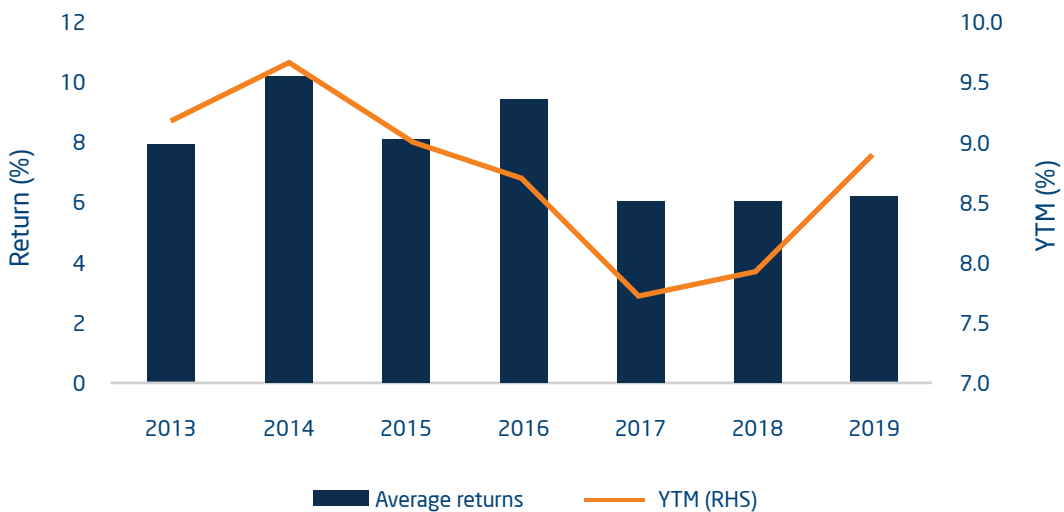
The analysis shows that there is no direct co-relation between the YTM levels and the actual returns of funds during the period under study. In several cases, both high and low YTM have given similar returns.

Medium- to long-duration fund performance vs YTM



Source: CRISIL Research

Short duration fund performance vs YTM



Source: CRISIL Research

Marry debt funds with your risk return profile

It is thus important for investors to look beyond indicators such as YTM, for fund selection. It is advisable to match the debt fund's profile with the investors' risk appetite and investment horizon. Some of the factors that investors can look at while selecting debt funds include:

Consistency in returns



Consistency in returns, and not just returns, should be the most important yardstick for selecting a fund. Evaluating fund performance across market cycles vis-à-vis the benchmark and peers, is crucial. Consistency should be checked over longer time frames, and not shorter ones. Quantitative measures such as rolling returns, standard deviation and Sharpe ratio can help make informed decisions.

Map portfolio quality with risk return profile



Credit rating of instruments indicates the level of default risk. A debt fund invests in several instruments, ranging from risk-free government securities to high-risk corporate papers. A large proportion of government securities or high-rated papers implies lower credit risk, while higher allocation to low-rated papers (AA or lower) indicates higher risk and lower capability of the borrower to repay obligations. Hence, it is essential to determine the credit quality to gauge the risk assumed by the fund for attaining higher returns, and invest in funds that are in line with the investor's risk bearing capacity. Details about credit quality can be easily found in the factsheets published by fund houses on a monthly basis.

Interest rate scenario



Selection of a debt fund is also dependent on the prevailing interest rate scenario. Bond prices are inversely related to interest rates. When rates rise, bond prices fall, and vice versa. Short-term debt funds are less sensitive to rate movements as compared with the long-term ones; hence, it makes sense to move to short-term funds like liquid funds and ultra short term funds when interest rates are on the rise. In a falling interest rate scenario, long-term debt funds like gilt funds are likely to benefit more. Investors can look at the average maturity and modified duration to assess the impact of interest rate changes on portfolio returns. Higher the average maturity and modified duration, higher will be the sensitivity to interest rate changes. Typically, in a falling interest rate scenario, funds with higher average maturity and modified duration perform well and vice versa.

Other factors like fund size, fund manager details and expense ratio



Fund size is crucial for analysis in case of debt funds, as the category typically witnesses substantial outflows or inflows. A large size helps the fund manager deal with redemption pressures. The fund manager's experience and investment style are some of the other important factors. Expense ratio is the fees charged by the fund house as a percentage of the net AUM, to manage a particular mutual fund scheme. Higher expense ratio can erode returns and can make a big difference to fund performance.

Conclusion

In short, just considering YTM of funds can lead to a misleading and incomplete picture. Closely evaluating some of the aforementioned factors will provide a 360-degree analysis of funds. Investors should also consider their own risk profile, goals and investment horizon to make a prudent investment decision.



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