In fixed income investing, usually two broad types of strategies are employed – hold to maturity or accrual and duration management. Within duration management strategies, some debt mutual fund schemes adopt active duration management strategy based on the fund manager's outlook on interest rates while some adopt a passive duration management strategy, known as duration roll down or maturity roll down. In Indian mutual fund industry, most debt funds which take duration calls, actively manage durations. However in recent years, some fund managers are also using duration roll down strategies. In this article, we will explain the difference between the two strategies.

Duration Call

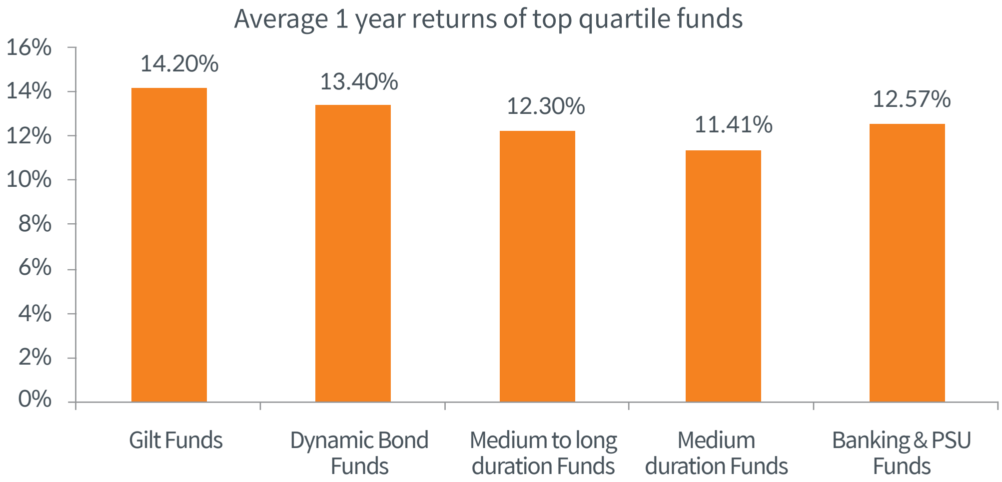
It is important to understand how fund managers use duration to generate returns for investors. There are two types of returns in debt funds – income from interest paid by the bond and capital appreciation from the price change of the bond due to interest rate movement. Accrual based debt schemes aim to earn the interest paid by the bond by holding the bond till its maturity. Fund managers who take duration call, in addition to getting the yield (interest), seek to make profit from price appreciation of the bond if the interest rates decline. The duration of a bond is the price sensitivity of the bond to interest rate changes. Longer the duration of a bond, higher is its sensitivity to interest rate changes.

Active Duration Management

Fund managers who actively manage duration, invest in bonds of certain durations depending on their interest rate outlook. For example, if they expect interest rates to fall, they will invest in longer duration bonds. If they expect interest rates to rise, they will invest in shorter duration bonds within the scheme's duration mandate.

For example, let us assume a 10 year bond with 7.5% yield (interest rate) has a current duration of 7 years. If in 1 year, interest rate falls by 50 bps, then price of the bond will go up by = 7 (duration) X 0.5% (interest rate change) = 3.5%. Therefore, the total returns earned by the bond will be = 7.5% (yield) + 3.5% (price appreciation) = 11.0%. If fund managers get their duration calls right, they can generate good returns for investors.

In the last 1 year, interest rates are on a declining trend and top performing funds which take duration calls have been able to deliver strong returns (please see the chart below) to investors. You can see that the top performing funds, who were able to get their duration calls right i.e. invest in instruments of durations such that price appreciation was maximized on interest rate declines. This shows that, fund managers who get their duration calls right (active duration management) can deliver good alphas to investors.



Source: Advisorkhoj Research, returns are as on 22nd June 2020

Past performance may or may not sustain in future.

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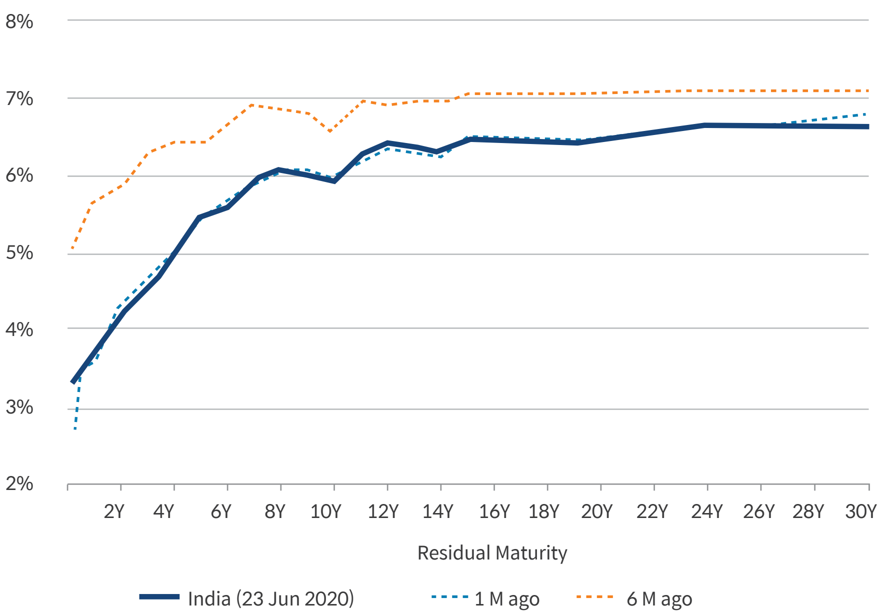
Duration Roll Down

In a duration roll, the fund manager takes advantage of the yield curve shape. The yield curve is usually upward sloping, which means bonds of longer maturity give higher yields. Please see below a purely illustrative yield curve.

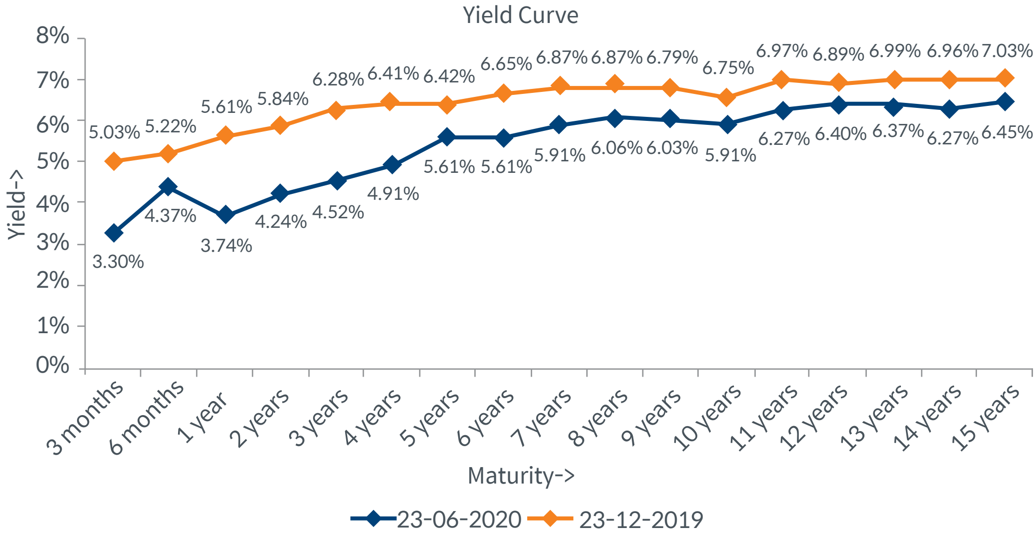


Let us assume you invest in a 3 year bond trading at 6.7% yield and after 1 year, the yield of 2 year bonds is 6.5%. So after 1 year, your 3 year bond will effectively be a 2 year bond but with additional 0.2% yield. Since the duration of the bond reduces over time, the interest rate risk also reduces. At the same time, the price of the bond appreciates because investors will be ready to pay more for an older bond with higher yield and same residual maturity as a newer bond with lower yield.

Why this strategy is called duration roll down? You can see that the strategy essentially is a bond rolling down the yield curve. As the bond rolls down the yield curve, the maturity and duration (duration is directly related to bond maturity) will lessen, and gap between yield of the bond at the time of purchase and current yields of same residual maturities will widen.

Difference between active duration call and duration roll-down

Let us try to understand this with an actual yield curve. The chart below shows the India's yield curve on 23rd June 2020 and 23rd December 2019 (6 months earlier).



Source: worldgovernmentbonds.com

In a duration roll-down strategy you would want to invest in maturities where the slope of the yield curve is the steepest, so that you can get advantage of the maximum fall in yield with passage of time. Let us assume that you are in December 2019 (refer to the orange line in the chart). You can see the difference in yields is widest in 2 year (5.84%) versus 3 year maturities (6.28%). You invested in a 3 year bond trading 6.28% yield. If the yield curve remains unchanged, after 1 year you will have a 2 year bond with 6.28% while yields of similar bonds will be 5.84%.

However, interest rates change over time and hence the yield curve also changes. Yield curve changes can be in terms of parallel shift, upwards or downwards (as in this case) and also steepening or flattening in different parts of the curve.

Now focus on the blue line, which is the yield curve as on 23rd June. Yields have fallen considerably in last 6 months. Now the maturity of your bond is 2.5 years and the current yield is 4.52%. For the sake of simplicity, let us assume that the maturity and duration of the bond is same. Please note that durations of bonds are usually lesser than maturity depending on the cash-flows (coupon payments) from the bond. The average duration of the bond over the last 6 months was 2.75 years. Therefore, price appreciation = 1.76% (change in yield) X 2.75 (duration) = 4.84%. In addition to the price appreciation, the income from the bond in the last 6 months would be = 6.28% ÷ 2 (half year of yield) = 3.14%. So total returns = 4.84% + 3.14% = 7.98%.

If you were taking active duration calls, you would have forecasted yields falling and invested in the bonds of such maturities / durations, where price appreciation would be maximized. Remember, price appreciation = Duration X Change in yields. If you are to maximize price appreciation, you would not just be looking at fall in yields but also the duration of the bond.

If you look at the shift in the yield curve (the red and blue lines in the chart above), you can see that the profits would be maximized in the 6 to 9 year maturities in the yield curve.Note that you may have gotten similar or higher profits, if you invested in the 12 – 15 year end of the yield curve, but your interest rate risk would also be very high. From a risk / return trade-off standpoint, investing in the 6 – 9 year maturity range may make more sense.

Yield curve	Maturities			
	6 years	7 years	8 years	9 years
Yields on 23-12-2019	6.65%	6.87%	6.87%	6.79%
Yields on 23-06-2020	5.61%	5.91%	6.06%	6.03%
Fall in yield	1.04%	0.96%	0.81%	0.76%
Duration (years)*	6	7	8	9
Price Appreciation	6.24%	6.72%	6.48%	6.84%
Income	3.33%	3.44%	3.44%	3.40%
Total Returns	**9.57%**	**10.16%**	**9.92%**	**10.24%**

*Duration is assumed to be same as maturity

The above is for illustration purposes only.

You can see that with active duration management strategy, you could have generated higher returns compared to duration roll-down strategy. The returns are maximized at 9 years maturity, but all the 4 duration calls would have given higher returns than duration roll-down. Obviously, we had the benefit of hindsight in this example but experienced fund managers with strong track records and backed by strong fixed income research teams may get their duration calls right and have the ability to deliver outperformance as shown earlier in this article.

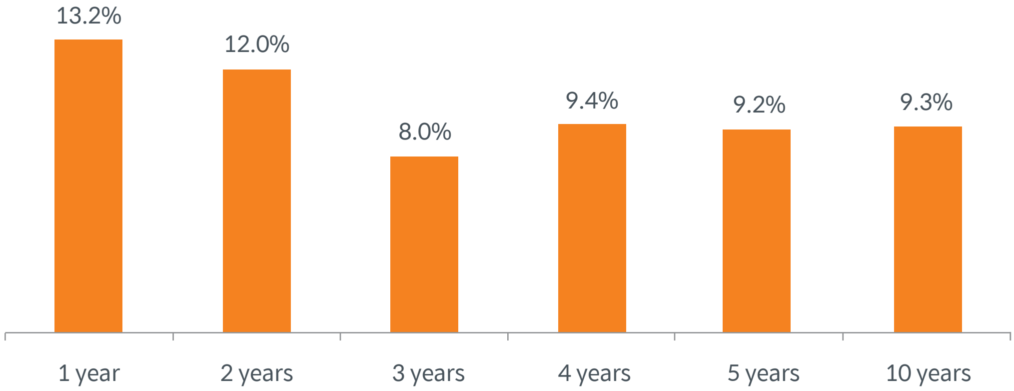
What happens if interest rates rise?

Some investors think that duration roll-down strategy is safer since duration reduces over the investment tenure. Investors should understand that duration roll-down strategy is also exposed to interest rate risk. When interest rate rises, even funds using duration roll-down will experience price volatility; we saw it when yields were rising in 2018. In fact, in some cases price volatility may be higher in duration roll-down because the fund manager will simply try to maintain the rolling down duration of the scheme. Whereas in active duration strategy, the fund manager may try to reduce risk by shortening the duration within the scheme's mandate.

Active Duration Strategies have performance track record

Active Duration Strategy has long performance track record across different interest rate cycles. The chart below shows the average annualized returns of top quartile funds in the dynamic bond funds over different trailing periods; dynamic bond funds use active duration strategy. You can see that, top performing dynamic bond funds were able to deliver strong returns both in short, medium and long term covering different interest rate scenarios. Please note that, we used dynamic bond funds simply to illustrate outperformance of active duration management strategies over long investment tenures across different interest rate scenarios. Many fixed income funds (dynamic bond funds included) across multiple debt mutual fund categories take active duration calls.

Average trailing returns* of top quartile dynamic bond funds



Source: Advisorkhoj Research, returns are as on 22nd June 2020, * returns over 1 year are annualized

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Conclusion

Our objective in this article was to explain two different duration strategies used by debt fund managers – active duration management strategy and duration roll-down strategy. Both the strategies have their merits. Both strategies are also exposed to interest rate risk depending on the duration profiles. We have shown that active duration management can generate good returns if the fund managers get their duration calls right. Funds using duration roll-down strategy are relatively new in India whereas top performing funds using active duration management strategies have long performance track records. Investors should understand how these two strategies work and make informed investment decisions. You should always seek the help of a financial advisor, if you want to understand the risk and return characteristics of your mutual fund schemes.