

What is Duration?

You're not the first person to ask this question ...

Duration is a mathematical way to compare the interest rate sensitivity of different fixed income issues (portfolios). A duration number is just a comparative figure not stated in years (which many people do incorrectly). There is no such thing as a five year duration. Rather, there is a duration of five, versus a duration of four. Now, what does that mean?

In the simplest term, that means that a 1% change (either up or down) in interest rates, without the passage of time (overnight) will change the price of the 5 duration issue by about 5% and the four duration issue by 4%. For reference, the five-year note has a duration of about 4.1. This is the same for portfolios that have average-weighted durations of the same magnitude.

But, it's not that simple... For example, rates do not change overnight. The passage of time while the market rates adjust to new circumstances does two things. The holder of the issues earns a coupon which offsets (or adds to) the loss (or gain) from the rate change. Just as importantly, the issues (of all durations) will shorten in maturity over time and their durations change (shorten) as well.

So, for example it is not true to say that the Capstone portfolio with a duration of 4.8 stands to lose 4.8% if rates go up 1% for the year. In fact, our portfolios will likely *make* money in this scenario because the coupons will offset the mark-to-market price change and because the issues in the portfolio will be shorter in maturity by one year and will therefore have a smaller duration and a smaller price change than 4.8%. Moreover, the fact that rates have moved higher in this scenario also suggests that the internal compounding and reinvestment during the year would be higher and therefore reduce effectively the original duration calculation of 4.8 in the first place.



We told you this was confusing ... The real value of duration study is to compare one 'duration to an other's. For example, it is worthwhile to say that one manager's portfolio is a 4.1 and the other's is a 6.0. The latter is taking more risk.

Then, there is the little devil called convexity, which is the calculation that tells you how much the duration of a fixed income investment will change with a 1% change in rates. We mention it because it is important to understand that every bond does not change exactly with interest rate changes. Mortgages actually decrease in duration as rates move lower, so they actually increase less in price than their duration predicts.

Well, *that* is why most investors should hire a bond manager to look after things for them! You know, it's like the plumber analogy; do you really want to replace that toilet on your own?

We hope this helps.