

Key Ratios

Introduction

Price-to-earnings (P/E) and Price-to-book (P/B) ratios are variables used in great detail by stock investors. Nonetheless, a fund's P/E and P/B can be used to compare funds within a category. A fund's P/E and P/B can tell us whether the fund has more growth or value stocks than another fund.

However, it is essential to understand that these ratios can act as a rough guide to the relative valuation, and it should not be critical for you to make a judgment based on this alone.

P/E Ratio

What is Price-to-earnings (P/E) ratio?

The P/E ratio offers a way to value a company. It compares the current share price of the company to its earnings per share (EPS).

Similarly, in case of a mutual fund, P/E ratio is a measure of how the fund is placed in terms of valuation given the total earnings of its stock holdings. Here, it is calculated by considering the P/E of its constituent stocks and their corresponding weights in the portfolio. The price and earnings used for its calculation is historical (and not forward looking or predictive of the future).

If the P/E ratio of a fund is high, it means that the fund has invested more in expensive stocks, which is common in growth investing. On the other hand, if the P/E ratio is low, it means that the fund has invested more in undervalued stocks, which is common in value investing.

What does P/E mean in case of a mutual fund?

Consider a conglomerate holding company that owns many smaller companies in different proportions or weights. Thus, the price-to-earnings (P/E) ratio of that conglomerate company will be the aggregate value of all the companies which it owns, divided by the total earnings of all those companies.

Now consider that holding company to be a mutual fund, and the companies that it holds are the constituent companies of the mutual fund's portfolio. Now to calculate the P/E of the mutual fund portfolio, ideally you should take the total value of the investment money in the constituent companies and divide it by the total sum of the total earnings received by the mutual fund portfolio.

How to calculate mutual fund portfolio P/E?

Let us understand the calculation of P/E ratio of a mutual fund with an example.

Consider a mutual fund made up of following 3 stocks with the following particulars:

Holding	Price	Earnings	P/E	Weight
Stock A	250	10	25	30%
Stock B	1000	20	50	30%
Stock C	500	100	5	40%

Assume that the total assets/value of the fund is ₹ 10,000. Thus, its total earnings would be ₹ 980

Holding	Value of stock in the fund portfolio	Earnings
Stock A	3000	120
Stock B	3000	60
Stock C	4000	800
Portfolio aggregat	10000	980
Portfolio P/E (10000 ÷ 980)		10.2

Thus, the P/E of the fund portfolio comes to 10.2 (i.e., 10,000 ÷ 980).

However, since the P/E ratio of listed companies are more readily available in the real world, there is a more direct way to calculate the P/E ratio of a mutual

fund portfolio. Intuitively, you might think that we can directly take the weighted average of the P/E ratio of all constituent companies of the mutual fund portfolio, however it turns out to be mathematically inaccurate.

In our example, if you calculate the portfolio P/E by taking weighted arithmetic mean, you end up with a portfolio P/E of 24.5 which we know is incorrect:

Holding	P/E	Weight	Weighted P/E
Stock A	25	30	7.5
Stock B	20	30	15
Stock C	5	40	2
Arithmetic Mean of P/E i.e. Sum of weighted P/E			24.5

This is because P/E ratios are not normalised to price, while earnings are equalised.

The right way

The accurate way to calculate the P/E ratio of a mutual fund is to use the weighted harmonic mean method. This is because this method takes into account appropriate weightage to both the price and the earnings of each stock in the portfolio and then gives you a fair estimate of how much you are paying for each unit of earnings for a given portfolio.

Mathematical formula:

$$\text{Portfolio P/E ratio} = \frac{\sum W_s}{\sum \left(\frac{W_s}{PE_s} \right)}$$

where,

Σ is symbol for summation of each constituent stock of the fund portfolio

W_s is % weight of each stock of the fund portfolio

PE_s is P/E ratio of each stock of fund portfolio

In the case of our example, the harmonic comes out to be 10.2, which we know from our actual total price and earnings of the portfolio to be accurate.

Holding	P/E	Weight	Weighted P/E
Stock A	25	30	0.012
Stock B	20	30	0.006
Stock C	5	40	0.080
Sum			
Harmonic mean of P/E i.e. $(1 \div \text{Sum})$			10.2

P/B Ratio

What is Price-to-book (P/B) ratio?

The P/B ratio offers a way to value a company. It compares the current share price of the company to its book value per share (BVPS).

Like in case of P/E ratio, P/B ratio of a mutual fund is also a measure of how the fund is placed in terms of valuation given the total book value of its stock holdings. It is also calculated by considering the P/B of its constituent stocks and their corresponding weights in its portfolio. The price and book value used for its calculation is also historical (and not forward looking or predictive of the future).

If the P/B ratio of a fund is high, it means that the fund has invested more in expensive stocks, which is common in growth investing. On the other hand, if the P/B ratio is low, it means that the fund has invested more in undervalued stocks, which is common in value investing.

What does P/B mean in case of a mutual fund and how to calculate it?

As we learnt mutual fund P/E, the same reasoning applies for P/B of a mutual fund. The method to calculate it also remains the same.

Use P/E for comparative study

In the case of mutual funds, many times, comparing P/E of funds within a category, and also with the benchmark, helps you determine the traits of the fund management team in terms of their style of investing, i.e., growth or value. It should also be looked at for the fund over a period of time to understand the historical consistency of style within its peer group.