Income, Capital and Total Returns

Total returns on stocks, bonds, real estate, and any asset can be broken into two parts, the income return and the capital return.

Income return is the proportion of the asset's price that is paid out in cash per time period.

$$r_{income,0-1} = \frac{C_1}{P_0}$$

Where C_1 is the cash flow at t=1 and P_0 is the price at t=0.

The cash flow income:

- from equity is called dividends or drawings,
- from debt is called coupon or loan payments,
- from real estate is rent.

Capital return is the rate of increase in the asset's price per time period.

$$r_{capital,0-1} = \frac{P_1 - P_0}{P_0}$$

When a dividend is paid (actually when the ex-dividend date occurs), the stock price falls. Therefore, all things remaining equal, dividends (income returns) come at the expense of price (capital returns).

Total return is the sum of the income and capital returns.

$$r_{total,0-1} = r_{capital,0-1} + r_{income,0-1}$$

$$= \frac{P_1 - P_0}{P_0} + \frac{C_1}{P_0} = \frac{P_1 - P_0 + C_1}{P_0}$$

Calculation Example: Components of Returns

Question: A stock was bought for $10 at t=0.

At t=1 the stock paid a dividend of $1 and immediately afterwards the price of the stock was $9.50.

At t=2 the stock paid no dividend and its price was $12.

All time periods are measured in years.

Find the total, dividend and capital returns of the stock over the first and second years.

Answer:

Over the first year (from t=0 to t=1):

$$r_{income,0-1} = \frac{C_1}{P_0} = \frac{1}{10} = 0.1 = 10\%$$

$$r_{capital,0-1} = \frac{P_1 - P_0}{P_0} = \frac{9.50 - 10}{10} = -0.05 = -5\%$$

$$r_{total,0-1} = r_{income,0-1} + r_{capital,0-1}$$

$$= \quad 0.1 \quad + \quad -0.05 \quad = 0.05 = 5\%$$

Over the second year (from t=1 to t=2):

$$r_{income,1-2} = \frac{C_2}{P_1} = \frac{0}{9.50} = 0 = 0\%$$

$$r_{capital,1-2} = \frac{P_2 - P_1}{P_1} = \frac{12 - 9.50}{9.50} = 0.263157895 = 26.32\%$$

$$r_{total,1-2} = r_{income,1-2} + r_{capital,1-2}$$

$$= \quad 0 \quad + 0.263157895$$

$$= 0.263157895 = 26.32\%$$

Note that all of these returns are effective annual rates.

Questions: Income and Capital Returns

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