

Wisdom & Wealth **How to Construct** **Your Investment** **Portfolio**

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**CENTRE FOR INVESTMENT
EDUCATION & LEARNING**

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1.1 Return on Investments – The Concept

Return on investment (ROI) refers to the returns generated on the original investment made. These returns typically accrue on future dates. In the case of fixed income instruments, the interest income schedule is known in advance. The amount of income is also known, as a fixed interest rate is applied to the principal invested.

The return is not known in advance in the case of equity investments. The future income may be realised as a dividend payout, or may remain unrealised as appreciation in the value of the investment. The appreciation in value also represents return on the investment, but is unrealised as cash. It is an implicit return capable of being realised if the investment is liquidated. Return on investments is made up of both the realised income and the unrealised appreciation in value of the investment.

1.2 ROI as Per cent Per Annum

Computing return on investment is not only for evaluating an investment on an absolute basis but also on a relative basis. The first step in computing return on investments is to ask, what was the return if we normalised the return on investment of Rs. 100? (This is the return per cent).

The next step would be to normalise the period of investment to one year, considering that returns can be earned over different periods of time. We then ask, what was the return per year? (This is the return per annum).

Therefore the simplest way to look at returns would be to take all the return that the investment promises, compare it with the principal and then normalise the return into per cent, per annum.

1.3 Computing Simple Annualised Return

Simple annualised return is the representation of return as per cent, per annum.

The steps to computing simple annualised return are:

- Determine the return on the amount invested
 - $(\text{Incomes} + \text{appreciation}) / \text{Original investment}$
- Normalise as percentage return
 - Multiply the return by 100
- Determine the holding period in days
 - End date – start date as a number
- Annualise the per cent return
 - Per cent return x 365/holding period

Example: An investor bought some mutual fund units at a price of Rs. 18.75 on April 2, 2012. If the NAV of the units was Rs.19.45 on June 30, 2012, what is the simple return to the investor? What is the simple annualized return?

Example: Anjali invested in a debt fund at Rs. 15.65. After holding the investment for 90 days, she sold the fund at Rs. 15.95. What is the rate of return on the investment?

The cost of investment	15.65
Gains on sale	$15.95 - 15.65 = 0.30$
Return on investment	$(0.30/15.65)*100 = \mathbf{1.917\%}$
Return per year	$1.917\% \times 365/90 = \mathbf{7.77\%}$

To annualise, multiply by the value (365/number of days).

If the investment was held for 90 days it gave a return of 1.917%

If it was held for 1 year, i.e. 365 days, it would give a return of (cross multiply)

$$365/90 \times 1.917\% = 7.77\% \text{ p.a}$$

Return can be referred to as a rate 0.077 or as 7.77%.

1.4 Time Value and Return

An investor bought a mutual fund on 31 Dec 2009 at Rs. 240. The investor received a dividend of Rs. 30, Rs. 40 and Rs. 25 for the three years that he held the unit. He sold it three years later, at a price of Rs. 205. What is his rate of return on the investment?

- The cost of investment = 240
- Dividends received = 95
- Loss on sale of investment = 35
- Therefore, net return = $95 - 35 = 60$
- Rate of return = $(60/240) * 100 = 25\%$
- Return per year = $25/3 = 8.125\%$
- Return per cent per annum = 8.125%

When we evaluate the simple return from an investment, we add up all the benefits we received from that investment, and compare it to the original cost of investment. We normalize this rate of return by dividing it by the number of years and multiplying it by 100. What are the simplistic assumptions we made in this computation?

In working out returns, the accepted norm is to take the time value of money explicitly into account. A rupee received today is not the same as another rupee received six months from today. The principles of compounding are used in return computation, to adjust for varying time values of money across time.

1.5 Time Value and Compounding

Compounding assumes that there is a positive rate at which today's money will compound over time, and by corollary, tomorrow's money will discount over time to today. Therefore today's value V_0 is not equal to tomorrow's value V_1 , since they accrue at different points in time.

Either V_0 can grow at a rate r , to become V_1