Returns Calculation Methodology

Value Research

Returns are unarguably the most important metric to track about a fund. However, returns can be calculated in many ways, and different return measures imply different things. Here's an explanation of the most prominent ones and how to interpret them.

Trailing returns (%)

Trailing returns are a measure of how a mutual fund has performed over a specific period of time.

The mathematical formula:

$$\text{Trailing returns} = \left(\frac{adjNAV_r}{adjNAVp} - 1 \right) \text{X100}$$

where,

$adjNAV_p$ is adjusted NAV* of the fund on a date in the past

$adjNAV_r$ is the latest adjusted NAV of the fund (or on a more recent date)

Example - If we want to calculate the 1-year trailing returns of a mutual fund as of 15 March 2023, then we calculate the returns as below.

$$\text{Trailing returns}_{\text{as on 15/03/23}} = \left(\frac{adjNAV_{15/03/23}}{adjNAV_{15/03/22}} - 1 \right) \text{X100}$$

$$\text{Trailing returns}_{\text{as on 15/03/23}} = \left(\frac{117}{104} - 1 \right) \text{X100}$$

$$\text{Trailing returns}_{\text{as on 15/03/23}} = 12.5$$

Trailing returns is also sometimes referred to as point-to-point returns because it calculates the performance between a start and an end date, thus giving us a snapshot of how well a fund has performed during that period.

Calculating and comparing trailing returns of funds is easy because it only looks at the change in net asset value (NAV) of the mutual fund over a time period.

The typical time periods for which trailing returns are provided are YTD (year to date, i.e., returns since the start of the current calendar year), 1-day, 1-week

1-month, 3-months, 6-months, 1-year, 3-year, 5-year, 7-year, 10-year, 15-year, 20-year and since inception (i.e., since the launch of the fund).

Note: If return figures are provided for a period less than one year, then those are absolute returns. For returns figures provided for a period of one year or greater, then those are annualised return figures. This rule is applicable by default unless explicitly specified otherwise.
The mathematical formula for annualising:

Trailing returns=

$$\left[\left(\frac{adjNAV_r}{adjNAV_p} \right)^{\left(\frac{1}{n}\right)} - 1 \right] \text{X100}$$

where,

$adjNAV_p$ is adjusted NAV of the fund on a date in the past

$adjNAV_r$ is latest adjusted NAV of the fund (or on a more recent date)

n is the total time period in number of years

Pitfalls: Though trailing returns provide a way to measure and compare a fund's performance with its benchmark or peers, there is a drawback in using it as a sole parameter for comparison. Inherently, trailing returns provide a snapshot of a fund's performance between two time periods, but does not give any information about how the fund performed in the intermittent phase. Thus, it falls short in providing an insight into how volatile or consistent the performance of the fund has been during that period.

***Why take adjusted NAV for returns calculation?**

At Value Research, we calculate returns (irrespective whether it is Trailing, Rolling or SIP) based on the adjusted NAV, which is nothing but NAV adjusted for dividends and splits to ensure that it reflects the true worth of each unit of a mutual fund over the entire course of its existence, since its inception.

Rolling returns (%)

Put simply, rolling returns is nothing but a series of trailing returns taken over a certain period in time at various frequencies. Thus, there are three parameters to look at when you want to get rolling returns of a fund, viz., namely the trailing return period returns, the time period over which you want to calculate the trailing returns, and the frequency at which you want them.

Finding it confusing? Let's understand it with an example.

Example – Consider a fund for which you want to calculate 1-year rolling returns over the last six months at a monthly frequency on 31/12/2022.

Thus, we have the three parameters with us now for calculating rolling returns as below:

Trailing period returns	1-year trailing returns
Time period	Last 6 months, i.e., July to December 2022
Frequency	Monthly

The rolling returns for the given set of input parameters would give you six figures of trailing returns of the fund, i.e., 1-year trailing returns at the end of every month from July to December.

Period	Returns (%)
From 31-Jul-2021 to 31-Jul-2022	6.81
From 31-Aug-2021 to 31-Aug-2022	6.86
From 30-Sep-2021 to 30-Sep-2022	3.13
From 31-Oct-2021 to 31-Oct-2022	7.26
From 30-Nov-2021 to 30-Nov-2022	12.22
From 31-Dec-2021 to 31-Dec-2022	6.99

Rolling returns have an advantage in that they help to identify "how often" and "how much" a mutual fund has performed well or poorly over time, i.e., it

highlights the frequency and magnitude of a fund's stronger and weaker periods of performance. This way it provides a more granular picture of a fund's past performance characteristic than trailing returns.

Many times, rolling returns figure for a period is provided as an average of all the series of returns taken over a period (as per the input parameters). Additionally, one may analyse the rolling returns series by splitting them into various buckets. For example, if we were to take 5-year rolling returns at monthly frequency for the last 10 years, then we would have 120 return figures (10 years x 12 months) in the rolling return series and its distribution may be summarised as below:

Returns statistics (% returns)			Distribution of 5-year returns (% no. of times)		
Average	Maximum	Minimum	< 10%	≥ 10% to 20% ≤	> 20%
11.72	22.81	-2.59	31.6	64.1	4.3

Here the average, maximum and minimum returns of the fund give the basic statistics of the fund returns. The distribution table provides the characteristics of the fund's past 5-year return performance wherein it has been less than 10% about 31.6% of the times, returns have been greater than 20% about 4.3% of the times, and it has been between 10% and 20% the rest of the times .

SIP returns (%)

SIP returns give you a measure of the performance of your investment in a mutual fund on a particular date, assuming you have been investing in the fund every month for a given period in the past.

Let's understand it with an example.

Suppose you want the current returns of your investment, assuming an SIP of ₹1,000 in a mutual fund in which you have been investing for the last three years. Then the number of units purchased by you every month (for 36 months, i.e., 3 years) for your SIP amount of ₹1,000 will be different as the NAV of each unit of the fund will be different on any given day as per its performance.

Thus, SIP returns for these three years would be the return on your systematic

investment at different points in time (i.e., assuming 1st trading day of every month) over the past three years since today.

There is no straightforward way to calculate the returns for a series of inflows in the fund over a period, as it is an iterative technique to satisfy the following formula for different values of rate of return (r).

$$0 = \frac{P_i - R_f}{(1+r)^{\frac{D_i D_1}{(365)}}}$$

where:

P_i is ith SIP amount

r is rate of return for the SIP

d_i is ith date of SIP

d_1 is 1st date of SIP

N is total number of SIP payments

However, for convenience, the financial industry uses something called Extended Internal Rate of Return (commonly known as XIRR, by MS Excel users). This helps you evaluate the return on a series of investments over time at the end of the period.