

## Understanding Various Return Types

Returns have been a crucial parameter in checking the growth of our investments. Returns help us to understand how much our fund has gained or lost during a specific investment period. But there is one problem in investing; world returns are expressed in various terminologies.

**Have you ever wondered why there are so many returns across the investing world? And what each type of Return signifies?**

Let's dive deep and understand each of the returns. The more you know the usefulness and significance of these returns, the better you will feel regarding your investment reports. Understanding these concepts will take your investment decisions to a new height.

Let's start with the simplest type of Return, the Absolute Return.

### Absolute Returns

Absolute Return is a measure of the profit or loss on an investment portfolio expressed as a percentage of the invested capital. It is the most straightforward measure of calculating returns. All of us have studied this in the Profit & Loss class in school. This doesn't consider the calculation's time component or holding period.

The formula to calculate Absolute Returns is

$$\text{Absolute Return} = \frac{\text{Current Value} - \text{Initial Value}}{\text{Initial Value}} \times 100$$

Let's understand absolute Return with an example. Consider we invested Rs.1,00,000/- today in a mutual fund scheme. After five years, the value of our investments turns out to be Rs.2,00,000/-. Let's calculate the absolute Return using its formula.

$$\text{Absolute Return} = \frac{(200000 - 100000)}{100000} \times 100$$

$$\text{Absolute Return} = \frac{100000}{100000} \times 100$$

$$\text{Absolute Return} = 100 \%$$

**We can observe that the number of years is not considered in this formula.** Ideally, absolute returns are helpful if we calculate returns for less than one year. So, if people say they have doubled the investment, ask how many years they have done it & if they can consistently do it going forward.

We will look at the following necessary Return: Compounded Annual Growth Rate (CAGR).

### **Compounded Annual Growth Rate (CAGR)**

CAGR is the mean annual growth of your investments over a specific period longer than one year. In other words, it measures how much you have earned on your investments yearly during a given interval.

CAGR is a widely used and popular measure of calculating mutual fund returns. It is one of the most accurate ways to calculate and determine returns for anything that can rise or fall in value over time. It measures a smoothed rate of Return. Thus, CAGR is an excellent way to compare our returns against a benchmark/Index.

The formula for CAGR is

$$\text{CAGR} = \left( \frac{V_{\text{final}}}{V_{\text{begin}}} \right)^{1/t} - 1$$

Where,

$V_{\text{begin}}$  = Our initial Investment Value

Final = Our final Investment Value

T = time in years

Let's understand CAGR with an example. We will consider the same model that we used for Absolute returns calculation.

We invested Rs.1,00,000/- today in a mutual fund scheme. After five years, the value of our investments turns out to be Rs.2,00,000/-

Now, the investor's investment is increased by Rs.100,000. But what did he earn in terms of the return percentage? This is compared to another investment option, say, FD.

This is what CAGR can tell us. Let's calculate CAGR using the CAGR formula.

$$\text{CAGR} = \left( \frac{200000}{100000} \right)^{1/5} - 1$$

$$\text{CAGR} = 1.148698 - 1$$

$$\text{CAGR} = 0.148698 \times 100$$

$$\text{CAGR} = 14.8698\%$$

Similarly, we can check the CAGR for different funds for different time frames like 3, 7, and 10 years.

However, even though CAGR helps calculate returns over different time frames, there are also some limitations. The rules in CAGR are:

- CAGR doesn't give us a clear picture of the volatility. As mentioned earlier, CAGR makes the Return of a fund look like a smooth ride. This can trick the investors into believing that their investments have had or will have steady linear growth; still, in reality, the underlying value of the investment can vary significantly. Like in our above example, by just looking at the CAGR of 14.87%, we might feel that the investor money grew 14.87% every year. But that's not the reality. Over the five years, the investment would have witnessed a mix of positive and negative returns.
- The second limitation is that CAGR does not consider periodic investments. In the above example, if there were multiple investments in a year at irregular dates, CAGR won't be able to provide a good picture. CAGR works best on a Point-to-Point basis. So, when there is a one-time lump sum investment, CAGR is an apt measure, but CAGR is not suitable for measuring SIP returns.

**The next question is, if CAGR is not the right measure for evaluating SIP investments, then which Return is used? For SIP calculations, we use – XIRR.**

### **Extended Internal Rate of Return (XIRR)**

We use XIRR when we have multiple uneven cash flows at different periods. We can see XIRR returns in statements of Mutual funds, which are helpful if we invest in SIP mode. XIRR is a modification of the Internal Rate of Return (IRR) with the additional flexibility to assign specific dates to individual cash flow, which we are investing randomly.

We calculate XIRR using Excel. Let's consider this with an Example. The below table shows investments on various dates and the amount invested, respectively. The first column represents the Date and the second column represents the Cash inflow/outflow. A negative value represents cash outflow meaning Cash going out of our pocket & Positive value represents cash inflow meaning Cash coming into our pocket.

Date	Cashflow
08/06/2020	-5000
09/11/2020	-6000
10/02/2021	-10000
25/04/2021	-4000
20/08/2021	-20000
15/12/2021	-10000
15/03/2022	-45000
23/08/2022	124000
<b>XIRR</b>	<b>26.13%</b>

`=XIRR(D3:D10,C3:C10)`

XIRR is an excellent function to calculate returns when our cash flows (investment & redemption) are spread over time. XIRR is the right way to determine our investment returns if we invest through SIP/random installments.

### Time –Weighted Rate of Return (TWRR)

TWRR is a method of calculating the compound growth rate of an investment portfolio. The time-weighted Return breaks up the Return on an investment portfolio into separate intervals based on whether money was added or withdrawn from the fund.

TWRR is said to be “pure” and measures only the performance of your managed account. Its primary purpose is to enable comparisons to be made.

Our TWRR can be compared to the performance of:

- A benchmark.
- A particular index or a blend of indices
- A mutual fund or other managed product
- Another portfolio – providing you use its TWRR for the comparison.

TWRR is also called the Geometric Mean Return.

$$r_{TWRR} = [(1 + r_{t,1}) \times (1 + r_{t,2}) \times \dots \times (1 + r_{t,n})] - 1$$

where:

$$r_{t,n} = \frac{V_1 - V_0}{V_0} = \text{the total return for sub-period } t,n$$

$V_1$  = the full fair value of the portfolio, including cash and accrued income, at the end of the period

$V_0$  = the full fair value of the portfolio, including cash and accrued income, at the beginning of the period

Let's calculate TWRR with a simple example. We initially invested Rs.100,000 on December 31, 2020. On September 15, 2021, our portfolio was worth Rs.118,000. Then we added Rs.25,000 to the portfolio, bringing the portfolio value up to Rs.143,000. By the end of 2021, the portfolio had decreased to Rs.130,000.

We will start by calculating our first sub-period return from December 31, 2020, to September 15, 2021 (using portfolio values before the cash flow occurred). Then we would calculate a second sub-period return from September 15, 2021 (using portfolio values after the cash flow occurred) to December 31, 2021. After this is done, we

would geometrically link the sub-period returns to obtain their time-weighted rate of Return for the year.

$$r_{t,1} = \frac{V_1 - V_0}{V_0} = \frac{(118000 - 100000)}{100000} = 0.18$$

$$r_{t,2} = \frac{V_2 - V_1}{V_1} = \frac{(130000 - 143000)}{143000} = -0.0909$$

$$\begin{aligned} \text{oneperiod TWRR} &= (1 + r_{t,1}) * (1 + r_{t,2}) - 1 = (1 + 0.18) * [1 + (-0.0909)] - 1 \\ &= 1.0727 - 1 = 7.27\% \end{aligned}$$

This is how TWRR is calculated. For investments with multiple withdrawals and deposits, calculating the rate of returns is quite a challenge, and this is where TWRR comes into use. Too many investments & Redemptions distort the Rate of Return for the whole period of acquisition. The TWRR gives the rate of Return for each period when there was an investment or withdrawal. This method is mostly used in the PMS industry.

**To conclude, if an investor who is holding her investment for a period of less than one year, we look into the absolute Return.**

**In case of a holding period, greater than one year and our investments are lump sum, we look into CAGR.**

**In case of a holding period greater than one year and our investments is spread across multiple cash flow & varied time horizon, we look into XIRR.**

**In case of holding period is greater than 1 a year, along with various withdrawals & investments, we look into TWRR.**

## Return on your investment



We all invest in various financial assets to grow our money and earn better returns. So, by knowing the intricacies related to returns, we can evaluate multiple financial assets ourselves. Once we are invested, it also helps us gauge the Return on Investment.

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