Semester: VII Subject: AIFB Academic Year: 2024-25

MEAN:

Mean is a measure of central tendancy that represents the typical or expected value of a set of data points, such as investment returns or asset prices, over a period of time.

The mean is calculated as:

$$\text{Mean} = \sum_{i=1}^{n} \frac{x_i}{n}$$

where, n = no. of data points (eg. No. of periods).
x_i = each individual data point (eg. return in a given period)

Examples of Mean:

(1) Mean Return: When evaluating the performance of an asset, portfolio, or investment over time, the mean return is often calculated as the average return over a specified period (eg. daily, monthly, annually).

Example: If the stock had the following returns over five years: 10%, 5%, 7%, -2%, and 8%, the mean return is calculated as:

$$\text{Mean return} = \frac{10+5+7-2+8}{5} = 5.6\%.$$

So the average return over these five years is 5.6%

(2) Mean Price: The mean price of an asset, such as a stock or bond, is the average price over a given period. This can help identify trends or whether the asset is generally increasing (or) decreasing in value.

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Example: If a stock price fluctuated as follows over five days: $100, $102, $98, $104 and $101, the mean price would be:

$$\text{Mean Price} := \frac{100+102+98+104+101}{5} = 101$$

The average price of the stock over these five days is $101.

(3) Mean of cash flow: The mean can also be used in project evaluation or investment analysis to assess average cash inflows or outflows. The mean cash flow provides an average figure for comparison or decision-making.

(4) Mean in Portfolio management: The mean return of a portfolio is often used to estimate the expected return over a period. By doing this the portfolio managers aim to balance risk and reward.

Though the mean is helpful, it has some limitations, particularly when the data is skewed or contains extreme (outliers). In such cases, the mean can give a misleading picture. For example, if an asset has a few very high returns and many small returns, the mean return could be higher than what most investors would actually experience. This is why median or mode might sometimes be preferred as alternative measures of central tendency in certain scenarios.