

# Variance

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The term variance refers to a statistical measurement of the spread between numbers in a data set. More specifically, variance measures how far each number in the set is from the mean and thus from every other number in the set. Variance is often depicted by this symbol:  $\sigma^2$ . It is used by both analysts and traders to determine volatility and market security.

The square root of the variance is the standard deviation ( $\sigma$ ), which helps determine the consistency of an investment's returns over a period of time.

- Variance is a measurement of the spread between numbers in a data set.
- Investors use variance to see how much risk an investment carries and whether it will be profitable.
- Variance is also used to compare the relative performance of each asset in a portfolio to achieve the best asset allocation.

variance measures variability from the average or mean. It is calculated by taking the differences between each number in the data set and the mean, then squaring the differences to make them positive, and finally dividing the sum of the squares by the number of values in the data set.

Sample Variance ( $s^2$ )

$$s^2 = \frac{\sum (x_i - \bar{x})^2}{n-1}$$

$s^2$  = variance

$x_i$  = term in data set

$\bar{x}$  = Sample mean

$\sum$  = Sum

$n$  = Sample size

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