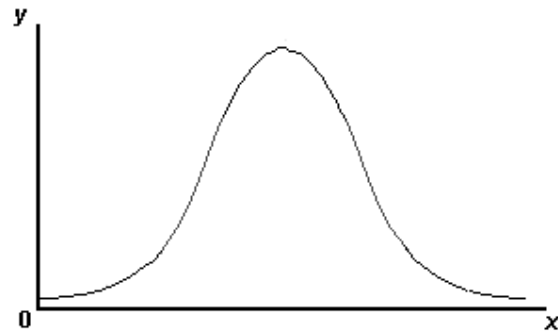


Standard Deviation as a measure of 'risk'

Various technical terms are commonly referred to in finance. Standard Deviation is the term often used to statistically quantify the level of risk of an investment return. What is really being described is the volatility or fluctuations around a result (expected or actual) that the investor has experienced in deriving a particular outcome.

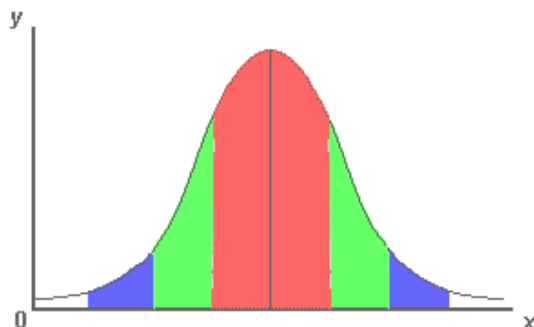
If you looked at normally distributed data on a graph, it would look something like the graph on the right. The x -axis (the horizontal one) is the value in question. In the case of investment returns, it is the percentage return p.a. The y -axis (the vertical one) is the number of data points for each value on the x -axis. In other words, the number of times x percent return is recorded in the sample period.



Now, not all sets of data will have graphs that look this perfect. Some will have relatively flat curves, others will be pretty steep. Sometimes the mean will lean a little bit to one side or the other. But all normally distributed data will have something like this same "bell curve" shape.

The standard deviation is a statistic that tells you how tightly all the various examples are clustered around the mean in a set of data. When the examples are pretty tightly bunched together and the bell-shaped curve is steep, the standard deviation is small. When the examples are spread apart and the bell curve is relatively flat, that tells you there is a relatively large standard deviation.

Computing the value of a standard deviation is complicated. However, graphically it is much easier to grasp what a standard deviation represents.



For data that is 'normally distributed', one standard deviation away from the mean in either direction on the horizontal axis (the red area on the above graph) accounts for somewhere around 68 percent of the occurrences within all the data points represented within the bell curve (or the statistical sample in question). Two standard deviations away from the mean (the red and green areas together) account for roughly 95 percent of the returns, and finally three standard deviations (the red, green and blue areas) account for about 99 percent of returns.

If this curve were flatter and more spread out, the standard deviation would have to be larger (and likely represent a broader range of percentage outcomes) in order to account for those 68 percent or so of the returns. Thus the standard deviation can tell you how spread out the results are, or how widely they fluctuate, from the mean.

