Investment Fundamentals

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Standard Deviation (Volatility)

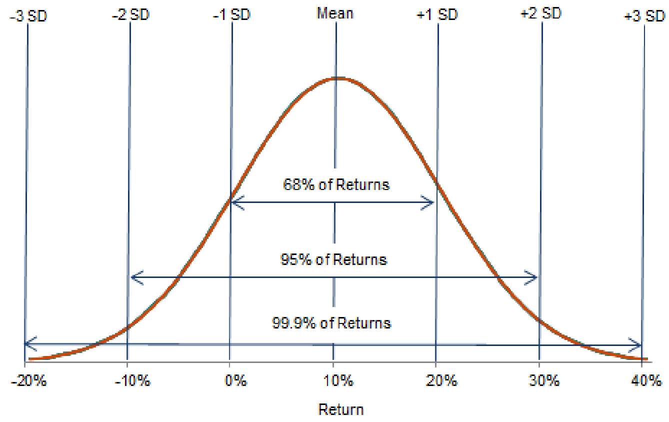
- Standard deviation, also referred to as volatility, measures the variation from average performance.
- If all else is equal, including returns, rational investors would select investments with lower volatility.
- Within the context of a diverse portfolio, allocations to riskier assets can make sense for even conservative investors, as these allocations can actually reduce a portfolio's overall volatility.

Standard deviation is a measurement of investment volatility, and is often simply referred to as "volatility." For a given investment, standard deviation measures the performance variation from the average. Therefore, an investment with a higher standard deviation will tend to have greater variations from its average performance than an investment with a lower standard deviation. Standard deviation is probably the most-commonly quoted investment risk statistic.

Interpreting Standard Deviation

Suppose Mutual Fund A has a 10% average return and a 10% standard deviation. Statistically speaking, and assuming a normal distribution of returns, about 68% of mutual fund returns fall within plus or minus one standard deviation of the average. About 95% of returns will fall within plus or minus two standard deviations. In theory, that means about 68% of the time Mutual Fund A will have returns between 0% and 20%. At a 95% level of confidence, the range would be from -10% to 30%. We would also expect over 99.9% of Mutual Fund A's returns to fall within plus or minus three standard deviations, or between -20% and 40%. This can be seen in Exhibit 1.

Exhibit 1: Distribution of Returns



Source: SEI. For illustrative purposes only. Chart assumes normal distribution with a 10% mean (average) return and a 10% standard deviation (volatility). SD = Standard Deviation.

Impact of Standard Deviation on Investment Decisions

Consider two similar mutual funds: A from the prior example and B, which has an average return of 10% and standard deviation of 15%. Given a mandate to choose only one of these two similar options, a rational investor would be expected to choose Mutual Fund A because it offers the same return as Mutual Fund B — but with a more consistent, less volatile return pattern. However, in practice, it's not usually that simple. There is often a trade-off between returns and volatility; therefore, investors are generally forced to decide between a higher return with higher risk assets and a relatively lower return with lower risk assets.

What Does This Mean for Investors?

Investors have many options to choose from based on the amount of risk they are willing to take to achieve their particular desired returns. Investors who are risk conscious may decide to purchase a mutual fund that focuses on investment-grade bonds rather than a small-cap equity fund. In doing so, they could expect lower long-term returns to correspond with the lower expected volatility of bonds as compared to equities. Another investor may desire equity-like returns, but with lower volatility — and thus may choose a managed-volatility equity fund.

It's important to note that many different types of assets often have a place within the context of an overall portfolio. Even for risk-averse investors, more-volatile investments can make sense within diverse portfolio. In fact, if the higher-volatility and lower-volatility assets have low correlations, the overall volatility of the portfolio may actually be lower than either individual investment. This is a benefit of diversification, and why you will often find modest allocations to equities and other riskier assets (such as high-yield bonds) in even relatively conservative SEI strategies.