

Measuring Performance and Risk in your Portfolio

There are five main indicators of investment risk that apply to the analysis of stocks, bonds and mutual fund portfolios. They are alpha, beta, r-squared, standard deviation and the Sharpe ratio. These statistical measures are historical predictors of investment risk/volatility and are all major components of modern portfolio theory (MPT). The MPT is a standard financial and academic methodology used for assessing the performance of equity, fixed-income and mutual fund investments by comparing them to market benchmarks.

All of these risk measurements are intended to help investors determine the risk-reward parameters of their investments. In this article, we'll give a brief explanation of each of these commonly used indicators.

Alpha

Alpha is a measure of an investment's performance on a risk-adjusted basis. It takes the volatility (price risk) of a security or fund portfolio and compares its risk-adjusted performance to a benchmark index. The excess return of the investment relative to the return of the benchmark index is its "alpha."

Simply stated, alpha is often considered to represent the value that a portfolio manager adds or subtracts from a fund portfolio's return. A positive alpha of 1.0 means the fund has outperformed its benchmark index by 1%. Correspondingly, a similar negative alpha would indicate an underperformance of 1%. For investors, the more positive an alpha is, the better it is.

Beta

Beta, also known as the "beta coefficient," is a measure of the volatility, or systematic risk, of a security or a portfolio in comparison to the market as a whole. Beta is calculated using regression analysis, and you can think of it as the tendency of an investment's return to respond to swings in the market. By definition, the market has a beta of 1.0. Individual security and portfolio values are measured according to how they deviate from the market.

A beta of 1.0 indicates that the investment's price will move in lock-step with the market. A beta of less than 1.0 indicates that the investment will be less volatile than the market, and, correspondingly, a beta of more than 1.0 indicates that the investment's price will be more volatile than the market. For example, if a fund portfolio's beta is 1.2, it's theoretically 20% more volatile than the market.

Conservative investors looking to preserve capital should focus on securities and fund portfolios with low betas, whereas those investors willing to take on more risk in search of higher returns should look for high beta investments.

R-Squared

R-Squared is a statistical measure that represents the percentage of a fund portfolio's or security's movements that can be explained by movements in a benchmark index. For fixed-income securities and their corresponding mutual funds, the benchmark is the U.S. Treasury Bill, and, likewise with equities and equity funds, the benchmark is the S&P 500 Index.

R-squared values range from 0 to 100. According to Morningstar, a mutual fund with an R-squared value between 85 and 100 has a performance record that is closely correlated to the index. A fund rated 70 or less would not perform like the index.

Mutual fund investors should avoid actively managed funds with high R-squared ratios, which are generally criticized by analysts as being "closet" index funds. In these cases, why pay the higher fees for so-called professional management when you can get the same or better results from an index fund?

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Standard Deviation

Standard deviation measures the dispersion of data from its mean. In plain English, the more that data is spread apart, the higher the difference is from the norm. In finance, standard deviation is applied to the annual rate of return of an investment to measure its volatility (risk). A volatile stock would have a high standard deviation. With mutual funds, the standard deviation tells us how much the return on a fund is deviating from the expected returns based on its historical performance.

Sharpe Ratio

Developed by Nobel laureate economist William Sharpe, this ratio measures risk-adjusted performance. It is calculated by subtracting the risk-free rate of return (U.S. Treasury Bond) from the rate of return for an investment and dividing the result by the investment's standard deviation of its return.

The Sharpe ratio tells investors whether an investment's returns are due to smart investment decisions or the result of excess risk. This measurement is very useful because although one portfolio or security can reap higher returns than its peers, it is only a good investment if those higher returns do not come with too much additional risk. The greater an investment's Sharpe ratio, the better its risk-adjusted performance.

The Bottom Line

Many investors tend to focus exclusively on investment return, with little concern for investment risk. The five risk measures we have just discussed can provide some balance to the risk-return equation. The good news for investors is that these indicators are calculated for them and are available on several financial websites, as well as being incorporated into many investment research reports. As useful as these measurements are, keep in mind that when considering a stock, bond or mutual fund investment, volatility risk is just one of the factors you should be considering that can affect the quality of an investment.

Up-Market Capture Ratio

The up-market capture ratio is the statistical measure of an investment manager's overall performance in up-markets. The up-market capture ratio is used to evaluate how well an investment manager performed relative to an index during periods when that index has risen. The ratio is calculated by dividing the manager's returns by the returns of the index during the up-market, and multiplying that factor by 100. $\text{up market capture ratio} = \text{manager returns} / \text{index returns} \times 100$

BREAKING DOWN 'Up-Market Capture Ratio'

An investment manager who has an up-market ratio greater than 100 has outperformed the index during the up-market. For example, a manager with an up-market capture ratio of 120 indicates that the manager outperformed the market by 20% during the specified period. Many analysts use this simple calculation in their broader assessments of individual investment managers.



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