

Quick Guide to Risk Metrics

Fundamental Investing

This quick reference guide defines some of the most commonly used investment performance terms. Refer to it as needed and feel free to share it as applicable.

Alpha

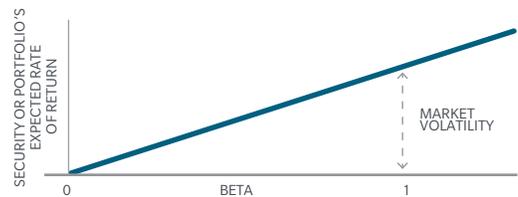
Measures a portfolio's risk-adjusted performance against that of its benchmark

- A positive alpha indicates relative outperformance.
- A negative alpha indicates relative underperformance.

Beta

Measures the volatility of a security or portfolio to that of the market

- A beta less than 1.0 indicates likely lower volatility than the market.
- A beta greater than 1.0 indicates likely higher volatility than the market.



Capture ratio

Measures the percentage of benchmark return captured by a portfolio manager during a specified period

- Upside capture: A ratio greater than one indicates that the portfolio outperforms in up markets.
- Downside capture: A ratio less than one, even negative, indicates that the portfolio outperforms in down markets.

$$\text{Capture ratio} = \frac{\text{Portfolio return}}{\text{Benchmark return}} \times 100$$

Correlation

Measures how a portfolio's asset classes move in relation to each other in response to market events

- Correlation ranges from +1 to -1. The closer two assets are to a +1 correlation, the more likely they are to move in the same direction.
- A negative correlation indicates two assets moving in opposite directions.
- Low or negative correlation among assets within a portfolio may help reduce overall portfolio volatility.

Government securities				
-0.14	High yield			
-0.23	0.69	Value stocks		
-0.06	0.68	0.76	REITs	
0.33	0.73	0.59	0.53	Emerging market debt

Information ratio

Measures the consistency of a portfolio manager's performance versus the benchmark

- A higher, positive information ratio indicates the manager has beaten the benchmark without taking excessive risks.

$$\text{Information ratio} = \frac{\text{Excess return}}{\text{Tracking error}}$$

R² (R-squared)

The part of a portfolio's volatility that can be explained by movements in its benchmark or market

- An R² of 100% shows that all of a portfolio's movements can be completely explained by movements in the benchmark or market.
- A low R² indicates that little of the portfolio's movements can be explained by benchmark or market movements.

Sharpe ratio

Measures the reward-to-risk efficiency of a portfolio

- The higher the Sharpe ratio, the better the portfolio's historical risk-adjusted performance.

Sharpe ratio

$$\frac{\text{Portfolio's return} - \text{Risk-free rate}^*}{\text{Portfolio's standard deviation}}$$

* Defined as 3-month T-bill or appropriate market-specific asset for non-USD portfolios

Standard deviation

A common statistical measure of portfolio volatility

- Standard deviation measures how much a portfolio's total return varies from its mean or average.
- The more a portfolio's returns fluctuate from month to month, the higher its standard deviation and the greater its volatility.

Tracking error

Measures the volatility of a portfolio's excess return versus its benchmark

- An actively managed portfolio typically has a high tracking error.
- An index fund is expected to have a tracking error close to zero.

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