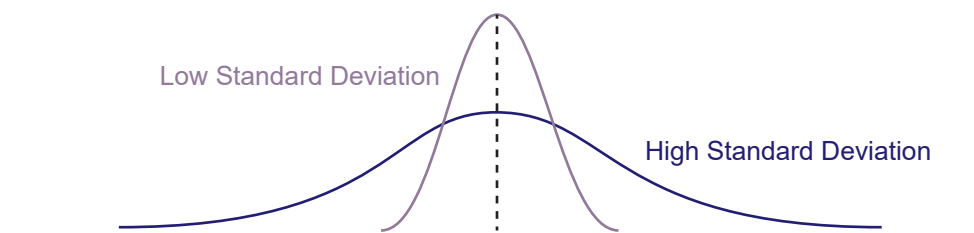




Investors often consider the price volatility of an asset, its Standard Deviation, as a measure of risk. Information Ratio and Sharpe Ratio are also popular risk measures as they consider investment return as well, normalizing assets with differing return profiles. While these tools are useful, we note that most investors will happily accept upside deviation. They are most concerned about losses. Thus, the addition of Downside Deviation and Sortino Ratio can help round out the risk management toolkit.

— STANDARD DEVIATION —

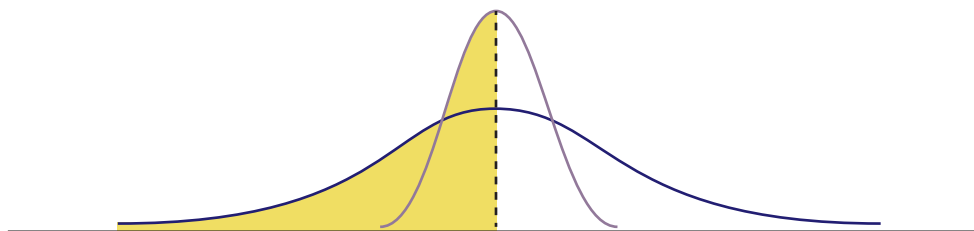
One of the most commonly used measures of portfolio risk, Standard Deviation, measures the dispersion of an asset's performance relative to its mean – that is, an asset with low standard deviation will have a relatively consolidated dataset, whereas one with high standard deviation will have a significantly disperse dataset.



Although standard deviation is certainly an important risk characteristic, as with any single measure, it has limitations. By looking at *all* dispersion from the mean, standard deviation equally weighs downside and upside data points. For many investors, upside volatility is not as concerning – if performance is positive, does the higher volatility attributable to variance in positive return harm the portfolio?

— DOWNSIDE DEVIATION —

In this light, an investor may be better served by focusing on the risk characteristics of an asset when it generates losses. Downside Deviation focuses on an asset's risk specifically with regards to returns that fall below a minimum threshold or minimum acceptable return, such as zero.



Suppose two investments have the same expected return, say 10%; however, one has a downside deviation of 9%, and the other has a downside deviation of 5%. Which one is the better investment? We would say the second one is better. Downside deviation also can indicate that a traditionally "risky" investment, one with a high standard deviation, is actually less risky than it looks. An investment with high standard deviation and low downside deviation indicates that much of its volatility is attributable to upside variance, which is much less harmful to overall portfolio performance.

— RISK-ADJUSTED PERFORMANCE MEASURES —

Many investors also rely on ratios when evaluating investments. Information Ratio and Sharpe Ratio, for example, are both calculated by dividing the performance of an asset or portfolio by its standard deviation. While these ratios give a high level view of risk-adjusted return, they again equally weight upside and downside data points. Sortino Ratio, by contrast, measures the asset or portfolio's risk-adjusted return via downside deviation. For investors concerned with negative surprises, the Sortino Ratio can be a more relevant tool.

— CONTACT US —

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MEASURING PORTFOLIO RISK

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