Investment Management Course Notes

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1 Fundamentals of risk and returns

Compounding returns with different return rates:

$$(1 + r_1)(1 + r_2) - 1.$$

Compounding returns with the same return rate:

$$((1 + r)^t - 1).$$

To compare different time period standard deviations multiply (or divide) by the square root of the number of time periods. The sharpe ratio:

$$\frac{R_p - R_f}{\sigma_p}.$$

Pandas standard deviation method uses the sample standard deviation and not the population standard deviation. Similar to the sharpe ratio, the calmar ratior is a risk adjusted return where risk is measured by drawdown. Use index method to_period to convert from datetime to period. Use series method cummax to find the highest value for each timestep. Drawdown is then:

$$\frac{Value - PreviousPeak}{PreviousPeak}.$$