Stock Technical Analysis with Python

Section 5: Strategies Performance Comparison

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Strategies Performance Comparison

- **Strategies performance comparison** is done by using buy and hold strategy as benchmark against stock trading strategies based on single and multiple technical indicators.
- **Annualized return**, **annualized standard deviation** and **annualized Sharpe ratio** metrics are used for this assessment, among many others.

Annualized Return

- **Annualized return** is a performance metric that consists of the number of observations root of annually scaled cumulative product of daily returns.

$$r_i = \frac{p_i}{p_{i-1}} - 1$$

$$r_a = \left[\prod_{i=1}^{n}(r_i + 1)\right]^{252/n} - 1$$

Annualized Standard Deviation

- **Annualized standard deviation** is a risk metric that consists of daily standard deviation multiplied by square root of number of periods per year.

$$\boldsymbol{\sigma_a = \sigma * \sqrt{252}}$$

$$\sigma = \sqrt{\frac{1}{n} * \sum_{i=1}^{n} (r_i - \mu)^2}$$

$$\mu = \frac{\sum_{i=1}^{n} r_i}{n}$$

Annualized Sharpe Ratio

- **Annualized Sharpe ratio** is a risk-adjusted performance metric that consists of annualized excess return by unit of risk.
- William F. Sharpe. "The Sharpe Ratio". *Journal of Portfolio Management*. Fall 1994.

$$sr_a = \frac{r_a - rf_a}{\sigma_a}$$