

# Stock Technical Analysis with R

## Section 5: Strategies Performance Comparison

© Diego Fernández García 2015-2017

EXFINSIS  
[www.exfinsis.com](http://www.exfinsis.com)



•

# Course Disclaimer

- **Course Objective.** This course has an educational and informational purpose and doesn't constitute any type of trading or investment advice. All content, including code and data, is presented with no guarantee of exactness or completeness.
- **Investment Risk and Uncertainty.** All course content and conclusions are based on hypothetical historical back-testing and not real trading with the possibility of future outliers not previously observed within these time series. Past performance doesn't guarantee future returns. Investment risk and uncertainty can possibly lead to its total loss for unleveraged products and even larger for leveraged ones.
- **Responsibility Disclaimer.** The instructor is not responsible for any damages caused by using course content for trading or investment decisions; exclusively transferring all this responsibility to the student. Recommending that the student does own due-diligence based on several scenarios, assumptions and consult a certified financial advisor before taking any trading or investment decision.
- **Non-endorsement.** The instructor doesn't endorse any particular trading strategy and associated stock or investment vehicle. Some are from recent inception and haven't been exposed to a major market correction. Investment vehicles have risk considerations such as liquidity, tracking error, replicating index unpredictability, note issuer credit risk, among others. Therefore, recommending again student does own due-diligence and consult a certified financial advisor before taking any trading or investment decision.

# 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.

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

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

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

# 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.

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