Short-Term Trading Strategy based on Volatility and Technical Indicators

Osama Iqbal
iqbal.osama@icloud.com

Abstract

The project aims to establish a trading system in which the user creates a portfolio of stocks by entering a ticker or by uploading data through a file. A signal filter is then generated using Technical Indicators such as SMA, ADX, RSI, Bollinger Bands etc. These indicators are then used in a short term trading strategy in combination. For example, ADX-MACD-RSI-BB strategy, where the indicators from the signal filter are used in combination.

Keywords: *Technical Analysis, Trading System, RSI, Bollinger Bands, MACD, ADX*

1. Introduction

The aim of the project is to create a Trading System that consists of a Short Term strategy. For performing short term trading, we use Technical Indicators in order to generate signal filters, upon which strategies could be devised. In essence, the step by step procedure to achieve this is as follows:

1. Get ticker/s from user and fetch the End of Day Data from a source, or from a file source. Only stocks are permitted to be used.
2. Generate a portfolio based on the tickers that have been entered, and gather the data
3. Plot the outlier stocks based on volatility
4. Generate a signal filter based on SMA, ADX, RSI, BB, MACD
5. Devise a strategy using ADX-MACH-RSI-BB
6. Calculate and plot Key Performance Indicators such as Drawdown, Win-to-Loss Ratio, Gain-to-Pain Ratio and other factors such as Number of trades etc.

2. Gathering Data

Only stock data is permissible for the given project. One can only construct a portfolio from tickers that will fetch end of day data related to stocks. The user can manually input a CSV file consisting of data, though it is always preferred to just enter the stock tickers, and the system will fetch it from sources such as Yahoo Finance (even though deprecated, it still has ways of getting data) or from Quandl. A portfolio is then constructed using the data of stocks that has been fetched from sources (or from a file).

3. Plotting the outliers

The outliers are then plotted by calculating their volatility. The volatility is calculated using a daily change measure. If the daily change measure and volatility vary greatly, these stocks are then plotted as outliers.

4. Signal Filters

Signal Filters are generated using Technical Indicators. These signals are based on nothing but prominent technical analysis indicators such as SMA (Simple Moving Average), ADX (Average Directional Index), MACD (Moving Average Convergence/Divergence), BB (Bollinger Bands), RSI (Relative Strength Index) etc.

5. Trading Strategy

A short term trading strategy is then devised based on the aforementioned signal filters such as ADX-MACD-RSI–BB. This also shows the robustness of the system, where we can have several indicators and based off of those indicators, one can devise a strategy. For this particular project, a short term strategy is devised on the aforementioned signals. Please do note that more signal filters could be added, and the strategy could possibly be tweaked for using more indicators.

6. Key Performance Indicators

Key Performance Indicators are then generated to check the strategy's feasibility. These indicators can be Drawdown, Win-to-Loss Ratio, Gain-to-Pain ratio and a number of other factors such as the number of trades, the total long positions, the total short positions etc.

Appendix

SMA – Simple Moving Average

ADX – Average Directional Index

MACD – Moving Average Convergence/Divergence

BB – Bollinger Bands

RSI – Relative Strength Index

Quandl – A third-party website from which stock data can be gathered