

Algorithmic Trading

Introduction

You recently opened a brokerage account and you would like to implement a simple trading algorithm to decide which stocks to buy.

You believe a strategy where you buy a share on a day in which it dropped by 3% or more and then selling it 5 days later will be profitable.

Before you implement this strategy, you decide to back-test your hypothesis using real historical data. You obtained share price data for different companies in a CSV file.

Assumptions:

- You do not incur any transaction fees when buying or selling
- Assume the data contains only valid trading days
- You are allowed to use the internet to assist you for this question
- The data is ordered by company and date (oldest first)
- You buy and sell at the end of the day
- If the price dropped by 3% on day 5 you still sell and don't buy again

Example:

Let's use sol-za as an example with the data below:

Date	Price
29-Dec-06	258.79
02-Jan-07	259.50
03-Jan-07	249.35
04-Jan-07	241.40
05-Jan-07	239.00
08-Jan-07	238.90
09-Jan-07	233.95
10-Jan-07	230.97

- On 3 Jan 2007, the price dropped 3.91% (259.50 to 249.35), so that's our entry to buy at 249.35 since it dropped by more than 3%
- 5 trading days later, on 10 Jan 2007, we sell at 230.97.
- In this trade we made a loss of 7.37% which leaves us with 92.63% of our starting cash balance

Assume in the next trade we made a gain of 15%:

- Our return for this strategy is now 6.52% and we have 106.52% of our starting cash balance.
- Note that the gains and losses build on each other

QUESTIONS

Question 1

For **SOL-za**, what is the return over the period?

Question 2

What is the min, max and average return for all the companies over the period?

Question 3

If the decide to only by buy the share dropped by 4% or more, what is the return in this case for each company?

Question 4

If the decide to hold for 10 days, what is the return in this case for each company? (with a 3% drop)

Question 5

From the results above, do you expect this strategy to be successful going forward?