Personal Stock Analysis

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Introduction

Professional stock traders constantly learn and keep up with trends in the market. Improving on their trading strategies is a key factor in what makes them so successful. Unlike professional traders that have access to the latest tool to keep them on top, the average person that trades as a side hustle or just to make a quick buck might not have that. So, I wanted to get in the mind of a trader that's just starting out and conduct a self-analysis of my trades and how to improve on them.

Overview

To get started as a beginning trader I took advantage of the *ThinkorSwim* platform by TD Ameritrade, which offers a $100K paper money account with real time data. I prepped myself to trade Monday through Friday for the entire month of February. Starting from February 3rd to February 28th, excluding February 17th due to Presidents Day and the markets being closed. Starting out with $100K I wanted to evenly allocate the paper money to 5 individual stocks. (Amazon, Apple, Facebook, Google and Microsoft) One of my main goals when making a transaction was to profit at least 1-2% minimum, analyze stocks using certain indicators and to never be in a position overnight.

Tools

- Python (Programming Language)
- Jupyter Notebooks
- Microsoft Excel
- *ThinkorSwim* (TD Ameritrade)

Goals

- Understanding my success rate of using these indicators:
  Moving Averages, *Volume* and a set *Bottom line*.
- Label largest & smallest profitable trades.
- Total profits for the month of February.
- Plot and analyze my profit distribution.
- Simple Linear Regression (SLR) of purchased and selling price during time of transaction.

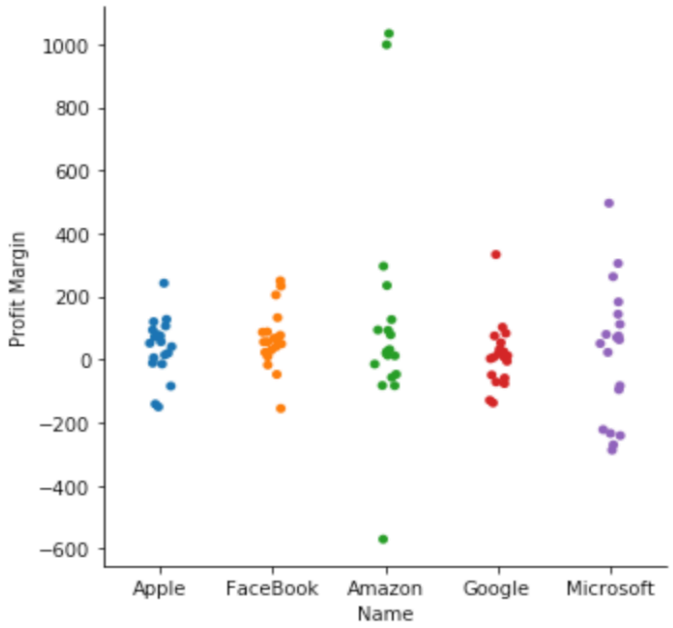
Profit & Loss

On the 18th of February my most successful trade was with Amazon. At a purchase price of $2158.79/share I obtained 10 shares totaling out to $21,587.90. Ultimately selling at a $103 increase from my initial purchase I sold at $2262.20 with a $1034.10 profit. Amazon usually has a wide margin when it trades, and this is usually due to it being a quite pricey and volatile stock. When trading I tried to stick to 3 common indicators; Moving Averages, Volume and a bottom line. Observing its average daily volume for the month of February being around 4.8 million, volatility was a major reason I was successful in this stock. Unfortunately, volume was also my demise when trading. My greatest loss was ironically also from Amazon with a loss of $569.60.

Name	Amazon
Purchased Price	2158.79
Shares Purchased	10
Date of Purchase	2020-02-18 00:00:00
Purchase Total	21587.9
Selling Price	2262.2
Shares Sold	10
Sell Total	22622
Profit Margin	1034.1
Date of Sale	2020-02-18 00:00:00

Name	Amazon
Purchased Price	2098.51
Shares Purchased	10
Date of Purchase	2020-02-10 00:00:00
Purchase Total	20985.1
Selling Price	2041.55
Shares Sold	10
Sell Total	20415.5
Profit Margin	-569.6
Date of Sale	2020-02-10 00:00:00

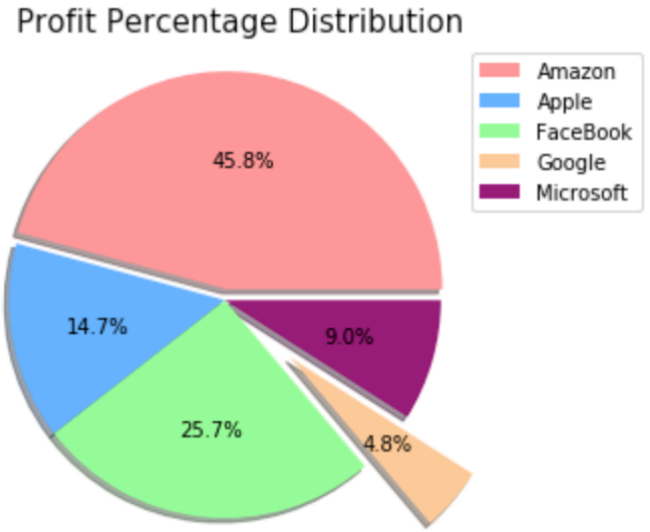
(Left image: Profit | Right image: Loss)



The image to the left is plotting where all of my trades for a particular stock lie. Here we can visualize the two greatest Amazon profits and losses being outliers from where the mean of my margin typically is. Also, with a 70.53% success rate. (trades that are profitable) I am able to observe where the 29% of my unsuccessful trades are. I can also pinpoint what specific stock was in my favor given my techniques used.

Profit & Loss

My total profits for the month of February consisted of $4821.6. A roughly 4.8% increase with 18 days of active trading, I was more than pleased to analyze my results. I was also able to see which type of stock I was more successful with. Amazon, Facebook, and Apple being are stocks I watched the most, and profited the most from. Due to constant news articles being released and in the era of social media their price flux seem to hinder on that dependent variable.

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Name
Amazon       2208.8
Apple         707.5
FaceBook     1241.0
Google        231.3
Microsoft     433.0
Name: Profit Margin,
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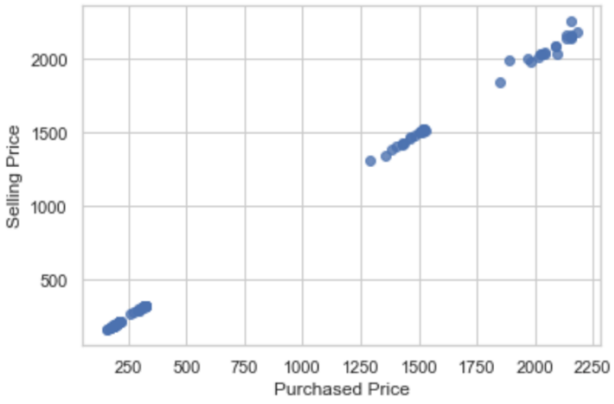
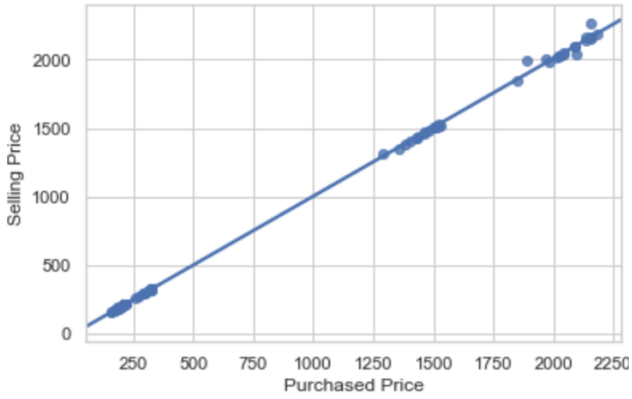
Simple Linear Regression of Prices

Here I have created a scatter plot representing all 18 days of actual trading with my two variables ‘Purchased Price’ being my *response variable* and ‘Selling Price’ as my *predictor variable*. I have also attached the number of shares purchased and sold with each variable. This would have been a multiple linear regression plot, but due to my restrictions I set for myself (Not holding a position over night) it does not change in frequency. So, a simple linear regression plot would retrieve the same result.





The regression coefficient shows that we have a *Perfect Positive Linear Regression* with my purchase and selling price points. With my independent variable values (Purchase Price mean: 843.85) increasing, then the mean of my dependent variable (Selling Price mean: 846.66) also increases. This plot helps me in understanding that my current techniques of analyzing trends works and shows my own probability of a successful trade being around 70%. Also, the probability of me not executing a profitable trade increases when the Purchase Price and stock price also increase.

Conclusion

In short, I have concluded that when trading and observing indicators: *Moving Averages*, *Volume* and a set *Bottom line*. The probability of a profitable trade at a purchase price and selling price below $1500 is 70.53%. In the opposite direction an increase of both these variables (Purchase/Selling price) above $1500 shows a 29.47% probability of a negative profit trade occurring.