Predicting Stock Price Changes Using Public Sentiment Case Study

Case Study by Tyler McFadden, May 2024

Topic:

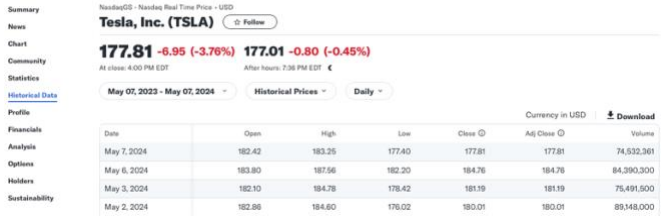
Stock Prices change every day for a variety of reasons. Earnings reports, Macroeconomic trends, and the competitive landscape are just a few of the many reasons that stock prices change. For the average investor it can be incredibly difficult to sort through all this information. According to Robert Laura, president of SYNERGOS Financial Group, the average investor is quite unlikely to beat the market [1]. To compete with this reality, the average investor often listens to experts to consider when is best to buy and sell their stock of interest. However, sorting through the noise can be incredibly difficult and finding an investor you trust can be even harder.

For this case study you are an ambitious student interested in finance who has a new idea about how to use expert opinions to make less risky stock choices. Your idea is instead of trying to find a single investor to trust, or trying to weigh multiple sources, you will instead use data science to consider every expert opinion all at once. This case study will ask you to consider the compound sentiment scores of different stocks and see how these expert's opinions track with the actual change in stock price. You will use tools such as sentiment analysis in python to test how closely expert opinions follow stock price change.

Deliverable:

In the end you will test your success by creating a "portfolio" of stocks that perform the best for the compound sentiment score for the applicable time period.

1) You will pick no less than 10 stocks to run sentiment score data on.
    a. You can find this data from https://finance.yahoo.com by selecting a given stock, the navigating to **historical data**, finally select your time period of study and click **download**.



    b. You can find text data for most stocks from "Stock News" API from databar.ai at https://databar.ai/explore/financial-modeling-prep/stock-news
2) Using the stock data for your time period, you will consider net gains/loss if you were to have held that stock for a period of one month.
3) Create a final slide deck presentation with the winners and losers from your sentiment analysis as well as your overall results.

References:

[1] A. G. Ribeiro, "CAN regular investors beat the market?," Investopedia, https://www.investopedia.com/articles/trading/10/beat-the-market.asp#:~:text=Figuring%20out%20whether%20you%20can,by%20focusing%20on%20losing%20less. (accessed May 7, 2024).