

MG314 Final Project - Investment Analysis Report

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1. Executive Summary

The following investment report include data about the status of Microsoft (MSFT), Sony (SNE), and Apple (AAPL) as potential stocks to invest in and their growth over time. The report explores the stock trends of these companies in terms of their 100 day moving average and adjusted closing. Firstly, the report indicates that the current status of Microsoft's stock growth is growing as expected. On the other hand, Sony's stock is facing a lot of challenges. Apple's Stock is growing steadily but is suffering from some significant decreases along the way.

The necessary data to generate graphs for each stock was acquired by first importing the `pandas_datareader.data` module, setting the start and end time to set the required timeline for each stock, then the `DataReader` method was used to grab the required data from the internet. We then saved the file using the `.to_csv` method specifying each stock in its file name. We read the file using the `.read_csv` method while stating which stock file we wanted to read in order to generate the graph for each one. Then, we set the `'100ma'` equal to `'Adj close'` to calculate the 100ma correctly. The subplots were created using the `plt.subplot2grid` respectively. After creating the subplots, each subplot was assigned its respective information by using the `.plot` method and assigning the `.index` and the required field in the parameter. After making the necessary changes we used the `plt.show()` command to generate the graphs.

2. Our Companies

2.1 Apple (AAPL)

- Cupertino, CA
- Important Points:



Apple bases their multinational operation in California.

They are the world's largest technology company by revenue and is one of the most valuable corporations in the world with a net worth of about \$940 Billion. They are one of the most popular electronics developers and are considered one of the Big 4 Tech Companies. They also have computer software and online services available for their consumers.

2.2 Microsoft Corporation (MSFT)

- Redmond, WA
- Important Points:



Microsoft is an American multinational company that is located in Redmond, Washington. They develop and sell computer software, electronics, personal computers, and relevant services regarding their products. They are one of the top software makers in the world and is the most valuable publicly traded companies in the world. The 2019 net worth of Microsoft stands at \$1 Trillion.

2.3 Sony Corporation (SNE)

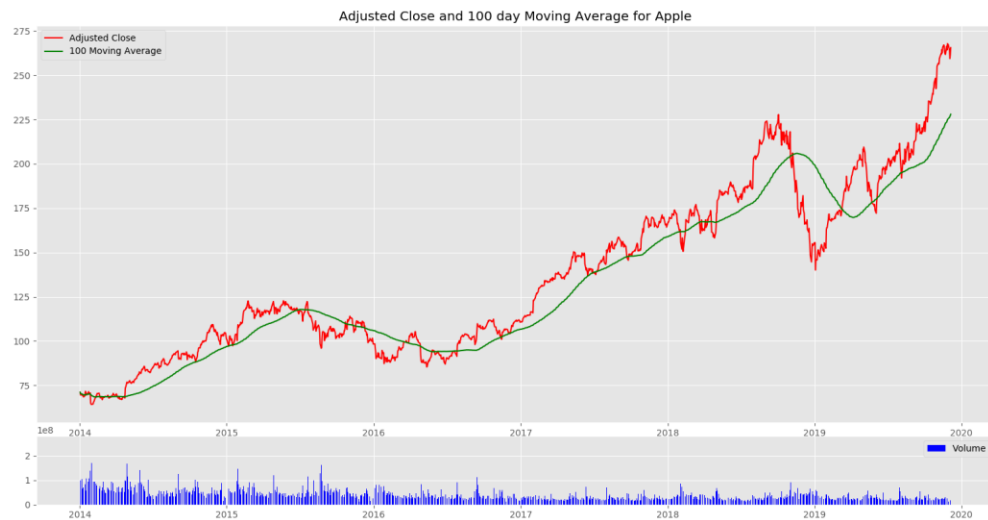
- Tokyo, Japan
- Important Points:



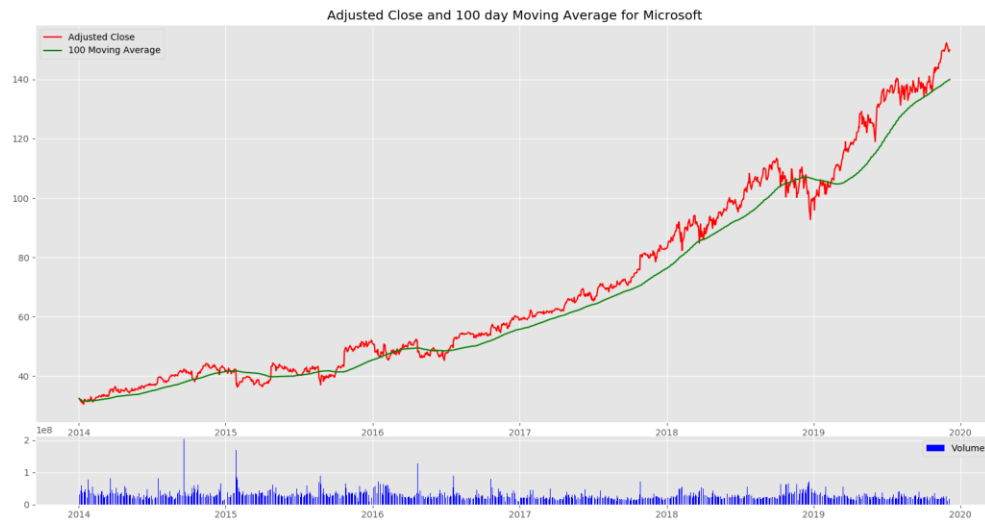
Sony Corporation is a multinational conglomerate corporation that is based in Tokyo, Japan. The estimated net worth of Sony is about \$45 billion. They currently hold the largest music entertainment business in the world. Sony also has the largest video game console business and one of the largest video game publishing businesses. They have a multi-faceted business that sells consumer and professional electronics, entertainment and gaming systems.

3. Charts and Graphs

3.1 Apple Graph (AAPL)



3.2 Microsoft Graph (MSFT)



3.3 Sony Corporation Graph (SNE)



4. Recommendation

Our investment recommendation out of the three stocks we researched would be Microsoft. Although both Apple and Microsoft show steady growth throughout Microsoft has some key differences that lead us to pick their stock. They have recently passed Apple as the most valuable publicly traded company in the world.

With Microsoft's current stocks at \$149.85 it is a significantly safer stock to invest in then Apple's which stands at \$261.74. Microsoft is growing and establishing a market in several different industries while Apple is more focused on consumer electronics and software. They are also moving most of their software to a cloud based system. This means that instead of paying up front for access to Microsoft Office, customers pay \$100 for access across all devices, which is sure to bring in more revenue.

Azure, Microsoft's cloud computing service, has increased revenue by 59% since last quarter which shows a dramatic increase in usage. Microsoft has also recently won a \$10 billion cloud contract with the Pentagon, beating out Amazon for this highly desired deal. We think that Microsoft is the better pick for investment because they have similar potential to Apple with less cost and less risk.

5. Closing Remarks

Evaluating the worth of a stock is contingent upon a lot of considerations. The stock trends we obtained through our Python programming is definitely a useful resource. Using Python, we were able to pull out valuable data that later helped us determine which stock should be invested in. In addition to the code, we did more research online which also added value to our decision making process. For example, the graphs indicate that both Apple and Microsoft have been enjoying average steady growth over time. Due to these similarities, the final verdict about which stock to invest in should be made by compiling many different factors such as growth, risk, cost and many more. With careful consideration we believe that Microsoft should be invested in over Apple and Sony.

The group members contributed equally to the project. Each member of the group was in charge of writing his own code for each stock while the write-up portion of the project was worked on collaboratively throughout the process.