SONY

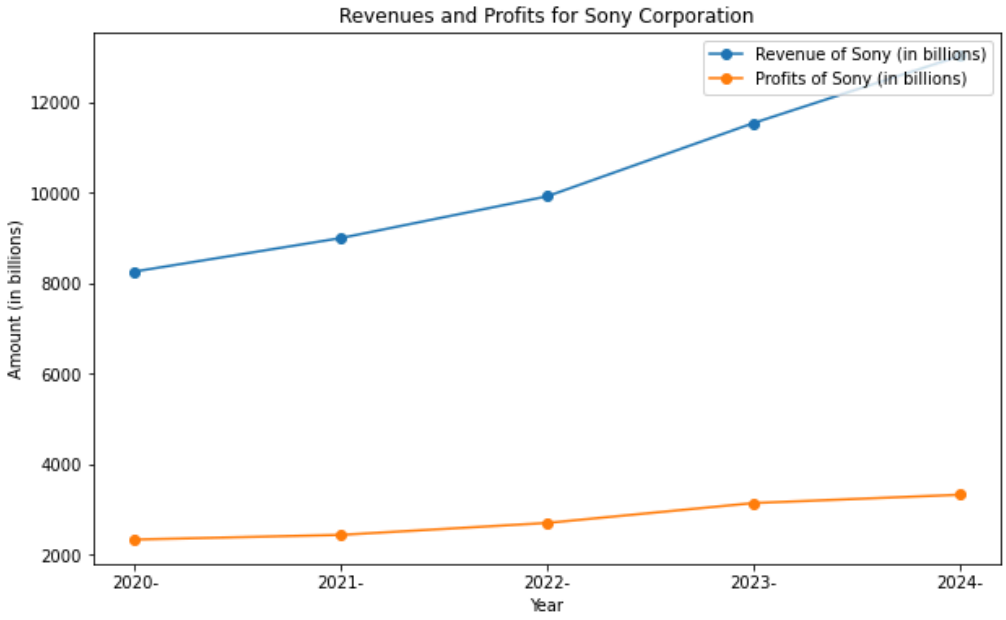
Basic Financial Analysis Using FInancialModelingPrep API in Python

By Bhargav Ashok

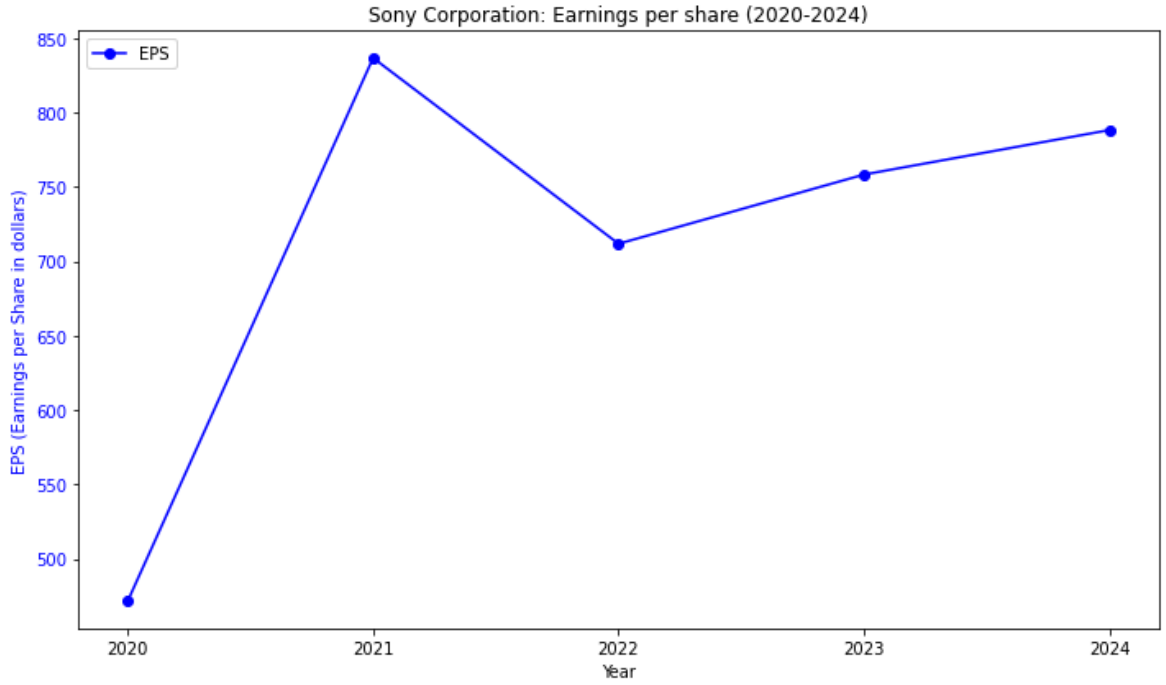
This personal project stems from an interest in the financial space, as well as my love for Sony products and apparel. I currently own a pair of Sony WH 720CN headphones that have been customized by one of my good friends. I was looking at these headphones and thought, “Why not look at Sony for my short financial analysis project”. As coincidental as it may seem, this led me to analyze Sony’s financial Data over the past 4 years. After looking at some tutorials on how to perform financial analysis in Python, along with research on key financial metrics a company looks at for profitability, I ended up making this project.

I used an API by FinancialModelingPrep, as well as the requests and matplotlib libraries to communicate back to the API and plot the results from the data collected. I learned how to implement a JSON object (a type of format that returns key-value pairs, which in this case is a string of data in text format that can be used) as well as strengthen my skills in Financial Data Analysis and Matplotlib graphing.

Over the last five years, Sony has shown strengths and complexities in its financial performance. Known globally for its consumer electronics, films, music, and financial services, Sony operates across regions like Asia-Pacific, Europe, the Middle East, Africa, and the Americas. Despite large revenue year over year, the company’s financials reveal some interesting details, particularly around its earnings per share and surprising profit turnout.



We see that from the graph shown, from 2020 to 2024, Sony turns higher revenue metrics every single year, however the same can't be said about the profit, remaining stable throughout the four years. This is because Sony sells a variety of products and is present in several different industries, so the profits don't play a crucial role in the success of the business, but rather a combination of growth and profitability as stated by an Investopedia article, "*Profitability and growth go hand-in-hand when it comes to success in business. Profit is key to basic financial survival as a corporate entity, while growth is key to profit and long-term success. Investors should weigh each factor as it relates to a particular company".* Sony doesn't need a huge profit value because of how successful they already are. They have shown their investors that they can turn out large dollar values based on the huge presence Sony has garnered over the last two decades.



The next metric I looked at was the earnings per share for Sony. According to Gartner.com, *"Earnings per share (EPS) is a measure of a company's profitability, calculated by dividing quarterly or annual income (minus dividends) by the number of outstanding stock shares. The higher a company's EPS, the greater the profit and value perceived by investors".*
When discussing the profitability of a company, Sony is up there with some of the most profitable companies on the market, jumping 10% in profits after the first fiscal year (Q1 earnings).

Sony has been a juggernaut that propels media, gaming, music, and more. Based on the graphs shown, Sony's revenues will continue to go up despite stable profits, which in turn will increase the average earnings per share, potentially bringing it back to its 2021 spiked price as shown on the graph.

Things Sony could potentially do better in the long term:

- Decreasing customer acquisition costs a little bit further while trying to maintain the quality of the product.
- Potentially could Increase marketing spend to garner a larger customer base which could lead to profit maximization.
- Optimize manufacturing processes to save time and cost from product to market.

Code for Revenues and Profits:

```
import requests
import matplotlib.pyplot as plt

# API key and parameters
api_key = "My-API Key"
company = "Sony"
years = 5

# Fetch data
response =
requests.get(f"https://financialmodelingprep.com/api/v3/income-statement/{company}?li
mit={years}&apikey={api_key}")

#Get statements in a json object (can use CSV as well)
income_statement = response.json()

# Extract data for plotting
revenues = list(reversed([income_statement[i]['revenue'] for i in
range(len(income_statement))]))
profits = list(reversed([income_statement[i]['grossProfit'] for i in
range(len(income_statement))]))
years_labels = list(reversed([income_statement[i]['date'][:5] for i in
range(len(income_statement))]))

# Convert values to billions
revenues = [rev / 1e9 for rev in revenues]  # Convert revenue to billions
profits = [prof / 1e9 for prof in profits]  # Convert profits to billions

# Plotting
plt.figure(figsize=(10, 6))
plt.plot(years_labels, revenues, label="Revenue of Sony (in billions)", marker='o')
plt.plot(years_labels, profits, label="Profits of Sony (in billions)", marker='o')
```

```
# Customize graph
plt.title("Revenues and Profits for Sony Corporation")
plt.xlabel("Year")
plt.ylabel("Amount (in billions)")
plt.legend(loc="upper right")
plt.show()
```

Code for Earnings Per Share:

```
import requests
import matplotlib.pyplot as plt

# API setup
api_key = "My-API-Key"
company = "Sony"
years = 5

# Fetch income statement data
response =
requests.get(f"https://financialmodelingprep.com/api/v3/income-statement/{company}?li
mit={years}&apikey={api_key}")
income_statement = response.json()

# Extract EPS data
EPS = list(reversed([income_statement[i]['eps'] for i in range(len(income_statement))]))
years_labels = list(reversed([income_statement[i]['date'][:4] for i in
range(len(income_statement))]))


# Plotting EPS
fig, ax1 = plt.subplots(figsize=(10, 6))

# Plot EPS on the y-axis
ax1.set_xlabel('Year')
ax1.set_ylabel('EPS (Earnings per Share in dollars)', color='blue')
ax1.plot(years_labels, EPS, color='blue', marker='o', label="EPS")
ax1.tick_params(axis='y', labelcolor='blue')


# Titles and Legends
plt.title("Sony Corporation: Earnings per share (2020-2024)")
fig.tight_layout()
```

```
ax1.legend(loc="upper left")
plt.show()
```

References

https://www.gartner.com/en/finance/glossary/earnings-per-share-eps-

https://www.investopedia.com/ask/answers/020415/what-more-important-business-profitability-or-growth.asp

https://www.cnbc.com/2024/08/07/sony-earnings-q1.html#:~:text=Sony%20reported%20operating%20profit%20of,year%20and%20beating%20analyst%20expectations.

https://site.financialmodelingprep.com/

https://blog.hubspot.com/service/what-does-cac-stand-for#:~:text=It%20provides%20a%20quick%20view,%3ACAC%20of%203%3A1.

https://developer.mozilla.org/en-US/docs/Learn/JavaScript/Objects/JSON

https://www.youtube.com/watch?v=ZAAuGEVJsH8