Heavy Hitter's Market Analysis

Team 2 Contributors:Tahgi Jones, Alpha Thiaw, Anthony Franco

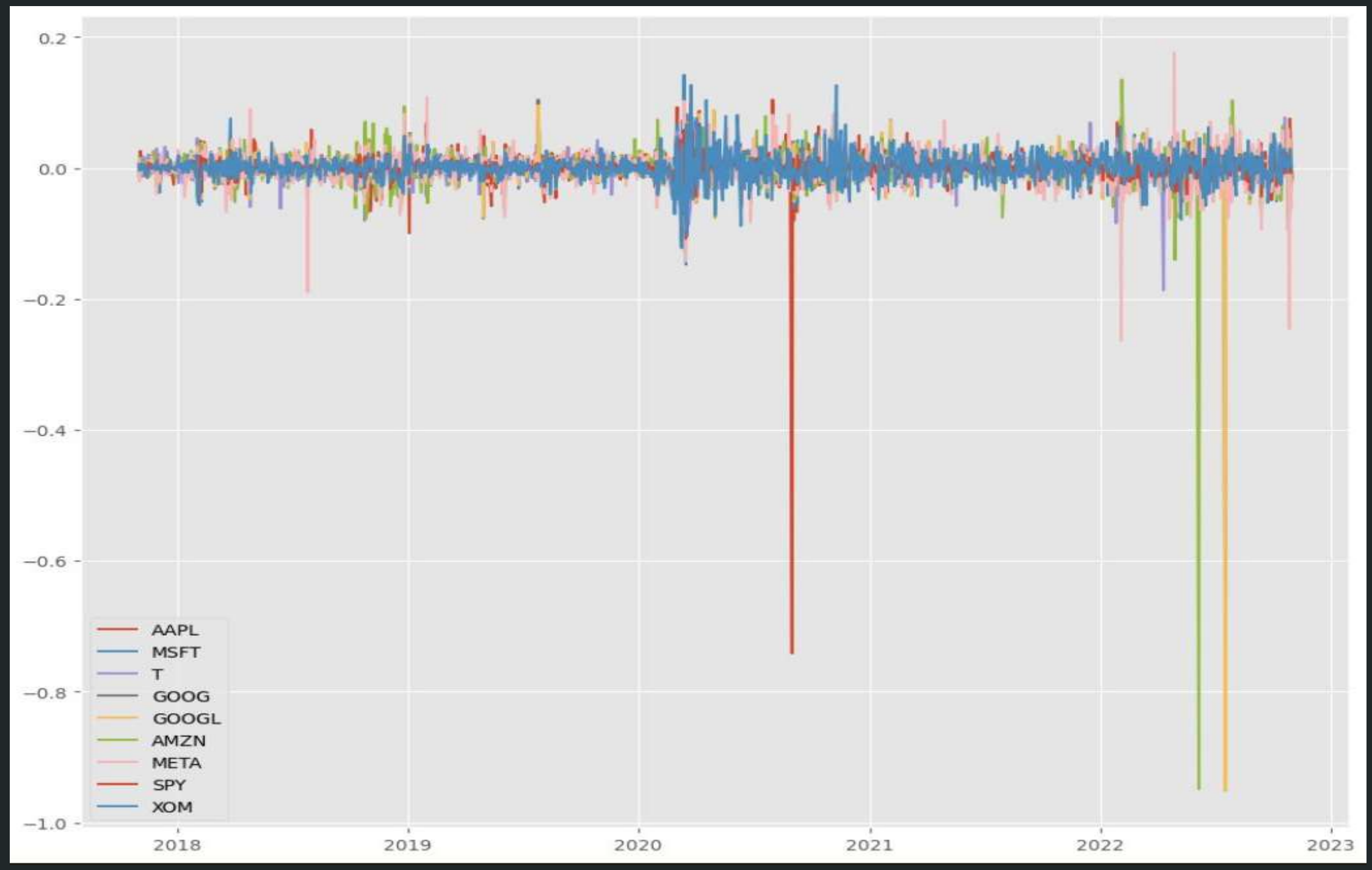
Sources & Questions

- We found our data sources by using the Alpaca API SDK
- In order to run the Monte Carlo Simulation we required the following columns:
  - Opening Price, Daily High, Daily Low, Volume, Trade Count, VWAP(Volume Weighted Average Price.
- In order to get calculate Daily Returns we need to retrieve price data from our Alpaca API SDK.

Motivation and Summary

- Heavy Hitters Market Analysis is a team project to demonstrate our collective ability to conduct financial analysis & draw increasingly accurate predictions of major companies we deemed “Heavy Hitters” or simply “Too Big To Fail” within our economy and compare their metrics to the S&P 500 & one commodity being gas.
- Some of the main questions we asked during our analysis were:
    - What are the daily returns of each of our stocks?
    - By how much did the stocks deviate from the norm (.std)?
    - Were the stocks chosen heavily correlated?
    - What did our covariance and variance tell us about our beta for each stock?
- We found that our stocks had a correlation between .12 and .75.

Daily Return Plot

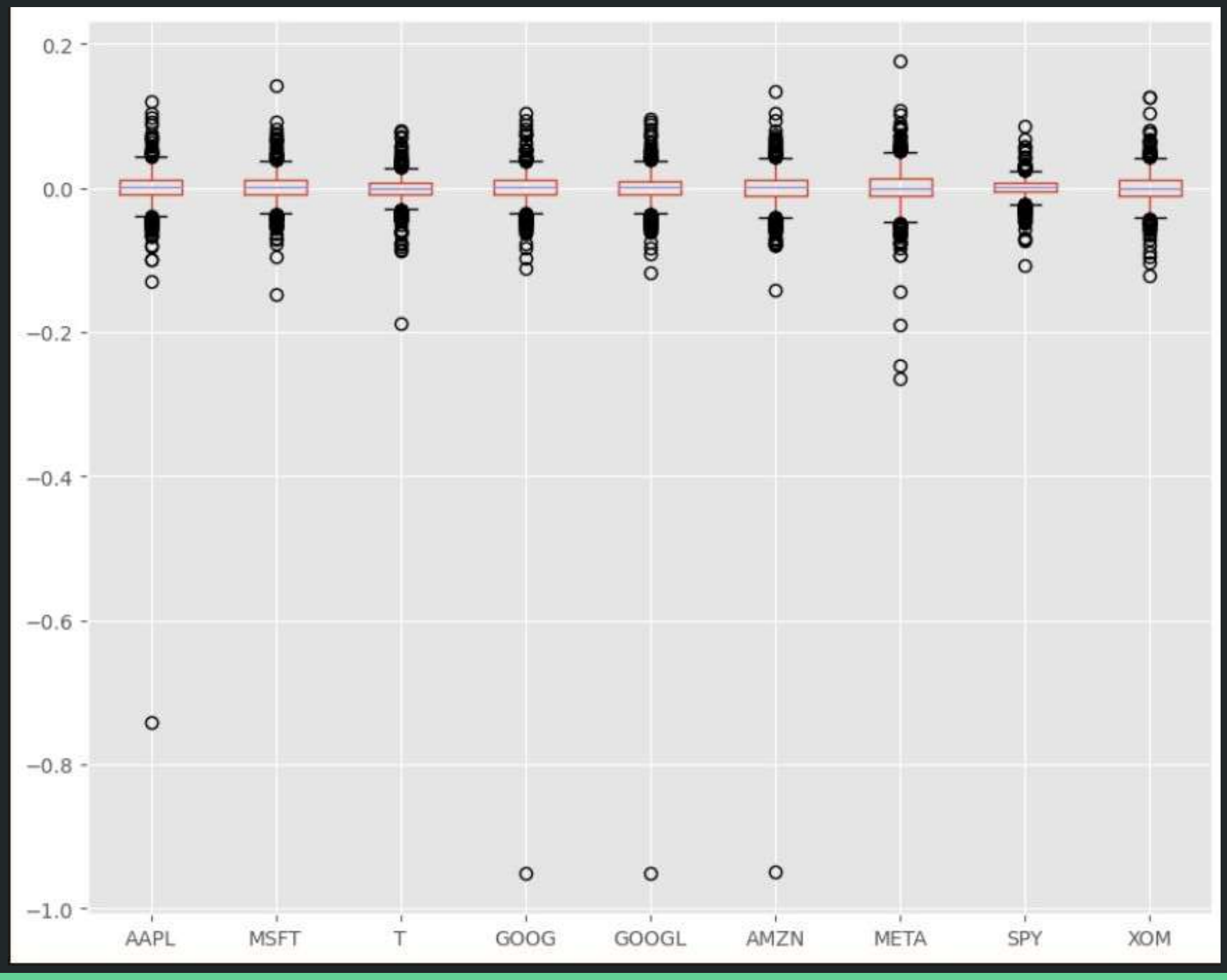


Data Cleanup & Exploration

- The cleaning process for our Monte Carlo Simulations were much more direct than that of our Analysis cleaning process.
- To perform quantitative analysis of our portfolio we created an empty dataframe and fetched closing price data for each stock.
- While conducting analysis of our tickers, we found Apple, Amazon and Google had stock splits within the last 4 years.
- This presented us with an issue being that standard deviation could not be properly calculated for the stocks that had splits.

5 Year Standard Deviation View

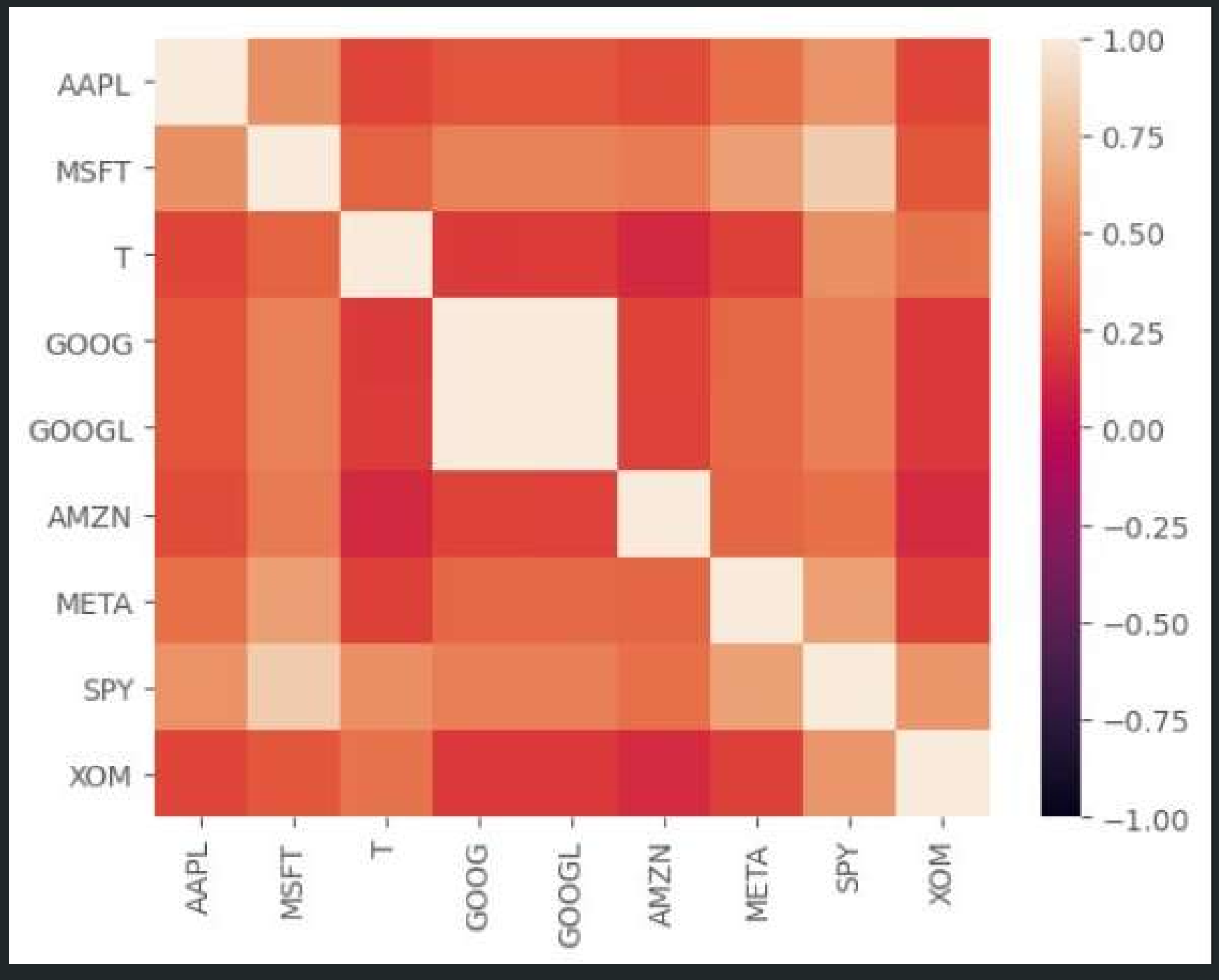
Standard Deviation Box Plots



Data Analysis

- Our Findings
  - The highest deviation we found were among AAPL, GOOGL,GOOG, and AMZN.
  - The stocks we chose were positively correlated, meaning when one has a shift it affects the movement of the other stocks.
  - Our covariance showed us that we had a positive covariance, being that when one changed the others followed suit.
- We found that our stocks were had a correlation range of .12 to .75.

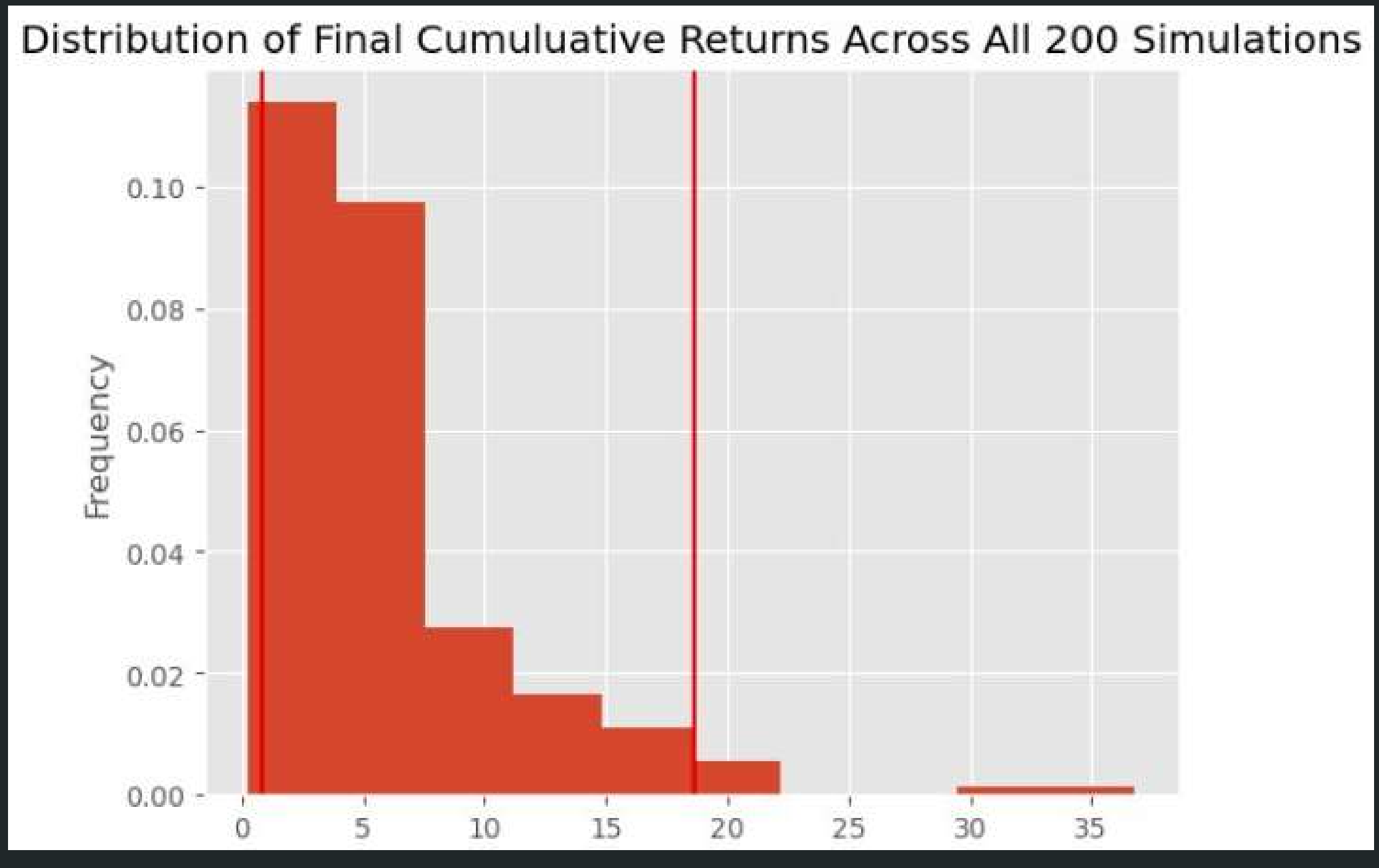
Correlation of Our Stocks



Discussion

- An interesting fact we found during the exploration process of our data was that having highly correlated stocks is only a good strategy if the portfolio is weighted equally.

Confidence Intervals Of An Equally Weighted Portfolio



Postmortem

Difficulties: Adjusting standard deviation of stock data after a stock split

Resolution: N/A

Thank You For Your Time