**PyFAANG Stock Analysis**

**Pei-Ju Wu**

**2023-07-24**

**UC Berkeley Bootcamp**

**Executive Summary**

Based solely on the analysis of prices and trading volume, the FAANG companies (Meta, Apple, Amazon, Netflix, and Google) demonstrate a consistent increase in stock prices, making them attractive investment options. Among these companies, Apple, Google, and Amazon exhibit relatively stable and consistent price trends, suggesting a more stable investment choice. On the other hand, Netflix and Meta stocks show higher volatility, presenting potential opportunities for higher returns for those willing to take on greater risk. Overall, investing in FAANG companies offers the potential for long-term growth, with varying levels of risk and potential rewards depending on individual investment preferences.

**Introduction**

In this project, we analyze the historical stock data of the FAANG companies from 2012 to 2022. Our goal is to gain insights into their stock price trends, trading volumes, and market capitalization during different periods, including the pre-pandemic, pandemic, and post-pandemic periods. By comparing their performance to the S&P 500 index, we aim to provide valuable insights and recommendations for potential stock investments within the FAANG group, considering investors' risk profiles. Overall, this analysis enables investors to make informed decisions in the ever-changing technology sector.

**Objectives**

The objective of this project is to analyze historical stock data spanning from 2012 to 2022 for the FAANG . The analysis aims to accomplish the following objectives:

1. Examine the stock price trends and trading volumes of the FAANG companies over the specified period.

2. Compare the market capitalization of the FAANG companies during three distinct periods: pre-pandemic, pandemic, and post-pandemic.

3. Evaluate the performance of the FAANG companies in relation to the S&P 500 index.

4. Provide insights and recommendations for potential stock investments within the FAANG group, considering the risk-taking ability of investors.

By achieving these objectives, this project aims to provide valuable insights into the historical performance and market dynamics of the FAANG companies, enabling investors to make informed decisions regarding their investment strategies within the technology sector.

**Data Sources**

The project utilized the Yahoo\_fin Python open-source library and the Alpha Vantage API to retrieve up-to-date stock data for the FAANG companies from 2012 to 2022. The data was processed and organized into Pandas DataFrames for analysis and visualization.

**Visualization Approach**

The project leveraged the Python library Matplotlib to create a diverse range of visualizations, effectively conveying the data's insights. These visualizations provided a comprehensive and user-friendly depiction of the FAANG companies' stock price trends, trading volumes, market capitalization, and relative market shares.

To represent stock prices and trading volumes, a line graph was utilized, enabling a clear visualization of the trends and patterns over time. For analyzing yearly trading volumes, a bar graph was employed, facilitating a straightforward comparison of volume fluctuations across different years.

To present the impact of the pandemic on stock prices and trading volumes, a combined line and bar graph was utilized, allowing for a comprehensive view of the changes during this period. Multiple bar graphs were employed to depict market capitalization before, during, and after COVID-19, providing a visual understanding of the fluctuations in market value.

Furthermore, a heatmap was employed to summarize the correlation between the FAANG stocks and the S&P 500 index, offering a concise overview of their relationship. Overall, these visualizations enhanced the project's ability to effectively communicate the insights derived from the data analysis.