

Finance & Risk Analysis Capstone Project

By
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Objective



Analyse a portfolio of stocks to provide consultation to two different investors, Mr Patrick Jyenger and Mr Peter Jyenger based on their requirements and financial goals.

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- Advise Mr. Patrick Jyengar on constructing a stock portfolio aligned with his risk tolerance, aiming to double his \$500,000 investment in five years for acquiring a minority stake in Naturo.
 - Recommend a high-risk stock selection to Mr. Peter Jyengar, considering his risk appetite, to achieve substantial returns on his \$1 million investment within a five-year timeframe for the expansion of JWW.

Data Description

You are provided with the following information for 24 stocks of leading companies listed in New York Stock Exchange(NYSE):

- Date
- Open price: Price of stock at the start of the day
- Close price: Price of stock at the end of the day
- High price: Highest price reached by the stock on that day
- Low price: Lowest price reached by the stock on that day
- Adjusted close price: Stock price adjusted to include the annual returns (dividends) that the company offers to the shareholders
- Volume traded: Number of stocks traded on the day

The information for every stock ranges from 1st October 2010 to 30th September 2020.

The stocks belong to different domains:

- Technology/IT
- Travel/Aviation/Hospitality
- Banking/Financial Services and Insurance
- Pharmaceuticals/Healthcare/Life Sciences

To help you with the market benchmark, you are given the S&P 500 index prices for the same period.



Methodology.

- **Data Cleaning and Inspecting**

Checked the dataset for any missing values and confirmed that no columns have null entries

- **Data Visualization**

Created a variety of visual representations, such as bar charts, line charts, and correlation matrices, to help me better understand the dataset. Also used Power BI to create more attractive visualizations

- **Data Analysis**

Performed Sector analysis to understand the impact of the pandemic on each sector.

Stock data was analyzed using various calculations, including annualized returns, risk, cumulative returns, Sharpe ratio, and return on investment (ROI).

- **Portfolio Building**

After analyzing all the calculations, I built two customized stock portfolios and made sure that they satisfied the preferences and risk appetite of both clients.

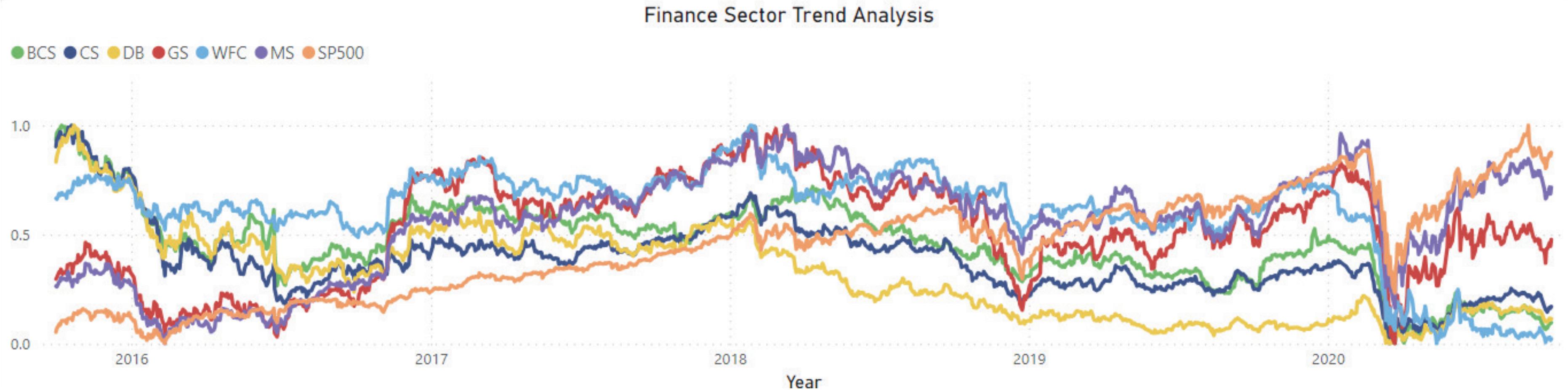


Sectorial Analysis



Finance Sector

The finance sector experienced a crisis in March 2020 as a result of the COVID-19 pandemic. Although many stocks in the sector were adversely affected, there has been a partial recovery. Notably, Morgan Stanley and Goldman Sachs have demonstrated better performance compared to other stocks.



Technology Sector

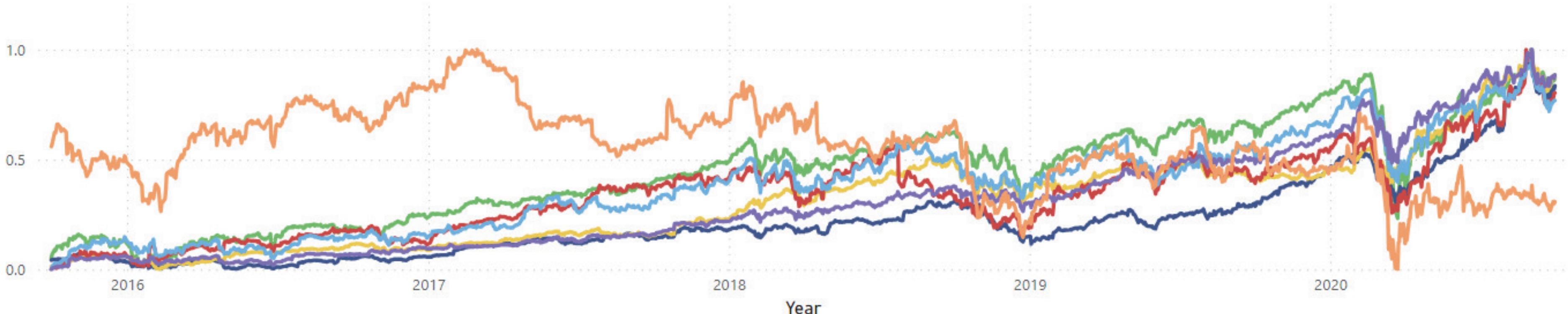
The Technology Sector, like many other industries, faced a crisis in March 2020 amid the Covid Pandemic; however, its recovery has been noteworthy.

Companies like Microsoft, Amazon, Apple, Facebook, and Google demonstrated robust performance, aligning with the overall market index. In contrast, IBM has consistently underperformed compared to its sector peers over the years.



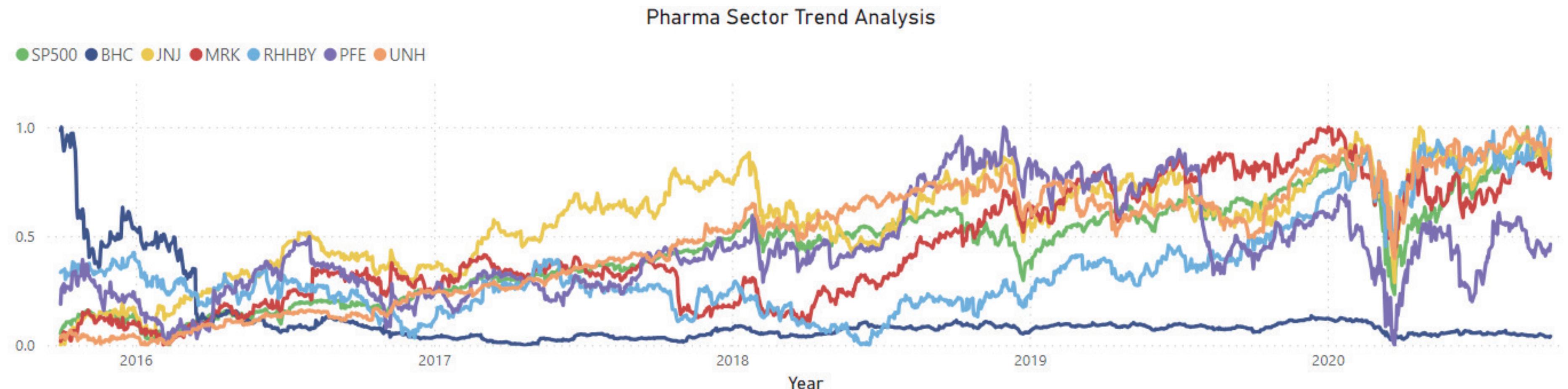
Technology Sector Trend Analysis

● SP500 ● AAPL ● AMZN ● FB ● GOOG ● MSFT ● IBM



Pharma Sector

Despite the COVID-19 pandemic in March 2020, The pharmaceutical and healthcare sector has demonstrated impressive recovery, particularly with the increasing health consciousness among people. However, Bausch Health's performance has been consistently poor compared to other stocks in the sector.



Aviation Sector

The COVID-19 pandemic had a devastating impact on the aviation sector and despite the subsequent rise in the market index, it has struggled to recover since then primarily because individuals remain hesitant to engage in travel activities.

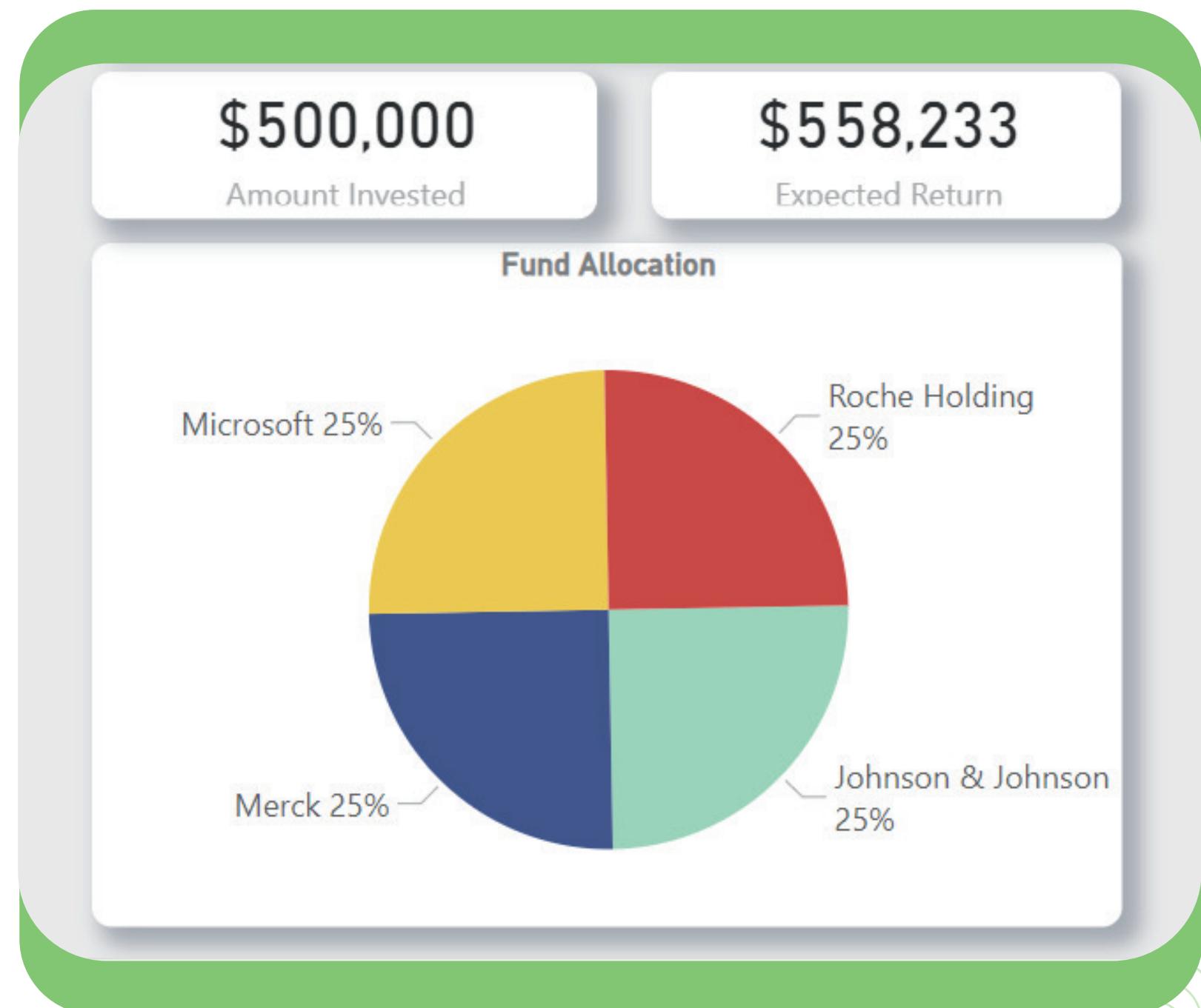


Portfolio Analysis



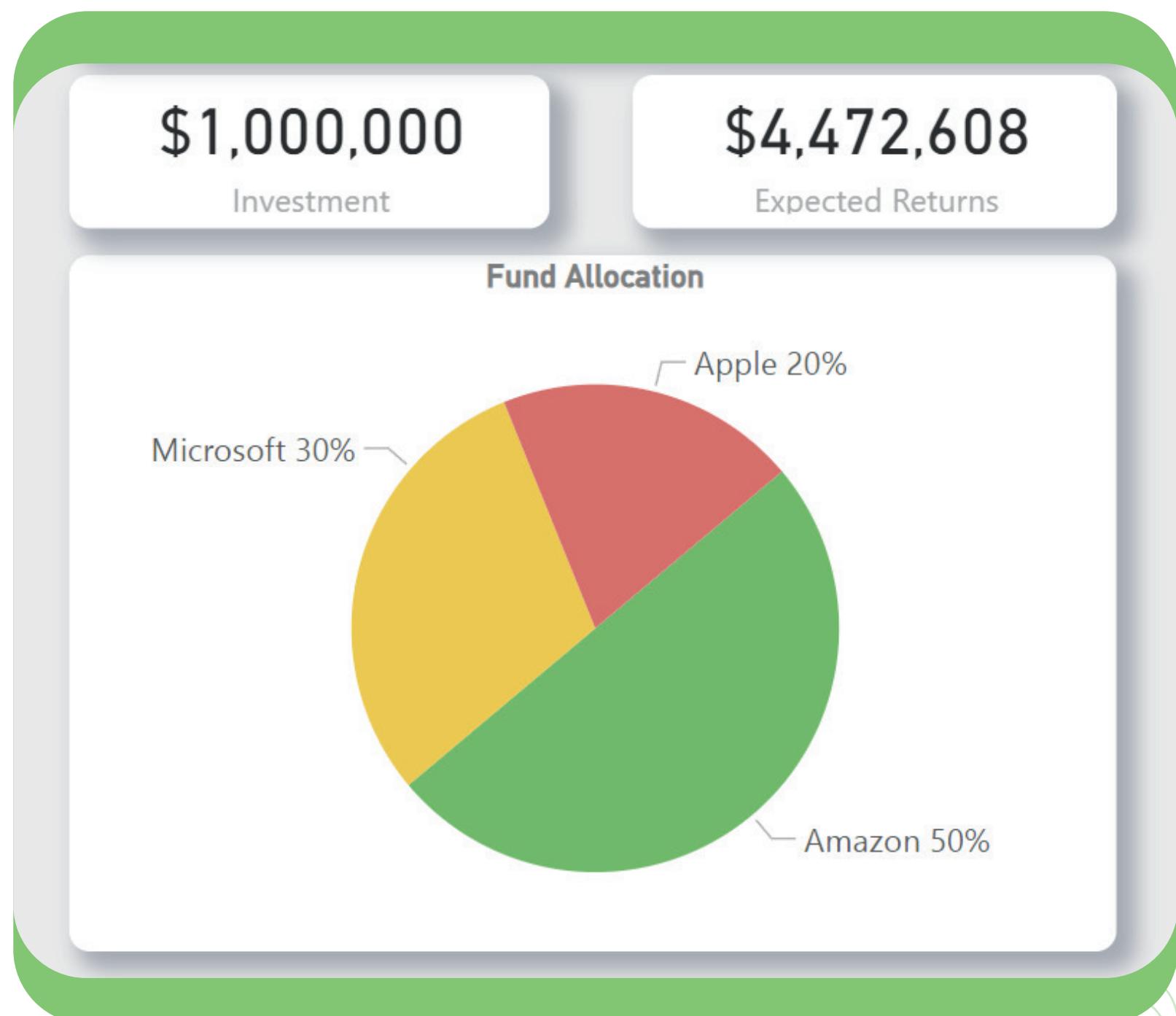
Mr. Patrick's Portfolio

- Mr. Patrick Jyenger, a conservative investor seeking low-risk options with decent returns, aims to double his capital in the next 5 years.
- Considering his risk tolerance, we've identified three low-risk stocks—Johnson & Johnson, Roche Holding AG, and Merck & Co. Inc.
- However, due to their modest returns, we modified our portfolio by allocating funds to Microsoft, a higher-return investment.
- This strategy aims to enhance portfolio diversification and overall returns.



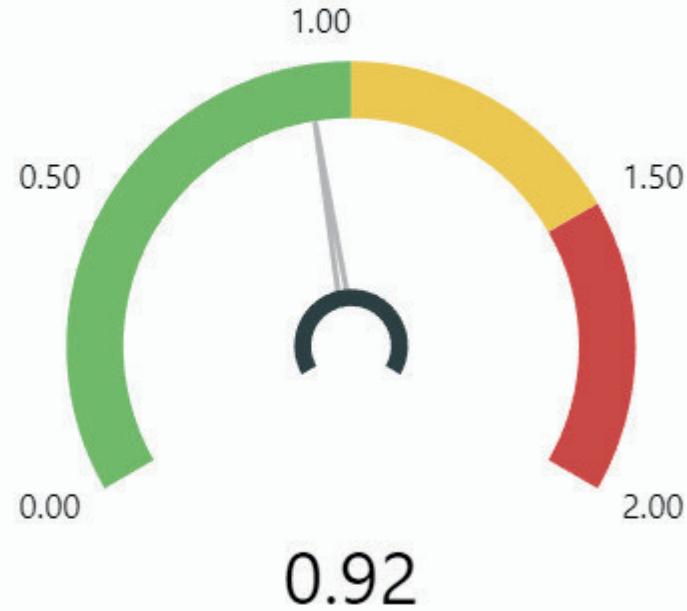
Mr. Peter's Portfolio

- Peter Jyengar prefers high-return investments, even if they are risky. He believes that he can recover from occasional losses.
- He plans to invest \$1 million from the company's cash reserves to expand the company organically within the next 5 years.
- Given his risk appetite, high-risk/high-return stocks such as Amazon, Apple, and Microsoft will be suitable choices.
- This aggressive investment strategy prioritizes maximizing returns as the primary objective.



Risk Analysis

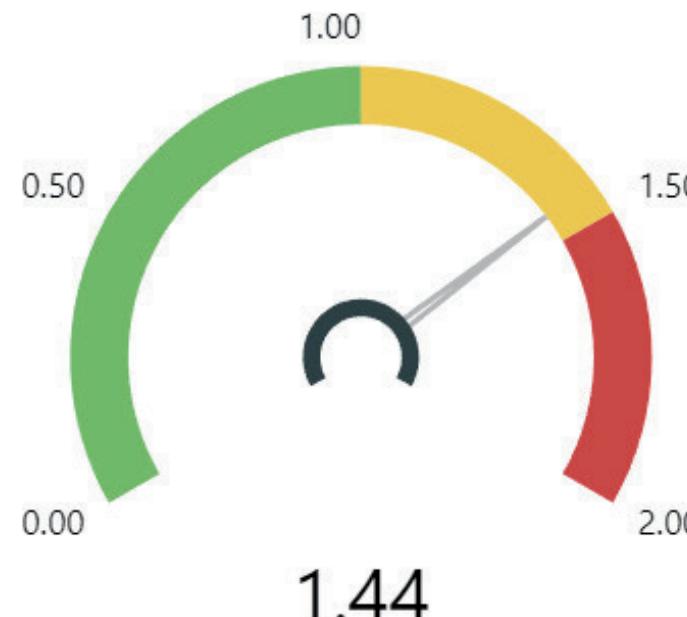
Risk to Reward Ratio



Mr Patrick's Risk Analysis

A Sharpe ratio between 0 and 1 indicates a reasonable balance between return and risk. It signifies that Mr. Patrick's investment provides a reasonable return for the level of risk taken.

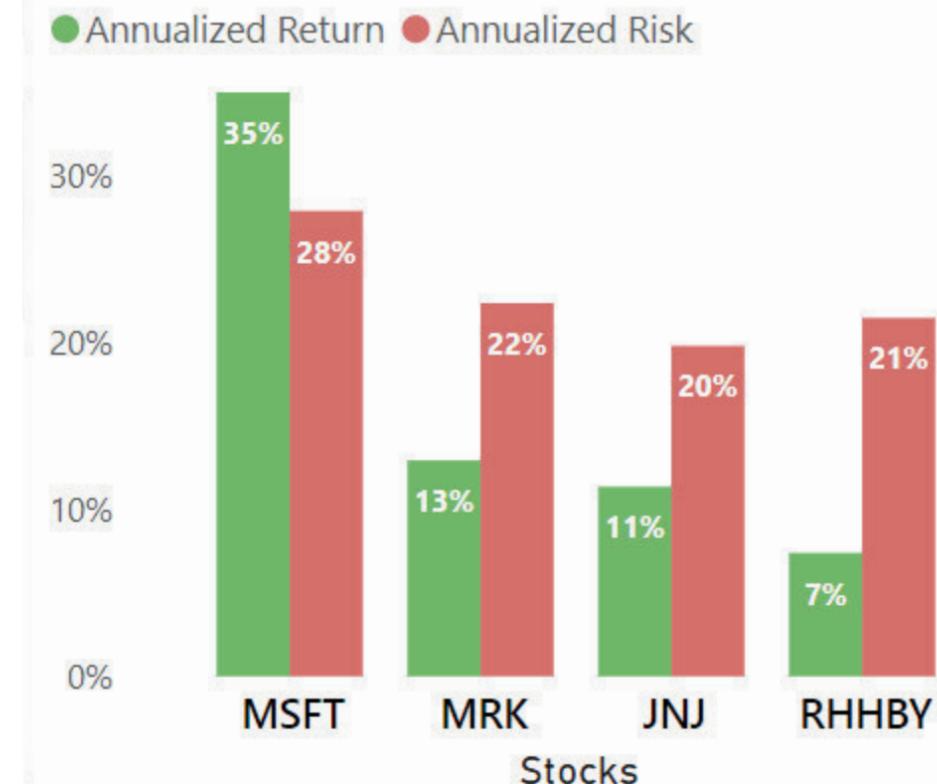
Risk to Reward Ratio



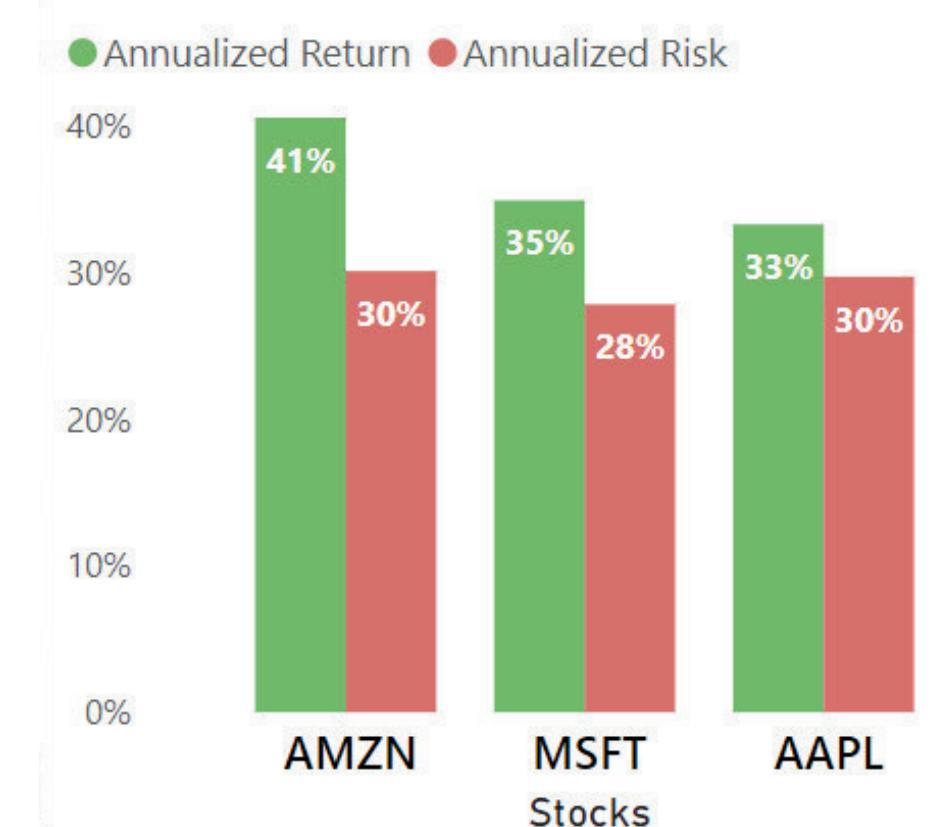
Mr Peter's Risk Analysis

A Sharpe ratio above 1 suggests that the investment is delivering returns above the risk-free rate and may be suitable for investors willing to take on a higher level of risk for potentially higher rewards.

Return VS Risk

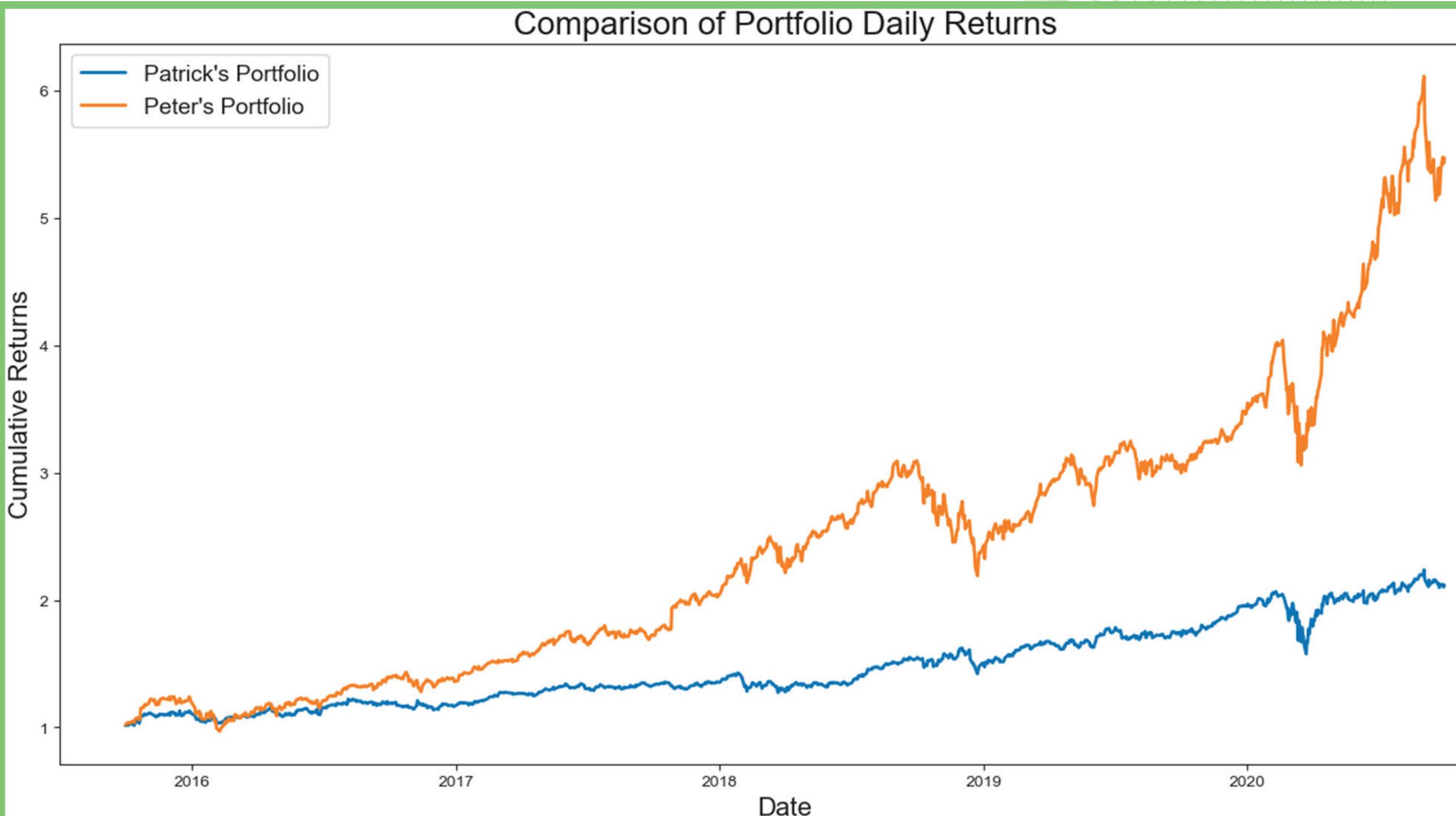


Return VS Risk



Conclusion

- The charts indicate that both portfolios are following an upward trend, and if conditions remain favorable, they have the potential to meet our expected returns.
- After analyzing the performance trends of both portfolios, Mr. Patrick's portfolio demonstrates slightly lower but more consistent and stable returns, even amid the challenges posed by the COVID-19
- However, Mr. Peter's portfolio experienced a significant decline during this period, yet it swiftly recovered, generating impressive returns.



Thank You
For Your Time

