



# **Risk-Based Financial Portfolio Analysis**



# Agenda

- Objective
- Background
- Key Findings
- Recommendations
- Appendix: Data Methodologies



## Objectives

- Use the elements of technical analysis to understand the trend of the underlying stocks
- Construct visualizations to compare the performance of the available securities against each other, and also against the market index, S&P500
- select the appropriate stocks for the portfolio in alignment with investor persona



# Background

- We have information for 24 stocks of leading companies listed in the New York Stock Exchange
- The information for every stock ranges from 1st October 2010 to 30th September 2020
  - The stocks belong to different domains namely: Technology/IT, Travel/Aviation/Hospitality, Banking/Financial Services and Insurance, Pharmaceuticals/Healthcare/Life Sciences

# Aviation sector

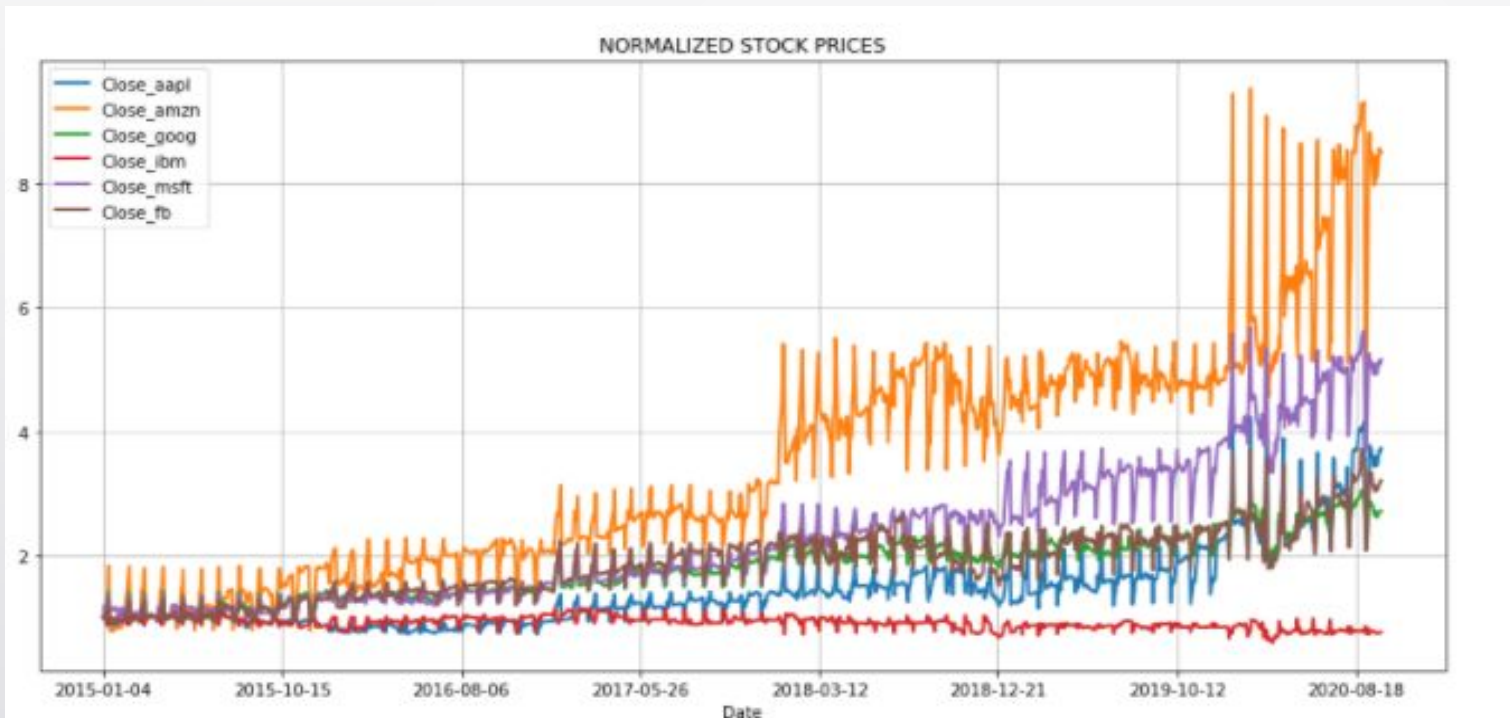


Key:  
AAL- American Airlines  
grp  
ALGT- Allegiant Travel  
Company  
ALK- Alaska Air Group  
DAL- Delta Air Lines  
HA- Hawaiian Holding  
Inc  
LUV- Southwest Airlines  
Co.

- Closing stock prices for the different companies in the Aviation sector are shown above.
- As we can see in 2019 all stocks dip, and in 2020 the stock prices have plummeted further.
  - We can understand that the Covid Pandemic is the reason for the dip.



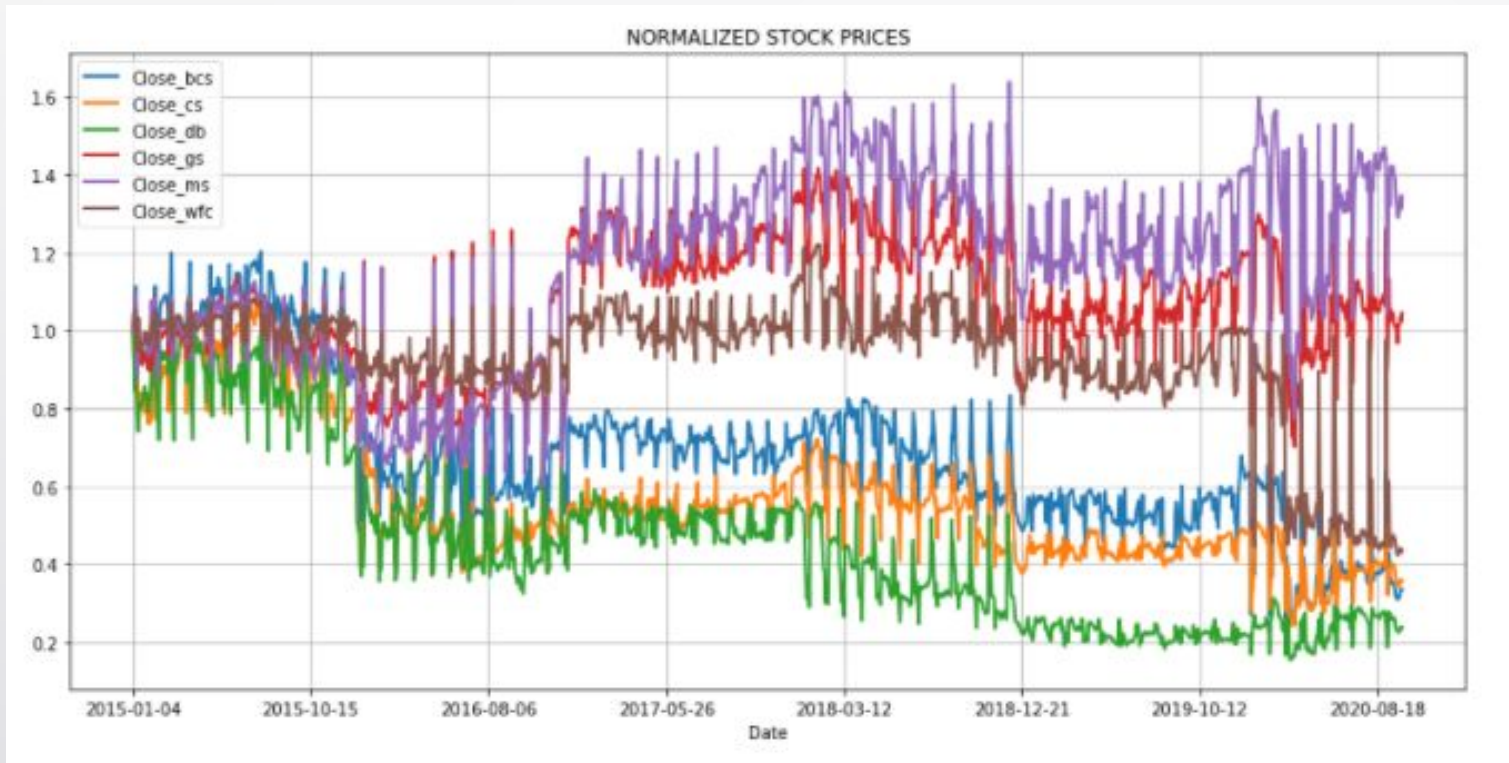
# Technology sector



Key:  
AAPL- Apple inc  
AMZN- Amazon  
FB- Facebook  
GOOG- Google  
IBM- IBM  
MSFT- Microsoft

- Closing stock prices for the different companies in the Technology sector are shown above.
- As we can see the tech sector has boomed in the last few years, the Pandemic seems to have boosted the growth of these companies
- There has been a steady increase in the valuation over the years, indicating that the industry is on an upward trend

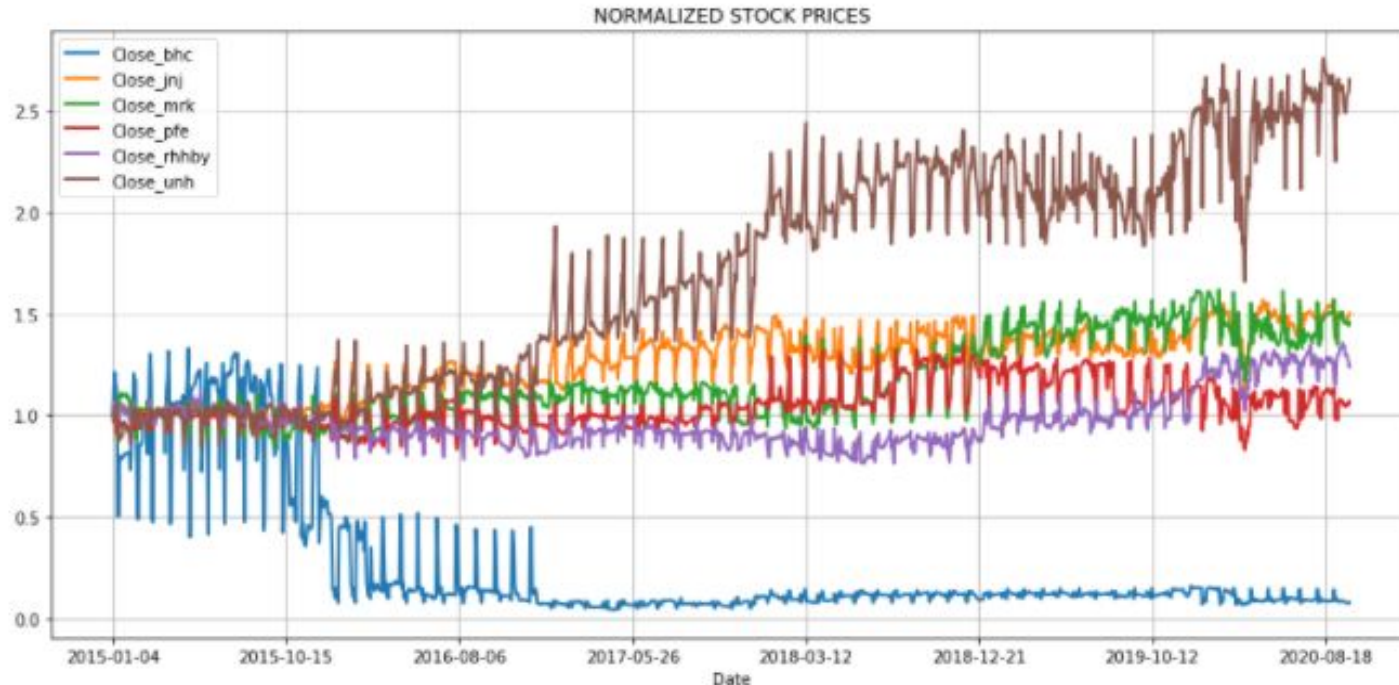
# Finance sector



Key:  
BCS- Barclays  
CS- Credit Suisse  
DB- Deutsche Bank  
GS- Goldman Sachs  
MS- Morgan Stanley  
WFC- Wells Fargo

- Closing stock prices for the different companies in the Finance sector are shown above.
  - The industry seems to be performing well overall despite a slump in 2018-19.
- These stocks have a tendency to perform well in the future as well showing an upward trend.

# Healthcare Sector



Key:  
JNJ- Johnson & Johnson  
MRK- Merck and CO inc.  
PFE- Pfizer  
UNH- United Health Group  
BHC- Bausch Health  
Companies inc  
RHHBY- Roche Holding AG

- Closing stock prices for the different companies in the Healthcare sector are shown above.
- This industry was not performing well before the pandemic but due to increased importance in healthcare due to the pandemic these companies have outperformed
  - BHC is the exception due to various lawsuits and UNH is the top performer



# Patrick's Risk Appetite

- Patrick would like to choose stocks that are not too risky; Conservative investor
  - Available capital of \$1 M: 500K in Naturo and 500K in equities
    - He wants to double his capital in 5 years with less risk

# Suggestions For Patrick

Option 1:

Stocks chosen:

1. AMZN
2. AAPL
3. HA
4. DAL
5. UNH

- AMZN and AAPL both yield high returns, HA and DAL are less correlated with the first two stocks chosen and hence is suitable for a diversified portfolio. It's observed that UNH is moderately correlated and do provide good returns.
- The returns are beyond the expectations for the investor (we need 100% return and we're receiving 200%), and the Sharpe Ratio is nearly 1, which indicates good rate of returns for the risk.
  - Considering client risk portfolio we can opt for these stocks in the portfolio

# Suggestions For Patrick

- Option 2:

Stocks chosen:

1. MSFT
2. AMZN
3. GOOG
4. LUV
5. UNH

- AMZN, GOOG, MSFT yield high returns, but all from same industry tech, therefore some element of risk but not in the foreseeable future
- Here we can see that the returns have increased to 248%, the risk has reduced and Sharpe Ratio has also stayed quite the same at 0.73 which is close to 1.
  - Thus this portfolio can be recommended to Patrick



# Peter's Risk Appetite

- Peter is a risk taker, and prefers high return investments
- Wants to invest \$1M from company into high-margin stocks
- Expects high returns in the next 5 years for expansion of company

# Suggestions For Peter

- Option 1:

Stocks chosen:

1. MSFT
2. AMZN
3. FB
4. HA
5. AAPL

- Four technology stocks have been chosen in driving up the risk factor all in one industry due to consistent performance.
- The returns are pretty high at 268% with the Sharpe Ratio also at a respectable 1.09.
  - With Peters risk appetite this portfolio is a good fit.



# Suggestions For Peter

- Option 2:

Stocks chosen:

1. MSFT
2. AMZN
3. GOOG
4. AAPL
5. UNH

- Opting for UNH instead of HA to slightly reduce the risk
- Returns have increased to 310%, Risk has decreased to 1.50, Sharpe Ratio has increased to 1.22m
- This is a good portfolio for Mr. Peter.



## Recommendations

As observed recommendation we can provide are:

- For Mr. Patrick Option 1 is more suitable as it is less risky as option 2
- For Mr. Peter Option 2 seems suitable as the returns are higher with high risk but lower risk than Option 1
- Considering the risk profiles an appropriate decision can be ascertained



## APPENDIX :DATA METHODOLOGY

- For better understanding we have attached the methodology document for your reference
- We have explained the rationale behind the steps taken for the data preparation and analysis
  - Methodology document: Available in the report