Investment Analysis
Specifications

Requirements

1. You are required write a report on your investment after performing the following activities. You'll need some sort of investment portfolio to successfully complete this project. This can be an actual investment portfolio you own, or one you intend to build from scratch.

   A. Select a market and Unique collection of at least 10 stocks that you wish to analyse.

      a. Provide a brief overview of your market and stock selection in your report.

      b. Briefly explain the rationale behind your Investment Analysis portfolio selection in your report.

      c. Ensure that your Selection of Markets and Stocks is unique. Explain in your report what steps and actions have you taken to ensure this.

   B. Connect to a financial data API of your choice and 'pull' financial data programmatically.

      a. The aim of this section is the to programmatically connect to finance such as YahooFinance.

      b. Download 10-year daily data for the selected stocks and the market. Please ensure that your include only stocks that have been trading the chosen market for at least 10 years.

      c. Generate a Data Frame of closing prices of your selection and market.

      d. Visualise and discuss the stock price performance of the stocks and market in one standardised chart in your report.

      e. Explain how this data (closing price) will help an investor in his decision-making process.

   C. Compute and discuss the historic performance of the Individual Stocks in your Investment Analysis Portfolio.

      a. You are required to calculate the individual stocks historic return and risk.

      b. You are required to calculate the market historic return and risk.

      c. You are required to visualise and discuss the individual stocks and markets historic returns and risk.

      d. Explain how this data (historic performance) will help an investor in his decision-making process.

   D. Calculate the Correlation of the stocks in your selection

      a. Calculate the Correlation of the Individual stocks with respect to each other.

      b. Generate an appropriate visualisation and discuss the correlation of the stocks in your report.

      c. Explain how this data (Correlation) will help an investor in his decision-making process.

   E. Calculate the Beta of the stock and market

a. Calculate the Beta of the Individual stocks and market.

b. Generate an appropriate visualisation and discuss the beta of the stocks in your report.

c. Explain how this data (Beta) will help an investor in his decision-making process.

F. Calculate the unsystematic risk component of the stocks

a. Calculate the Beta of the Individual stocks.

b. Generate an appropriate visualisation and discuss the unsystematic risk of the stocks in your report.

c. Explain how this data (unsystematic risk) will help an investor in his decision-making process.

G. Test the validity of Capital Asset Pricing Model (CAPM) for your selection

a. Statistically test and validate the CAPM by running an OLS regression between the stock return and the market return.

b. If your t-stat on the coefficient (beta) is statistically significant, then the CAPM is valid.

c. Present and discuss your findings in your report.

d. Explain how this data (validity of CAPM) will help an investor in his decision-making process.

H. Test and Validate the Weak Form of the Efficient Market Hypothesis.

a. Explain and discuss the Efficient Market Hypothesis and how it comprises of three different forms, including:

- Weak Form Efficiency
- Semi-Strong Form Efficiency, and
- Strong Form Efficiency

b. Formally test the validity of the weak form of the Efficient Market Hypothesis (EMH). the weak form of the EMH is true if abnormal returns cannot be earned **consistently,** by using historic price information.

c. Explain how this data (EMH) will help an investor in his decision-making process.