REPORT ON CAPITAL ASSET PRICING MODEL (CAPM)

Introduction: This report presents the findings of an in-depth analysis of S&P 500 data and the subsequent portfolio performance evaluation. The analysis involved studying pre and post price normalization trends, calculating daily stock returns, determining the portfolio's beta to assess systematic risk, and employing the Capital Asset Pricing Model (CAPM) framework to compute the portfolio return.

Data Exploration and Trends: The project commenced with a comprehensive exploration of S&P 500 data. The historical price data was examined to identify trends before and after price normalization. Time series plots were generated to visualize these trends, offering valuable insights into the market's behavior over time. This exploration laid the foundation for the subsequent analytical steps.

Daily Stock Returns: To gauge the daily stock returns, the project involved the computation of percentage changes in stock prices on a daily basis. This data was used to quantify the volatility and fluctuations in the market, contributing to a deeper understanding of the underlying dynamics.

Portfolio Beta and Systematic Risk: One of the focal points of the analysis was the assessment of the portfolio's systematic risk, commonly quantified by its beta value. By comparing the portfolio's historical returns to those of the market index (S&P 500), the beta value was derived. This beta value indicates the portfolio's sensitivity to market fluctuations, serving as a crucial metric for risk assessment.

CAPM Framework and Portfolio Return: The Capital Asset Pricing Model (CAPM) framework was employed to calculate the expected return of the portfolio based on its systematic risk. The risk-free rate, market risk premium, and the portfolio's beta were used to compute the required return. Through this model, the project determined that the portfolio should yield a return of 14.21% to adequately compensate for its level of systematic risk.

Conclusion: In conclusion, this project delved into the analysis of S&P 500 data, providing insights into pre and post normalization trends, as well as daily stock returns. The portfolio's beta, an essential metric for assessing systematic risk, was derived and served as a basis for the subsequent application of the CAPM framework. By utilizing the CAPM model, the project calculated that the portfolio's return should ideally amount to 14.21%.

The findings of this analysis hold significance for investors and financial professionals seeking to make informed decisions regarding portfolio construction, risk assessment, and expected returns. The project not only deepened our understanding of market behavior but also demonstrated the practicality of financial models in real-world scenarios.