MGEC72: FINANCIAL ECONOMICS

Assignment-3[1]
Deadline (April 4)

CAPM

I. Individual stocks

a) Estimate the CAPM model for each of your four stocks. Obtain the parameters α and β for each firm. Do the estimates of β correspond well with your prior intuition or beliefs? Why or why not?

Hint: To do this question you need to follow the regression analysis in **Lecture 7.** Make sure the risk premium (excess return) of each stock is regressed over the risk premium (excess return) of the market.

b) For two of the stocks, make a time plot of the historical risk premium, and risk premium predicted by the regression model, and the associated residuals. Are there any episodes or dates that appear to correspond with unusually large residuals? If so, attempt to interpret them.

c) For each of the companies, test the null hypothesis that $\alpha = 0$ using a significance level of 95%. Would rejection of this null hypothesis imply that the CAPM has been invalidated?

d) Compute the market risk, and the idiosyncratic risk for each stock. According to William Sharpe "Uncertainty about the overall market accounts for only 30% of the uncertainty about the prospects for a typical stock." Is this statement verified by your results?

Hint: Use the R-squared of your regressions to find the proportion of market risk and idiosyncratic risk.

II. Equally weighted portfolio

Now suppose you have formed an equally weighted portfolio of all four stocks.

a) Calculate the beta and the alpha of your portfolio and interpret them. What is the idiosyncratic risk? Show the impact of diversification.

b) Make a time plot of the historical risk premium of your portfolio, and risk premium predicted by the regression model, and the associated residuals. How close the actual portfolio premiums correspond with the CAPM predictions?

c) For your portfolio, test the null hypothesis that $\alpha = 0$ using a significance level of 95%. Would rejection of this null hypothesis imply that the CAPM has been invalidated?

Good luck,

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[1] Make sure you explain your approach/finding in a detail.