FINANCIAL MODELING AND ECONOMETRICS

Refik Soyer, December 2016

Assignment 1: Due on Friday December 16, 2016

Each group will submit a single typed report of less than or equal to 5 pages. Please be sure that you include only the relevant SAS output and your interpretations in answering the each question.

Consider the daily stock returns (simple net returns) data on American Express (AMEX), Caterpillar (CAT) and Exxon-Mobil (EXMOB) from January 1994 to December 2004. The data is in file "daily_stocks.txt" and in free format in the order of AMEX, CAT and EXMOB. In answering the following questions, please use **only** relevant parts of the SAS output in your writeup.

(1) Using SAS obtain the skewness and excess kurtosis for each of these returns and display them in tabular form. What can you say about skewness and tail behavior of the each ? Please use necessary statistical analysis to make your conclusions. In so doing, test the hypothesis that if skewness and excess kurtosis are different than 0 for each stock using $\alpha = 0.05$ level of significance.

(2) Are the mean returns different than 0 for each of these stocks ? Please test the hypothesis separately for each of these stocks using $\alpha = 0.05$ level of significance and state your conclusions and reasoning using the SAS output.

(3) Transform the simple returns to log returns. What can we say about normality of the log returns of each stock ? Please state your conclusions and reasoning using the SAS output.

(4) Using SAS estimate the autocorrelation function for log returns of AMEX. Using the SAS output test the the hypothesis (using $\alpha = 0.05$) that autocorrelations at the first 24 lags are equal to zero. Please state your conclusions and reasoning using the SAS output.

(5) Using SAS obtain the scatter plot of log returns of AMEX versus log returns of CAT. Are the log returns of AMEX positively correlated with log returns of CAT ? Please use the appropriate analysis using SAS and state your conclusions and reasoning.