
MSc in Applied Economics and Finance

MSc in Business Economics with Analytics

ΠΟΣΟΤΙΚΕΣ ΜΕΘΟΔΟΙ - QUANTITATIVE METHODS

Assignment 1 – December 2021

The data you will have to analyze are in the eclass in the excel US_FUND_DATA.xls file. The dependent variables for which you will construct the models you are asked for are the returns of different US Mutual Funds (250 mutual fund returns, sheet: 'US_Funds') for the period 1/1987 – 7/2019. The independent variables you will use in the models refer to monthly returns for the variables $x_1 = \text{Mkt-Rf}$, $x_2 = \text{SMB}$, $x_3 = \text{HML}$, $x_4 = \text{RMW}$, $x_5 = \text{CMA}$, $x_6 = \text{MOM}$, $x_7 = \text{BAB}$ and $x_8 = \text{CAR}$ for the period 1/1987 - 7/2019 (sheet: 'Factors').

Analyze the dependent variables based on data for the period 1/1987 - 7/2019 :

1. Develop an appropriate multiple regression model, and select the important explanatory variables that affect mutual fund returns. Describe analytically the model (variable) selection techniques that are used in your analysis. (At the final model, check the assumptions on the regression residuals if they are violated or not)
2. Develop an appropriate multiple regression model. In case of autocorrelation problem of regression residuals, correct the autocorrelation problem (using time series AR, MA, ARMA models).
3. Write the models you have found at question (1 and 2). Assess the goodness of fit of these models based on the AIC and BIC information criteria.

[Each student will have to analyze **two only** dependent variables, based on the excel sheet 'Student ID Number'. For example, Student with Number ID 1, will analyze two only dependent variables i.e. series from 1-5, Student with Number ID 2, will analyze two only dependent variables i.e. series from 6-10, Student with Number ID 3, will analyze two only dependent variables i.e. series from 11-15, etc.].

Date of delivery of the assignment: 9/1/2022, 23:59.