Task 1 (up to 2 points):

Load the data from the file capm.xls. Here, you can find for each date:

* the index values of the S&P500 index – returns form will be needed,
* the monthly stock prices for four companies (Ford, General motors, Microsoft and Sun/Oracle) – need to be transformed into returns (index values)
* index for three-month US-Treasury bills (do not forget to divide its values by 12, since it is originally annualised time series and all the other time series are monthly) – a proxy for the risk free rate, this time series is already in returns form.

Using these data, estimate appropriate coefficients for the CAPM equation for each stock and interpret the results. Classical linear regression can be used (OLS) to obtain the coefficient estimates.

The regression will probably be in a form similar to:

Where is the expected excess return of the capital asset , is the expected excess return of the market and is the risk free rate.

Check for statistical significance of the coefficient estimates and intepret this information as well.

Task 2 (up to 4 points):

In the file 2019\_homework\_assignment\_data\_xls, there are four data sets. The first three for univariate regression (), the fourth one for multivariate regression (). For each of these data sets, find an appropriate regression model, test the significance of parameters, test the joint hypothesis on parameters in the multivariate case, calculate the goodness of fit statistics (assess the quality of your model).

Check the fulfillment of the OLS/CLRM assumptions and interpret these results – which models/parameters cannot be interpreted well in light of these findings?

**Summarize the results on ONE PAGE TOPS for each of these two tasks, the other pages may include graphical ouputs and any other additional information that you deem necessary to support your findings.**