

UNIVERSITY OF SYDNEY

BUSINESS ANALYTICS

QBUS6830: FINANCIAL TIME SERIES AND FORECASTING

SEMESTER 1, 2019

Lab Tutorial Sheet 3

Q1 (Multi-factor CAPM) Get the Kenneth French data on factors and 5 industry portfolios (value-weighted) on a MONTHLY frequency from the files `F-F_Research_Data_Factors.txt` and `5_Industry_Portfolios.txt`. The data files are on Canvas. Note that these data files contain both Monthly and Annual data so you will have to scroll down to find and select the appropriate data set in each of the text files.

- (a) Plot the industry portfolio, market index plus the HML and SMB factor returns over time. Find summary statistics for each of the eight return series. Comment and discuss.
 - (b) Form the excess returns on each industry portfolio and the excess returns on the market. Construct a scatterplot of each excess industry return against the HML and SMB series respectively. Calculate the pairwise correlations between each industry and each of the HML and SMB series. Test whether each correlation is different to 0 (or not) at the 5% level.
 - (c) Fit a multi-factor CAPM to each excess industry return series, using all three factors, and report the estimates as well as 95% intervals for each estimate. Briefly comment and assess whether each industry could be classed as high, medium or low market risk. Provide a test or interval to support your conclusions.
 - (d) Discuss whether the assumptions made in these analyses might be valid or not. In particular, are outliers an issue or problem in any of these data sets?
 - (e) Report on how well and how strongly the Multi-factor CAPM fits each industry portfolio data set. Compare results to the single factor CAPMs from lab 2.
 - (f) Are there any changes in conclusions from using daily data, as in lecture, to monthly data? Any changes in conclusions from lab 2? Other issues?
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