ECON 4360: Empirical Finance

Spring 2014

Homework 04

Due Wednesday, 23 April 2014 by 1400

Instructions

Please type your final answers/results neatly and include it as a coversheet. Show all work in the pages that follow - this includes any derivations you might need, .m files, scripts, output results, etc. Final answers without supporting work will receive no credit.

You may work in groups no larger than three for this assignment. If you choose to work in a group, please turn in only ONE copy of your group's assignment - just be sure to include the names of everyone in your group.

Questions

Time-Series Regression Exercise

1. [50 Points] On Collab, there is a spreadsheet (Q1Data.xls) with excess returns for 10 size-sorted portfolios as well as the market excess return. *Note that this data is "nice" in that you don't have to do any data transformations here...*

   (a) Run regressions of each excess return on the market excess return and a constant. Report your estimated parameters in a table.

   (b) Test how well the factor pricing model does for each portfolio, i.e., equation-by-equation, using t-tests.

   (c) Test the model, i.e., all the pricing errors are jointly equal to zero, using:

      i. A χ^2 test given in (12.3) in Cochrane.

      ii. An F test given in (12.4) of Cochrane.

      iii. The χ^2 test derived from (12.7) in Cochrane. (This is the GMM estimator with robust standard errors.) Use 5 lags.

   (d) Given your results from parts (b) and (c) what do you conclude about this asset-pricing model?

Cross-Section Regression Exercise

2. [50 Points] Data for the project can be found here:
   http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html - We are using the file

"Portfolios Formed on Size". Data files have also been uploaded to Collab. *Note that this data is not "nice" - you do need to do data transformations here and make sure you are working with the correct data...* When you report your results, provide a brief interpretation of the results - generally, this should be a short paragraph.

a. Use the 10 size-sorted portfolios to test the CAPM for the time period 1963:7-2010:12 using a two-step cross-sectional regression. Use GLS in the second step and do not include a constant. What is your estimate for the compensation for beta risk?

b. Can you reject the hypothesis that this coefficient is zero?

c. Can you reject the hypothesis that the CAPM is an adequate description of the data?