

Financial Econometrics

February 10th 2016

Exercise 1 Consider:

- the following APT-style model (A):

$$r_A = \beta_0 + \beta_1 r_M + \beta_2 \pi + u$$

where r_A and r_M are excess returns on, respectively, an asset A and a market index, and π is the inflation rate,

- the CAPM-style model (B):

$$r_A = \gamma_0 + \gamma_1 r_M + v$$

where r_A and r_M are as above.

You have observed a sample of 67 data points and estimated model (A) by OLS, resulting in the following coefficients and standard errors (s.e. in brackets): $\hat{\beta}_0 = 0.4(0.6)$, $\hat{\beta}_1 = 1.5(0.2)$, $\hat{\beta}_2 = 1.3(0.4)$.

- You are given the table of critical values for the t distribution. Decide which one of (A) and (B) is a better statistical description of reality.
- Is there an alternative procedure you might have used? Briefly describe it.

Exercise 2 With respect to model (A) above, and based on the estimation results,

- as a statistician/econometrician, would you say that the asset A over-, or under-, performed the market?

Exercise 3 Consider your chosen model from Exercise 1. You are worried about serial correlation in the errors.

- Discuss why you should be: i.e., which would be the consequences of serial correlation on the properties of the OLS estimator.
- Describe a serial correlation test of your choice, with particular respect to:
 - the null hypothesis H_0 and the alternative H_A
 - the construction of the test
 - the final decision rule