ECO 6375-001 Prof. T. Fomby
Econometrics III Fall 2008

Exercise 2

You are to hand in this exercise on Monday, September 15. Go to the website for this course and download the SAS program Hotshot.sas. You are to use the program and should add some additional IML code to answer the below questions. The data in the Hotshot.sas program contains monthly observations on a Mr. Hotshot's portfolio. He is a mutual fund manager that you are considering placing your money with. The variables provided in Hotshot.dat are observation number, year, month, the monthly return on Hotshot's portfolio (r), the risk free rate of return (rfree), and the monthly return on the S&P 500 index (rmkt). Use this data to complete the following tasks:

a. Using least squares, fit the following CAPM model to Hotshot's data.

$$r_t - rfree_t = \alpha + \beta(rmkt_t - rfree_t) + \varepsilon_t$$

b. The so-called information ratio (IR) used to evaluate mutual fund manager performance is

$$IR = \frac{\alpha}{\omega}$$

where α = the alpha from the above CAPM model and ω = std(ε_t). The higher the IR value, the better the performance of the mutual fund manager. Calculate a consistent estimate of IR for Mr. Hotshot's mutual fund. Using the DELTA METHOD, calculate the standard error of your IR estimate for Mr. Hotshot's fund. Assuming normality, calculate the 95% confidence interval for your estimate of Mr. Hotshot's mutual fund IR.

c. According to the research firm BARRA, the typical before-expenses distribution of information ratios across mutual fund managers is:

Percentile	IR
90	1.0
75	0.5
50	0.0
25	-0.5
10	-1.0

Suppose that your decision to invest your money in Mr. Hotshot's mutual fund is based on the criterion that Mr. Hotshot is better than 25% of mutual fund managers. Would you invest your money in Mr. Hotshot's mutual fund? Explain your answer. How large would your $\hat{IR}$ estimate have to be, assuming the standard error of $\hat{IR}$ that you obtained, in order for you to choose Mr. Hotshot as your portfolio manager? (Hint: Test the null hypothesis that IR = 0.5 versus the alternative that IR > 0.5.)