Financial Econometrics   Rauli Susmel
FINA 4397
Homework R (Due September 1)

Instructions: Send your solved homework, along with the code, to my TA, Mosayeb Hassanvand. His email address is: mhassanv@Cougarnet.uh.edu

You will use R to answer the following questions.

1.1 Use R as a Calculator
a. 3 + 4 * 9
b. 4*log(sqrt(5))/sin(2.5*pi) - exp(-3^2)

1.2   Use R to construct functions and manipulate them
a. Use function combine, c(), to create a variable called dat, with the following values: 5, 1, 2, 13, 5, 8, 3, 1, 34, 21
b. Calculate the sum of dat and length of dat
c. Calculate the mean and standard deviation of dat.
d. De-mean dat. That is, subtract the mean from each observation in dat

1.3 Define new variables, by manipulating the data
a. Assign to m_dat the mean of dat.
b. Assign to sd_dat the standard deviation of dat.
c. Standardize dat –i.e., (dat - m_dat)/sd_dat
d. Square the deviations of dat over its mean
e. Compute with a formula, the variance of dat.

1.4. Write functions in R
Write a function to calculate the variance of dat (check result with 1.3-e)

1.5. Quick Summary of Distribution and Sorting
a. Use summary to describe dat
b. Sort dat

1.6 Create data in different ways:
a. Use *rep* to create ten 6
b. Use *seq* to create 5 numbers
c. Use *runif* to generate 10 random values from a Uniform(0,1)
d. Use *rnorm* to generate 10 random values from a Normal(2,4)
f. Combine all the data together using c()

1.7 Create a matrix, using rbind() ("row bind") or cbind() ("column bind"):
a. Using your vectors from 1.6.a, 1.6c and 1.6.d, create a matrix using *rbind*
b. Using your vectors from 1.6.a, 1.6c and 1.6.d, create a matrix using *cbind*

1.8 Graphs
a. Use *plot* to plot dat.
b. Use *hist* to do a histogram of dat.