ECON 147 Homework 1 (Spring 2018)

Due: April 16 (Monday) 12:30pm in Class

Reading and Program Downloads

- Please read the course material (slides and lecture note) provided in the course webpage.
- For Part II, go to *http://www.r-project.org/* and download R software, if you do not have it yet on your PC. It will be also available from most of computers in the campus. Once you have data (see Part III below) and R program, you will be able to follow the commands in *Econ147_HW1_Code.r* under week 2 folder of our course webpage. If you copy each command (between #'s - # indicates "instructions", not command or function) into R console, you can easily finish the exercise. This exercise will let you review the concepts and get familiar to R software.

1 Part I: Review Questions

Consider the following (actual) monthly adjusted closing price data for Starbucks stock over the period December 2011 through December 2012:

End of Month Price Data for Starbucks Stock	
December, 2011	\$44.89
January, 2012	\$46.76
February, 2012	\$47.55
March, 2012	\$54.73
April, 2012	\$56.17
May, 2012	\$53.91
June, 2012	\$52.37
July, 2012	\$44.47
August, 2012	\$48.91
September, 2012	\$50
October, 2012	\$45.26
November, 2012	\$51.36
December, 2012	\$53.1

1. Using the data in the table, what is the simple monthly return between the end of December, 2011 and the end of January 2012? If you invested \$10,000 in Starbucks at the end of December 2011, how much would the investment be worth at the end of January 2012?

2. Using the data in the table, what is the continuously compounded monthly return between December, 2011 and January 2012? Convert this continuously compounded return to a simple return (you should get the same answer as in part 1).

3. Assuming that the *simple* monthly return you computed in part 1 is the *same* for 12 months, what is the simple annual return with monthly compounding?

4. Assuming that the *continuously compounded* monthly return you computed in part 2 is the same for 12 months, what is the continuously compounded annual return?

5. Using the data in the table, compute the actual simple annual return between December 2011 and December 2012. If you invested \$10,000 in Starbucks at the end of December 2011, how much would the investment be worth at the end of December 2012? Compare with your result in part 3.

6. Using the data in the table, compute the actual annual continuously compounded return between December 2011 and December 2012. Compare with your result in part 4. Convert this continuously compounded return to a simple return (you should get the same answer as in part 5).

2 Part II. R Exercises

Go to `http://finance.yahoo.com` and download monthly data on Starbucks (ticker symbol sbux) over the period March, 1998 to March, 2013. See Part III for how to get data.

Read the data into Excel and make sure to reorder the data so that time runs forward. Delete all columns except those containing the dates and the adjusted closing prices. Save the file as a .csv (comma separated value) file and call it `sbuxPrices.csv`. This is important because base R does not have functions for importing data from an Excel spreadsheet (see the RODBC and xlsReadWrite packages for functions to read and write directly to Excel files).

Start R and open the file *Econ147_HW1_Code.r*. Execute the commands in this file line by line. Copy and paste your output into a Word (or whatever word processor you use) document to show that you have done this assignment.

1. Import the data in the file `sbuxPrices.csv` using the R function `read.csv()` into the data.frame object `sbux.df`. Follow the commands in *Econ147_HW1_Code.r* to manipulate the data.

2. Plot the closing price data using the `plot()` function.

3. Compute monthly simple and continuously compounded returns. Plot these returns separately first. Then also plot on the same graph.

3 Part III. How to get data from Yahoo

To get data from Yahoo! do the following for each series to be downloaded:

1. Go to *http://finance.yahoo.com/*

2. In the Quote Lookup box type the symbol of the stock for which you want data. For example, the symbol for Microsoft is MSFT. If you do not know the ticker symbol, you can type the full name of the company in the Quote Lookup box. Then you will see its ticker symbol from the list below the box.

3. The recent quote for your stock as well as a wealth of other information will be presented on a new page. To get historical prices, click the *historical prices* link on the upper left panel of the page.

4. A new page will open and you will be able to specify the date ranges for the data to be downloaded and the frequency of the data (daily, weekly or monthly).

5. After setting the date and frequency information, click the *Apply* button.

6. At the bottom of the *Apply* button click on *Download Data*. This will bring up a Save As dialogue box. Specify a name for the file and save to disk. Each file will contain 6 columns (as in the table below). For monthly data, the column labeled Open gives the opening price at the beginning of the month, the column labeled High gives the highest price during the month, the column labeled Low gives the lowest price during the month, the column labeled Close gives the closing price during the month and the column labeled Volume gives the total monthly volume. The open and the close data have been adjusted for dividends and stock splits. Use the (adjusted) close data for your analysis.