Economic Analysis III Final Assignment

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Using the daily closing prices of Apple Computer Inc. for the period between 2007/1/3 and 2018/11/30, answer the questions listed below.

- The data file is available at
- This document itself is downloadable at

If you encounter any problem in downloading the files or in loading the data file into your R session, please contact me.

Due date: 16:00, February 1, 2019.

Submission method: Compile your answer sheets and R programs into a single PDF file and send it to me by email at

Note:

- When you are preparing your solutions, please do remember not to just copy and paste outputs from your R session. Try to build suitable tables and figures with appropriate titles so that the reader of your solution sheets (it is me!) can easily understand what you have done. In addition, please try to motivate (i.e., explain logically) your answers.
- Your R code should be attached at the end of your answer sheets. Please add appropriate comments to your R code. Otherwise it is very hard for me to follow your work.
- You can discuss with your colleagues how to tackle the problems. However, never share the solutions/R codes with your colleagues.

Questions:

1. Compute the log returns and plot the series.
2. Fit the AR model to the log return series. Determine an adequate lag length using partial autocorrelation function.
3. Fit the MA model to the log return series. Determine an adequate lag length using autocorrelation function.
4. Fit the ARMA model to the log return series. Determine an adequate lag length using information criteria.

5. Compare the estimated three models.
6. Conduct the ADF test for the log price series and discuss whether the log price series is stationary or not.

Extra task

Compare the forecasting performance of the estimated AR, MA and ARMA models.

By tackling the extra task, you will have a chance to earn extra points. Note that methods for forecasting future values of time series have not been touched during the lecture. However, brief explanations are exemplified in Chapter 2 of the text, so that it is not extremely hard to carry out the forecasting exercise.