Quiz 7

Nicholas Colonna

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# Use quantmod package in R and download daily data for “AAPL” for the last year. - Calculate weekly return, and report skewness and kurtosis for this weekly return. - Also, using an appropriate test, report whether this return is normally distributed or not? - Report if the return is leptokurtic or not?

#install.packages("quantmod")  
#install.packages("fBasics")  
library(quantmod)

## Loading required package: xts

## Loading required package: zoo

##   
## Attaching package: 'zoo'

## The following objects are masked from 'package:base':  
##   
## as.Date, as.Date.numeric

## Loading required package: TTR

## Version 0.4-0 included new data defaults. See ?getSymbols.

library(fBasics)

## Loading required package: timeDate

## Loading required package: timeSeries

##   
## Attaching package: 'timeSeries'

## The following object is masked from 'package:zoo':  
##   
## time<-

##   
## Attaching package: 'fBasics'

## The following object is masked from 'package:TTR':  
##   
## volatility

#1  
getSymbols("AAPL", src='yahoo', from=as.Date("2017-01-01"), to=as.Date("2017-12-31"))

## 'getSymbols' currently uses auto.assign=TRUE by default, but will  
## use auto.assign=FALSE in 0.5-0. You will still be able to use  
## 'loadSymbols' to automatically load data. getOption("getSymbols.env")  
## and getOption("getSymbols.auto.assign") will still be checked for  
## alternate defaults.  
##   
## This message is shown once per session and may be disabled by setting   
## options("getSymbols.warning4.0"=FALSE). See ?getSymbols for details.

##   
## WARNING: There have been significant changes to Yahoo Finance data.  
## Please see the Warning section of '?getSymbols.yahoo' for details.  
##   
## This message is shown once per session and may be disabled by setting  
## options("getSymbols.yahoo.warning"=FALSE).

## [1] "AAPL"

weekly\_Ret <- weeklyReturn(AAPL)  
weekly\_Ret <- as.data.frame(weekly\_Ret)  
skewness(weekly\_Ret$weekly.returns)

## [1] -0.2479604  
## attr(,"method")  
## [1] "moment"

kurtosis(weekly\_Ret$weekly.returns)

## [1] -0.07420681  
## attr(,"method")  
## [1] "excess"

#2  
jarqueberaTest(weekly\_Ret$weekly.returns)

##   
## Title:  
## Jarque - Bera Normalality Test  
##   
## Test Results:  
## STATISTIC:  
## X-squared: 0.5686  
## P VALUE:  
## Asymptotic p Value: 0.7525   
##   
## Description:  
## Wed Mar 28 09:46:48 2018 by user:

#Since the p-value is greater than 0.05, we accept the null hypothesis and connclude that there is no significant evidence that the distribution is NOT normally distributed  
  
#3  
kurtosis(weekly\_Ret$weekly.returns)

## [1] -0.07420681  
## attr(,"method")  
## [1] "excess"

#Since the Excess Kurtosis is less than 0, the weekly returns are not leptokurtic. Therefore, they have skinny tails