FIN 740 – Fall AP1 2020

Homework 4

Due: Sunday, September 27, 11:59 PM CST

※ Using the R script, answer the following questions. Please show all works for full credit.

Download the data file **hw4.cvs** from M4: Homework section on Moodle and create "**hw4**" by reading **hw4.cvs** file. The **hw4.cvs** includes **monthly** log stock returns of 8 firms **from January 2006 to December 2016**.
Use the following package and libraries:

```
install.packages("tseries")
library(tseries)
library(xts).
```

1. [4 points] Convert "**hw4**" to xts object (use date format `"%m/%d/%Y"`) and assign the name "**rtn**" to the new object.

2. Find mean-variance efficient portfolio with target return 0.5%, and answer the following questions (Note: Print out the **corresponding answers only**.).

   a) [4 points] What is the weights of mean-variance efficient portfolio?
   b) [4 points] What is the expected portfolio returns for each month obtained by a) ?
   c) [4 points] What is the standard deviation of mean-variance portfolio.

3. [32 points] Find (Plot) efficient frontier.

4. Suppose that risk-free T-bill rate is 0.2%.

   a) [6 points] Find maximum Sharpe ratio.
   b) [6 points] Find tangency point, and plot Capital Allocation Line (CAL).