YOUR CHANCE TO GET (VIRTUALY) RICH!

EXERCISE INSTRUCTIONS:

- (1) This web browse exercise asks you to research, select, and report on a $10,000 portfolio of publicly available stocks.

- (2) At the end of the semester the portfolio capital gains (or losses) will be assessed, and the “winners” (i.e., the most profitable portfolio selections) will be announced.

- (2) Please be sure to staple all of your answer sheets together, and to put your name, student ID number, and 353-Ex7 at the top of your answer packet.

Basic References:


[5. ] NASDAQ-100 website with company listing (http://quotes.nasdaq.com/quote.dll?page=nasdaq100)

[6. ] AMEX website (http://www.amex.com/) with company listing (select Equities/Listed Companies from menu)

Suppose you suddenly receive $10,000 from Uncle Ted. An accompanying legal document informs you that this money windfall will have to be forfeited unless it is fully invested by 2:10pm on October 23 in a portfolio of stocks publicly traded either on the New York Stock Exchange (NYSE) Euronext, the NASDAQ-100, or the American Stock Exchange (AMEX).

This exercise asks you to select and report on a stock portfolio in accordance with Uncle Ted’s instructions.
Part I (2.5 Points): Select for your stock portfolio any FIVE publicly traded stocks from Refs.[4-6] for which historical daily share price information is available from 9/17/10 through 10/16/07. Suppose you make your stock purchases on 10/16/07. Using the share prices reported for 10/16/07, select share amounts for each stock so your total portfolio dollar value comes as close as possible to $10,000 without exceeding $10,000. For each of your five selected stocks, report the following:

- (a) The name of the company issuing the stock;
- (b) The name of the exchange where the stock is traded;
- (c) The share price, number of shares, and total dollar value of your stock purchase;
- (d) A brief indication of why you selected this stock.

Part II (2.5 Points): Let your selected stocks in Part I be denoted by \( i = 1,\ldots,5 \), and let \( n_i \) denote the number of shares you purchased of stock \( i \). For each stock \( i = 1,\ldots,5 \), do the following:

- Prepare an Excel table that gives the daily share price \( p_i(D) \) of stock \( i \) for each day \( D \) over the 30-day time period from 9/17/07 through 10/16/07 and the return rate \( R_i(D) \) of stock \( i \) for each day \( D \) over the 29-day time period from 9/18/07 through 10/16/07. Be sure to identify your data sources.

**Note:** Recall from Ref.[1] that the return rate \( R_i(D) \) for stock \( i \) on any day \( D \) is defined to be \( R_i(D) = [\ln p_i(D) - \ln p_i(D - 1)] \), where “\( \ln \)” denotes “natural logarithm.”

- Prepare a carefully labeled Excel chart that displays the return rate \( R_i(D) \) of stock \( i \) for each day \( D \) over the 29-day time period from D=9/18/07 through D=10/16/07.

- Using the appropriate Excel statistical functions, calculate and report both the average and the volatility (standard deviation) of \( R_i(D) \) from day D=9/18/07 through day D=10/16/07.

Part III (3 Points): Using notation from Part II, for each day \( D \) from 9/17/07 through 10/16/07 let the Portfolio Value for Day \( D \), denoted by \( PV(D) \), be defined as follows:

\[
PV(D) = p_1(D)n_1 + p_2(D)n_2 + p_3(D)n_3 + p_4(D)n_4 + p_5(D)n_5 .
\]  

(1)

Using your purchased share information from Part I, your stock price information from Part II, and the definitions from Ref.[1]:

(A) Prepare an Excel chart that plots the return rate \( R(D) \) of \( PV(D) \) from day \( D=9/18/07 \) through day \( D=10/16/07 \), where \( R(D) = [\ln PV(D) - \ln PV(D-1)] \), and “\( \ln \)” denotes “natural logarithm.” Be sure to identify your data sources.

(B) Using the appropriate Excel statistical functions, calculate and report both the average and the volatility (standard deviation) of \( R(D) \) from day \( D=9/18/07 \) through day \( D=10/16/07 \).

(C) How does the volatility of the portfolio return rate \( R(D) \) calculated in Part III(B) compare with the volatilities of the individual stock return rates \( R_i(D) \) that were calculated in Part II? Would you expect the volatility of the portfolio return rate to be less than the individual stock return rate volatilities? Why or why not?