ECONOMICS 353 **L. Tesfatsion/Fall 07**
EXERCISE 7: Web Browse (8 Points Total) **DUE: Tues, Oct 23, 2007, 2:10pm**

****IMPORTANT: LATE ASSIGNMENTS NOT ACCEPTED – NO EXCEPTIONS****

YOUR CHANCE TO GET (VIRTUALLY) 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:

[**1.**] L. Tesfatsion, "Measuring the Volatility of Stock Returns: Points to Ponder," posted at the Econ 353 Syllabus (Mishkin Chapter 1 Materials), directly accessible at http://www.econ.iastate.edu/classes/econ353/tesfatsion/StockVolatility.2007.pdf

[**2.**] Mishkin Chapter 7:Part A ("Stock Market Pricing", pp. 151-156)

[**3.**] L. Tesfatsion, "Notes on Mishkin Chapter 7: Part A (pp. 151-156), posted at the Econ 353 Syllabus (Mishkin Chapter 7 Materials), directly accessible at http://www.econ.iastate.edu/classes/econ353/tesfatsion/mish7a.pdf

[**4.**] NYSE Euronext main website (http://www.nyse.com/) and listed company directory (http://www.nyse.com/about/listed/listed.html)

[**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,...,5, and let n_i denote the number of shares you purchased of stock i. For each stock i = 1,...,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 $\mathrm{R}_i(\mathrm{D}) = [\ln p_i(D) - \ln p_i(D-1)]$, 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:

$$\mathrm{PV(D)} = p_1(D)n_1 + p_2(D)n_2 + p_3(D)n_3 + p_4(D)n_4 + p_5(D)n_5 \quad . \tag{1}$$

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)= $[\ln \mathrm{PV(D)} - \ln \mathrm{PV(D\text{-}1)}]$, 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?