Financial Economics

Problem set 3

To solve this problem you will have to use the program Microsoft Excel.

The excel file contains the monthly returns of Apple's shares, Pfizer's shares and the monthly change in the price of gold for the period from January 1995 until December 2014 for a total of T=240 observations.

a) Compute the sample mean of monthly returns for

- money invested in Apple's share,
- money invested in Pfizer's share,
- money invested in gold.

b) Compute the sample variance and standard deviation of the monthly return of

- Apple shares;
- Pfizer's share;
- gold.

c) In the plane monthly return of Apple/ monthly return of Pfizer represent the return of these companies for your sample. What do you deduce about the correlation of returns. Do the same for the plane monthly return of Apple/monthly return of Gold and the plane monthly return of Pfizer /monthly return of gold.

d) Compute the sample covariance and correlation coefficient between:

- monthly returns of Apple and Pfizer;
- monthly returns of Apple and gold;
- monthly returns of Pfizer and gold.

Are these numbers in line with your intuition from the graphs of question c)?

e) Portfolio 1 is obtained by investing 0.5 in Apple and 0.5 in gold. Portfolio 2 is composed of 0.5 in Apple and 0.5 in Pfizer. For each of the two portfolios
-Determine the month by month return from 1995 until 2014;
-Determine the sample historical return and standard deviation of historical return;

f) If that sample mean standard deviation you obtained in question e) are the actual expected return and standard deviation for next month, today, would you prefer to invest into Portfolio 1 or Portfolio 2?