Economics 252 Problem Set #2

1. Suppose the typical technology stock has a return standard deviation of 50% per year. Suppose that all technology stocks are independent of each other. Suppose that the typical blue-chip stock has a return standard deviation of 10% per year. Then, how many different technology stocks would I have to include in an equally weighted portfolio to make the tech stock portfolio safer (in terms of standard deviation) than holding a single blue-chip stock?

2. Stock A has a return standard deviation of 20% and stock B has a return standard deviation of 10%. Stock A has an expected return of 20% and stock B has an expected return of 10%.?

a. Plot the efficient portfolio frontier under the assumption that the two stocks? returns are uncorrelated with each other. Show points A and B on the plot. (For these plots, it would probably be easiest to use a spreadsheet to print the plots.)
b. Show on the plot the minimum variance portfolio. Does it contain positive quantities of both A and B?
c. If the interest rate is 0%, roughly draw the tangency line on the plot. Do you think that the optimal portfolio will contain positive quantities of both stocks? More of A or more of B?

3, Now redo 2. under the assumption that stock B has a high correlation, of 0.9, with stock A. After answering a. b. and c., describe in words the difference that the correlation of 0.9 makes.

4. As an investor, which world would you rather live in, the world described by 2, or the world described by 3? (Assume that the assets A and B are the only assets that there are to invest in.)Explain your answer.

5. Log onto the Federal Reserve?s Flow of Funds Accounts at http://www.federalreserve.gov/releases/z1/current/z1r-4.pdf? (Tables L122, L100, L109, L117, etc.) and also onto the web site of the Investment Company Institute (the mutual funds industry trade organization) www.ici.org and from there to their Statistics and Research section, particularly their HTML Fact Book. From these, write a? paragraph or two describing recent trends in the mutual funds industry in the last five years in comparison with the banking and insurance industries.