Quiz # 5: Take-home Assignment, Due in class on May 19, 1997

Write a brief answer to the following questions in the space provided below. This is an individual assignment. If you collaborate, you risk failing the entire course.

1. (10 points)

Graph the portfolio opportunity set when there are only two risky assets. The expected monthly returns, standard deviations, and covariances of returns are:

\[ E(R_a) = .01, \quad E(R_b) = .02, \quad \sigma(R_a) = .08, \quad \sigma(R_b) = .08 \quad \text{and} \quad \text{cov}(R_a,R_b) = 0.0032. \]

(a) Draw the investment opportunity set and label the efficient set (e.g., highlight it with a colored marker, or some other distinctive method).
(b) What is the maximum amount that a risk averse expected utility maximizing investor would invest in asset b? [Explain your answer!]

(c) What is the most that this same individual would invest in asset a? [Explain your answer!]

(d) Could this situation exist in equilibrium (where all investors see the same opportunity set)? If not, what would you expect to happen?
(e) Suppose \( \text{cov}(R_a,R_b) = -0.0064 \). Draw the investment opportunity set and label the efficient set (e.g., highlight it with a colored marker, or some other distinctive method).

(f) Suppose \( \text{cov}(R_a,R_b) = 0.0064 \). How would you answer questions (a) - (d)?
(g) What is the maximum amount that a risk averse expected utility maximizing investor would invest in asset b? [*Explain your answer!*]

(h) What is the most that this same individual would invest in asset a? [*Explain your answer!*]

(i) Could this situation exist in equilibrium (where all investors see the same opportunity set)? If not, what would you expect to happen?