Student ID................................

EE431 Economics of Financial Markets and Institutions
Homework 3: Mean-Variance Analysis

Please submit at the BE office, 5th floor department of Economics building.

Deadline of submission : Wednesday, March 1st, 2016, before 15.00 hrs.

1. If the covariance of stock 1 with stock 2 is -.008, then what is the covariance of stock 2 with stock 1?

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2. Consider an economy with just two assets. The details of these are given below. Use the following information to answer the questions.

Security's name	Expected rate of returns (%)	Standard deviation (%)
X	3	10
Y	12	15

   Correlation coefficient (r_{XY}) between the rate of return of security X and the rate of return of security Y is 0. The risk free rate (R_f) is 1%.

   (a) Let the tangency portfolio M has
   - 0.3 of the asset invested in X and
   - 0.7 of the asset invested in Y.

   The tangency portfolio is the market portfolio. Write down the equation for the CML.

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   (b) State **Tobin's Separation Theorem**.

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(c) A = the last digit of your student ID. **If the last digit of your student ID = 0, use A = 5.**

Fill in the table below.

A	=.........................

Example.

A student with ID 540464031**9**, A = 9.

A student with ID 550464024**3**, A = 3

A student with ID 550464011**0**, A = 5.

(d) From previous question, suppose an investor wants A% expected rate of return,

i. how should the investor allocate his or her fund between the market portfolio and risk fee asset?

ii. What is the standard deviation of the portfolio?

iii. Graphically illustrate the investor's choice, the riskfree asset, the market portfolio and CML.

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(e) From question (d), how much the investor invest in stock X and how much investor invest in stock Y.

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(f) From question (d), what are the weight of stock X and the weight of stock Y in the investor's **portfolio of risky assets** (portfolio M)?

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3. You own 50 shares of stock A, which has a price of \$12 per share, and 100 shares of stock B, which has a price of \$6 per share. What is the portfolio weight for stock B in your portfolio?

4. Imagine you have a portfolio of two risky stocks, stock X and Stock Y.

   (a) What does diversification mean?

   (b) Suppose it turns out that the portfolio have no benefit from diversification.
   What is the reason for getting no benefit from diversification?

   (c) Suppose it turns out that the portfolio have benefit from diversification.
   What is the reason for getting some benefits from diversification?