Seminar 7

A. Multiple Choice Questions

Provide brief responses to the following questions:

A1. For each of the following statements indicate whether the statement is true or false and explain why.
a. The CAPM implies that only unsystematic risk is priced in the market.
b. The expect return for a zero beta security is zero.
c. The CAPM implies that the relationship between risk and expected return is always linear.
d. In the context of the CAPM the slope of the security market line cannot be negative.
e. Beta is not the same as the correlation between a security (portfolio) and the market portfolio.
f. The existence of market anomalies is consistent with the CAPM.
g. Both the Capital Market Line and the Security market Line may contain efficient and inefficient portfolios.

For each question pick up the most reasonable response based on the information provided.

A2. Assume that the CAPM and a security's beta has been estimated as 1.2. The risk free rate of return is 6% and the security's expected rate of return is 18%. This implies that the market risk premium is closest to:
a. 6.00% **b.** 10.0% **c.** 12.0% **d.** 16.0%

A3. Assume that the CAPM is correct and the Betas of securities X and Y are 0.8 and 1.2, respectively. The expected returns for these securities are15% and 20%. This implies that the risk free rate is closest to:
a. 5.0% **b.** 10.0% **c.** 12.5% **d.** 15%

Question A4 and A5 are based on the following information
The earnings per share of Ouno Ltd are expected to be $1.25 next year and the company is expected to maintain a constant payout ratio of 40% forever. The company's earnings are expected to grow at a constant rate of 8% p.a. forever. The standard deviation of the stock's return is 40% and its covariance with the market index is 0.05. The expected market risk premium is 10% and the standard deviation of the market index is 25%. At present, the government bill rate is 5%.

A4. Ouno Ltd's beta is *closest* to:
a. 0.6 **b.** 0.8 **c.** 1.0 **d.** 1.2

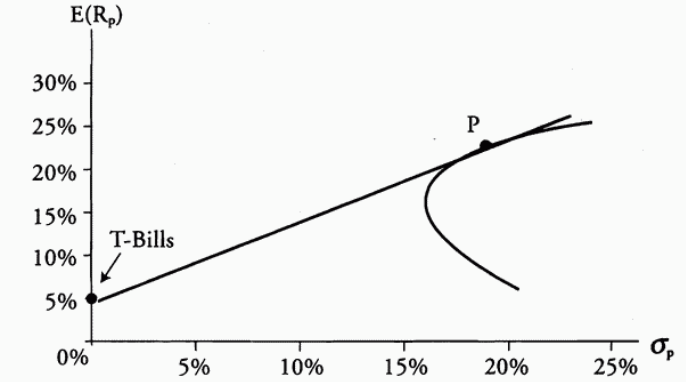
A5. In equilibrium Ouno Ltd's stock price should be *closest* to:
a. $10.00 **b.** $15.00 **c.** $25.00 **d.** $50.00

A6. Assuming that there are only the following four portfolios available to investors, which one of the following portfolios cannot lie on the efficient frontier?

Portfolio	Expected Return	Standard Deviation of Return
1	5%	7%
2	9%	21%
3	12%	15%
4	15%	36%

a. Portfolo 1 **b.** Portfolio 2 **c.** Portfolio 3 **d.** portfolio 4

A7. Use the following figure to answer questions i and ii.
Mean Variance Analysis



i. Portfolio P is the point where the straight line is tangent to the curve. It is also the market portfolio. The market price of risk is the:
a. expected return on the minimum-variance portfolio
b. slope of the line connecting T-bills and Portfolio P.
c. point at which the straight line intercepts the expected return axis.

ii. Portfolio P is the point where the straight line is tangent to the curve. It is also the market portfolio. The line that connects T-bills and Portfolio P is called the:
a. capital market line
b. security market line
c. efficient market line

A8. Use the following data to answer question *i* to *v*.

John uses the capital market line (CML) to advise his clients. Current market expectations are as follows.

- Expected return on the market portfolio 12%
- Standard deviation on the market portfolio 20%
- Risk-free rate 4%

i. John advises a client who would like to have a portfolio with a standard deviation equal to 10%. Using the CML, a portfolio meeting the client's risk tolerance will have an expected return *closest* to:
a. 6.00%
b. 8.00%
c. 10.00%

ii. John advises another client who currently owns a portfolio with an expected return of 8% and a standard deviation of 15%. The amount (percentage points) by which John can improve his client's expected return by using the CML while maintaining the client's 15% standard deviation is *closest* to:
a. 2.00%
b. 4.00%
c. 6.00%

iii. One of John's clients has an expected return objective of 10%. Using the CML, John can create a portfolio with a standard deviation as low as:
a. 13.00%
b. 14.00%
c. 15.00%

iv. What is the appropriate allocation to the optimal risky portfolio for a John's client who has a 10% standard deviation objective?
a. 30.00%
b. 40.00%
c. 50.00%

v. From the data provided, the intercept and slope of the CML are *closest* to:
a. 4% intercept and a 8% slope
b. 4% intercept and 40% slope
c. 8% intercept and 40% slope

A9. Analysts Ken and George recently discussed the application of the market model. Ken comments that, assuming betas remain constant, the market model prediction of the covariance between any two assets rises during a period of rising market volatility. George states that the market model prediction of covariance will not be correct if the firm's unique components of asset returns are correlated.
Are the statements of Ken and George correct?
a. Both statements are correct.
b. Only one of the statements is correct.
c. Neither statement is correct.

A10. An equally-weighted portfolio is formed in which the average stock variance equals 9% and the average covariance equals 5%. As the number of assets included in this portfolio increases, portfolio risk will *most likely* fall at a (n):
a. increasing rate and approach 9%
b. steady rate and approach 7%
c. decreasing rate and approach 5%

B. Long Answer Questions

B1. Calculate the variance of an equally weighted portfolio of n stocks, explain the capital allocation and the capital market lines (CAL and CML) and the relation between them, and calculate the values of one the variables given the values of the remaining variables.

B2. Explain the capital asset pricing model (CAPM), including its underlying assumptions and the resulting conclusions

B3. Discuss the security market line (SML), the beta coefficient, the market risk premium, and the Sharpe ratio, and calculate the value of one of these variables given the values of the remaining variables.

B4. Discuss reasons for and problems related to instability in the minimum-variance frontier.