

Course ID Number: ADC 5111
Course Title: Financial Economics and Capital Markets

No. of Credits: 2

Graduate School of International Relations
International University of Japan

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Course Introduction

This course is designed to give you an overview of the major theories, tools and results in Portfolio Theory and Asset Pricing. Although the focus of the course is on theory, we shall comment on some empirical evidence and on how these theories are used in financial practice.

Financial Economics and Capital Market

Course Syllabus - preliminary version

General Information

- Instructor: Ching-Yang (Jim) Lin
- Email: clin@iuj.ac.jp
- Office Hours: Wednesday 10:00-12:00 or by appointment via e-mail
- Course Web-page: TBA

Course Description and Learning Objectives

This course is designed to give you an overview of the major theories, tools and results in Portfolio Theory and Asset Pricing. Although the focus of the course is on theory, we shall comment on some empirical evidence and on how these theories are used in financial practice.

Prerequisites

This class will make intensive use of mathematics and statistics. Basic techniques and concepts of calculus are required (*e.g.* derivatives, integrals, matrices). You may encounter lengthy mathematical derivations. However, focus will be on a few key steps in the derivation of results and, more importantly, the intuition behind them. You will also be asked to do numerical analysis based on statistics software or computer language (*e.g.* *Fortran*, *C*, *R*, *Matlab*). For the computational work, experience *is not* required, though you should not be afraid of learning.

Textbook, Reading Materials and related Resources

- The class lecture handouts will be the primary sources of information for this course. There is no required course textbook. Some books which are closely related to the course materials are as follows:

- Bodie, Zvi, Alex Kane and Alan Marcus, Investments, McGraw-Hill/Irwin, 6th, 7th or 8th Edition.
- John Hull: Futures, options and Other Derivatives, 2003, Prentice Hall.
- Robert C. Merton: Continuous-Time Finance

Course Outline

1. Portfolio selection theory (**Week 1, 2**)
 - (a) Risk-return trade-off
 - (b) Diversification
 - (c) CAPM
 - (d) Empirical performance of CAPM
2. Portfolio choice over the life cycle (**Week 3, 4, 5**)
 - (a) Merton' rule Merton [1969]
 - (b) Portfolio choice with labor income Bodie et al. [1992]
3. Introduction to stock valuation (**Week 6**)
 - (a) Common Stocks Discount Cash Flow Model (DCF).
 - (b) EPS, D/P, P/E, PVGO, and discount rates.
4. Options (**Week 7, 8**)
 - (a) Options contracts and basic properties.
 - (b) Valuation of options, binominal, risk-neutral pricing, Black-Scholes formula
5. Forwards and Futures (**Week 9, 10**)
 - (a) Forward and futures contracts and prices.
 - (b) Hedging with forward and futures.

Assignments, exam and grading policy

- Assignments: you may work alone or in groups of up to 3. The purpose of these assignments is to help you review the materials in class. In each assignment, you will be asked to solve a model and explain its implication. Some of the problem sets involve computational analysis. The assignments may be challenging, but you are very encouraged to discuss any roadblock you may have with me.

- Exam: Final - based on lecture notes

The course grade will be based on your performance on assignments (50%) and the final (50%).

References

ZVI Bodie, RC Merton, and WF Samuelson. Labor supply flexibility and portfolio choice in a life cycle model. *Journal of Economic Dynamics and Control*, 16:427–449, 1992.

Robert C. Merton. Lifetime portfolio selection under uncertainty: the continuous-time case. *Review of Economics and Statistics*, 51:247–257, 1969.