

B40.3332.60
MODERN PORTFOLIO ANALYSIS AND ASSET MANAGEMENT
SUMMER 2008

Instructor: Professor Ralph S.J. Koijen, K-MEC 9-98, 212-998-0924, email: rkoijen@stern.nyu.edu

Time and Location: TR 6PM - 9PM, KMC3-130

Office Hours: TR 9PM - 10PM or by appointment.

Course Description: This is a course in the theory and application of portfolio management techniques. The study of portfolio analysis securities is quantitative in nature. Students should be comfortable with mathematics such as algebra, linear algebra and basic calculus, as well as statistical concepts such as probability distributions, mean, variance, covariance, and regression. A basic background in finance is required, such as the core course, Foundations in Finance. Students are expected to be familiar with a spreadsheet package like Excel (including, for example, its solver function).

Required reading:

- Elton, Edwin, Martin Gruber, Stephen J. Brown, and William Goetzmann, Modern Portfolio Theory and Investment Analysis, 7th edition (John Wiley, 2007)
- Note package (both a book and a digital one) available at the bookstore

All chapters are from Elton, Gruber, Brown, and Goetzmann.

Grading: There will be weekly problems sets, a midterm exam, and a final. Problem sets will contribute to your participation grade. Your overall grade will be based on:

Problem sets	10%
Midterm	40%
Final	50%

Tentative Schedule of the Lectures

1. Overview

2. Mean-Variance Analysis: The Fundamentals

- (a) Basic portfolio analysis - Chapter 4 and 5
- (b) Solving for the efficient frontier - Chapter 6
- (c) Objective functions - Chapter 11
- (d) International diversification - an application- Chapter 12
- (e) Bond portfolio management- Chapter 22

3. Estimating Inputs

- (a) Covariance structure
 - i. Single-index models- Chapter 7
 - ii. Multi-index models- Chapter 8
- (b) Variances
- (c) Mean returns
 - i. Models of equilibrium- Chapter 10 and Chapters 13-16
 - ii. Other estimation

4. Other Uses of Index Models

- (a) Simple rules
- (b) Performance evaluation
- (c) Portfolio theory with multi-index models
- (d) Taking factor bets

5. Investment vehicles

- (a) Open-end mutual funds
- (b) Close-end mutual funds
- (c) Exchange-traded funds
- (d) Commodity funds
- (e) Hedge funds
- (f) Index funds

6. Other Issues

- (a) Liability effects on asset allocation
- (b) Multi-period strategies
- (c) Taxes and asset allocation

- (d) Portfolio theory with discrete data
- (e) Special issues of pension funds
- (f) Managing endowments
- (g) Risk control

7. Overview

- (a) Chapter 27