

FINA 790E: Theory of Finance

Spring 2006

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Prerequisites

Finance Phd status, or Doctoral theory sequence in micro-economics.

Overview

This course examines the theoretical foundation of advanced financial economics. The portfolio selection problem will be analyzed within the expected utility framework to yield insights about equilibrium asset pricing and the meaning of risk. Once the limitations of this level of generality are understood, more powerful restrictions on the economy's structure will be imposed to yield strong equilibrium and arbitrage-based pricing results.

The workload is very demanding. Doctoral students in finance taking 3-4 courses should spend about 1/2 of all their study time on this course. This means that at least 20 hours a week should be spent reviewing lecture notes, working on homework assignments, and working out the theory with pencil and paper. Because the difficulty of the materials varies from week to week, you will want to skim ahead so you can get a headstart on them.

Requirements

- Participation;
- Problem sets;

We are going to have a problem set about every one or two weeks. It includes simple theoretical derivations. The objective is to give you some hands on research experience and to tinker

with the models.

- Final exam.

The grade will be based on about 20% participation, 30% problem sets and 50% final.

Materials

- Required:

Ingersoll, Jonathan E., Jr., 1987. *Theory of Financial Decision Making*. Rowman and Littlefield.

- Supplemental:

Mas-Colell, Andreu, and Michael D. Whinston, and Jerry R. Green, 1995. *Microeconomic Theory*. Oxford University Press.

Merton, Robert C., 1990. *Continuous-time Finance*. Blackwell Publishers.

Duffie, Darrell, 2001. *Dynamic Asset Pricing Theory*. Princeton University Press.

Campbell, John, and Andrew W. Lo, and A. Craig MacKinlay, 1997. *The Econometrics of Financial Markets*. Princeton University Press.

Cochrane, John H., 2001. *Asset Pricing*. Princeton University Press.

Schedule (Tentative)

- Topic 1: Utility theory
Ingersoll 1. MWG 3.A-C, 6.A-D.
- Topic 2: Standard mean-variance portfolio selection and CAPM
Ingersoll 4.
- Topic 3: Discrete-time intertemporal portfolio selection
Ingersoll 11.
- Topic 4: Continuous-time portfolio selection and Intertemporal CAPM
Ingersoll 12-13, 16. Merton 15.1-8.
- Topic 5: Consumption-based model and the Equity Premium Puzzle
Cochrane 1 & 21.

Campbell, John Y., and John H. Cochrane, 1999. By force of habit: A consumption-based explanation of aggregate stock market behavior. *Journal of Political Economy* 107, 205-251.

Constantinides, George M., and Darrell Duffie, 1996. Asset pricing with heterogeneous consumers. *Journal of Political Economy* 104, 219-240.

- Topic 6: The discount factor and APT
Cochrane 4 & 6. Ingersoll 7.
- Topic 7: Option pricing
Ingersoll 14 & 17.
- Topic 8: The term structure of interest rate
Ingersoll 18. Duffie 10.J & 7.D.

Cox, John C., and Jonathan E. Ingersoll, Jr., and Stephen A. Ross, 1995. An intertemporal general equilibrium model of asset prices. *Econometrica* 53. 363-384.

Cox, John C., and Jonathan E. Ingersoll, Jr., and Stephen A. Ross, 1995. A theory of the term structure of interest rates. *Econometrica* 53, 385-408.

- Topic 9: Continuous-time finance revisited

Duffie 7.E & I. Merton 5.8.

Longstaff, Francis A., 1989. Temporal aggregation and the continuous-time capital asset pricing model. *Journal of Finance* 44, 871-887.

Liu, Jun, and Francis Longstaff, and Jun Pan, 2003. Dynamic asset allocation with event risk. *Journal of Finance* 58, 231–259.

- Topic 10: Informational economics

CLM 1.5.

Fama, Eugene F., 1991. Efficient capital markets: II. *Journal of Finance* 46, 1575-1617.

Grossman, Sanford J., and Joseph E. Stiglitz, 1980. On the impossibility of informationally efficient markets. *American Economic Review* 70, 393-408.