Finance 395  
Asset Pricing Theory  
Spring 2017  
Tuesday 2:00 - 5:00pm GSB 5.154

Instructor

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Teaching Assistant

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Overview

This course is meant to be an introduction to the theory of asset pricing, and is intended for first-year PhD students in finance. We will discuss a wide range of topics ranging from no arbitrage, state prices, consumption-based asset pricing, and factor models to more special topics including heterogeneous agent models, asymmetric information, behavioral finance, and macrofinance. Though the course will emphasize static and discrete-time frameworks, we will also cover some of the basics of continuous-time.

Textbooks
Textbooks are recommended as supplementary material but are not required. Toward the topics portion of the course, more emphasis will be placed on certain papers from the reading list.

- Campbell, John Y. and Luis M. Viceira, Strategic Asset Allocation: Portfolio Choice for Long-Term Investors, Oxford University Press, 2002
- Skiadas, Costis Asset Pricing Theory, Princeton University Press, 2009

**Course Requirements and Grades**

The overall grade is calculated based on the following weighting scheme:

Midterm (25%), Final Exam (25%), Homework (20%), Research Assignment (15%), Participation (15%)

**Midterm**

There will be a midterm in class on Tuesday March 7. No textbooks, formula sheets, or calculators will be allowed for the exam.

**Homework**

There will be weekly homework assignments of up to 5 problems. These can be found at the end of each set of lecture notes. You are responsible for completing at least 3 problems to receive credit for the assignment. Completing more than three will increase likelihood of receiving a $\checkmark +$ instead of a $\checkmark$. Homeworks are due at the beginning of the following class.

**Research Assignment**

At the final day of class, there will be a three page (double-spaced, size 12 font) paper due that describes a research project that could be undertaken in asset pricing theory. The goal is
to motivate a research idea, based on a topic we saw in the course, conduct a short literature review, and write down a preliminary theoretical model and its asset pricing implications. You are encouraged to talk with the teaching assistant about potential topics once we reach the topics section of the course. It is difficult to construct a novel mechanism, especially given the short length of the paper, so ideally one would find an application of one of the models we discuss in explaining some empirical phenomenon.

**Appeal Policy**

Since the teaching assistant will grade all weekly assignments and exams, all appeals of grades should first be addressed to the teaching assistant in writing within one week. Appeals of research assignments should be addressed to the instructor. Verbal appeals will not be accepted, and you must provide a written statement about where and why there is a problem. Please note that we reserve the right to regrade the entire exam or assignment as part of the regrade process. Exams or assignments written in pencil cannot be regraded.

**Tentative Syllabus**

1. Mathematical Preliminaries
   a. Notation
   b. Linear Algebra and Projection Theory
   c. Information and Random Variables
   d. Static and Dynamic Optimization
   f. Continuous-time Basics
   g. Campbell-Viceira approximation

2. Utility Theory and Choice Under Uncertainty
   a. Utility theory and risk aversion
   b. Standard preferences in finance
   c. Rabin critique

3. Fundamentals of Asset Pricing and Present Value Analysis
   a. Lucas Tree model
   b. Euler Equations, risk premia, and compensation for systematic risk
   c. Gordon Growth Dividend Discount Model
d. Campbell-Shiller Decomposition

4. State Prices and the Stochastic Discount Factor
   a. No arbitrage and state prices
   b. Complete markets and risk-neutral measure
   c. Incomplete Markets
   d. Hansen-Jagannathan Bound
   e. Change of numeraire
   f. Recovering probabilities from prices

5. Portfolio Choice
   a. Static portfolio choice
   b. Mean-variance frontier, Market portfolio, Global Minimum Variance portfolio, two-fund separation theorem
   c. CAPM
   d. Extensions to Lack of a riskfree asset, labor income, and conditional CAPM
   e. APT and Factor Models
   f. Intertemporal portfolio choice
   g. Discrete-Time Martingale Method and Dynamic Programming

6. Consumption-Based Asset Pricing
   a. Revisting the Lucas Tree Model
   b. Equity Premium Puzzle
   c. Habit Formation
   d. Long-Run Risk, Epstein-Zin preferences, and Stochastic Volatility
   e. Rare Disasters
   f. Ambiguity Aversion and Hansen and Sargent Robust Control

7. Heterogeneous Agent Models

8. Production-based Asset Pricing

9. Behavioral Finance and Bubbles

10. Macro Finance
11. Asymmetric Information and Market Microstructure

12. Limits to Arbitrage

13. Miscellaneous
Potential topics include Bonds, Commodities, Bubbles, Options, Indices, and Networks

Readings

1. Mathematical Preliminaries

Campbell and Viceira Section 2.1.3.

Duffie Chapters 3-4


2. Utility Theory and Choice Under Uncertainty


3. Fundamentals of Asset Pricing

Duffie Chapters 3 & 4


4. State Prices, the Stochastic Discount Factor, and Present Value Relations

Cochrane Chapters 3-4, 6-8, and Section 20.2

Cochrane chapters 5 & 9


5. Portfolio Choice

Cambell and Viceira Chapters 2-4, Section 6.1.1

Cochrane chapters 5 & 9


6. Consumption-Based Asset Pricing

Abel, Andrew B. (1990), Asset Prices Under Habit Formation and Catching Up with the Joneses, American Economic Review 2, 38-42.


Hansen, Lars Peter and Thomas J. Sargent (2008), Risk Sensitivity, Model Uncertainty, and Asset Pricing, Chapter 14 in Robustness, Princeton University Press.


7. Heterogeneous Agent Models

8. Production-based Asset Pricing

9. Behavioral Finance and Bubbles


Shiller, Robert J. "Do stock prices move too much to be justified by subsequent changes in dividends?." (1980).


10. Macro Finance


Adrian, Tobias and Nina Boyarchenko (2015), Intermediary Leverage Cycles and Financial Stability, FRBNY Staff Report No. 567.

Adrian, Tobias, Emanuel Moench, and Hyun Song Shin. "Dynamic leverage asset pricing." New York Staff Reports 625 (2013).

Adrian, Tobias, Emmanuel Moench, and Hyun Song Shin (2010), Financial Intermediation, Asset Prices, and Macroeconomic Dynamics Federal Reserve Bank of New York Staff Report 422.


Boyarchenko, Nina (2014), Information Acquisition and Financial Intermediation, FRBNY Staff Report No. 571.


Cao, Dan (2013) Speculation and Financial Wealth Distribution under Belief Heterogeneity, working paper Georgetown University.


Egan, Mark, Stefan Lewellen, and Adi Sunderam (2016), The Cross Section of Bank Value, working paper University of Minnesota, LBS, and HBS.


Farboodi, Maryam. "Intermediation and voluntary exposure to counterparty risk." Available at SSRN 2535900 (2014).


Lorenzoni, Guido, and Veronica Guerrieri. "Credit Crises, Precautionary Savings and the Liquidity Trap." 2015, working paper, University of Chicago and Northwestern and NBER


Muir, Tyler (2014), Financial Crises and Risk Premia, working paper UCLA.


11. Asymmetric Information


Albagi, Elias, Christian Hellwig, and Aleh Tsyvinski. Dynamic Dispersed Information and the Credit Spread Puzzle, December 2013


12. Limits to Arbitrage


