Finance 395
Asset Pricing Theory
Spring 2019
Monday 2:00 - 5:00pm GSB 5.154

Instructor

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Teaching Assistants

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Office Hours: Tue 5:30 - 6:30 pm

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. Bolded papers on the reading list are the expected reading for each class. 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 (30%), Final Exam (20%), Homework (25%), Research Assignment (15%), Participation (10%)

Midterm

There will be a 2.5 hour midterm in class on Monday, March 11. 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 all problems to receive credit for the assignment. Your grade, ✓ +, ✓, or ✓ −, will be based on your 4 best responses. 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. I will emphasize that this is a theory, and not an empirical, exercise.

On the last day of class, each student will be required to present his or her research assignment to the class in a seminar style presentation with slides. This counts toward the participation part of the final grade. Each student will also be responsible for discussing another student’s paper. This will also count toward participation.

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
b. Risk aversion
c. Tractable utility functions
d. Rabin critique
e. General principles of portfolio choice
f. Portfolio choice with different utility functions

3. Fundamentals of Asset Pricing and Present Value Analysis
a. Market Efficiency
b. Present Value Models
c. Rational Bubbles
d. Historical Record on Bubbles
e. Market Efficiency Revisted

4. Arbitrage and the Stochastic Discount Factor
a. No Arbitrage and the Stochastic Discount Factor
b. Risk-Return Decomposition and Bounds on SDF
c. Complete Markets
d. Incomplete Markets
e. Utility Maximization and Euler Equations
f. Ross Recovery Theorem
g. Multi-Factor Models and Nominal SDF

5. Portfolio Choice, CAPM, and APT
a. Static portfolio choice
b. Mutual Fund Theorem
c. Capital Asset Pricing Model
d. Arbitrage Pricing Theory
e. Dynamic Portfolio Choice and ICAPM

6. Consumption-Based Asset Pricing
   a. Consumption-based Asset Pricing Puzzles
   b. Epstein-Zin Preferences and Long-Run Risk
   c. Ambiguity Aversion
   d. Habit Formation
   e. Investor Heterogeneity
   f. Consumption in Equilibrium Asset Pricing

7. Production-based Asset Pricing
   a. Q-Theory of Investment
   b. Investment and Spanning the SDF
   c. Production and Firm Characteristics
   d. Production in General Equilibrium

8. Heterogeneous Agent Models
   a. Socially optimal market structure with limited markets
   b. Constrained inefficiency of incomplete markets
   c. Limitations because of borrowing and collateral constraints

9. Behavioral Finance and Bubbles
   a. A World of Puzzles
   b. Introduction to Behavioral Finance
   c. Biases in Behavior and Preferences
   d. Biases in Belief Formation and Information Processing

10. Macro Finance
    a. Introduction
    b. Credit Constraints
    c. Liquidity Demand
    d. Intermediary Asset Pricing
    e. Political Uncertainty

11. Asymmetric Information and Market Microstructure
a. Modeling Information  
b. Agreeing to Disagree and No Trade Theorem  
c. Static Models of Asymmetric Information  
d. Dynamic Models of Asymmetric Information  
e. Asset Pricing with Asymmetric Information  
f. Real Effects  

12. Limits to Arbitrage  
a. Noise Trader Risk  
b. Performance-based Arbitrage  
c. Margin Constraints  
d. Coordination Failure  

13. TBA  

14. Student presentations on research assignment  

Readings  

1. Mathematical Preliminaries  
   
Campbell and Viceira Section 2.1.3.  
Duffie Chapters 3 and 4  

2. Utility Theory and Choice Under Uncertainty  
   
Abel, Andrew B., Asset Prices under Habit Formation and Catching up with the Joneses, American Economic Review 80(2) (1990), 38-42.  


Chetty, Raj and Adam Szeidl, Consumption Commitments and Risk Preferences, Quarterly Journal of Economics 122(2) (2007), 831-877.


Hansen, Lars Peter and Thomas J. Sargent, Uncertainty Prices when Beliefs are Tenuous, working paper (2016)


Kimball, Miles, Precautionary Saving in the Small and in the Large, Econometrica 58 (1990), 53-73.


Samuelson, Paul, Why We Should Not Make Mean Log of Wealth Big Though Years to Act are Long, Journal of Banking and Finance (1979), 305-307.

3. Market Efficiency and Present Value Analysis

Campbell, Lo, and MacKinlay Chapter 7


Campbell, John Y. and Tuomo Vuolteenaho, Bad Beta, Good Beta, American Economic Review 94.5 (2004), 1249-1275.


DeFusco, Anthony, Charles Nathanson, and Eric Zwick, Speculative Dynamics of Prices and Volume, mimeo Kellogg and University of Chicago (2016).


Harvey, Campbell, Yan Liu, and Heqing Zhu, ...and the Cross-Section of Expected Returns, Review of Financial Studies 29.1 (2015), 5-68.


Kimball, Miles S., Precautionary Savings in the Small and in the Large, Econometrica 58.1 (1990), 53-73.


4. Arbitrage and the Stochastic Discount Factor

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

Duffie Chapter 2


Hansen, Lars Peter and Jose’ Scheinkman, Long-Term Risk: An Operator Approach, Econometrica 77 (2009), 177-234.


5. Portfolio Choice, CAPM, and APT

Campbell and Viceira Chapters 2-4, Section 6.1.1

Cochrane Chapters 5 & 9


6. Consumption-Based Asset Pricing

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


Campbell, John Y., Consumption-Based Asset Pricing, in George Constantinides, Milton Harris, and Rene Stulz eds., Handbook of the Economics of Finance, Volume 1, North-Holland (2003).


7. Production-based Asset Pricing


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8. **Heterogeneous Agent Models**

Campbell, Chapter 10


9. Behavioral Finance and Bubbles


Barberis, Nicholas, Robin Greenwood, Lawrence Jin, and Andrei Shleifer, Extrapolation and bubbles, mimeo Yale and Harvard University.


Campbell, John Y., Jens Hilscher, and Jan Szilagyi, In search of distress risk, The Journal of Finance 63.6 (2008), 2899-2939.


Cooper, Michael J., Roberto C. Gutierrez, and Allaudeen Hameed, Market states and momentum, The Journal of Finance 59.3 (2004), 1345-1365.


**Hong, Harrison, and Jeremy C. Stein, A unified theory of underreaction, momentum trading, and overreaction in asset markets, The Journal of Finance 54.6 (1999), 2143-2184.**

Hong, Harrison, Jose Scheinkman, and Wei Xiong, Asset float and speculative bubbles, The Journal of Finance 61.3 (2006), 1073-1117.


Kahneman, Daniel, and Amos Tversky, On the psychology of prediction, Psychological Review 80.4 (1973), 237.


Thaler, Richard H., and Eric J. Johnson, Gambling with the house money and trying to break even: The effects of prior outcomes on risky choice, Management Science 36.6 (1990), 643-660.


10. Macro Finance


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

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


Bloom, Nicholas, The impact of uncertainty shocks, Econometrica 77.3 (2009), 623-685.


Caballero, R. and A. Simsek, Fire Sales in a Model of Complexity, Journal of Finance 68.6 (2013), 2549-2587

Cao, Dan, Speculation and Financial Wealth Distribution under Belief Heterogeneity, mimeo Georgetown University.


Drechsler, Itamar, Alexi Savov, and Philipp Schmabl, A model of monetary policy and risk premia, mimeo NYU Stern.


Egan, Mark, Stefan Lewellen, and Adi Sunderam, The Cross Section of Bank Value, mimeo University of Minnesota, LBS, and HBS.


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


Fostel, Ana, and John Geanakoplos, Collateral restrictions and liquidity under-supply: a simple model, Economic Theory 35.3 (2008), 441-467.


He, Zhiguo and Arvind Krishnamurthy, A Macroeconomic Framework for Quantifying Systemic Risk, mimeo Chicago Booth and Stanford University.


Keynes, John Maynard, General theory of employment, interest and money, Atlantic Publishers and Dist, 2016.

Kiyotaki, N., and John Moore, Liquidity, Monetary Policy and Business Cycles, mimeo Princeton University and LSE.


Lorenzoni, Guido, and Veronica Guerrieri. Credit Crises, Precautionary Savings and the Liquidity Trap, mimeo University of Chicago, Northwestern, and NBER.


Maggiori, Matteo, Financial Intermediation, International Risk Sharing, and Reserve Currencies, mimeo Harvard University.


Moreira, Alan, and Alexi Savov, The macroeconomics of shadow banking, mimeo Yale and NYU Stern.

Muir, Tyler, Financial Crises and Risk Premia, mimeo UCLA.


Pozsar, Zoltan, Tobias Adrian, Adam B. Ashcraft, and Haley Boesky, Shadow banking, mimeo Federal Reserve Bank of New York, International Monetary Fund, and Bank of America Merrill Lynch.


Ulrich, Maxim, How Does the Bond Market Perceive Government Interventions?, mimeo Columbia University.

Woodford, M., Public Debt as Private Liquidity, American Economic Review 80.2 (1990), 382–388.


11. Asymmetric Information


Albagli, Elias, Christian Hellwig, and Aleh Tsyvinski, Dynamic dispersed information and the credit spread puzzle (2013), mimeo Central Bank of Chile, Toulouse, and Yale University.


Albagli, Elias, Amplification of uncertainty in illiquid markets, mimeo Central Bank of Chile.


Angeletos, George-Marios, Guido Lorenzoni, and Alessandro Pavan, Wall street and silicon valley: A delicate interaction. mimeo MIT and Northwestern University.


Friedman, Milton, The methodology of positive economics (1953): 3-43.


Nimark, Kristoffer, Dynamic Higher Order Expectation, mimeo Cornell University.


Straub, Ludwig, and Robert Ulbricht, Endogenous Uncertainty and Credit Crunches, mimeo MIT and Toulouse University.


12. Limits to Arbitrage


Hendershott, Terrence, and Albert Menkveld, Price pressures, Working paper (2009), Haas School of Business.


13. Institutional Investing


Brennan, Michael, Agency and Asset Pricing, UCLA, Anderson Graduate School of Management, Anderson Graduate School of Management (1993), UCLA.


14. Modern Microstructure and FinTech


Chiu, Jonathan and Thorsten V. Koeppel, The Economics of Cryptocurrencies - Bitcoin and Beyond, Working Paper (2017), Victoria and Queen’s University.

Cong, Lin William and Zhiguo He, Blockchain Disruption and Smart Contracts, Working Paper (2017), University of Chicago Booth School of Business.


Li, Jiasun and William Mann, Initial Coin Offering and Platform Building, Working Paper (2018), George Mason University and UCLA Anderson School of Management.


