Asset Pricing Foundations of Investment Strategies

ASSET PRICES AND INVESTMENT STRATEGIES
Professor: Gonzalo Rubio
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Introduction

This course provides a rigorous panoramic analysis of the interplay between asset pricing theory and the empirical evidence with a discussion about the optimal investment implications and the effects of borrowing constraints. We present a unified treatment of asset pricing models using the stochastic discount factor framework, and discuss several key aspects of asset pricing as consumption risk, time-varying expected returns, predictability of future returns, non-separable preferences, and multi-factor asset pricing models. Then, we discuss the implications these models have for optimal investment strategies and, finally, we analyze the effects of funding liquidity restrictions on asset pricing.

Objectives

- Understand the foundations of asset pricing and the implications for investments and asset allocation
- Learn advanced issues of asset pricing under the stochastic discount factor framework
- Understand the importance of factor risks for asset pricing and asset allocation
- Understand the distinction between static and intertemporal asset pricing models
- Learn how to implement asset pricing empirical tests
- Learn how to introduce funding liquidity frictions into asset pricing models
- Understand the impact of leverage constraints of financial intermediaries on asset pricing

Required Background Knowledge

The target audience for this course is economics and finance graduate students. The course presumes some exposure to undergraduate finance, economics, statistics and econometrics. The grade will be based on weekly problems and empirical exercises with real data and a final exam.

Learning Outcomes

The students will learn how to implement advanced investment decisions based on factor asset pricing models and the impact of funding liquidity and leverage constraints on those decisions.
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Methodology
The course is a combination of theory and empirical exercises with real data and problems. Students will learn how to implement the models discussed in the course by doing exercises with real data.

Evaluation
Weekly exercises by groups of 3 people will represent 40% of the grade. A closed book final exam will represent 60% of the course. All students must obtain at least 4 points out of 10 in the final exam for the 40% of the group exercises to be taken into account in the final grade.

Course contents
1. Foundations of Asset Pricing and Investments
   1.1 Foundations of Asset Pricing and Investments
   1.2 Time-Varying Expected Returns
   1.3 Factor Risks

2. The Stochastic Discount Factor Theory of Asset Pricing
   2.1 The Stochastic Discount Factor Theory of Asset Pricing
   2.2 Time-Varying Expected Returns and Predictability
   2.3 Stochastic Discount Factors: General Properties and Risk-Neutral Pricing
   2.4 Stochastic Discount Factors and Beta Pricing Models

3. Macro-Finance Asset Pricing Models
   3.1 An Overview
   3.2 Macroeconomic Factors and the Consumption-Based Asset Pricing Model
   3.3 Consumption-Based Asset Pricing Models with Non-Separability
      3.3.1 Recursive Preferences
      3.3.2 Habit Preferences

4. Factor Pricing
   4.1 Factor Pricing Theory: An Overview
   4.2 Static Factors and the Capital Asset Pricing Model (CAPM)
   4.3 Dynamic Factors and Multifactor Asset Pricing Models
   4.4 Quality at a Reasonable Price
   4.5 Intertemporal Asset Pricing Models with Non-Separability
   4.6 Rebalancing
5. Factor Pricing with Funding Liquidity and Leverage

5.1 Liquidity Risk: Market-Wide Liquidity Shocks and Asset Pricing
5.2 Funding Liquidity Risk: The Margin-Based CAPM
5.3 Intermediary Asset Pricing Models

Specify a description, materials and cases that will be worked in class:

<table>
<thead>
<tr>
<th>Session</th>
<th>Title, materials and cases</th>
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| 1 (3 hours) | Time-varying expected returns, factor risks, and assets as bundles of factor risks  
The basic consumption-based asset pricing model |
| 2 (3 hours) | Time-varying expected returns and predictability  
Properties of stochastic discount factors |
| 3 (3 hours) | Risk-neutral pricing  
Stochastic discount factors and beta asset pricing models  
Consumption-based pricing under power utility |
| 4 (3 hours) | Consumption-based models with non-separability: recursive- and habit-based models  
Static factor asset pricing models  
The conditional capital asset pricing model |
| 5 (3 hours) | Dynamic factor asset pricing models: the three and five Fama-French factor models  
Quality and value investing  
The intertemporal capital asset pricing model (ICAPM): basic principles  
Rebalancing investment strategies |
| 6 (3 hours) | Factor asset pricing models: testing and the empirical evidence  
Liquidity crisis and funding liquidity: the margin-based CAPM |
| 7 (2 hours) | Beta-against-beta factor and funding restrictions  
Leverage and intermediary asset pricing models |

Bibliography

References:
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* Campbell, J. (2003), Consumption-Based Asset Pricing, Chapter 13 (pages 803-887), in Handbook of the Economics of Finance.

Professor’s Biography

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EDUCATION
* Bachelor in Business Economics
  University of the Basque Country
* Master in Business Administration (MBA)
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Columbia University, New York  
* Ph.D. in Business Administration (Finance)  
University of California at Berkeley  
Title: *Asset Pricing and Equity Rights Issues* (Chairman: Jay Shanken)

**AREAS OF INTEREST**  
Asset Pricing  
Derivative Pricing  
Macroeconomics and Finance  
Financial Econometrics

**RECENT SELECTED PUBLICATIONS IN ENGLISH**

**WORKING PAPERS:**
* “The Joint Cross-Sectional Variation of Equities and Volatilities” (with Ana González-Urteaga), *April 2016.*  
* “Estimating the Elasticity of Intertemporal Substitution with Leverage” (with A. González-Urteaga), *May 2016.*  
* “Teaching Quality and Academic Research” (with R. Rodríguez), *May 2016.*
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* “Cross-Sectional Mispricing and Aggregate Illiquidity” (with A. González-Urteaga), July 2016.
* “Quality Investment and Aggregate Illiquidity, July 2016.