Barcelona School of Economics

COURSE SYLLABUS | 12F003

Asset Pricing

6 ECTS | TERM 1 | MANDATORY COURSE

Professor

Prof. Javier Gil-Bazo

Introduction

This course is an introduction to the foundations of Asset Pricing. It starts with equilibrium theories of the pricing of risky financial instruments, then presents empirical tests of asset pricing models, and asset pricing under no arbitrage. The course also covers two novel areas in Asset Pricing: Sustainable Investing and Machine Learning,

Course contents

Chapter One. PORTFOLIO THEORY

1. Preferences and portfolio choice
2. Mean-Variance Analysis
3. Efficient Portfolios

Chapter Two. ASSET PRICING IN EQUILIBRIUM

4. The CAPM
5. Applications

6. The CAPM in practice

Chapter Three. EMPIRICAL EVIDENCE

1. Testing the CAPM
2. Anomalies
3. 3-factor model
4. 5-factor model
5. Liquidity risk
6. Portfolio constraints

Chapter Four. THE ARBITRAGE PRICING THEORY

1. Arbitrage
2. The Law of One Price
3. The APT

Chapter Five. MULTIFACTOR MODELS IN PRACTICE

1. Macroeconomic variables as
2. factors
3. Fama-French
4. Principal Component Analysis

Chapter Six. CORPORATE SOCIAL RESPONSIBILITY AND ESG INVESTING

1. CSR and firm value
2. ESG investing and expected returns

Chapter Seven. MACHINE LEARNING AND ASSET PRICING

1. Introduction
2. ML and return prediction

Objectives

To learn the theoretical foundations of the most important asset pricing models.

To be able to apply these models to real data in a practical context.

Required Background Knowledge

Students are expected to have a minimum preparation in mathematics, statistics, econometrics and programming. More specific requirements include: function differentiation; constrained optimization; linear algebra; statistical inference; and multivariate regression analysis. Previous knowledge of Finance is not assumed.

Methodology

During theory classes we will work combining theory and small practical applications. For the problem sets, students will work in groups.

Evaluation

Grading:

- Exam: 60%
- Problem sets: 40%

The exam will contain both exercises and theoretical questions. Questions may be related to any material that is part of the program. Problem sets consisting of both standard exercises and empirical analysis of real data will be handed out to students during the course. Students must work in groups of 4 people, but they must be ready to defend their answers individually in class.

Competencies

☐ Capacity of utilization of the theoretical instruments of the to analyze situations of coherent form.

☐ Ability to use the appropriate (statistical and numerical) techniques.

☐ Ability to identify and successfully search for the data necessary for the analysis, either grossly or in the form of more elaborate databases.

☐ Ability to make independent judgments and defend them dialectically. Ability to

☐ write formal reports.

☐ Acquire a solid knowledge base for the study of quantitative issues.

☐ Ability to Recognize and know how to use the principles of econometrics and statistics.

☐ Ability to work with microeconomic analysis tools and their empirical and theoretical applications.

Learning outcomes

☐ Students should get an overview of economic and financial theory.

☐ Students must be able to recognize theories and present arguments with precise examples.

☐ Students will have the ability to understand how markets work and explain their weaknesses.

☐ Students will acquire the technical tools that will allow them to perform the advanced analytics required in the second module as econometric methods.

☐ Students will know what the appropriate inference for each situation is.

After this course students are expected to know how to determine the value of risky investments, how to construct efficient portfolios, and how to identify and exploit arbitrage opportunities.

Bibliography

- Lecture notes
- Campbell, J, Lo, A. and A.C. Mackinley, The Econometrics of Financial Markets, Princeton University Press, 1997.
- Huang, C. and R. Litzenberger, Foundations for Financial Economics, North-Holland, New York, 1988.
- Hull, J., Options, Futures and Other Derivatives, Prentice Hall, 2000.
- Back, K., Asset Pricing and Portfolio Choice Theory, Oxford University Press, 2010.
- Pennacchi, G., Theory of Asset Pricing, Pearson-Addison Wesley, 2008.
- Marín, J. and G. Rubio, Economía Financiera, Antoni Bosch Editors, 2001, (in Spanish).

Professor's Biography

Javier Gil-Bazo is an Associate Professor of Finance at Universitat Pompeu Fabra, Barcelona School of Economics, and UPF Barcelona School of Management. He previously held an Associate Professor position (with tenure) at Universidad Carlos III and was a visiting scholar at the University of Maryland, Tilburg University, and the Wharton School of the University of Pennsylvania.

His research interests cover institutional investors, investor behavior, asset management, and asset pricing, and particularly, the impact of information frictions and communication on market outcomes. His work has been published in academic journals such as **Journal of Finance**, **Review of Financial Studies**, **Journal of Financial Economics**, **Journal of Banking and Finance**, **Journal of Financial Markets**, **Quantitative Finance**, **Journal of Financial Econometrics**, **Journal of Economic Behavior and Organization**, **Journal of Business Finance and**

Accounting, **International Review of Financial Analysis**, **Financial Management** and **Economics Letters**.

His research on mutual funds has been cited in regulatory proposals by the US Department of Labor and has been featured in the international media, including Forbes, FOXBusiness, Reuters, and MoneyWeek. His research on social media has been featured in Financial Times, Wall Street Journal, and New York Times, among other media.

Javier's research has received the Best Paper Award at the European Conference of the Financial Management Association, the Honorable Mention of the Moskowitz Prize for outstanding research in socially responsible investing, and the Spanish Stock Exchange's Best Paper on Derivatives Award at the Annual Meeting of the Spanish Finance Association.

Javier has been an invited speaker at Oxford-Man Machine Learning in Quantitative Finance Conference, Citi Global Quantitative Research Conference, FUNCAS workshop on Financial Analysis and Big Data, FMA's Doctoral Student Consortium, Bocconi's Conference on "Pricing and Competition in the Mutual Fund Industry," and ESADE-Oikos Barcelona debate on Sustainable Finance.

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