Investment

Academic Year: (2023 / 2024)   Review date: 23-01-2024

Department assigned to the subject: Business Administration Department

Coordinating teacher: MORENO MUÑOZ, JESUS DAVID

Type: Compulsory ECTS Credits : 6.0

Year : 1 Semester : 1

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

The course presumes some exposure to undergraduate finance, economics, statistics and econometrics.
In addition, knowledge of Matlab programming is required to do one of the practical exercises. Basic knowledge in Matlab and Excel are required.

OBJECTIVES

This course provides a rigorous panoramic analysis of the interplay between portfolio selection, asset pricing theory, and the empirical evidence. After a traditional discussion on risk aversion and mean-variance portfolio choice, we present the main asset pricing models (including the CAPM, multi-factor asset pricing models and Conditional Asset Pricing Models). A complete description of Investment Companies (mutual funds, hedge funds, among others) are presented, and the most relevant performance measures. Students will learn how to evaluate a portfolio or a portfolio manager using both the traditional and newest performance measures. Finally, the most relevant problems of the mean-variance model are presented and potential improvements of this traditional way to manage a portfolio. This course combine both theoretical foundations and practical exercises using real data from financial markets or mutual funds industry.

Professors of the Course:
1- David Moreno (Associate Professor Universidad Carlos III, PhD)

DESCRIPTION OF CONTENTS: PROGRAMME

1. Mean-Variance Model
- Descriptive statistics of asset returns
- Expected return and risk on a portfolio
- Diversification
- The Markowtiz Model without risk-free asset
- The Markowtiz Model with risk-free asset

2. Asset Pricing Models
- CAPM
- Fundamentals of APT
- Multifactorial Asset Pricing Models
- Fama and French Model (1993): Size and Book-to-market factors
- Carhart Model (1997): The momentum factor
- Using Investment and Profitability factors
- The Quality factor
- Conditional Asset Pricing Models

3. Investment Companies
-Introduction to Investment Companies
-Description of main ICs (Mutual Funds, ETF, Closed-Funds)
-Pricing Mutual Funds

4. Performance Measures and Mutual Funds Evaluation
-Traditional Performance Measures
-Performance measures based on APT
-Conditional Performance Evaluation

-Performance measures based on Portfolio Holdings
-Market Timing Ability
-Other Performance Measures used by practitioners.
-Performance Measurement of Hedge Funds

4. Drawbacks of Mean-Variance model and potential improvements
-Main problems of Mean-Variance in practice
-Resampled Efficient Frontier (Michaud, 1998)
-Robust Portfolio Optimization and Bayesian Models (Shrinkage estimators)
-Non-normal return distributions: Optimizing Downside Risk
-Back and Littermann Model

5. Other Topics in Portfolio Management
-Behavioral Finance
-Value Investing Philosophy
-Technical Analysis
-Non-traditional assets

6. ESG Investing
- Overview to ESG Investing (Environmental, Social and Governance)
- ESG Factors (Environmental, Social and Governance Factors)
- ESG Risk (phisical risk and transition risk) and Definition of Greenwashing
- Strategies of ESG investing (negative screening, positive screening, thematic, impact and integration)
- Engagement and Stewardship
- Mutualfunds regulation in sustainability in the EU (art.6, art.8 and art.9 investment products)

LEARNING ACTIVITIES AND METHODOLOGY

The theoretical contents are presented using Power Point slides. In all classes empirical exercises will be solved, most of them using real data, with the aim of a practical application and visualization of theoretical concepts. The students will work in teams and using computers. The software used will be Excel and Matlab.

Practical application on Portfolio Choice:
With real data about individual asset returns, the student will have to obtain:
-The mean-variance efficient frontier without riskless asset.
-The minimum variance portfolio.
-The tangent portfolio and the efficient frontier with a riskless asset.
-The optimal investor portfolio for different levels of risk aversion.
-Resampling Efficient Frontier
-Optimar asset allocation under Black-Letterman model

Practical application on Asset Pricing:
With real US market data, students must have to discuss:
-Testing the CAPM
-Estimating the Multifactorial model of Carhart
-The performance of mutual funds using Jensen's alpha
-The performance of alternative multifactor asset pricing models.

ASSESSMENT SYSTEM

The grade of the course will be based on results from the two parts: i)Exam (55%) and ii) homework, assignments and mid-term exams (45%).
Students will solve problems and empirical exercises with real data that could have a weight of 45% in the final grade. The rest 55% will come from the final exam. All students must obtain at least 4 out of 10 points in the final exam to take into account the 45% of the grade from the exercises. Otherwise, the final grade will completely be based on the final exam.
Final Exam will have two different parts: A more theoretical one (written exam) and a Matlab Exam.

Students that do not meet the minimum passing grade should retake the subject. If the resit is taken, the above grade criteria also apply

% end-of-term-examination:	55
% of continuous assessment (assigments, laboratory, practicals…):	45

BASIC BIBLIOGRAPHY

 - Bernd R. Fischer, Russ Wermers Performance Evaluation and Atribution of Security Portfolios, Academic Press, 2013
 - Bodie, Kane and Marcus Investments, McGraw Hill, 2012