

INVESTMENTS AND PORTFOLIO MANAGEMENT



MASTER IN FINANCE

2023 – 2024

CFA Program
Partner of  CFA Institute

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SYLLABUS

PART I – FINANCIAL MARKET STRUCTURE AND INSTRUMENTS

1. Market Organization and Structure
 - 1.1. Functions of the financial system
 - 1.2. Market Classification
 - 1.3. Financial Instruments
 - 1.4. Trading in financial markets
 - 1.5. Security Market Indices
2. Pooled Investments
 - 2.1. Investment Funds
 - 2.2. The process of portfolio management

PART II – THEORY OF PORTFOLIO MANAGEMENT

1. Portfolio Concepts
 - 1.1. Definitions of risk and return
 - 1.2. Emergence of portfolio theory
2. Mean – Variance Theory (MVT)
 - 2.1. Assumptions of MVT
 - 2.2. Combination of two assets
 - 2.3. Including the risk-free asset
 - 2.4. Three or more assets
 - 2.5. Allowing for short selling
 - 2.6. Investment Opportunity sets

- 2.7. Minimum variance portfolios
- 2.8. Efficient Frontiers and Tangent Portfolios
- 2.9. Safety Criteria in MVT
- 2.10. Internationally diversified portfolios

- 3. Return Generating Models
 - 3.1. Estimating MVT inputs
 - 3.2. Constant correlation model (CCM)
 - 3.3. Single Index Model (SIM)
 - 3.3.1. Underlying ideas
 - 3.3.2. Model assumptions
 - 3.3.3. Characteristics of SIM
 - 3.3.4. A measure of non-diversifiable risk
 - 3.3.5. Using SIM: parameter estimation
 - 3.4. Multi-factor Models (MFM)
 - 3.4.1. Properties of MFM
 - 3.4.2. Factor model equivalence
 - 3.4.3. Using MFM
 - 3.4.4. Fama-French factor model
 - 3.4.5. Carhart factor model
 - 3.5. Estimation risk versus model risk

PART III – SELECTING OF OPTIMAL PORTFOLIOS

- 1. Investors
 - 1.1. Individual investors: pooled investments vs wealth management
 - 1.2. Wealth management principles
 - 1.3. Institutional Investors
 - 1.4. Investor classification and risk-return investment profiling
 - 1.5. Reasons for Investment Policy Statements (IPS)

- 2. Expected Utility Theory (EUT)
 - 2.1. Recap from utility theory under certainty
 - 2.2. Issues of utility theory under uncertainty
 - 2.3. Principle of expected utility
 - 2.4. Risk Tolerance functions
 - 2.5. Optimal Portfolios
 - 2.6. Basics on Prospect theory

- 3. Alternatives to Utility
 - 3.1. Maximizing long-term growth
 - 3.2. Stochastic Dominance
 - 3.3. Revisiting Safety Criteria from the investor's perspective

PART IV – MODELS OF EQUILIBRUM IN CAPITAL MARKETS

1. The Capital Asset Pricing Model (CAPM)
 - 1.1. Assumptions of standard CAPM
 - 1.2. The standard CAPM
 - 1.2.1. The market portfolio
 - 1.2.2. The capital market line (CML)
 - 1.2.3. The securities market line (SML)
 - 1.3. Limitations of CAPM
 - 1.4. Non-standards forms of CAPM
 - 1.5. Empirically testing CAPM
2. The Arbitrage Pricing Theory (APT)
 - 2.1. Assumptions of APT
 - 2.2. Estimating and testing APT
 - 2.3. APT versus CAPM
3. Market Efficiency
 - 3.1. Forms of efficiency
 - 3.2. Testing market's efficiency
 - 3.3. Weak versus strong arbitrage
4. Behavioral Finance
 - 4.1. Anomalies in financial markets
 - 4.2. Behavioral issues and APT

PART V – EVALUATING THE INVESTMENT PROCESS

1. Portfolio Performance Evaluation
 - 1.1. Issues of performance evaluation
 - 1.2. Evaluating performance using CAPM
 - 1.3. Other measures of performance
 - 1.4. Problems with performance evaluation

BIBLIOGRAPHY

Mandatory

Textbooks

Joshi, M. S., and J. M. Paterson (2013). *Introduction to mathematical portfolio theory*. Cambridge University Press.

Elton E.J., M. J. Gruber, S. J. Brown and W. N. Goetzmann (2014), *Modern Portfolio Theory and Investment Analysis*, 9th Edition, Wiley.

Lecture Slides

Slides written by Gaspar R.M. and edited by M. Hinnerich for the course *Investments and Portfolio Management*, 2023

Optional (recommended) readings

Textbooks

Maginn, J. L., Tuttle, D. L., McLeavey, D. W., & Pinto, J. E. (Eds.). (2007). *Managing investment portfolios: a dynamic process*, 3rd edition, John Wiley & Sons.

Bodie, Kane Marcus, *Investments*, 13th edition, Mac Graw Hill Education, (for recap of the basics)

ASSESSMENT

Students are evaluated based upon their performance at the final exam. Students have access to the usual two exam seasons.

SCHEDULE & TYPES OF CLASSES

IPM students are divided into two slots – class S12 and class S42. In this course there are both THEORETICAL LECTURES and PRACTICAL LECTURES.

THEORETICAL LECTURES are of 3-5h per week on Fridays starting at September 15th and are simultaneous to all students (S12+S42). Five lectures will be on campus (15/9, 22/9, 13/10, 20/10 and 6/12). All other lectures take place online via MS Teams.

PRACTICAL LECTURES are of 1.5h per week and always take place on campus, with class S42 on Mondays and class S12 on Tuesdays. The lectures start on September 18th for class S42 and September 19th for class S12.

Special students, previously authorised to attend online lectures that are on campus can do so using MS Teams with their cameras always on (and cannot interact).