



Year	2023/2024	
Course title	Investment Portfolio (FAP)	
Course number	220431 - 0998	4,50 ECTS points
Lecturer	Pruchnicka-Grabias Izabela , PhD	

A. Course objective

The aims of the subject correspond to acquainting the participants with: 1. Range of assets and off-balance sheet instruments can be taken into consideration in the investment process. 2. Methods of profitability quantification in terms of single financial instruments as well as investment portfolios. 3. Principles of investment portfolio diversification, 4. Some investment strategies, 5. Methods of investment portfolio creation.

B. Abstract

Classification of financial investments. Methods of construction and modeling securities' portfolio and credit portfolio. Prerequisites of choosing assets to complete the portfolio in order to optimize relation between expected profitability and risk. Asset management and valuation. Assessment of investment portfolio performance (effectiveness).

C. Learning outcomes

Knowledge	<p>Student knows the spectrum of available potential elements of investment portfolio.</p> <p>Student acquires knowledge enabling analyzing, comparing and choice of defined investment solutions.</p> <p>Student is acquainted with basic investment strategies and prerequisites of their implementation.</p> <p>Student has knowledge necessary to assess effectiveness of investment in terms of single instruments as well as investment portfolios.</p>
Skills	<p>Student should be able to describe the current investment environment.</p> <p>Student should be able to obtain and interpret investment information from various sources.</p> <p>Student is capable to calculate profitability and risk of investment as well as make valuation of defined financial instruments.</p> <p>Student is acquainted with methods of hedging of investment portfolio.</p>
Social competencies	<p>Student becomes familiar with various conditions, problems and limitations of investment process.</p> <p>Student is made aware of the fact that investment management requires interdisciplinary knowledge, which is the necessary condition for solving problems.</p>

D. Main issues

- 1 Principles of creation of the investment portfolio. Return and correlation. Efficient markets. Types of efficiency. Markowitz bullet. Portfolio analysis and causes of making mistakes in this process.
- 2 Stock portfolio - Markowitz theory, factor models (CAPM, APT, Sharpe models). Correctness of APT Theory with the CAPM model. Assumptions and their limitations. Efficient line with short sale and without short sale.
- 3 Construction of the stock portfolio, analysis of its efficiency (Jensen ratio, Sharpe ratio, Treynor ratio). Efficient and inefficient portfolios. The role of the commission in the portfolio efficiency.
- 4 Stock portfolio creation (Capital Market Line, Security Characteristic Line, Residual variance, Total variance). Beta coefficient.
- 5 Stock valuation with the Dividend Discount Model. Discounted dividend model with steady dividends. Discounted dividend model with dividends changed. Gordon-Shapiro model. Dividend role in investments and its influence on speculation.
- 6 Construction strategies of bonds' portfolio (inter alia immunization by use of duration and convexity). Bonds valuation (fixed coupon, variable coupon, zero-coupon, treasury bills, bonds with zero and non-zero credit risk). Yield to maturity. Bond portfolio immunization with Maculay duration. IRR of the bond portfolio.
- 7 Fundamentals of treasury and corporate bonds. High yield corporate bonds. Convertible bonds default risk. Using and interpreting the yield curve. Asset-backed bonds in the securitization process.
- 8 The role of ratings given by rating agencies in the construction of the investment portfolio. Portfolio value calculation with considering ratings and without them ? similarities and differences.
- 9 Lower Partial Moments ratios. Omega ratio. Sortino ratio. Kappa ratio. Calculations, applications in the portfolio creation.
- 10 Maximum Drawdown ratios. Calmar ratio. Burke ratio. Sterling ratio. Applications in the investment portfolio. Calculations, and usage in the portfolio theory.
- 11 The role of classical options in the investment portfolio. Strategies for volatility speculation. Efficiency assessment. Portfolio value simulation with MC method.
- 12 Non-standard options as instruments in the investment portfolio construction. Portfolio value assessment. Portfolio optimization techniques. Problems concerned with non-standard derivatives applied in investment portfolio construction compared with vanilla ones. Parameters influencing the portfolio value.
- 13 Hybrid products as a part of the investment portfolio and methods of such portfolio value calculations. Analytical models for value assessment. Simulation methods.
- 14 Efficiency of the credit portfolio. Valuation models. Credit risk+. CreditMetrics. KMV. Distribution of values for the portfolio having more than two obligations.
- 15 The idea of credit derivatives and their role in the investment portfolio. Analytical formulas for valuation. The idea of CDS. CDS risk premiums and their role in the market. TRS. Credit basket swap. Structures based on the recovery rate. CDO. CLN. Credit swaptions. Short position in the first-to-default swap. Credit spread options. Credit linked structured notes. Repackaged credit notes. Synthetic bonds.

Haugen R.A., Modern Investment Theory, Pearson 2001; Pruchnicka-Grabias I., Maximum drawdown measures in hedge fund efficiency appraisal, The Quarterly e-Finanse, vol. 12, nr 4/2016, s. 83 - 91, DOI 10.1515/ef-2016-0010K; Pruchnicka-Grabias I., Lower partial moments and maximum drawdown measures in hedge fund risk-return profile analysis, Universal Journal of Mathematics and Mathematical Sciences, Vol. 9, No. 1-2, 2016, p. 43 - 59, ISSN: 2277 ? 1417. Pruchnicka-Grabias I., Equity portfolio diversification with gold, Problems of management, Vol. 18, No. 4(90), 2020, s. 62-77.

F. Supplementary literature

Z. Body, A. Kane, A. J. Marcus, Investments, McGraw-Hill, sixth edition, 2005; J. Pickford (ed.), Mastering Investment, Prentice Hall FT, 2002; I. Pruchnicka-Grabias, Corporate financial risk management, Szkoła Główna Handlowa w Warszawie, Warszawa 2015, ISBN 978-83-65416-60-5.

G. Author's most important publications concerning the offered course

Izabela Pruchnicka-Grabias, The Relationship between Gold and Brent Crude Oil Prices: An Unrestricted Vector Autoregression Approach, W: International Journal of Energy Economics and Policy, 2021; Izabela Pruchnicka-Grabias, Hedge funds as retirement investments, W: red. dr Ivana Barković Bojanić, dr Aleksandar Erceg, Strategic Approach to Aging Population: Experiences and Challenges, 2021; Izabela Pruchnicka-Grabias, Silver in Equity Portfolio Risk Optimization: Polish Investor Perspective, W: European Research Studies Journal, 2021

H. Numbers of required prerequisites

not required

I. Course size and mode

	Full-time	Saturday-Sunday	Afternoon
Total:	45	28	-
Lecture	45	14	-
Self-study under the supervision of lecturer	-	14	-

J. Final mark (assessment)

traditional examination (3 - 5 zadań lub studiów przypadków)	70%
others (Aktywność na zajęciach i między zajęciami)	30%

K. Foreign language requirements

English

L. Selection criteria

M. Methods applied

Lecture
Self-study under the supervision of lecturer