**Portfolio Management**

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***COURSE AIMS AND INTENDED LEARNING OUTCOMES***

The course aims to supply an in-depth view of the fundamental principles of investment analysis and the management of a portfolio of financial instruments. At the end of the course, the students should have an understanding of: investment analysis from a theoretical and empirical perspective; the economic fundamentals and the main techniques behind the management of portfolios of financial instruments; and performance evaluation and reconciliation.

Instructional objectives that the student should have achieved before taking the course

The students enrolling for the course should be capable of:

– calculating present values and principal and interest on the basis of discrete and continuous capitalisation;

– estimating the price per share using the DCF and multiples approaches; recognising the significance of the main profit-and-loss account aggregates (EBIT, EBITDA, etc.);

– calculating price, return, duration and convexity of a bond and calculating spot and forward interest rates;

– understanding the concept of alpha and beta for an equity security;

– calculating the expected value and standard deviation of a random variable;

– solving linear equations with use of matrix algebra;

– calculating a matrix of variances and covariances and a correlation matrix, and understanding their significance;

– solving problems of constrained optimisation;

– understanding the main symmetric and asymmetric derivatives and the related methods of basic valuation.

Instructional objectives of the course

*The investment process*

After having completed the study of the material, the student should:

– be familiar with the different stages of the process of managing investments, the typical characteristics of rational investment objectives and their influences on the objectives of portfolio managers;

– be familiar with the characteristics typical of the main investment strategies;

– understand the reasons and factors behind the development of collective investment vehicles;

– be familiar with the investor's advantages and disadvantages with respect to different investment instruments and asset categories.

*Portfolio management*

After having completed the study of the material, the student should:

– be familiar with the characteristics and the assumptions behind the concept of active management;

– be familiar with the definition and the characteristics behind the concept of strategic asset allocation;

– understand the definition, the uses and the limits behind the concept of tactical asset allocation, the field of application and the influencing factors;

– understand the fundamentals of security-selection decisions and the tools for making the decisions;

– be familiar with the relative merits and characteristics of passive management and the theoretical foundations thereof;

– know how to define the concept of tracking error and know how to calculate it and use; be familiar with the "absolute return" management techniques.

*Management of share portfolios*

After having completed the study of the material, the student should:

\* be familiar with the empirical evidence in relation to returns associated with trading strategies based on fundamental analysis with regard to contrarian and momentum investment styles as well as know how to apply these strategies in the field;

\* be familiar with the empirical evidence in relation to returns associated with trading strategies based on technical analysis with regard to contrarian and momentum investment styles as well as know how to apply these strategies in the field;

\* be able to reconcile, from a theoretical and empirical perspective, contrarian and momentum trading strategies through a fundamental and technical analysis;

\* understand the relations that link financial information and market prices;

\* be able to apply knowledge of financial information and market prices to IPO cases and to technological securities;

\* understand the dynamics in financial analysts' forecast errors and the main economic and behavioural aspects of such errors.

*Measurement of the performance of investments*

After having completed the study of the material, the student should:

– be familiar with characteristics, advantages and limits of the use of various central tendency and dispersion indicators in measuring the performance of a portfolio and know how to calculate those indicators;

– know how to calculate money-weighted rate of return (MWRR), internal rate of return (IRR) and time-weighted rate of return (TWRR) and know how to select the appropriate indicator for various situations;

– understand how a comparison is made between indices and the construction of compound benchmark;

– understand the reasons for use of risk-adjusted performance indicators and know how to calculate them and use them;

– be familiar with the definition, objectives and uses of performance attribution techniques;

*Behavioural finance and portfolio management*

After having completed the study of the material, the student should:

– be familiar with the main cognitive and emotive distortions that influence the investment process as well as know how to critically evaluate their implications in the field;

– be able to explain the relationship between market anomalies and behavioural finance;

– be able to apply notions of behavioural finance in investment decisions.

*Management of bond portfolios*

After having completed the study of the material, the student should be able to:

– measure the risk profile of a bond portfolio;

– know the active management principles of a portfolio against a bond index;

– implement some strategies for bond portfolio immunization and cash flow matching;

– apply techniques of relative value in bond portfolios management;

– identify benefits deriving from the international diversification in bond portfolio management;

– know the main derivative instruments for bonds and credits, and the basic strategies for portfolio risk monitoring.

***COURSE CONTENT***

Module 1 (5 Ects credits)

1. *The investment process* 
   * Stages of the investment management process, typical characteristics of rational investment objectives and their influences on the objectives of the portfolio managers.
   * Typical characteristics of the main investment strategies.
2. *Portfolio management* 
   * Characteristics and hypotheses underlying the concept of active management.
   * Definition and characteristics of the concept of strategic asset allocation.
   * Definition, uses, and limits of the concept of tactical asset allocation, field of application and factors that influence it.
   * Fundamentals of security selection decisions and the tools to implement them.
   * Relevant merits and characteristics of passive management and its theoretical foundations.
3. *Management of equity portfolios:*
   * Empirical evidence on returns associated with trading strategies based on a fundamental analysis with regard to contrarian and momentum investment styles.
   * Empirical evidence on returns associated with trading strategies based on a technical analysis with respect to contrarian and momentum investment styles.
   * Reconciliation in a theoretical and empirical perspective of the contrarian and momentum trading strategies in the fundamental and technical analyses.
   * Relationship between financial information and market prices.
   * Relationship that links financial information and market prices to IPO cases (initial public offering) and technological stocks.
   * Dynamics in forecasting errors of financial analysts and the main economic and behavioural determinants of such errors.
4. *Performance evaluation:*
   * Characteristics, advantages and limits of the use of the various indicators of central tendency and dispersion in measuring the performance of a portfolio.
   * Money-weighted rate of return (MWRR), internal rate of return (IRR) and time-weighted rate of return (TWRR).
   * Risk adjusted performance indicators.
   * Definition, objectives and uses of performance attribution techniques.

Module 2 (3 Ects credits)

1. *Management of bond portfolios:* 
   * Risk profile of a bond portfolio.
   * Principles of active portfolio management against a bond index.
   * Portfolio immunization strategies and cash flow matching.
   * Relative value techniques in the management of bond portfolios.
   * The benefits of international diversification in bond portfolio management.
   * Main bond and credit derivative instruments and the basic strategies for controlling portfolio risk.

***READING LIST***

E. Beccalli-P. Frantz, *Analisi e Valutazione degli investimenti,* Carocci Editore, 2013 (capp. 7, 8, 9, 10, 11) (ISBN: 978-88-430-6798-5).

Slides shown in class and other instructional material (in particular, articles and working papers) will be made available through the Blackboard platform.

Recommended reading

E.J. Elton-M.J. Gruber-S.J. Brown-W.N. Goetzmann, *Teorie di portafoglio e analisi degli investimenti,* Apogeo, 2007. (ISBN: 978-88-503-2488-0)

F. Fabozzi, *The Handbook of Fixed Income Securities,* McGraw-Hill, 2012, 8th ed. (ISBN: 978-0071768467).

F.K. Reilly-Brown, K.C.-Leeds S.J.,.*Investment Analysis & Portfolio* *Management,* South-Western Pub, 2018,11th ed (ISBN-13: 978-1305262997).

***TEACHING METHOD***

The course will be taught through lectures (70%), seminars conducted by experts (5%) in the field, and a group project called ‘Portfolio simulation project’ (25%). Professor Beccalli debates programme from 1 to 4 point (module 1, 5 Ects credits), Professor Doninelli debates the subject for point 5 (module 2, 3 Ects credits).

The "Portfolio simulation project" consists of simulating the management of a financial assets portfolio carried out under the guidance of sector operators and using a platform that allows access to real market data.

During the simulation of portfolio management, each group (of max 5 students) will be supervised by experts in the field, to whom students will make a class presentation about their project results. Each group will meet the experts - with individual interviews - in two stages (one initial and one intermediate) for the construction and management of the portfolio.

***ASSESSMENT METHOD AND CRITERIA***

Students will sit a 90-minute written exam of four questions. The 4 questions are open-ended questions relating to points 1, 2, 3, 4 and 5 of the course contents. The mark of the written test is on a 30-point scale.

The group work project ‘Portfolio simulation project’ (PSP) will be part of the final grade and its score will add up to the written exam score (a maximum of 4 points to be added to the written exam grade). Participation in the group project is optional but strongly recommended.

The final mark will be based on the:

1. Students’ knowledge and understanding of the topics assessed through open-ended questions aimed at exhaustively covering the topics of the course in order to verify the student's ability to formulate correct and thorough answers (45%) and to appropriately use the specific terminology (5%);
2. ability to apply the assessed knowledge by applying the theoretical knowledge of the reference strategies in the simulation of a portfolio management based on real data (20%);
3. critical analysis skills in the simulation project and in sub-points of the open-ended questions through the evaluation of the most appropriate strategies in the different circumstances as well as the understanding of the most common errors related to the implementation of choices in the field (20%);
4. communication skills assessed through the presentation in a plenary session before sector experts as well as in individual working session with the same sector experts (10%). These skills are also assessed by adding an individual selection simulation to the course with leading sector operators.

***NOTES AND PREREQUISITES***

Further information can be found on the lecturer's webpage at http://docenti.unicatt.it/web/searchByName.do?language=ENG or on the Faculty notice board.