# Finance and Banking

## Proff. Francesca daniela Lenoci; Laura Pellegrini

## ***Module: Finance (40 hours) : Prof.ssa Laura Pellegrini***

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

The course aims to provide students with a broad knowledge of *corporate finance, with a strong focus on data and Applied Valuation.* We make use of statistical/ mathematical and economic features together with applicative programs. After a first approach to Balance Sheet, Income Statement elements and financial analysis it will analyse different concepts of flows, rates and risks.

 As the “core” issues, the module will deal with the main economic capital “Valuation methods”, mainly from an applied point of view, considering empirical valuation problems, with particular attention to Discounted Cash Flows Method (DCF). These issues will be approached in depth taking care of data and Applied Valuation with case studies. To gains these aims we will dedicate to application and empirical aspects, also through the help of various databases. The course will also investigate issues related to corporate financial structures and ESG issues*.*

*Knowledge and understanding*

At the end of the course, students will be able to appreciate the relevance of the main theoretical and empirical issues of *corporate finance*, to know the most relevant methods of assessing and valuating corporate capital and evaluating *intangibles*, as well as issues related to the relevant financial structure. Furthermore, they will be able to identify and understand the main problems concerning Valuation issues, proposing applied solution on specific topics.

*Ability to apply knowledge and understanding*

At the end of the course, students will be able to analyse data concerning applied Valuation and make choices about these features. The students will be able to apply the different knowledge acquired to theoretical and empirical cases related to business situations, also through the knowledge and use of different databases and applicative programs.

***COURSE CONTENT***

## Module: *Prof.ssa Laura Pellegrini*

After an initial overview and analysis of the budget financial statements and the issues related to financial analysis as introductory to *corporate finance,* the module will provide an in-depth study of the Weighted Average Cost of Capital (WACC) in its different components of equity capital and debt. Subsequently, the course aims to particularly focus on data and Applied Valuation of firms, especially on the DCF *Levered and Unlevered* method, together with the greater challenges and operational difficulties in the Valuation field. These issues will also be developed from an empirical point of view, through empirical and concrete case studies, data, applicative programs and the use of empirical databases. Generally speaking, the issues of intrinsic value, risk adjusted value, the issues of Firm Valuation vs Equity Valuation will be carefully explored. We will also pay attention to elements and evaluation problems that characterize companies differently according to their life cycle: young firms, mature companies, and declining and distressed firms; but also depending on the sector in which they operate. We analyse the main *indirect methods,* by offering an in-depth study of the significant issue of the valuation of intangible assets, such as brands. The course will also cover topics related to corporate financial structure.

The course is structured around different sequentially linked issues. Each set of issues is subdivided into the following points:

1. Institutional elements of corporate finance. Financial analysis and planning; connections with other business areas.

2. Cost of capital: the WACC: weighted average cost of capital. Its components of equity capital and debt: theoretical and empirical models.

3. *Beta levered vs beta unlevered:* data, models and empirical features.

4. Main databases for empirical analysis: theoretical aspects, empirical elements. Methods of use and critical issues.

5. Applied Valuation and data with applicative programs. The Discounted Cash Flow method (DCF). Intrinsec value vs intrinsec characteristics issues. Risk adjusted value, and the concepts of Firm Value vs Equity Value. Valuation problems: a) across the life cycle b) across sectors. Models and empirical features.

6. The direct and indirect methods. The valuation of intangibles.

7. Corporate capital structure and Modigliani and Miller features. A focus on Beta issues.

8. CSR, and ESG indexes.

***READING LIST***

*Textbook used*

D. Hillier-S.A. Ross-R.W. Westerfield-J.F. Jaffee-B.D. Jordan, *Corporate Finance,* Mc Graw-Hill, 2015, 2nd Italian Ed.

*Suggested textbooks*

R.A. Brealey-S.C. Myers-F. Allen-S. Sandri, *Principi di Finanza Aziendale,* Mc Graw-Hill, 2011, 6th ed. (English version, 11th edition). (For basic issues)

A. Damodaran, *The Dark Side of Valuation: Valuing Young, Distressed, and Complex Businesses,* Pearson Education (US), Third Ed., 2018, pp. 800. (For advanced issues)

Further reading list references and other study material may be provided during lectures.

Any supplementary material (slides, data, etc.) will be made available to students on the Blackboard platform on a weekly basis.

***TEACHING METHOD***

The course includes both frontal lectures, consisting of theoretical lectures and empirical exercises concerning cases analysed by lecturer (90%), and possible speeches by field experts (10%).

The course includes the possibility of carrying out group projects.

***ASSESSMENT METHOD AND CRITERIA***

The methods for verifying the knowledge and skills acquired include a written exam to be taken during the exam session. It consists of a single written exam which is composed by theoretical and numerical questions. The exam may last 60 minutes.

This exam aims to test overall student preparation both as regards the institutional and fundamental aspects of *corporate finance*, and in relation to their applicative and empirical implementation to concrete cases. Generally speaking the exam consists of 4 questions, two open-ended questions and two empirical questions.

This module includes also the possibility of developing *case studies and assignments.* These projects will be part of the overall exam of the module and weigh 25% of the final mark.

Through the written exam, students will firstly have to demonstrate their knowledge and familiarity with the topics and the fundamental issues discussed during lectures, with special attention also to the practical exercise part. The exam will be based on the relevance of the students’ answers, their appropriate use of the specific terminology, an argumentative and consistent structure of the speech, their ability to identify conceptual links, as well as the rigorous application of the chosen methods and the developed empirical investigations.

***NOTES AND PREREQUISITES***

 If the health emergency due to COVID-19 pandemic will persist, making the face-to-face teaching not possible, the teaching will be supplied by on line sessions, in way that will be communicated to the student as soon as possible.

Further information can be found on the lecturer's webpage.

## ***Module: Banking (40 hours): Prof.ssa Francesca D. Lenoci***

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

Following an introduction describing the European banking system and the features of data collection and data analysis, the course will focus on major applications of data science to banking. We make use of mathematical and economic features together with statistical programs to analyse how the banking sector benefited from data exploitation and automated processes. Furthermore, we will investigate the banking sector potential growth from the extensive adoption of data analytics. Nowadays, banks are integrating data analytics in their decision-making process and are developing strategies based on the actionable insights from their client’s data to gain competitive advantage. Case studies and practical applications will support examples on the use of data analytics.

*Knowledge and understanding*

At the end of the course, students will be able to recognize the current development of data analytics in banking with respect to other sectors, to appreciate differences in data usage by banks’ country or size and to identify the applications of data science in different areas of the banking business. Students will also be able to assess the drivers of the investments in data analytics (efficiency, cost reduction, profit maximization, targeting clients, increasing market share) and to assess in which banking areas data analytics could be exploited further. Furthermore, they will be able to identify the main characteristics and similarities of banks’ competitors in terms of usage of data analytics (i.e. the lending based crowdfunding platforms).

*Ability to apply knowledge and understanding*

At the end of the course, students will be able to analyse the drivers of the usage of data analytics in banking, to assess pros and cons of banking reliance on data analytics, to evaluate which business areas have been subject to data disruptions and predict future developments in the sector. Using programming languages (R, Python, SQL) and statistical software (Stata), students will be able to apply knowledge acquired to empirical cases.

***COURSE CONTENT***

Module: *Prof.ssa Francesca Daniela Lenoci*

Nowadays banks, as well as other financial institutions, have strong incentives in using data. One of the main reasons could be to boost their profits which are now shrunk from negative interest rates or to gain a larger market share. Following a short introduction on the banking business, the course will focus on the usage of analytics into banking culture, decision processes, and business operations.

The structure of the course will be the following:

1. Use of analytics in banking and investment in analytics: on which factors does it depend?
2. Use of analytics techniques by business areas: commercial, risk, innovation, communication and decision making
3. Use of analytics is sales management (digital marketing, customer targeting, customer lifetime value – CLV, transactional analytics)
4. Use of analytics for profit enhancement and efficiency (key performance indicators)
5. Use of analytics in financial risk management (risk modelling and risk control)
6. Use of analytics for regulatory compliance
7. Use of analytics in non-financial risk management (cybersecurity, fraud-detection)
8. Use of analytics for business operations and organizational management.

***READING LIST***

There is not any textbook used as main reference. Classes and the material presented via slides will rely on the suggested textbooks listed below, on research papers and business cases.

*Suggested textbooks*

Cornelia Lévy-Bencheton, *Data Science, Banking, and Fintech,* O'Reilly Media, Inc., 2016, ISBN: 9781491951927

Further reading list and references will be based on research papers which will be provided in advance of classes.

Any supplementary material (slides, data, etc.) will be made available to the students via Blackboard on a weekly basis.

***TEACHING METHOD***

The course includes both frontal lectures, consisting of theoretical lectures and empirical exercises (90%), and possible speeches by field experts (10%).

The course includes the possibility of carrying out group projects.

***ASSESSMENT METHOD AND CRITERIA***

Knowledge and skills will be assessed via a written exam, which is composed by two theoretical and two empirical questions as *short-answer or essay*. The exam lasts 60 minutes. This module includes also the possibility to develop *case studies and assignments* which will be part of the overall exam of the module and weigh 25% of the final mark.

The exam will be assessed on the relevance of the students’ answers, their appropriate use of the specific terminology, an argumentative and consistent structure, the ability to identify conceptual links, as well as the rigorous application of the methodology and empirical investigations.

If the health emergency due to COVID-19 pandemic will persist, making the face-to-face teaching not possible, the teaching will be supplied by on line sessions, in way that will be communicated to the student as soon as possible.

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