LIUC – A83011– Financial Modelling and Management

Restricted syllabus **2019-2020**, 8 ECTS
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The final **written** exam takes place in accordance with the **restricted** syllabus below.
All possible **15** exam **exercises** are **underlined**.
All possible **10** exam **questions** on **theory**, **empirical evidence**, or **business practice** are **underlined**.

Reading list

Cuni, E, **G**hezzi, L **2018**, *Financial Modelling and Management – Part I,* Università Carlo Cattaneo – LIUC, Castellanza, www.biblio.liuc.it/pagineeditoria.asp?codice=214.
Ghezzi, L **2019**, *Financial Modelling and Management – Part II*, **reserved to students**, available at the International Office.

Spreadsheets are available by e-mail. Additional texts are available at the LIUC Library.

Elton, EJ, Gruber, MJ, Brown, SJ, Goetzmann, WN 2014, *Modern portfolio theory and investment analysis*, 9th edn, Wiley, New York.
Keasey, K, Hudson, R, Littler, K 1998, *The intelligent guide to stock market investment*, Wiley, Chichester.
Maginn, JL, Tuttle, DL, McLeavey, DW, Pinto, JE (eds) 2007, *Managing investment portfolios. A dynamic process*, 3rd edn, Wiley, Hoboken, NJ.

Review of financial mathematics

C-G I 1.4 Immediate level annuities, yearly payments in arrears: present value, future value, annuity factors $a_{n|i}$ and $s_{n|i}$.

C-G I 4.1 Fixed income securities: accrued interest, clean and dirty price, actual yield and yield to maturity. Trading versus investing. Yield curves.

C-G I 5.1; 5.2 / (**E** pp. 531-539) Euribor and euro swap rates. Term structures of interest rates: spot and forward rates, measurement (money market, Treasury market). Classical term structure explanations.

Examples: <u>18</u> **Exercises:** <u>31</u> / <u>34</u> / <u>35</u> / <u>44</u> / 45 / <u>46</u> / <u>47</u> / <u>48</u>

Basics of outside financial analysis

G II 2.1; 2.2 Product/industry life cycles. Growth and values companies. Dividend discount models. <u>Price-earnings ratios & price-book value ratios</u>. Prospective ranking of listed stocks: implicit mean rates of return, adjusted beta coefficients, and Wells Fargo critical line.

G II 3.8; 3.9; 3.10 / (**K** 12; 13) <u>Essentials of value investing: competitive advantage and corporate performance, fundamental analysis</u>. Benjamin Graham's, Philip Fisher's, and Warren Buffett's guidelines. Top down investing in commodities according to Jim Rogers.

Examples: <u>23</u> / <u>25</u> **Exercises:** 56

Basics of discretionary portfolio management

G II 3.1; 3.2 Portfolio rebalancing. Portfolio return: mean and variance, sample size determination. Long-term mean reversion and heteroskedasticity in US stock returns. Feasible combinations of 2 stocks. Feasible set. <u>Efficient frontier</u>. Inclusion of a safe asset. One-fund and two-fund theorem (no proofs).

G II 3.3 Equity diversification: statistical properties of diversifiable and systematic risks.

G II 3.6 <u>Efficient stock markets: theoretical hypotheses</u>, operational implications, <u>tentative conclusions</u>. <u>Irrational exuberance and speculative bubbles</u>: empirical evidence. <u>Cognitive biases and irrational decisions</u>.

G II 3.7 <u>The investment process in practice; stages, tasks, and tools</u>. <u>Passive portfolio management</u>. <u>Active portfolio management</u>: market timing, mispriced-stock picking, group rotation.

G II 3.11 Hedge funds: comparison with mutual funds, typical trading policies, empirical evidence.

C-G I 4.3 Credit risk: default and recovery rates, <u>rating scales and credit rating by international agencies</u>. Actual yields on corporate bonds: breakdown by credit-risk class.

Examples: 29 / <u>31</u> **Exercises:** 58 / <u>62</u> / <u>63</u> / <u>64</u> / <u>65</u> / 41 / 43

LEARNING OBJECTIVES

When checking your preparation, ask yourself whether:

- you can explain the financial meaning of an analytical process by making reference to a real case;
- you know some relevant empirical evidence on stocks and bonds.

Review of financial mathematics

- Know how to compute the **yield to maturity** on a **fixed income security**; understand its link with the **actual yield**;
- know how to estimate a term structure of the **Treasury market**;
- know how to interpret the forecasts implicit in a **Treasury yield curve**.

Basics of outside financial analysis

- Know how to forecast the **mean** rate of return on a **listed** stock by means of a dividend discount model; know how to forecast the **beta** coefficient of a **listed** stock; know how to estimate a Wells Fargo critical line.
- know how to interpret and use the information conveyed by the **price-earnings** and the **price-book value** ratios relative to a **stock market** index or a **listed** company, be it a **value** or a **growth** one;
- know the basics of **fundamental analysis** and **value investing.**

Basics of discretionary portfolio management

- know how to carry out a 2 stage portfolio selection, determining at first an **efficient frontier** and then the most suitable portfolio for an investor;
- know how **equity diversification** brings risk down;
- know some **empirical evidence** on US financial markets and their regularities as well as the attendant **neoclassical** and **behavioural** interpretations;
- know some **empirical evidence** on **irrational exuberance** and **speculative bubbles**;
- know how **cognitive biases** in the handling of information may lead to **irrational** decisions;
- know the basics of **active management** (the **investment process**; **market-trend timing** and **mispriced-stock picking**; **style switching** and **group rotation**);
- know some typical trades of **hedge funds**;
- know how credit is rated by **international agencies**;
- know some **empirical evidence** on the performance of corporate bonds.