SUBJECT DATASHEET

FIXED INCOME SECURITIES AND MANAGEMENT OF MARKET RISK

BMEGT35M126

I. SUBJECT DESCRIPTION

1. SUBJECT DATA

Subject name
FIXED INCOME SECURITIES AND MANAGEMENT OF MARKET RISK

ID (subject code) BMEGT35M126

Type of subject
contact lessons

Course types and lessons

Type	*Lessons*
Lecture	2
Practice	0
Laboratory	0

Type of assessment
mid-term grade

Number of credits
3

Subject Coordinator

Name	*Position*	*Contact details*
Novák Zsuzsanna	associate professor	novak.zsuzsanna@gtk.bme.hu

Educational organisational unit for the subject
Department of Finance

Subject website
https://edu.gtk.bme.hu/

Language of the subject
angol - ENG

Curricular role of the subject, recommended number of terms
Programme: **Finance MSc (in English) from 2019/20/Term 1 AUTUMN start**
Subject Role: **Compulsory**
Recommended semester: **3**

Programme: **Finance MSc (in English) from 2019/20/Term 1 SPRING start**
Subject Role: **Compulsory**
Recommended semester: **3**

Direct prerequisites

Strong	None
Weak	None
Parallel	None
Exclusion	None

Validity of the Subject Description
Approved by the Faculty Board of Faculty of Economic and Social Sciences, Decree No: 5881478/13/2024 registration number. Valid from: 11.12.2024.

2. OBJECTIVES AND LEARNING OUTCOMES

Objectives

Fixed income securities cover a great set of securities ranging from treasury (zero-coupon-yield) securities to all kinds of asset backed and structured products. Investing into these securities entails various types of markets risks (interest rate risk, foreign currency risk, country risk etc.). The aim of this course is to introduce the most relevant risk charac-teristics of these financial products to students and the way of measuring and managing these risks. After a general overview of pricing methodologies, questions relating to interest rate exposure are tackled, for instance how yield curve shifts affect investments in fixed income securities and how basis risk and duration should be calculated. The audience will learn about the basic segments of fixed income securities markets, such as government securities mar-kets, mortgage and covered bonds and newly emerging structured products. The issues of risk management will be presented in several aspects, by dealing with foreign currency and interest rate swaps, duration hedging, CDSs, port-folio risk management methods. Loss distribution and risk models relating to fixed income securities will be briefly discussed as well. The agenda partly covers a the first, third, fourth and fifth topics (Foundations of Risk Management; Financial Mar-kets and Products, Valuation and Risk Models and Market Risk Management) of the FRM (Financial Risk Manager) Exam and the modul VII. (Fixed Income) of the CFA (Chartered Financial Analyst). This gives immensely useful and practical knowledge to the audience in real life.

Academic results

Knowledge

1. knowledge of all sorts of market risks relating to fixed income assets;
2. knowledge of basic segments of fixed income securities markets;
3. calculation of fixed income securities' yield;
4. measurement approaches of market risk in relation to fixed income securities;
5. learning to use the risk mitigation techniques.

Skills

1. plan and organize independent learning,
2. comprehend and use the professional literature of the topic
3. recognize and measure the risks related to fixed income securities,
4. perform calculations to support decision-making.

Attitude

1. is open to getting to know and adapting innovations in the financial field,
2. collaborates with their instructors and others during the learning process,
3. gains knowledge and information,
4. uses the possibilities offered by IT tools.

Independence and responsibility

1. is open to accept constructive criticism,
2. collaborates with others to solve problems during the learning process,
3. could make prudent financial decisions,
4. understands the importance and weight of responsibility and can assess the consequences of decisions.

Teaching methodology

Lectures, written and oral communication, use of IT tools and techniques, optional problem-solving, analytical and presentation tasks alone and in groups.

Materials supporting learning

- Tanulástámogató anyagok
- Kötelező - Compulsory:
- Az előadások prezentációinak anyaga, ami a félév során folyamatosan frissül a tantárgy oldalán. Slideshows of the lectures which will be uploaded continuously during the semester.
- Zvi Bodie-Alex Kane-Alan J. Marcus, Investments, 12th Edition, MacGrawHill, 2021, 14-16 chapters
- CME Group, Interest rates Risk Management for Fixed Income Asset Managers.https://www.cmegroup.com/education/files/AM-001_RiskMgmt-for-Fixed-Income-AM.pdf
- Riskmetrics Group, Risk Management. A Practical Guide. 1st edition. https://www.msci.com/documents/10199/3c2dcea9-97be-4fb4-befe-a03b75c885aa
- Ajánlott - Recommended:
- Christian Szylar, Handbook of Market Risk. A One-Stop Guide for the Theories, Applications, and Statistical Methodologies of Market Risk, John Wiley & Sons, 2014

- Philippe Jorion, Financial Risk Manager Handbook (GARP), 6th Edition, Wiley, 2011
- John C. Hull, Risk Management and Financial Institutions, Wiley, 2015
- Steve Allen, Financial Risk Management: A Practitioner's Guide to Managing Market and Credit Risk, Wiley, 2013

II. SUBJECT REQUIREMENTS

TESTING AND ASSESSMENT OF LEARNING PERFORMANCE

General Rules

Assessment of the learning outcomes described under 2.2. is based on a mid-term and an end-term exam (50-50%). The optional homework
can affect the outcome (+20%).

Performance assessment methods

Detailed description of mid-term per-formance assessments - The audience could gain extra points with the optional homework (problem-solving,
written analysis, presentation). - Two mid-term exams assess the knowledge and skill competencies obtained through the subject which cover both theoretical knowledge and problem-solving. Working time for the exam is announced during the semester. B. Detailed description
of examination performance assessments - The complete assessment of knowledge happens during the semester

Percentage of performance assessments, conducted during the study period, within the rating

- **two mid-term tests**: 100
- **optional homework**: 20

Percentage of exam elements within the rating

Conditions for obtaining a signature, validity of the signature

50% based on mid-term test results and homework assignments

Issuing grades

Excellent	90
Very good	85-89
Good	70-84
Satisfactory	60-69
Pass	50-59
Fail	49

Retake and late completion

The written tests can be retaken once in line with the rules laid down in TVSZ.

Coursework required for the completion of the subject

contactlesson	28
optional homework	20
preparation for exam	42
total	90

Approval and validity of subject requirements

Consulted with the Faculty Student Representative Committee, approved by the Vice Dean for Education, valid from: 04.11.2024.

III. COURSE CURRICULUM

THEMATIC UNITS AND FURTHER DETAILS

Topics covered during the term

1 Fixed-Income securities characteristics and bond pricing
2 Bond prices over time
3 Bond yields: yield to maturity, yield to call
4 Impact of default and credit risk on bond pricing: CDS and CDO
5 The Yield curve: theories and empirical results
6 The Term Structure of interest rates: interest rates under certainty and uncertainty, theories of the term structure, expectation hypothesis, liquidity preference
7 Bond portfolios
8 Interest rate sensitivity of bond prices, Duration and Convexity
9 Passive and active bond management strategies
10 Management of interest rate risk, hedging linear risk (forwards, futures, swaps)
11 Modelling risk factors, application of VAR methods and models, backtesting, stress testing and scenario analysis to interest rate risk

Additional lecturers

Andrea Toto associate professor toto.andrea@gtk.bme.hu

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