



SUBJECT DATASHEET

FIXED INCOME AND MANAGEMENT OF MARKET RISK

BMEGT35M126

I. SUBJECT DESCRIPTION

1. SUBJECT DATA

Subject name

FIXED INCOME AND MANAGEMENT OF MARKET RISK

ID (subject code) BMEGT35M126

Type of subject

Contact lessons

Course types and lessons

<i>Type</i>	<i>Lessons</i>	<u>Type of assessment</u>	<u>Number of credits</u>
Lecture	2	mid-term	
Practice	0	grade	
Laboratory	0		3

Subject Coordinator

<i>Name</i>	<i>Position</i>	<i>Contact details</i>
Dr. Andrea Toto	assistant professor	toto.andrea@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:

Recommended semester: 3

Direct prerequisites

Strong Foundations of Risk Management

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: 580269/9/2025 registration number. Valid from: 26.03.2025.

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 characteristics of these financial products to students and the way of measuring and managing these risks. After a general overview of pricing methodologies, questions related to interest rate exposure are tackled, for instance how yield curve shifts affect investments in fixed income securities and how duration and convexity 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 related 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. market risks related to fixed income assets;
2. basic segments of fixed income securities markets;
3. measurement of market risk in relation to fixed income securities - CDS, duration, convexity;
4. risk mitigation techniques (duration hedging, IRS etc.).

Skills

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

Attitude

1. is open to getting to know and adapting innovations in the financial field;
2. ollaborates 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 tasks alone and in groups.

Materials supporting learning

- Kötelező - Obligatory:
 - 1. 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.
 - 2. 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
 - 3. Riskmetrics Group, Risk Management. A Practical Guide. 1st edition. <https://www.msci.com/documents/10199/3c2dcea9-97be-4fb4-befe-a03b75c885aa>
- Ajánlott - Recommended:
 - 4. Christian Szylar, Handbook of Market Risk. A One-Stop Guide for the Theories, Applications, and Statistical Methodologies of Market Risk, John Wiley & Sons, 2014
 - 5. Zvi Bodie-Alex Kane-Alan J. Marcus, Investments, 11th Edition, MacGrawHill, 2018
 - 6. Philippe Jorion, Financial Risk Manager Handbook (GARP), 6th Edition, Wiley, 2011
 - 7. John C. Hull, Risk Management and Financial Institutions, Wiley, 2015
 - 8. 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 exam. Each of the mid-term exams affects the final grade by 50%: the total score is a weighted average of mid-term exam 1 (50%) and mid-term exam 2 (50%)

Performance assessment methods

A. Szorgalmi időszakban végzett teljesítményértékelések részletes leírása - Detailed description of mid-term performance assessments - 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. Vizsgaidőszakban végzett teljesítményértékelések - 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

- Mid-term exam n.1: 50
- Mid-term exam n.2: 50

Percentage of exam elements within the rating

Conditions for obtaining a signature, validity of the signature

Issuing grades

Excellent	90
Very good	80-90
Good	70-80
Satisfactory	60-70
Pass	50-60
Fail	<50

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

participation on contact lessons	28
optional homework	20
preparing for the 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: 03.03.2025.

III. COURSE CURRICULUM

THEMATIC UNITS AND FURTHER DETAILS

Topics covered during the term

Subject includes the topics detailed in the course syllabus to ensure learning outcomes listed under 2.2. can be achieved. Timing of the topics will be arranged by the calendar or other circumstances in each semester.

- 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 assistant professor toto.andrea@gtk.bme.hu

Approval and validity of subject requirements