2018

663-01 Fixed-income and Debt Management

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FINC 663: Fixed-Income and Debt Management, Fall 2018
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Office Hours: Monday, 5:15-6:00
Office Hours: Zoom Meetings

Course Objectives and Student Outcomes:
The purpose of this course is to provide MBA students with an understanding of both basic and advanced bond investment theories and strategies that will hopefully give them a foundation to better understand the complexities and subtleties involved in the evaluation and selection of bonds and debt positions with detailed structures.

SLOs:
At the end of this class students will be able to:
- Discuss and understand with some depth the financial system
- Evaluate debt securities and derivatives
- Differentiate the major types of bonds, asset-backed securities, and investment funds in terms of their characteristics.
- Explain the influence of macroeconomic factors on the level and structure of interest rates
- Apply the terms structure theory to forecast changes in interest rates
- Conduct bond portfolio horizon analysis
- Conduct a credit analysis
- Construct different fixed-income portfolios based on total return and liability management objectives
- Value bonds with embedded option using binomial interest rate trees
- Derive the binomial interest rate equilibrium model and calibration model
- Explain the markets for corporate, government, intermediate, and global securities
- Analyze MBS and ABS in terms of their features
- Explain the features of debt derivatives: futures, options, and swaps
- Use derivatives to change the return-risk features of a fixed-income portfolio
- Explain how complex debt structures are constructed
• Explain how commercial banks, financial institutions, and the Federal Reserve operate
• Explain the major financial events and crisis that have occurred over the last 30 years
• Use the Bloomberg system at the same level it is used by professional fund managers who actively use the system to manage their fixed-income portfolios.

**Text**


**Reference:**
- Mishkin and Eakins, *Financial Markets and Institutions*

**Course Format**

- On-line Audio/PPT, PPT, and Text Reading
- Assigned end-of-the chapter problems
- Bloomberg Exercises

**Canvas Folders**

- Modules: PPT, end-of-chapter problems, test review material, solutions, and Excel programs can be downloaded from the modules
- Assignments can be uploaded from the modules

**Module 1: Bond Evaluation and Selection**

**Topics**
- Overview of the Financial Market
- Time Value of Money
- Properties of Assets
- Value and Rate of Return
- Bond Theorems
- Level of Interest Rates
- Term Structure of Interest Rates
- Bond Risk
- Duration
- Convexity
- Debt Management
- Yield Curve Shifts and Strategies
- Total Return Analysis
- Credit Analysis
- Fundamental Bond Analysis
- High-Yield Bond Analysis

**SLOs**
- Calculate the values and rates of return on bonds
- Explain the major theories of term structure of interest rates
- Explain the relation between bond risk, default probabilities, and yield spreads
- Explain the impacts of macroeconomic factors on the structure of interest rates
- Explain the impacts of expectations on the structure of interest rates
- Conduct bond portfolio horizon analysis
- Construct different fixed-income portfolios based on total return and liability management objectives
- Apply Bloomberg to bond evaluation and selection

**Readings and Assignments**
- Johnson, *Debt Markets and Analysis*, Chapters 3-6
- Johnson, Appendix A: Primer on Return, Present Value, and Future Value
- PPT: Chapters 3-6, and Appendix A
- Assigned End-of-Chapter Problems
- Bloomberg Exercises from Chapter 3-6

**Module 2: Valuation of Bonds with Embedded Options: Binomial Interest Rate Valuation Approach**

**Topics**
- Binomial Trees
- Valuation of Callable Bonds
- Valuation of Putable Bonds
- Sinking Funds
- Convertible Bonds
- Estimating the Binomial Tree
- Calibration Model
- Duration and Convexity
SLOs
• Value bonds with embedded option using binomial interest rate trees
• Derive the binomial interest rate equilibrium model and calibration model

Readings and Assignments:
• Johnson, *Debt Markets and Analysis*, Chapters 13
• PPT: Chapters 13
• End-of-Chapter Problems
• Bloomberg Exercises

Module 3: Bloomberg Trading Room Session
Topics
• Bloomberg Workshop

Readings and Assignments
• Johnson, *Debt Markets and Securities*, Chapter 2

Module 4: Debt Markets

Topics
• Overview of the Financial System
• Corporate
• Treasury and Agency
• Municipals
• Intermediary Securities
• Global Debt Securities

SLOs
• Differentiate the major types of bonds and investment funds in terms of their characteristics
• Explain how the different financial markets function
• Conduct a credit analysis of corporate bond

Readings and Assignments
• Johnson, *Debt Markets and Securities*, Chapters 1 and 7-9
• PPT: Chapters 7-9
• Bloomberg Exercises
Module 5: Mortgage-Backed Securities, Asset-Backed Securities, and Securitization

Topics
- Agency Mortgage-Backed Securities
- Collateralized Mortgage Obligations
- Stripped Mortgage-Backed Securities
- Non-Agency MBS
- Commercial MBS
- Asset-Backed Securities
- Collateral Debt Obligations
- Analysis of Asset-Backed Securities

SLO
- Analyze MBS and ABS in terms of their features

Readings and Assignment:
- Johnson, Debt Market and Analysis, Chapter 10
- PPT: Chapter 10
- Chapter 10 and accompanying PPT
- End-of-Chapter Problems
- Bloomberg Exercises

Module 6: Commercial Banking and Federal Reserve

Topics
- History of Commercial Banking
- Types of Banking
- Sources and Uses of Fund
- Bank Holding Companies
- Structure of FRS
- Federal Reserve Policies
- Money Multiplier
- History of Banking and Financial Events and Crisis

Readings and Assignments
- PPT: Banking and the FRS
- Document: History of Banking Events and Crisis
Module 7: Swaps

Topics
- Interest Rate Swaps
- Forward Swaps and Swaptions
- Valuing Swaps
- Currency Swaps
- Credit Default Swaps

SLOs
- Use derivatives to change the return-risk features of a fixed-income portfolio
- Explain how complex debt structures are constructed

Readings and Assignments
- Johnson, *Debt Markets and Analysis*, Chapter 14
- PPT: Chapters 14
- End-of-chapter problems
- Bloomberg Exercises

Module 8: Debt Derivatives

Topics
- Caps
- Floors
- Collars
- Interest Rate Futures: Applications and Pricing
- Interest Rate Options: Fundamentals
- Interest Rate Options: Applications

SLOs
- Use derivatives to change the return-risk features of a fixed-income portfolio
- Explain how complex debt structures are constructed

Readings and Assignments
- Johnson, *Debt Markets and Analysis*, Chapters 11 and 12
- Johnson, Derivatives, New Chapters 4 and 6 (Drafts)
- PPT: Chapters 11 and 12
- End-of-chapter problems
- Bloomberg Exercises
TESTS AND GRADING

1. **Tests**: Tests will be based on material from lectures, readings, and problems. There will be two exams during the semester and a final.

   - Test 1: 25%
   - Test 2: 25%
   - Final: 30%
   - Problems: 10%
   - Bloomberg Assignments: 10%

2. **Make-Up Tests** will be given only to students who receive permission from me in advance of the test date.

3. **Modifications**: The course is subject to modification during the semester.

4. **Grading Scale**:

   - 93-100: A
   - 89-92: A-
   - 85-88: B+
   - 80-84: B
   - 77-79: B-
   - 74-76: C+
   - 65-73: C
   - 50-64: C-
   - 40-49: D
   - 0-39: F