北京大学 汇丰商学院
Peking University HSBC Business School

Fixed Income Securities

Block 4, 2019-2020

Course Information

Instructor: Domenico TARZIA
Office: PHBS Building, Room 654

Phone: 86-755-2603-3375

Email: dtarzia@phbs.pku.edu.cn

Office Hour: By appointment

Classes:
Lectures: Monday-Thursday: 06:30-8:20 (GMT), 13:30-15:20 (CST)

Wednesday 13/05: 06:30-8:20 (GMT), 13:30-15:20 (CST)

Wednesday 27/05: 06:30-8:20 (GMT), 13:30-15:20 (CST)

Venue: Online Teaching

1. Course Description

1.1 Context

Course overview:

This course provides students with detailed understanding of fixed income securities, covering the valuation and risk management of the key fixed income products – bonds, futures, options and swaps. In the first half of the course, we focus on yield curve construction, duration and convexity, and formal term structure model; in the second half of the course interest rate derivatives such a interest rate swaps, interest rate options and futures are analyzed. The aim is to provide the students with the concepts and tools required to price and manage risk of fixed income securities, their derivatives, and their portfolios.

Prerequisites:

Students should have a good knowledge of basic finance concepts, including risk, return, arbitrage, efficient markets, and the time value of money. In addition, a course in Derivatives and Probability Theory would be useful.

1.2 Textbooks and Reading Materials

Required Texbooks:

- Tuckman, B. and Serrat, A., "Fixed income securities: Tools for today's markets", 3rd edition, 2011, (TS). ISBN-10: 9780470891698, ISBN-13: 978-0470891698.

Additional readings and material:

The instructor will post additional material on the course management system (CMS). The course name is "Fixed Income Securities", the code is "UK19B405".

2. Learning Outcomes

2.1 Intended Learning Outcomes

Learning Goals	Objectives	Assessment (YES with details or NO)
1. Our graduates will be effective communicators.	1.1. Our students will produce quality business and research-oriented documents.	YES, since they will be exposed to fundamental theories in the field
	1.2. Students are able to professionally present their ideas and also logically explain and defend their argument.	NO
2. Our graduates will be skilled in team work and leadership.	2.1. Students will be able to lead and participate in group for projects, discussion, and presentation.	YES, since students will receive problem sets to be solved
	2.2. Students will be able to apply leadership theories and related skills.	NO
3. Our graduates will be trained in ethics.	3.1. In a case setting, students will use appropriate techniques to analyze business problems and identify the ethical aspects, provide a solution and defend it.	NO
	3.2. Our students will practice ethics in the duration of the program.	NO
4. Our graduates will have a global perspective.	4.1. Students will have an international exposure.	YES, since international bonds markets will be discussed
5. Our graduates will be skilled in problem-solving and critical thinking.	5.1. Our students will have a good understanding of fundamental theories in their fields.	YES, since they will learn how to value fixed-income securities
	5.2. Our students will be prepared to face problems in various business settings and find solutions.	NO
	5.3. Our students will demonstrate competency in critical thinking.	NO

2.2 Course specific objectives

Students will be able to understand the main concepts underlying fixed income securities; and apply those concepts and skills to their own research. The course is designed so that they will be able to:

- Develop the analytical tools used in interest rate modelling and understand what drives changes in yield curves and the term structure of interest rates.
- Familiarize students with concepts and tools required to price and manage risk of fixed income securities.
- Understand the mechanics of structured products related to fixed income securities and their derivatives.

2.3 Assessment/ Grading Details

Assessment Task	**Weighting**
In-class Participation and Problem Sets	30%
Midterm Exam	30%
Final Exam	40%
Total	100%

In-class Participation:

Students must be regular in class attendance. Fully attendance is required, and everyone is expected to actively participate in the class discussions.

Problem Sets:

Plagiarism is strictly punished. Late submission is unacceptable and will not be graded. Problem sets contain computational exercises. Instructions and deadlines about the problem sets will be given later on by instructor and available on the course management system.

Exams:

Midterm and final exam will be take-home exam. Instructions and deadline about midterm and final exams will be given later on by instructor and available on the course management system.

2.4 Academic Honesty and Plagiarism

It is important for a student's effort and credit to be recognized through class assessment. Credits earned for a student work due to efforts down by others are clearly unfair. Deliberate dishonesty is considered academic misconducts, which include plagiarism; cheating on assignments or examinations; engaging in unauthorized collaboration on academic work; taking, acquiring, or using test materials without faculty permission; submitting false or

incomplete records of academic achievement; acting alone or in cooperation with another to falsify records or to obtain dishonestly grades, honours, awards, or professional endorsement; or altering, forging, or misusing a University academic record; or fabricating or falsifying of data, research procedures, or data analysis.

All assessments are subject to academic misconduct check. Misconduct check may include reproducing the assessment, providing a copy to another member of faculty, and/or communicate a copy of this assignment to the PHBS Discipline Committee. A suspected plagiarized document/assignment submitted to a plagiarism checking service may be kept in its database for future reference purpose.

Where violation is suspected, penalties will be implemented. The penalties for academic misconduct may include: deduction of honour points, a mark of zero on the assessment, a fail grade for the whole course, and reference of the matter to the Peking University Registrar.

For more information of plagiarism, please refer to PHBS Student Handbook.

3. Topics, Teaching and Assessment Schedule

Part I: Pricing of Securities with Fixed Cash Flows		
April 27	Introduction to the Bond Market.	
April 30	Basic Bond Pricing Concept	Chapter 1 (TS)
May 4	Spot, Forward and Par Rates	Chapter 2 (TS)
May 7	Returns, Spreads and Yields	Chapter 3 (TS)
Part II: Measure of Interest Rate Risk and Hedging		
May 11	Duration, Convexity, and Other Basic Risk Measures	Chapter 4 (TS)
May 13	Key-rates Exposure and Partial Duration	Chapter 5 (TS)
May 14	Empirical Approaches to Risk Metrics and Hedging	Chapter 6 (TS)
May 18	**Midterm Exam**	
Part III: Term Structure Models		
May 21	Term Structure Models	Chapter 7 (TS)
May 25	The Shape of the Term Structure	Chapter 8 (TS)
May 27	Gauss and LIBOR Market Model	Chapter 11 (TS)

Part IV: Fixed-Income Securities		
May 28	Repurchase Agreements	Chapter 12 (TS)
June 1	Forwards and Futures	Chapter 13 (TS) Chapter 14 (TS)
June 4	Short-term Rates and Their Derivatives	Chapter 15 (TS)
June 8	Swaps	Chapter 16 (TS)
June 11	Fixed Income Options	Chapter 17 (TS)
June 15	Corporate Bonds and Credit Default Swaps	Chapter 19 (TS)
June 18	Mortgages and Mortgages-Backed Securities	Chapter 20 (TS)
Final Exam		