

# National University of Singapore Business School

## Department of Finance

### FIN3717 – Fixed Income Securities (Semester 2, 2022-2023)

Instructor: Professor Andrew Lim

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Class-Time: Tuesday, 12pm – 3pm

Class Location: BIZ1 03-02

Office hours: By appointment.

#### Module Description:

This module focuses on the valuation of fixed income securities, such as bonds, bond derivatives, interest rate derivatives, interest rate swaps, mortgages, and asset-backed securities. We will focus mainly on the valuation of these instruments and on interest rate risk and how to manage it.

#### Prerequisites

Fixed income is a quantitative field. You should be comfortable with tools for the analysis of data; familiarity with *Microsoft Excel* will be needed. Knowledge of standard financial concepts such as market efficiency and arbitrage will be assumed. You should have taken one basic finance module and one module in Investment Analysis or the equivalent.

#### Class Materials

Presentation material from class will be provided on Canvas, as will homework and supplementary materials.

Textbook: The text for this class is *Fixed Income Securities*, by Pietro Veronesi, Wiley (2010). The (tentative) module outline below includes chapter references for material from this book related to each topic. The book is pretty good.

There are several other books with similar coverage of topics, by authors such as Frank Fabozzi, Tuckman and Serrat, or Suresh Sundaresan. You are certainly free to look at these books if you find it helpful.

## Grading:

### Approximate grading policy

- Problem sets/projects/cases: 30% - students may do assignments individually or in groups of up to 3 members. No extra credit is given for working individually or in smaller groups. I find that concepts and ideas are best absorbed when homework is regular and in manageable chunks. It also helps you prepare for the in-class cases.
- In-class cases: 60% - There are two in-class cases, each worth 30%.
- Class participation: 10%

The final weighing that is used might vary modestly from that stated above.

The tests are to be taken at the scheduled time, and late assignments cannot be accepted. In case of exceptional circumstances (e.g., illness/injury, family bereavement, etc.), if solutions to a given test or homework have already been distributed or discussed in class, then either a make-up test or assignment will be given, or the credit will be added to another component of the grade, depending on the situation. Obviously, drama and life are not always predictable, and if you have some issue which prevents you from taking an in-class test at the scheduled time, please inform me as soon as you are aware of the situation. It is usually much easier to deal with such situations before the test than after.

### In-class case studies:

The first in-class case is scheduled for the class session on Tuesday February 28 (the week after Recess Week). The second in-class case is scheduled for the April 11 class session (the last one of semester).

### Assignments:

All members of a group will receive the same grade for a given case or assignment. Each group should submit a single copy of the work, containing the names of all group members.

Submit assignments electronically through Canvas. If the solution requires use of Excel, submit the spreadsheet as well as a separate document that summarizes the solution. (It can be difficult to find a solution in an Excel file so try to help the grader).

### Acknowledgements:

The module description and contents build on a previous version of the module offered by Professor Anand Srinivasan and Professor Robert Kimmel of the NUS Business School Department of Finance.

## Module contents:

Chapter references are from Veronesi. Adjustments might be made during the course if the pace is faster/slower than expected.

- (I) Overview of Fixed Income Markets
  - a. Chapter 1
    - A brief overview of the history and current state of fixed income securities and the markets in which they trade
- (II) Basics of Fixed Income Securities
  - a. Chapter 2
    - Discount factors, interest rates, term structure of interest rates, coupon bonds, floating rate bonds
- (III) Basics of Interest rate risk management
  - a. Chapter 3: Duration, interest rate risk management with dynamic immunization
  - b. Chapter 4: Convexity, duration-convexity hedging, barbell-bullet strategy
- (IV) Forwards and swaps
  - a. Chapter 5: Forward rates and forward discount factors, forward rate agreements, forward contracts, interest rate swaps, risk management with swaps
- (V) Term structure of interest rates
  - a. Chapter 7.3: Expectations hypothesis, risk aversion, risk premium
- (VI) Mortgage backed securities
  - a. Chapter 8.

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Plagiarism is 'the practice of taking someone else's work or ideas and passing them off as one's own' (The New Oxford Dictionary of English). The University and School will not condone plagiarism. Students should adopt this rule - You have the obligation to make clear to the assessor which is your own work, and which is the work of others. Otherwise, your assessor is entitled to assume that everything being presented for assessment is being presented as entirely your own work. This is a minimum standard. **In case of any doubts, you should consult your instructor.**

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<http://www.nus.edu.sg/registrar/adminpolicy/acceptance.html#NUSCodeofStudentConduct>

Online Module on Plagiarism:

<http://emodule.nus.edu.sg/ac/>