

New Economic School
Fixed Income instruments 2020

SYLLABUS

Instructor:

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TBD

The course is designed to provide a solid framework for the practical analysis of fixed income instruments. While the primary focus is the valuation of cash and derivative instruments and their real world applications, the course also applies to the general principles of the credit analysis & basic concepts of the portfolio management.

We'll cover three major topics: Bonds, Forwards/Swaps and Credit instruments. More specifically we'll cover

- ✓ Basic money market instruments and bonds;
- ✓ Basic fixed income derivatives: swaps and forwards;
- ✓ Valuation of fixed income instruments (is a MUST). Following the lectures you should be able to calculate bond and swap prices, duration, understand swap and zero curves, nature of shifts in the yield curve, applications to hedging;
- ✓ Concepts of no-arbitrage for the derivative pricing;
- ✓ Corporate, credit spreads and basic credit derivatives;
- ✓ Floating rate and inflation linked bonds;
- ✓ Structured bonds;
- ✓ Bond portfolio and indices;
- ✓ Bond portfolio management strategies.

Grading

Your course grade will be determined by results of your quizzes, case preparation, class participation & final exam.

(15%) Quizzes. You'll have 3-4 10-min in-class quizzes. Don't be shy, don't panic, it is just a simple check of the lecture materials we discussed at the previous classes.

(35%) Homeworks

(50%) Final exam covers core topics from the course. It'll test your ability to apply the basic concepts of fixed income theory we discussed to practical problems.

Class schedule

Class 1. Intro to debt instruments and Bond fundamentals

Types and features of debt securities
Discounting
Money market instruments
Money market indicators
Fundamentals of bonds
Bond's math: yield, duration and convexity

Class 2. Bond math contd + Fundamentals of swaps and forwards

Bootstrapping zero curve
REPO and reverse REPO
Bond strategies
Interest rate and FX forwards
Interest rate parity
Applications and hedging

Class 3. Advanced bonds and swaps

Basic derivative instruments: IR and FX (CS) swaps
Fundamentals of swap valuation
REPO, Bond and Swap strategies
Interest rate risk bucketing
Applications and hedging

Class 4. Basic credit instruments: bonds and derivatives

Corporate bonds
Credit spreads explained
Asset swaps
Credit default swaps and survival curve bootstrapping

Class 5. Bond portfolios

Bond portfolio fundamentals
Yield and risk metrics
Introduction to bond indices
Bond portfolio risk management

Class 6. Exotic bonds

Floating rate bonds
Inflation linked bonds

Class 7. Interesting cases, commodity instruments, non-linear instruments

Commodity instrument features
Basics of non-linear fixed income instruments
Applications and hedging

Course materials

Recommended textbooks and materials

For bonds and basic fixed income instruments the Fabozzi's book (1) is a good one-stop shop. For derivative instruments the book by Hull (2) is a standard go-to textbook for the introductory course on financial instruments and derivatives. The other book (3) though less known is written with passion for the subject of derivatives and a bit more practical.

1. F.J. Fabozzi, The handbook of Fixed Income Securities, McGraw Hill
2. Hull, Options, Futures, and Other Derivatives, Prentice-Hall
3. Neftci, Principles of Financial Engineering, Elsevier