

FNCE 394/894: Managing Fixed-Income Portfolios
Spring 2010
Syllabus

Instructor: Prof. Scott Richard
Office: 3257 SH-DH
Phone: (215)-898-3004
Email: scottri@wharton.upenn.edu

Office hours are Tuesday, 1.30 – 3.00 pm. Please make an appointment by email if you like to meet with me outside of office hours.

Prerequisite: FNCE 235/725 Fixed Income Securities

Required Text: Fixed Income Markets and Their Derivatives, 3rd Edition, by Suresh Sundaresan

Course Description: The goal of this course is to teach you how to manage a real portfolio of high grade bonds. We begin by learning how to infer market forecasts from current bond prices. We use analytical models to find the market forecasts and the prices the market is offering for bearing the different types of risks. To implement the concepts learned in class, students will form teams to manage a paper portfolio using Barclays Point (formerly Lehman Point) a state-of-the-art portfolio management system.

We begin by relating the term structure of interest rates to the market's view of the fundamental macroeconomic states of growth and inflation. To do this we need to understand a multifactor term structure model, which extends the Vasicek model you studied in the prerequisite course.

Any bond which is not a Treasury has an embedded option, either to default, prepay, or in some other way reduce the promised payments to bondholders. After we review the Black-Scholes model, we turn to Merton's model of corporate liabilities. Merton's model, and its extensions, is currently the state of the art in asset management firms for valuing bonds which have default risk. We apply Merton's model to the valuation of corporate bonds and CDS. Understanding Merton's model allows us to link market forecasts in the corporate bond market (or CDS market) with forecasts in the stock market. If there is a discrepancy in these forecasts, there is usually a profit opportunity.

Next, we turn to the valuation of agency MBS which requires you to learn about Monte Carlo simulation and homeowner prepayment modeling. The agency MBS market is second only to the US Treasury market in size, liquidity and economic importance. Because a government agency guarantees the timely payment of principle and interest, the dominant risk in a MBS is prepayment risk, i.e., that homeowners will choose to prepay when you do not want them to.

Finally, we bring everything together to analyze how to construct portfolios with desirable risk/return profiles. We will emphasize building the cheapest portfolio in which we bear risks that are offering an unusually high expected return.

Barclays POINT System:

Barclays Capital has generously offered Wharton a rare opportunity to use a real-world state-of-the-art bond portfolio system in the classroom. Your investment team will begin with a portfolio that mimics the Barclays Aggregate Index of investment grade US dollar denominated bonds. You will be able to trade this portfolio every day at real world prices. Your goal is to outperform the Barclays Aggregate Index over the semester. You will have the full use of the Barclay analytics to help you analyze potential trades. In a departure from real world money management, you will be graded on your analysis rather than your performance. (Even the best designed portfolio can suffer setbacks in only four months.) This is the key feature of this course so please make sure you attend the training session and become familiar with the POINT system.

Lectures and Presentations: The course is a combination of lectures by me and presentations by you. We meet 28 times during this semester, of which 22 are lectures and discussions, and 6 in-class team presentations. Class participation is encouraged and will affect your grade.

FNCE 894 Tu/Th 9:00 -10:20 am

FNCE 394 Tu/Th 10:30 -11:50 am

Location of lectures: to be announced

Course Materials

1. This is a new course, so I will be developing the course notes as I present the material. I will make the notes available to you electronically before each class.
2. There is a textbook for the course, available at the bookstore: Fixed Income Markets and Their Derivatives, 3rd edition, 2009 by Suresh Sundaresan. The book is meant as preliminary background reading for the lectures. You will find it most helpful if you read the chapter in a preliminary way prior to class.
3. There are two recommend text books: Fixed Income Securities: Valuation, Risk, and Risk Management, 2009, by Pietro Veronesi; and Quantitative Management of Bond Portfolios, 2007, by Dynkin, Gould, Hyman, Konstantinovsky, and Phelps.

Grades

There are two mandatory team presentations shown on the schedule below. Each presentation will last 30 minutes and will determine 30% of your grade. Your written analysis of a trade of your choosing will determine another 30% of your grade. The remaining 10% will be based on your class participation.

Class	Date	Topic (Chapters refer to the textbook, Fixed Income Markets and Their Derivatives)
1	Jan 14	Overview of this course. Review of basic fixed income markets. Organizing investment teams. (Chs. 1 & 2)
2	Jan 19	US Macroeconomic Data
3	Jan 21	Estimating a model of the US Economy
4	Friday Jan 22	MANDATORY EXTRA CLASS on Friday. Tutorial on Barclays POINT system. This class will meet all day.
5	Jan 26	Review of Initial Portfolios and the Barclays Aggregate Index (Ch. 7)
6	Jan 28	The Taylor Rule. (Ch 3.)
7	Feb 2	A Multifactor Normal Model of the Term Structure (Chs. 8 & 9)
8	Feb 4	Term Structure Model Continued
9	Feb 9	Extracting Market Forecasts of Inflation and Growth from the Term Structure
10	Feb 11	The Real Term Structure and TIPS (Ch. 13)
11	Feb 16	LIBOR and ED futures (Chs. 14 & 15)
12	Feb 18	Interest Rate Swaps (Ch. 16)
13	Feb 23	Treasury Futures (Ch. 17)
14	Feb 25	Team Presentations on Term Structure Management
15	Mar 2	Team Presentations on Term Structure Management
16	Mar 4	Team Presentations on Term Structure Management
17	Mar 16	Credit: The Merton Model (Ch. 10)
18	Mar 18	Credit, Continued
19	Mar 23	Credit Default Swaps (Ch. 18)
20	Mar 25	The US Agency and Mortgage Markets (Ch. 11)
21	Mar 30	MBS (Ch. 12)
22	Apr 1	Evaluation of MBS: Prepayment Models
23	Apr 6	Evaluation of MBS: Simulation Models
24	Apr 8	Portfolio Construction
25	Apr 13	Risk Management
26	Apr 15	Team Presentations on Spread Product Strategy
27	Apr 20	Team Presentations on Spread Product Strategy
28	Apr 22	Team Presentations on Spread Product Strategy

This schedule is tentative. We will revise it as necessary as the course progresses.