SAMPLE SYLLABUS

Stern School of Business
New York University

B40.3333 **Professor Merrick**
Debt Instruments and Markets **Fall 2000**

Office: KMC 7-73
Office Hours: Tues: 3:30 - 5:30; Wed: 4:45 – 5:45.
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Course Description

This course analyzes fixed income securities: their cash flows, market characteristics, fair valuation and associated derivatives. We first review the alternative types of securities, their cash flows, and the structure and operation of their markets. Next, we discuss traditional concepts of bond yield, duration and convexity. Then, we introduce the repo market and the forward pricing of bonds for deferred settlement dates.

With these basic ideas established, we turn towards more refined relative value concepts that develop spot, coupon, par and forward yield curves. We use this language of yields and other tools to discern relative richness and cheapness among alternative securities. Examples are drawn from US Treasury securities as well as government securities in the major non-dollar markets (e.g., Japan; the Euroland majors: Germany, France and Italy; and the UK). Bond portfolio switches and leveraged bond trades are discussed.

Next we discuss the dimensions of interest rate risk and explore refined concepts and techniques of risk management. We study the problem of managing a fixed income portfolio against a benchmark bond index.

We examine bond futures contracts: their pricing, uses, and impacts on the underlying cash bond markets. We then analyze Libor-based interest rate products: Eurodeposit futures and interest rate swaps. This derivatives section closes with an examination of options on fixed income securities and the use of option pricing theory to value bonds with embedded option features.

Finally, we discuss the implications of default risk. We examine bond default and recovery value experience. We then discuss approaches to credit-based models of yield spreads. A natural conclusion to the course will be a discussion of the causes, characteristics and consequences of the fixed income market "seizure" of 1998.

Textbooks

Fabozzi, F., **Bond Markets, Analysis and Strategy**, Prentice Hall, 1999.

Garbade, K., **Fixed Income Analytics**, MIT Press, 1996.

Other readings (handed out in class) will be assigned.
Most lecture slides will be made available on the web. Others will be handed out in class.

Topic Outline

Part I. Fixed Income Securities and Basic Yield Concepts

1. US Treasury, corporate and mortgage securities: their cash flows and markets
2. Non-dollar government markets: Japan; Euroland majors: Germany, France and Italy; and the UK
3. Time value of money, discounting and quoting conventions
4. Bond Yield
5. Duration and Convexity
6. Financing bond positions and pricing bonds for forward settlement

Readings: Fabozzi, Chapters 1-4. Garbade, Chapters 1-6.

Part II. Relative Value

1. Yield curve representations: spot, coupon, par and forward curves
2. Identifying rich versus cheap bonds
3. Stripping and reconstituting Treasury securities
4. Bond spread trades: switches, butterflies and boxes

Readings: Fabozzi, Chapter 5 and 6. Garbade, Chapters 7 and 10.

Part III. Risk and Portfolio Management

1. The behavior of interest rates
2. Dimensions of yield curve risk
3. Multiple-factor approaches to hedging bond risks
4. Managing fixed income portfolios versus a bond index

Readings: Fabozzi, Chapters 17-20.

Part IV. Futures, Swaps and Options

1. Bond futures: terms, pricing, basis trading and bond position hedging
2. Delivery dynamics and market distortions
3. Eurodeposit futures and TED spreads
4. Interest rate swaps and the behavior of bond-swap spreads
5. Debt options
6. Bonds with embedded option features

Readings: Fabozzi, Chapters 21-23, 14.

Part V. Credit Risk

1. Default risk and recovery value experience: US corporate bonds
2. Credit spreads
3. Credit/Liquidity crisis of 1998

Readings: Fabozzi, Chapter 7.

Evaluation

Grades will be based on a Midterm Examination (45%), Final Examination (45%) and homework exercises (10%). You may bring a calculator (but not a computer) and one sheet of formulas (two-sided) into the exams. Homework will not be accepted after the class meeting at which it is due.