Financial Risk Management
Summer 2009

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M, W 6pm – 10pm
Room: Melcher 118

Course Objective

Our aim is to become familiar with the theory and practice of managing the risks associated with professional securities trading. We begin with a review of the people, places and mechanisms involved in financial asset trading. We will then identify the primary problems facing risk managers and the tools they use to manage risk. We discuss derivatives contracts such as futures and options. We introduce the leading methods used to value such contracts. We go over the proper and improper uses of derivatives for hedging and speculating.

Prerequisites

FINA 6335 Managerial Finance

Reading Material

Our main text will be a set of handouts which you will receive in a loose leaf. In addition some optional references you might want:

1. Crouhy, Mark, Galai (2001). *Risk Management*, McGraw-Hill.

2. Hull, John C. (2008). *Options, Futures and Other Derivatives*, Prentice-Hall.

3. Lowenstein, Roger (2001). *When Genius Failed: The Rise and Fall of Long-Term Capital Management.* Random House.
   Jorion, P. (1995). *Big Bets Gone Bad: Derivatives and Bankruptcy in Orange County*. Academic Press.

How You Are Graded

The examinable material for this course includes the topics that are covered in class.
Exam policies: All exams and problem sets must be finalized within a week of the return of the work (i.e., complaints, disputes, questions settled). Assessment for this course will be:

Assignments	30 percent
Mid-term Exam	25 percent
Final Exam	25 percent
Class Participation	20 percent

Homework Sets

There will be three homework sets. The planned due dates are indicated below. Two of the homeworks are based on spreadsheet data that will be available on my webpage, and the other is a problem set. If scheduling permits, we may have a fourth towards the end of the class.

Class participation

This reflects the degree of verbal participation during class, especially while we discuss the homeworks. I will look for whether the student voluntarily offers ideas, suggestions, questions or comments. Students who never participate voluntarily will not do well in this course.

Class Schedule & Assignments (subject to change!)

Class 1, Securities trading

We go over the basic stylized facts of asset prices and their returns. We discuss how asset prices behave, who trades such assets and why they are trade. We look at the players, get familiar with the different asset markets and their regulatory bodies. We talk about where assets trade and how such trades are executed.

- Reading for classes 1-2: handouts 1 and 2
- HW 1 will be assigned, due class 3.

Class 2, Asset pricing

We review the basics of present values. We show how the Gordon Growth model and P/E ratios can be derived from present value models. We give a short overview of the historical P/E ratios on U.S. stock markets. We talk about asset price crashes and psychological aspects of trading.

- Reading for class 3: handouts 3-4

Class 3, **Introduction to risk management and risk measurement**

We compare and contrast the various different hedging instruments including forwards, futures, options and collars. We discuss when and how much to hedge, and when and why you should manage risk. We discuss the concept of risk management as it relates to maximizing the NPV of the firm. We will talk about the taxonomy and nature of the various forms of financial asset risk.

- HW 1 due: verifying the stylized facts of asset returns
- HW 2 will be assigned, due class 6
- Reading for class 4: handout 5

Class 4, Arbitrage and Futures Contracts

We will introduce the idea of arbitrage and motivate it with some simple examples. We use the simplest of all derivatives, futures contracts, to illustrate more advanced applications of arbitrage. We will go over the definition and properties of futures contracts, and look at examples of where and how they trade.

- Prepare for midterm

Class 5, Midterm exam

- Read handout 6

Class 6, Options I

We will define financial option contracts and discuss the properties and uses of option contracts. We will go over option-related terminology. Some examples of leading option contracts will be given.

- Read handouts 7-8

- HW 2 due: transaction risk problems
- HW 3 will be assigned, due class 8

Class 7, Options II: Pricing

We will go over the leading methods for pricing, or figuring out the market value, of option contracts. We first discuss valuation by replication and then risk-neutral valuation. We introduce binomial tree simulations and formulas like Black-Scholes.

- Read handouts 9-10

Class 8, Swaps and Structural Mismatches.

Introduction to swaps and their use in mitigating the risk associated with a firm that has a structural mismatch between their revenue base and cost base.

- HW 3 due: getting familiar with options data
- Read handouts 11-12

Class 9, Volatility and Value-at-Risk

Focus on the problem of trying to predict the volatility of asset prices and interest rates. Value-at-Risk is a more advanced risk measurement tool which can be estimated and used to predict downside portfolio risk.

- Read handout 13

Class 10, Credit Risk

We will explore the nature of credit risk, as distinct from market risk which we talk about in the first several classes. Measures of credit risk are introduced, and then discussion of managing credit risk.

Class 11, Final Exam

Syllabus at-a-Glance

Date	Topic	Reading&Assignments
Jul 6-8	Overview of securities trading and asset pricing.	Reading: Handouts 1-2
Jul 13-15	Introduction to risk management.	HW 1 due 7/13 Reading: Handouts 3-4
Jul 15	Arbitrage and Hedging	Reading: Handout 5
Jul 20	Midterm Exam	
Jul 22- 27	Option pricing	HW 2 due 7/22 Reading: Handouts 6-9
Jul 29	Swaps	HW 3 due Reading: Handout 10
Aug 3	Volatility and Value-at-Risk	Reading: Handouts 11-12
Aug 5	Credit Risk	Reading: Handout 13
Aug 6 or 7	Final Exam	

Academic Honesty:
The University of Houston Academic Honesty Policy is strictly enforced by the C.T. Bauer College of Business. No violations of this policy will be tolerated in this course. A discussion of the policy is included in the University of Houston Student Handbook, http://www.uh.edu/dos/hdbk/acad/achonpol.html. Students are expected to be familiar with this policy.

Accommodations for Students with Disabilities:
The C. T. Bauer College of Business would like to help students who have disabilities achieve their highest potential. To this end, in order to receive academic accommodations, students must register with the Center for Students with Disabilities (CSD) (telephone 713-743-5400), and present approved accommodation documentation to their instructors in a timely manner.