

University of Pennsylvania

The Wharton School

FNCE 238/738
Professor Robert B.H. Hauswald

Funding Investments
Spring 2009

Preliminary

1 Overview

The modern business environment is evolving ever more rapidly forcing companies constantly to adapt the funding of their operations to market conditions, risk-management needs, and investment opportunities. This course familiarizes students with the different funding techniques available to corporations, with particular attention to credit risk. Given their economic environment, we will discuss appropriate financial strategies that enable companies to raise the funds they need to successfully operate with a particular focus on the pricing and design of securities and risk management.

Taught from a life-cycle of the firm perspective, we will first discuss the funding of young companies through private equity and bank loans (private debt) followed by the raising of public equity by growing firms through IPOs. Next, we cover the external financing of mature companies in domestic and global bond markets and how firms use debt issuance to address financial and operating risks at the same time. Finally, we discuss credit risk and wrap up the course with an exploration of project finance, a financing technique to fund large, stand-alone investment projects which bring together all aspects of the course.

2 Objectives

This course develops financial-valuation and security-design concepts for firms ready to fund their operations. It draws on some material which is covered in more detail in *Advanced Corporate Finance* (capital-structure design, real options), *Derivative Securities* (options analysis), and *Fixed Income* (fixed-income pricing, swaps, credit-risk analysis). Its central theme are security pricing and design, integrated funding and risk management, and financial strategy. Students should expect to become familiar with

1. financial and real options in corporate finance;¹
2. fixed-income analysis and securitization;
3. interest and foreign-currency swaps;
4. default analysis and credit risk.

¹It might be a good idea to collect valuation model spreadsheets into a library that might be useful later in your professional life when you have to deal with such calculations on a routine basis.

3 Requirements and Grading

I will assume that you are intimately familiar with the material covered in your basic corporate finance course and textbook (FNCE 100/601). If not, you should start reminding yourselves of the foundations of modern finance. In addition, you should be comfortable with basic statistics (e.g., regression analysis, conditional distributions) as well as basic algebra and calculus. The course consists of a combination of lectures, case discussions, midterms, and homework.

There are two *midterm exams* (25% each), both of which are mandatory, on **March 03** and **April 16** so that you should save the dates. If you anticipate being unable to make either ones of these dates, you should drop the course at this point. No excuses will be accepted; in particular, I will not accept a note simply stating that the student went to the hospital as an excuse for not taking the exam. The only valid reason for not taking the exam is a true medical emergency in which case you must have a signed note from a medical doctor stating that you are/were physically unable to take the exam. You will be allowed a one-page, letter-sized, hand-written, nonmodified note sheet.

Any requests for *regrading* of exams must be submitted in writing within one week from the date that exams are returned in class. The one-week period for submission of exams for regrading begins on the date that the exams are returned in class, not on the date that you pick up the exam if for some reason you are absent at that date. If you miss the class during which the exams are returned, it is your responsibility to pick up your graded exam within the one-week period. Requests for regrading must be very specific. Do not mark or make notes on your exam, and do not alter in any way the answers to the questions. When you request a regrade, I will in all likelihood regrade your entire exam to be sure that mistakes were not made elsewhere, either in your favor or against you. As a result, please be aware that your exam score may rise or fall as a result of regrading.

Cases make up 25% of the overall grade and consist of *write-ups* (up to two pages of analysis and 6 pages of appendices) and class discussion. The write-ups are due at the beginning of the class for which discussion is scheduled and should be prepared in groups of *maximally 5 students*. You may find it advantageous to form stable groups early on. Students' full participation in the case preparation will be assessed through peer evaluations which directly affect your individual case.

Five *homework assignments* (25%) round out the grade composition. Like the midterms they are students' individual responsibility so that no joint work will be accepted. There is a total of six mandatory homework sets but I will drop the lowest grade. As a result, absolutely no late homework will be accepted for any reason. Your assignments are to be handed in as hard copies (absolutely no email submission accepted) at the beginning of the class for which the assignment is due. *Class participation* and, especially, case discussion counts at the margin.

Cases: 5 write-ups (5% each)	25%
Midterm: 2 tests	50%
Assignments: 5 out of 6	25%

Enrolment in this class means that you accept the conditions of the university's Honor Code. All work turned in for this course must be your own or that of your group. Working as part of a group implies that you are an active participant and fully contributed to the output produced by that group. Also, as many of you are aware, some of the material discussed or analyzed in this course may overlap with that covered in other courses, or covered in previous semesters. Be advised that you are not to seek materials from other courses or from previous years in analyzing these cases, and that doing so will be construed as a violation of the school's code of academic

integrity. Similarly, referencing old answer keys or submitted work from earlier versions of this class in solving homeworks is not permitted.

4 Case Preparation

The case studies are meant to provide examples of companies or individuals that have faced the very topics at hand and to apply theoretical tools to real problems. On the course website, you can find questions and ideas that you may use as guidelines for analyzing the case. Do NOT just answer the questions in a 1, 2, 3, 4 format. Write up the case analysis as an executive memo or other business document. The following ground rules apply:

1. The cases may be done in groups with all group members receiving the same grade for the write-up. For the case write-ups it is not necessary (but, for obvious reasons highly recommended) to work in stable groups. If your name is on the report as part of the group, it means you participated in the analysis. The maximal *group size* is 5 students. I will not tolerate any shirking or free-riding on team members when it comes to the case studies; your full participation in the case preparation will be assessed through *peer evaluations* that directly affect your individual case grades.
2. The case write-up is a two-page single-spaced (maximum) report with up to six pages of analytic appendices (exhibits such as graphs and tables). The case write-up should be typed in 12 point type with one inch margins, contain section headings, and have the look and feel of a professional document.
3. The case instructions and discussion questions are designed to highlight the issues. If you believe that these questions do not effectively address the problems in the case, feel free to go outside the parameters of the instructions.
4. It is not necessary to rehash the case situation in your write-up. Do not, however, assume that I know every single number and detail. Use your best judgment on how much of the case to include in your write-up.
5. Most importantly, you must take a position regarding the problem in the case and make specific recommendations on how to solve it. Support your recommendation as succinctly and as effectively as you can.

5 Logistics

Class	TR@ 12pm, 1:30pm, and 4:30pm, JMHH 250
Website (URL)	webCafé
Midterms	March 03 and April 16
Office Hours	Tue 3:00PM to 4:30PM, and by appointment
Office	SHDH 2333
Phone	215-898-1163
Fax	215-898-6200
E-mail	hauswald@wharton.upenn.edu
TAs	Ianina Lucca, David Retchkiman, Patrick Sim, Joshua Wool

6 Course Materials

There is no required text for the class. Class notes, selected handouts, and all other relevant documents will be posted on the course website (webCafé) together with the case and homework assignments. There will also be a case pack with the four Harvard cases; the last one is my own will be available on the website free of charge. It is your responsibility to access the academic articles available through the library's e-journal collection (at no cost to you); these readings are identified by the name and issue of the journal, and the page numbers. Downloading, printing, and *reading* the material before each lecture is student responsibility.

A useful reference is Brealy, Myers, and Allen, *Principles of Corporate Finance*, McGraw-Hill Irwin but any other corporate-finance textbook will also do. Most of the fixed-income and derivatives material can be found in Tuckman (2002), *Fixed Income Securities*, 2nd ed., Wiley, which is a great text for fixed-income analysis. Similarly, Finnerty, John D. (2006), *Project Finance. Asset-Based Project Financial Engineering*, 2nd ed., New York, Wiley provides an excellent introduction to the practice of project finance.

In addition, I would strongly encourage students to subscribe to the *Financial Times* to keep abreast of current events in corporate finance, financial markets, and business. Finally, you are expected to familiarize yourselves with the *Bloomberg* financial-information system which we will be very useful in this course. You need to create a user ID on our terminal to access a really nice set of online courses that teaches you a lot more about finance and financial markets than just using the Bloomberg computer terminal.

7 Course Outline

The schedule is preliminary as I might have to travel during the semester; also, securing interesting guest speakers might require rearranging later parts of the course. However, any changes will be announced well ahead of time.

I Introduction and Foundations

01/15 Introduction and Overview

Readings: TBA

01/20 Options Analysis: Binomial Models and Black-Scholes-Merton

Readings: Hauswald (2002), "Technical Note: Real Options Analysis," KSB-AU (FIN-02-002). Copeland and Keenan (1998), "Making Real Options Real," *McKinsey Quarterly* 1998 (3): 128-141.

01/22 Options in Corporate Finance

Readings: Mauboussin (1999), "Get Real: Using Real Options in Security Analysis," CSFB June 1999.

II Equity Capital

01/27 Start-up Finance

Readings: TBA

01/29 Case 1: Penelope's Personal Pocket Phones, HBS 1999 (9-299-004)

Readings: Jansen and Perotti (2002), "Valuation of Internet Companies: A Survey of the Evidence," mimeo, University of Amsterdam.

02/03 Raising Public Equity: IPOs

Readings: Jurin, Raising Equity in an Efficient Market. Ibbotson, Sindelar and Ritter, The Market's Problems with the Pricing of Initial Public Offerings.

02/05 Uses and Abuses

III Fixed Income

02/10 Fixed-Income Analysis

Readings: TBA

02/12 Bank Lending

Readings: Agarwal and Hauswald (2007), "The Choice between Arm's-Length and Relationship Debt: Evidence from eLoans," mimeo, AU.

02/17 US Treasury Securities

Readings: Milgrom, Paul, (1989), "Auctions and Bidding: A Primer," *Journal of Economic Perspectives* 3: 3-22.

02/19 Repos and Securities Lending

Readings: Lumpkin, Repurchase and Reverse-Repurchase Agreements (<http://www.richmondfed.org/publications/>)
Keane, Repo Rate Patterns for New Treasury Notes (http://www.newyorkfed.org/research/current_issues/ci2-10.pdf)

02/24 Case 2: Arbitrage in the Government Bond Market

Readings: TBA

02/26 Corporate Bonds

Readings: TBA

IV Funding and Risk Management

03/03 Midterm 1

In class, closed book and notes exam covering all material up to and including the previous class; one letter-sized page of handwritten, non-modified notes allowed.

03/05 Bond Covenants

Readings: Smith and Warner, On Financial Contracting: An Analysis of Bond Covenants, Journal of Financial Economics, June 1979, p117-161. Dailami and Hauswald (2003), “The Emerging Project-Bond Market: Covenant Provisions and Credit Spreads,” World Bank Policy Research Working Paper 3095, July 2003.

03/10 and 03/12 No Class: Spring-Break Recess

03/17 Callable Bonds and Convertibles

Readings: Brennan and Schwartz, The Case for Convertibles.

03/19 Foreign-Currency and Interest-Rate Swaps

Readings: TBA

03/24 Guest Lecture 1: TBA

03/26 Case 3: The Walt Disney Company’s Yen Financing, HBS 1987 (9-287-058)

03/31 Securitization

Readings: RBS Greenwich Capital, A Guide to US MBS, May 2007.

V Credit Risk and Default

04/02 Subprime and Credit Crisis

Readings: Gorton, SSRN. DiMartino, Duca and Rosenblum (2007), “From Complacency to Crisis: Financial Risk Taking in the Early 21st Century,” FRB Dallas Economic Letters 2 (12).

04/07 Bankruptcy and Distressed Debt

Readings: Teichner, Note on Bankruptcy in the United States. McConnell and Servaes, The Economics of prepackaged bankruptcy. Gilson, Managing Default: Some Evidence on How Firms Choose Between Workouts and Chapter 11.

04/09 Case 4: TBD

04/14 Modeling Default: From Merton to KMV

Readings: Hauswald (2003), “Technical Note: Assessing Financial Distress,” KSB-AU (FIN-03-003).

04/16 Midterm 2

In class, closed book and notes exam covering all material up to and including the previous class; one letter-sized page of handwritten, non-modified notes allowed.

VI The Practice of Funding Investments: Project Financing

04/21 Project Finance

Readings: Brealy, R. *et al.* (1996), "Using Project Finance to Fund Infrastructure Investments," *Journal of Applied Corporate Finance* 9 (Fall 1996). Dailami and Hauswald (2007), "Credit Spread Determinants and Interlocking Contracts: A Study of the Ras Gas Project," *Journal of Financial Economics* October 2007, Vol. 86, pp. 248-278.

04/23 Case 5: Ras Laffan Liquefied Natural Gas Company, RBHH 1999.

Readings: Randolph, G. and A. Schrantz (1997), "The Use of Capital Markets to Fund the Ras Gas Project," *Journal of Project Finance* 3 (Summer 1997). IFM 15.

04/28 Guest Lecture: TBA