# Corporate Finance
## Fall 2013

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The objective of this course is to provide a rigorous introduction to the fundamental principles of financial economics and their application in financial markets. The organization of the course is based on three main ideas:

- Time value of money: You will learn how to value financial assets such as bonds, stocks, futures, and options, and to appraise investment projects and businesses.

- Diversification and risk: These classes provide a thorough grounding in the risk-return trade-off which enables you to assess financial and business risks.

- Arbitrage and hedging: We study the principle arbitrage in financial markets and how it can be used to price securities and hedge risk.

## Class dates and times

- Finance 100-002 takes place from 12-1:30pm in SH-DH 1206.

- Finance 100-003 takes place from 1:30-3pm in SH-DH 1206.

- Finance 100-010 takes place from 9-10:30am in SH-DH 1206.

## Course Materials

- Lecture Slides: The slides are designed to accompany the lecture, and are posted on the course web site prior to the class. You may want to print them out beforehand and bring them to the lecture.

- Textbook: You can choose to use one of the following textbooks:

  Richard A. Brealey, Stewart C. Myers and Franklin Allen, *Principles of Corporate Finance*, McGraw-Hill, 10th edition, 2010 (referred to as "BMA" below)

  *or*

  Jonathan B. Berk and Peter M. DeMarzo, *Corporate Finance*, Addison-Wessley, 2nd edition (referred to as "BD" below)

  The textbook contains assigned readings for the course, and may be useful for future classes in Finance. All assigned readings should be completed prior to the class meeting. Note that the assigned readings are based on the latest edition of the book. If you choose to use earlier editions, please ensure that reading assignments and the content of the book match.

- Practice Problem Sets: Problem sets and their solutions will be posted on the course web site. I will also suggest you a number of quiz questions and problems in the textbook. Although problem sets are not graded, they are *strongly* recommended, and you should treat them as if they were assigned. It is important that you try the problems before you see the solutions, otherwise the exam will be the first time you have to solve a problem without any help.

**Grading and Assessment**

- Your grade for the course will be based on two in-class quizzes, a final exam, and class participation. The course grade is determined as follows:

$$\text{Grade} = 0.25 \times \text{Quiz1} + 0.25 \times \text{Quiz2} + 0.40 \times \text{Final} + 0.10 \times \text{Participation}$$

- Quiz Rules: All the quizzes and the final are cumulative, closed-book and closed-note exams (you will be provided with a formula sheet, however). All you should bring is writing utensils and a calculator — laptops are not allowed. To account for any differences in difficulty, the scores across the quizzes and exams may be standardized when computing the course grades. The exam schedule is specified on the last page of the syllabus.

- Quiz Make-up: Make-up quizzes are only given in exceptional circumstances such as illness or family emergency, evidence of which must be provided. The request for a make-up should be communicated to me *before* the quiz; the make-up requests sent after the missed quiz will not be honored. Typically, the make-up quiz will be held a week after the missed quiz. There is no make-up final except as required by university policy, in which case you have to obtain a permission from the deans office.

- Quiz Regrades: There are no verbal appeals of grades, and you must provide a written statement as to where and why there is a problem. All regrade requests must be submitted no later than one week after the class meeting when quizzes are handed back. Importantly, *the entire quiz/exam will be regraded.* As a result, the overall score may increase, remain the same, or decrease, and no subsequent appeals are accepted.

**Class Policies and Rules**

- Attendance: Attendance is strongly encouraged but not monitored. While attendance is not required, you are responsible for all the material covered in class, as well as any announcements pertaining to the class that may not be included in the lecture slides. Given tight space constraints, it is important that you always attend the classes for the section for which you are registered. If an emergency arises, I may be able to make an exception and allow you to attend the class for another section for one session. This must be cleared with me beforehand by email. All cell phones and electronic devices must be turned off and out of sight during class (failure to comply with this rule will affect your class participation grade and may result in dismissal from the class).

- Class Web Site: All the other relevant course information, such as schedule of office hours, lecture slides, practice problems and course announcements, will be posted on the course web page on Canvas, at http://wharton.instructure.com

- Academic Integrity: Cheating in any form is completely unacceptable. If there is any doubt as to whether or not your actions constitute cheating, please contact me. By enrolling in this course, you are explicitly agreeing to abide by the Student Code of Conduct.

**Course Outline**

1. **Discounting:** During this class we will cover the intuition and basic mechanics associated the time value of money: discounting, annuities, perpetuities, etc.

   - Reading: Chapters 2 (BMA), *or* Chapters 3.2, 4, 5.1-5.2 (BD)

2. **Bond Valuation:** The class focuses on valuing debt securities using the tools we developed earlier. We will cover valuation of discount and coupon bonds, yield to maturity and term-structure of interest rates, differences between real and nominal interest rates, as well as spot and forward rates.

   - Reading: Chapters 3, 23.1, 23.3, 24.1-24.5 (BMA) *or* Chapters 5.3, 8, 24, 30.4 (BD)

3. **Valuation of Stocks:** This class provides an overview of equity securities (stocks or equities) focusing on their valuation. In addition, we will discuss financial ratios that are widely used in practice (such as dividend yields and price/earnings multiples).

   - Reading: Chapters 4, 16.1-16.3 (BMA) *or* Chapters 9 and 23 (BD)

4. **Portfolio Analysis and Diversification:** This class provides an overview of asset allocations. We will discuss how investors can reduce risk of their portfolio holdings without sacrificing any expected return by simply spreading their wealth over a number of assets in an appropriate way. We will begin with a simple two-asset example to illustrate the intuition behind diversification. The analysis is then extended to the N-asset case, followed by a discussion of various practical issues.

   - Reading: Review notes on basic statistics and utility; Chapters 7.1-7.3, 8.1 (BMA) *or* Chapters 10.1-10.6, 11.1-11.4 (BD)

5. **Asset Pricing Models:** This class extends the material covered earlier to derive the Capital Asset Pricing Model (CAPM), which is widely used in capital budgeting and is one of the cornerstones of modern finance. This class emphasizes the difference between covariance and variance risks, and highlights the difference between systematic sources of risks (which are priced or rewarded by the market) and diversifiable risk (which is not priced).

   - Reading: Chapters 7.4, 8.2-8.4 (BMA) *or* Chapters 10.7-10.8, 11.5-11.8, 12.1-12.3 (BD)

6. **Financing Decisions  Leverage and the Weighted Average Cost of Capital:** This class considers firms financing decisions. What mix of debt (loans/bonds) and equity (shares) should the firm use to raise funds to finance its investments? The seminal Modigliani and Miller propositions, with and without corporate taxes, are reviewed. The main theme of the class is to evaluate a new investment opportunity for the firm where the appropriate discount rate is unknown. If the beta was known, the discount rate could be computed directly from the CAPM. However, in this class we consider the case where the beta of the new project is unknown. We show how to use the beta of another company (that is made up primarily of assets like the new project) and adjust for differences in capital structure. In addition, we discuss how other market frictions affect the optimal capital structure of firms.

   - Reading: Chapters 14, 17, 18.1-18.3, 19.1-19.3 (BMA) *or* Chapters 14-16, 17.1-17.3 (BD)

7. **Investment Decisions and Capital Budgeting:** This class provides an overview of capital budgeting, i.e., determining which investments a firm should undertake. The net present value rule (NPV), which is widely used in practice, is developed and illustrated with several examples. In addition, we will discuss a number of alternative evaluation techniques, including internal rate of return and payback period, highlighting potential problems with their use.

   - <u>Reading:</u> Chapters 5, 6 (BMA) *or* Chapters 3.3, 6.1-6.4, 18.1-18.2 (BD)

8. **Forward and Futures Contracts:** This class provides an overview of forward and futures contracts. Forwards and futures belong to the class of securities known as derivatives since their value is derived from the value of some other security. The price of a foreign exchange forward contract, for example, depends on the price of the underlying currency and the price of a pork belly futures contract depends on the price of pork bellies. Derivatives trade both on exchanges (where contracts are standardized) and over-the-counter (where the contract specification can be customized). The focus of this class is on (1) definitions and contract specifications of the major exchange-traded derivatives, (2) the mechanics of buying, selling, exercising, and settling forward and futures contracts, (3) derivative trading strategies including hedging, and (4) the relationships between prices of derivatives, the underlying security, and a riskless bond.

   - <u>Reading:</u> Chapters 26.1, 26.4 (BMA) *or* Chapters 30.2-30.3 (BD)

9. **Option Contracts:** This class provides an overview of option contracts. Likewise forwards and futures, options belong to the class of securities known as derivatives since their value is derived from the value of the underlying security. The price of a stock option, for example, depends on the price of the underlying stock and the price of a foreign currency option depends on the price of the underlying currency. The focus of this class is on (1) definitions and contract specifications of the major exchange-traded options, (2) the mechanics of buying, selling, exercising, and settling option contracts, (3) option trading strategies including hedging, and (4) the relationships between prices of options, the underlying security, and a riskless bond.

   - <u>Reading:</u> Chapters 20, 21, 26.3 (BMA) *or* Chapters 20, 21.1-21.2 (BD)

**Tentative Schedule**

| Lecture | Date | Topic |
|---|---|---|
| 1 | Aug 29 | Introduction; Discounting |
| 2 | Sep 3 | Discounting |
| 3 | Sep 5 | Bond Valuation |
| 4 | Sep 10 | Bond Valuation |
| 5 | Sep 12 | Bond Valuation |
| 6 | Sep 17 | Bond Valuation |
| 7 | Sep 19 | Valuation of Stocks |
| 8 | Sep 24 | Valuation of Stocks; Review |
| 9 | Sep 26 | Portfolio Analysis and Diversification |
| 10 | **Oct 2** | *No Regular Class Meeting* |
| | | **Quiz 1** on Discounting, Bond and Stock Valuation |
| | | 6:00 - 7:20 PM, Rooms SHDH 350, SHDH 351, JMHH F-70, JMHH F-85 |
| 11 | Oct 3 | Portfolio Analysis and Diversification |
| 12 | Oct 8 | Portfolio Analysis and Diversification |
| | Oct 10 | *Fall break, no class* |
| 13 | Oct 15 | Portfolio Analysis and Diversification |
| 14 | Oct 17 | Asset Pricing Models |
| 15 | Oct 22 | Asset Pricing Models |
| 16 | Oct 24 | Asset Pricing Models |
| 17 | Oct 29 | Financing Decisions |
| 18 | Oct 31 | Financing Decisions |
| 19 | Nov 5 | Financing Decisions |
| 20 | Nov 7 | Financing Decisions; Review |
| 21 | Nov 12 | Investment Decisions and Capital Budgeting |
| 22 | **Nov 14** | *No Regular Class Meeting* |
| | | **Quiz 2** on everything up to and including Financing Decisions |
| | | 6:00 - 7:20 PM, Rooms SHDH 350, SHDH 351, JMHH F-85, JMHH G-60 |
| 23 | Nov 19 | Investment Decisions and Capital Budgeting |
| 24 | Nov 21 | Forward and Futures Contracts |
| 25 | Nov 26 | Option Contracts |
| | Nov 28 | *Thanksgiving break, no class* |
| 26 | Dec 3 | Option Contracts |
| 27 | Dec 5 | Option Contracts |
| 28 | Dec 10 | Review for the Final |
| | Dec 17 | Final Exam |