Finance 440 - Evanston **Accelerated Corporate Finance**

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Kellogg School of Management

Course Outline

Course Description:

Corporate finance is the study of how firms make financial decisions. In this course, we will cover the fundamental finance concepts necessary to run a firm. The firm can range from a large international conglomerate to a three person entrepreneurial firm. The course material is valuable if you plan to enter a career in finance, if you want to run your own or someone else's (the shareholders') firm, or you want to be involved in deciding how a firm invests their capital.

Firms make three fundamental financial decisions. First, firms must decide how to invest their capital (valuation decision). Investment projects can range from purchasing a piece of equipment to purchasing the equity of an international conglomerate. Next, firms must decide how to finance their investments (capital structure decision). Finally, firms must decide what to do with the profits of their investments (the payout decision). Do they reinvest the capital or do they return it to investors. This course will cover the logic and application of the three corporate finance decision you will face in your career. Below is a list of lecture topics and a brief description of what I expect to cover in each session. The required reading, which I expect you to do prior to coming to class, is listed after each description in italics. Read the entire syllabus before the first class.

Course Readings:

Berk and Demarzo, *Corporate Finance*, Fourth Edition, Prentice Hall (BD)¹ Course Packet for 440 - Petersen.

Cases:

"Schumpeter Finanzberatung GmbH"

"Teuer Furniture (A): Discounted Cash Flow Valuation" 5-313-509(A)

"Teuer Furniture (B): Multiples Valuation" 5-313-509(B)

"Arundel Partners: The Sequel Project" N9-292-140

"Dividend Policy at FPL Group, Inc." N9-295-059

"UST Inc."

"Liability Management at General Motors" N9-293-123.

¹ The syllabus lists the 4th edition, as this is the newest edition and the one the bookstore will stock. If you already have the 3rd edition, you may use that version as long as you do the comparison between the two editions. The chapter numbers that I use are the same in the 3rd and 4th edition.

The department is also working on an alternative cheaper version of the textbook. Information will be posted to the discussion group on Canvas.

Valuation and Capital Budgeting

Week 1:

Corporate Finance Overview $(1)^2$

We will discuss the three fundamental questions of corporate finance. This will provide a road map for the rest of the course, the advanced corporate finance courses, and your career. Next, students are expected to explain what the objective of a corporation is. This sets the foundation for answering the three fundamental questions. Finally, we will discuss the idea of efficient markets. This discussion will include what it means for a market to be efficient and what this does and does not imply about the world. We will also discuss why we should expect markets to be efficient and when we should expect efficiency to fail.

Berk and Demarzo: Chapter 3

Cash Flow Forecasting (2)

The most fundamental method for valuing a project or an asset is to discount the expected cash flows at the risk-adjusted rate (DCF or NPV).³ The first building block of valuation is the expected cash flows. We will first review how expected cash flows are derived from financial numbers such as the income statement and the balance sheet. We will build intuition on how forecasts are constructed and how forecasts are questioned in an uncertain world. This class will lay the foundation for building detailed forecasts of cash flow from assets in the Teuer Furniture case.⁴

Berk and Demarzo: Chapter 2 (skim), Chapter 7, Chapter 8, Chapter 26 (skim)

Week 2:

Risk and Return: Capital Asset Pricing Model Case (3)

A fundamental trade off in finance is the risk-return trade off. Investors like high expected return and low risk. In this session, we will examine how investors and financial markets measure risk and we will develop the concept of systematic and idiosyncratic risk. This will provide the foundation for the Capital Asset Pricing Model (CAPM). CAPM is the most widely used model for calculating discount rates for project evaluation.

Berk and Demarzo: Chapter 10 and 11 Schumpeter Finanzberatung GmbH case Schumpeter Finanzberatung GmbH case questions

² The number in parentheses is the lecture number. You will find a lecture outline for each lecture in your packet. As you know from my first email, you are expected to have read the outline prior to class and then bring the outline to class to aid in your note taking.

³ Discounted cash flow (DCF) or net present value (NPV).

⁴ See the Table "Structure of Assignments" at the end of the syllabus for a description of which lectures lay the foundation for which assignments.

Discount Rates: Cost of Capital (4)

The discount rate is the second building block of valuation. The discount rate is the expected rate of return an investor can earn on a project of equivalent risk. Risk is typically measured by β . We will discuss the logic behind how discount rates are calculated with a specific focus on how to derive the numbers necessary to calculate discount rates, even when we have limited or imperfect data.

Berk and Demarzo: 12

Week 3:

Teuer Furniture (A) 5-313-509(A) [Discounted Cash Flow Valuation]

This case requires you to apply your knowledge of discounted cash flow valuation to an acquisition. It will give you practice in constructing your own DCF spreadsheet as well as understanding and applying the economic logic that underlies the cash flow forecasts.

Teuer Furniture (A) case

Teuer Furniture (A) case presubmission questions

Teuer Furniture (A) case questions

Financial Options (5)

This session will introduce the concepts of options (calls and puts). We will start to learn the basics of how options are constructed and what factors drive their valuation. We will use payoff diagrams to understand how to construct complex portfolios or securities from basic building blocks and how to break complex securities down into their simple pieces. An understanding of options and derivatives is important in finance for valuation (real options), risk management, and raising capital.⁵

Berk and Demarzo: Chapter 20 and Chapter 21 (skim if curious)

Week 4:

Teuer Furniture (B) 5-313-509(B) [Multiples Valuation]

The second method for valuing firms is multiples. This approach is used to value entire firms as opposed to individual projects. This approach is used to value a firm when it is going public or it is being sold by one private investor to another. It is also used when firms sell off or purchase divisions. It is not used to value individual projects inside a firm. To value a firm using the multiples approach you must find a set of firms whose valuation ratio you assumed is equal to the valuation ratio of the firm you are trying to value. Examples of multiples are the price to earnings and the price to cash flow ratio. In this session, we will discuss how to choose among the possible set of multiples (valuation ratios) and what is meant by the assumption that a firm is comparable.

Berk and Demarzo: Chapter 9.4

⁵ We will thus revisit options in Lecture 6, 12, and 13.

⁶ The other two methods are discounted cash flow (DCF also known as net present value or NPV) and real options.

Teuer Furniture (B) case Teuer Furniture (B) case questions

Real Options (6)

Traditional NPV assumes that the decision to invest or not is made up front and no further modification of the project will be necessary or possible. In practice, the scale of projects, the mix of inputs and outputs, or even whether to continue a project can be changed in the future as new information becomes available. Real options valuation is a version of NPV that includes the value of flexibility. In this session, we will use a numerical example to compare a simple NPV analysis to a real options analysis and thus value the flexibility embedded in the project.

Berk and Demarzo: Chapter 22 The Options Approach to Capital Investment, A. Dixit and R. Pindyck

Payout and Dividend Policy

Week 5:

Dividend Policy Irrelevance (7)

Firm's payment of dividends, both the form and the amount, can affect the value of the firm and the wealth of shareholders. In this session, we will start our discussion of how dividend policy can affect firm value. We will start with the Modigliani-Miller dividend irrelevance theorem. We will build a world (a set of assumptions) where dividend policy does not affect the value of the firm or the wealth of shareholders. My objective is not to convince you that dividend policy is irrelevant, but to make it clear when dividend policy is relevant and thus how a firm's dividend policy should be set. We will then examine one source of relevance for dividend policy: differential taxation of shareholder returns.

Berk and Demarzo: Chapter 17

Arundel Partners: The Sequel Project N9-292-140 [Real Options]

This case will give you the opportunity to apply your knowledge of real options valuation to an innovative financing method in the movie industry.

Arundel Partners case Arundel Partners case presubmission questions Arundel Partners case questions

Week 6:

Midterm Exam

Capital Structure

Week 6 (continued):

Capital Structure Irrelevance (8)

The capital structure decision of a firm is both the choice of how it should finance its projects as well as how it should manage or distribute the risk of these projects. As with dividend policy, we will start our study with the Modigliani-Miller (M&M) capital structure irrelevance theorem. We will build a world (a set of assumptions) where how the firm finances itself has no effect on the value of the firm or the wealth of shareholders. This should strike you as insane at first. As with dividend policy, my objective is not to convince you that capital structure is irrelevant. Capital structure decisions can both create and destroy significant amounts of value. However, the world of finance is very complex. You need a simple guide to the issues that make capital structure relevant and the M&M theorem gives you this guidance. We will start with a discussion of what debt and equity are and then work through an example of a leverage increasing transaction in an M&M world.

Berk and Demarzo: Chapters 14

Week 7:

Florida Power and Light: N9-295-059 [Dividend Policy]

This case will give you the opportunity to apply your knowledge of dividend policy to Florida Power and Light. Dividend policy is irrelevant only if the six assumptions of M&M's theorem are true. Thus if FPL's possible change in its dividend matters, it matters for (at least) one of the six reasons discussed in lecture.

Florida Power and Light case Florida Power and Light case questions

Capital Structure Relevance: Taxation of Capital (9)

This is the first of three lectures where we will examine the M&M assumptions in greater depth. In this session, we will examine the ways in which taxation of capital affects a firm's decision of how to finance itself. We will discuss how to value the tax subsidy that interest deductibility generates. This will be the first lecture on adjusted present value (APV), which combines both the value of the project (from the first half of the course) with the value of financing (the NPV of financing). We will then compare APV to WACC as a method of valuing a levered firm.7

Berk and Demarzo: Chapter 15 and Chapter 18

Week 8:

Capital Structure Relevance: Costs of Financial Distress (10)

In this session, we will examine why debt is costly. Debt can restrict a firm's

⁷ Weighted average cost of capital (WACC) is an alternative method for valuing the firm including the value of the tax shield. Other M&M assumptions are assumed to be true. It looks similar to the cost of capital for assets that we calculated in Lecture 4, but is not the same.

financial flexibility and thus generate costs when the firm experiences financial distress or may experience financial distress. In this session, we will examine a numerical example to understand the empirical relevance of these costs and who pays them. We will then work on developing intuition about in which kinds of firms these costs are greatest. This will provide a foundation for thinking about how these costs interact with the strategic decisions of the firm and thus how the capital structure decision (how a firm is financed) must be incorporated into the strategic thinking of the firm.

Berk and Demarzo: Chapter 16 and Chapter 24 (skim)

Capital Structure Relevance: Security Mispricing (11)

In an efficient market, securities issues and purchases are a zero NPV transaction. In this session, we will begin by examining the empirical evidence on the market's reaction to a firm's decision to raise new capital. This will raise issues of market efficiency. We will then work through a model of security issuance when markets may not be efficient. We will examine how this can distort a firm's investment decisions and thus makes capital structure relevant. We will also consider a number of solutions to the problems we discover which give financial managers the opportunity to create value through their decision of how to finance the firm externally as well as their decision to hold cash.

The Capital Structure Puzzle, S. Myers Equity Issues and Offering Dilution, P. Asquith and D. Mullins

Week 9:

UST Inc. case [Optimal Capital Structure]

This case will let you apply your knowledge of M&M to determine an optimal capital structure for UST.

UST case
UST Inc. case presubmission questions
UST Inc. case questions
S&P Credit Stats

Applied Topics

Risk Management (12)

In an M&M world, risk management has no value. Thus, risk management has the capacity to create and destroy value only when the assumptions of M&M fail. We will begin this session with a brief description of the variety of financial tools (derivatives) that are available to alter a firm's risk exposure. We will then examine the different ways in which risk management can create value when the assumptions of M&M do not hold. This provides a foundation for thinking about how risk management disasters can, and with surprising frequency, do occur in the real world.

Berk and Demarzo: Chapter 30 A Framework for Risk Management, K. Froot, D. Scharfstein, and J. Stein

Week 10:

Liability Management at General Motors Case [Risk Management]

This case will give you the opportunity to apply your knowledge of risk management to decide how General Motors should alter its exposure to interest rates as it enters the capital market to raise additional debt financing.

GM case

GM case presubmission questions

GM case questions

Security Design and Financial Innovation (13)

Firms can finance themselves with vanilla debt, vanilla equity, or an infinite variety of financial securities. Although the variety of securities a firm may issue is almost infinite, most can be built from vanilla debt, vanilla equity, and options. This is one reason we covered options in a prior lecture. In this lecture, we will examine a few securities that are built from simple pieces. The objective is to understand how complex securities can be built from simple components, and how this makes it easier to understand the value and dangers of new securities. We will then discuss when these more complex securities can add value by being a cheaper form of financing. As you should expect by now, this is true only when the M&M assumptions do not hold.

Berk and Demarzo: Chapter 24.4 (convertible provisions section).

Week 11: Final Exam

ASSIGNMENTS

Deadlines for this class are non-negotiable. If you have a question about a deadline, you should resolve your question sufficiently prior to the deadline so that you can complete the assignment by the due date. Under special circumstances, you may arrange to turn in assignments early. Assignments will not be accepted after the due date and exams may not be taken late. Do not ask me to make an exception. I will not. Turning in assignments after the due date or taking an exam late may provide a student with an "unfair advantage over other students." Students unable to complete the course assignments and exams by the due date will receive a zero and therefore may not pass this class.

Your answers to the cases must not only be numerically correct, but also be clear. Handing in an excel spreadsheet is not considered a sufficient answer and I will take points off even if the numerical answer is correct. It should be clear to me (your audience) both what your answer is and how you arrived at it. Finance is partially an exercise in math and numbers, but it is also an exercise in communication. I should understand your numerical answer, your logic and methods, and why the numbers lead to your conclusion.⁸

I will assign groups at the end of the first week of classes. For the homework assignment and the quizzes, you may use your group as a resource. However, when you sit down to do an individual assignment; it should be your own work. I strongly urge you to work in groups and learn from your classmates as well as teach them. In the past, groups have been more successful than individuals in preparing for class.

Homework Assignment:

The homework assignment is due on the day and time specified in the syllabus. It is worth 35 points. The homework assignment must be done individually. I will explain the assignment in greater detail in class. I will also explain what I mean by individually for this assignment.

Online Quizzes:

Some of the concepts I want to teach you are numeric, for example, discounting a given set of cash flows at a specified discount rate. These questions have a single correct answer. Many of the concepts I want to teach you are less concrete. There may be a range of correct answers as opposed to a single one. There is also a wide range of incorrect answers. Since class time is scarce, I have carved out many of the computational exercises and have incorporated these into the online quizzes. We are going to use technology to leverage the scarce resource of time and give you real time feedback outside of class.

The online quizzes will be completed though Canvas. The computer will tell you whether your answer is right or wrong, but not what the correct answer is. You must complete the quiz prior to the due date to receive credit. Please pay careful attention to the date and time the quizzes are due. They are due prior to the day of class. You should read and work on the questions prior

⁸ I will provide you with data in Excel format for many of the assignments. The spreadsheets are available on Canvas. Look under files\spreadsheets.

to sitting down at the computer. The full text of the quiz questions are in your packet. Although you may use your group as a resource on the quizzes, when you sit down at the computer this must be your own work. Do not ask group mates for answers. Instead, ask them or me for guidance. This discussion group is a great place to ask about the quizzes. I would recommend you try the quiz on your own and enter your first guesses into the computer before talking to your group. Then as a group, you can work through the intuition behind the questions that you got wrong and do not understand. Since you can take the quiz several times, I recommend you start them well before the due date. It would also be wise to look through them early in the quarter so you know when we are covering material that is useful.

Since the quizzes can be taken multiple times, I will count your highest score. You can verify your current score prior to the due date by looking it up in the Canvas grade book.

Case Assignments:

You will write and submit case memos for four of the seven cases. The case memos should be three to five written pages plus tables and figures. They will be prepared and submitted as a group. Brevity is a virtue. Do not repeat the facts of the case; I have read it. The case questions are in your packet. They should be a guide to your answer. Do not just answer each question. This does not look like a professional memo that you would present at work. Instead, you should write a persuasive document that convinces me your solution is correct. You should support your answer with logic, facts and numbers from the case, and intuition from class. Important points and details can be included in the text, in the footnotes or in the appendix depending upon the level of importance. I expect the answers to be both well-reasoned and well presented. The cases are your opportunity to apply the concepts you have learned to messy, real world problems. In the real world, understanding the concepts is important; being able to explain them to your boss, colleagues, and clients is equally important. I will thus grade your case memos based on both your answers as well as how well you defend your proposed solution. If I have trouble reading it or understanding it, that is a problem. Case memos are due the day we discuss the case at the beginning of the first class (8:30am CST). A member of your group should upload a pdf of your case memo to Canvas.⁹ Each team member should keep a copy of your answers, as you will be expected to contribute to the class discussion based on your written answers. I find that groups do much better, and more importantly learn more, when they come by to talk to me as a group as they work through the issues.

For the two cases where you do not submit a case memo [Schumpeter Finanzberatung and Teuer Furniture (B)], I will collect your answers to the cases through Canvas the day before we discuss the case in class. I will grade the content of your submissions. I want your answers to these two cases the night before as I will use the distribution of your answers in our class discussion. You should bring a copy of your submission to class so you can participate in the discussion.

The seventh case (Florida Power) you are expected to read and prepare for class discussion, but you will not submit any memo or answers for this case.

⁹ Canvas will only accept pdf submissions and your submission should be in a single file. If you upload multiple files, I will not necessarily read the additional files.

Case Presubmissions:

For the four cases where your group will submit a case memo, I will also collect your group's preliminary answers to the case the night before it is due (6pm CST). You will answer a few short questions (a number or a few sentences) through Canvas. The presubmission questions are in your packet. This gives me a chance to preview your answers before class. I will be able to show you the distribution of submitted answers and you can then defend your answers in class. You are not committed to the presubmission answers. You will receive full credit if you answer all of the questions on these four submissions.

Exams:

The midterm exam will be given during the fifth week of classes. It will cover the first half of the course. The midterm will count for 120 points. The final exam will be given during exam week (the eleventh week of the course). It will cover the entire course. The final will be worth 240 points. I will run a review session the week prior to the midterm and the final. The dates and times will be announced on Canvas.

GRADING AND DUE DATES

Assignments are due at the beginning of the first class of the day (8:30am) unless otherwise noted. Many of the assignments are due prior to class, so pay close attention to when they are due. All times are CST. Your total score is based on the sum of the points you earn with two exceptions. First, I will drop the two lowest scores from the following 8 assignments (the face card, the four quizzes, the homework, the Schumpeter Finanzberatung case submission, and the Teuer Furniture B case submission). These assignments are denoted by * on the next page. In addition, I will let you drop the midterm score and I will adjust your score on the final (I will multiply it by 1.5) if this improves your score. You do not need to tell me what to do. I can figure it out on my own. I will calculate your score both ways and use the higher score.

Total score = Face card +
$$\sum_{i=1}^{4} Quiz_i$$
 + Homework + Schumpeter case + Teuer B case

- -Lowest 2 of *assignments
- + Arundel Partners presubmission + Arundel Partners case memo
- + Teuer case presubmission + Teuer case memo
- + UST presubmission + UST case memo
- + GM presubmission + GM case memo
- + Max [Midterm+Final, 3/2 Final Exam]

(1)

Assignment	Due Date	Points	Submission Method ¹⁰	Individual or Group ¹¹
Face card*	Thurs, Sept 27st	25	Class	Individual
Schumpeter case questions*	Sun, Sept 30 th @ 6pm	25	Canvas	Individual
Quiz 1*	Wed, Oct 3 rd @ 6pm	25	Canvas	Individual
Teuer A presubmission	Sun, Oct 7 th @ 6pm	10	Canvas	Group
Teuer A case memo	Mon, Oct 8 ^{th @} 8:30am	50	Canvas	Group
Teuer B case questions*	Sun, Oct 14 th @ 6pm	25	Canvas	Group
Quiz 2*	Wed, Oct 17th @ 6pm	25	Canvas	Individual
AP presubmission	Wed, Oct 24 th @ 6pm	10	Canvas	Group
AP case memo	Thurs, Oct 25 th @ 8:30am	50	Canvas	Group
Midterm	Mon, Oct 29th	120	Class	Individual
Homework 1*	Sun, Nov 4 th @ 6pm	35	Web	Individual
Florida Power case	Mon, Nov 5 th	0		
Quiz 3*	Sun, Nov 11 th @ 6pm	25	Canvas	Individual
UST presubmission	Sun, Nov 25 th @ 6pm	10	Canvas	Group
UST case memo	Mon, Nov 26 th @ 8:30am	50	Canvas	Group
Quiz 4*	Sun, Dec 2 nd @ 6pm	25	Canvas	Individual
GM presubmission	Sun, Dec 2 nd @ 6pm	10	Canvas	Group
GM case memo	Mon, Dec 3 rd @ 8:30am	50	Canvas	Group
Final	TBD	240	Class	Individual
Total		760		

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¹⁰ To submit assignments through Canvas, you can click on Assignments and then the specific assignment. The case memo will be submitted through Canvas and must be submitted as a single pdf file. Do not submit multiple files. Your presubmissions (four cases) and the case questions (for the two cases without case memos) will also be submitted through Canvas.

¹¹ On the group assignments, you will work in your group and submit one answer or case memo for the entire group. Please make sure you list all group members' names on the submission as well as your group letter. For the individual assignments, you will each submit your own answers electronically. If you find it useful to ask your group mates for guidance, help, and wisdom on the quizzes, that is fine. On homework 1, not only may you ask group mates for help, I strongly encouraged you to do so. Before your first submission and after your first but before your second submission, it is very useful to compare notes on possible strategies and the success or failure of those strategies.

STRUCTURE OF ASSIGNMENTS

Some course assignments build upon and ask you to apply the material we covered in prior lectures, readings, or assignments. Some assignments prepare you for material we will cover in later lectures or prepare you for assignments you will complete in the future. This table should help you understand the connection between lectures and assignments. The following table describes what material precedes and what material follows each assignment. The column labeled "Precedes Assignment" lists the lectures and assignments which should help your prepare for the following assignments. The column labeled "Follows Assignment" lists the lectures and assignments that build upon the prior specified assignment. For example, the Schumpeter submission will be completed before Lecture 3. They should help you prepare for Lecture 3. We will cover how to estimate cash flow from assets (CFA) in Lecture 2, and this will prepare you to complete the Teuer A case.

Assignment	Precedes Assignment	Follows Assignment
Face card		
Schumpeter case		Lecture 3: Risk & Return
Quiz 1	Lecture 3: Risk & Return	
Teuer A case	Lecture 2: Cash Flow	Teuer B Case
Teuer B case	Teuer A Case	
Quiz 2	Lecture 5: Financial Options	
AP case	Lecture 6: Real Options	
Midterm	All prior material	
Homework 1	Lecture 6: Real Options	
Florida Power case	Lecture 7: Dividends	
Quiz 3	Lecture 8: Capital Structure	UST Case
UST case	Lecture 9 & 10:	
Quiz 4	Lecture 12:	GM Case
GM case	Lecture 12 & Quiz 4	
Final	All prior material	

OTHER ADMINISTRATIVE DETAILS

Intellectual Property:

The class notes, assignments, answers, and past exams are the intellectual property of the instructor. You may not distribute class notes electronically or in any form to anyone outside the class or outside Kellogg. You may not duplicate these notes for use by your employers after graduating from Kellogg without my written consent.

Honor Code:

All students are expected to abide by the Kellogg Honor Code. Write-ups must be your original work. You may not use materials containing solutions or partial solutions to the assignment (including solutions prepared by current and former Kellogg students). The work you hand in must be the result solely of you own work or in the case of group work the result solely of your group's effort. I expect that any group member can explain the group's answers to me even if they were not the ones to initially figure out the solution.

Appointments and Help Outside of Class:

If you have questions about class logistics or content, please let me know. I am very willing to meet with you outside of class. You can contact me by e-mail (mpetersen@northwestern.edu) or phone (847-467-1281). I will also actively monitor the course discussion group. Most questions you ask are very good and are often shared by your classmates. Thus asking questions through the discussion group helps not just you, but everyone else in the class. You should feel free to answer other students' questions, and correct or expand upon my answers.