

## FE 870: The Analysis and Management of Financial Risk

Session	Date	Class Topic	Reading Assignments	Deliverables
1	16 Sept a.m.	Why manage risk? What can go wrong without risk management? HBS Case Study Stone Container as a vehicle to introduce/review some fundamentals: M-M, the CAPM, market efficiency.	HBS case: Stone Container Background: "A framework for Risk Management," Harvard Bus Review 1994 If you have not taken FE713, it's helpful to skim chapter 14 (and ideally 15-17) in the Berk and de Marzo book	
2	16 Sept p.m.	Lecture: Strategies for Corporate Risk management: Lecture: Introduction to/ review of corporate hedging instruments. HBS case: Pacific Salmon.	HBS cases: Pacific Salmon Chapter 30 of Berk and De Marzo book.	
3	23 Sept a.m.	Risk Management in the asset management industry (Mutual Funds and Hedgefunds). Lecture on basic option formats and pricing. The binomial options pricing model. The Black-Scholes Model.	Chapter 20 and 21 in Berk and De Marzo Corporate Finance book.	Online HW 1 in my finance lab
4	23 Sept p.m.	Risk Management in Mutual Funds, Hedgefunds. Interactive exercise on dynamic replication of a put option.	Case Studies: Leland O'Brien Rubinstein Associates [Another case may be added if time allows]	End of day: proposal for student presentation topic
5	30 Sept a.m.	Guest Speaker 1: Casey Jia from Citibank London Risk Management in Banks; Course Wrap-up and Student presentations.	Come prepared with questions for the guest speaker	Online HW 2 Online Quiz: Risk Management Tools
6	30 Sept p.m.	Student Presentations on Risk Management Topics (individual work or in teams of two)	Choose a topic to research and present from a list of suggested cases or choose your own risk management interest (topic of presentation should be approved by previous weekend)	
	2 Oct 8am	Submit case write up for Maxum Petroleum (individual work)	HBS case: Maxum Petroleum	

\* Background reading. For students with no previous knowledge of derivatives, it will be useful to read chapters 20 and 21 of the Berk and de Marzo textbook that you used for core finance to gain

some familiarity with financial options. If you haven't seen the Modigliani Miller theorem about capital structure before, you might like to read chapter 14 (and, in an ideal world, 15 and 16) to learn about it. You could also look back at the Ginny's restaurant case questions 5 and 6 if you studied that in core finance. Chapter 13 in Berk and De Marzo is useful background on the efficiency of capital markets. In case for some reason you no longer have access to the Berk and De Marzo book from your core course or you have lost your access code, you can get a 2-week free trial (or contact Pearson to reactivate your account, they may be able to help – at least they are usually pretty good when you contact them through online chat or phone call). If you are very interested in this topic and/or have prior knowledge of it, and want to be able to delve further than this course will have time to do, you might consider purchasing an excellent textbook specific to the topic by John Hull "Options Futures and Other Derivatives." The 11<sup>th</sup> edition is the most recent, but earlier editions will be OK too. Links to the current edition are below but you can get earlier editions more cheaply; or you can also buy editions for other markets (e.g. the Indian market) much more cheaply. (The difference is that the transactions are designated in rupees and not dollars and some of the real world examples are different, but the basic finance is the same).

<https://www.vitalsource.com/products/options-futures-and-other-derivatives-john-c-hull-v9780136940043>

[https://smile.amazon.com/Options-Futures-Other-Derivatives-2-downloads-ebook/dp/B08XDGLF44/ref=sr\\_1\\_fkmr1\\_1?crid=2M8WRJY3NMWD&keywords=options+futures+and+other+derivatives+john+hull-v9780136940043&qid=1667137720&srefix=options+futures+and+other+derivatives+john+hull-v9780136940043%2Caps%2C82&sr=8-1-fkmr1](https://smile.amazon.com/Options-Futures-Other-Derivatives-2-downloads-ebook/dp/B08XDGLF44/ref=sr_1_fkmr1_1?crid=2M8WRJY3NMWD&keywords=options+futures+and+other+derivatives+john+hull-v9780136940043&qid=1667137720&srefix=options+futures+and+other+derivatives+john+hull-v9780136940043%2Caps%2C82&sr=8-1-fkmr1)

We will not use the John Hull text book much in class but it is very useful background reading if you have time to devote to it.

## FE 870: Analysis and Management of Financial Risk

Instructor: Lucy White

Office: 524

Tel: 617 358 0911; e-mail: [lwhite81@bu.edu](mailto:lwhite81@bu.edu)

Students should also e-mail the instructor with questions or office hour requests and I will endeavor to answer/fit in with your needs. If you do not get a response first time (hopefully you will!) please do follow up and remind me!

### Aim of the Course

To provide an understanding of some of the basic principles of risk measurement, risk assessment and risk management. At the end of the course, students should be aware of the basic tools and practices of risk management, and how these are used in different value a business, or a project, by estimating cash flows, given a discount rate. In addition, you will have a working knowledge of how to organize and manipulate financial data in excel to allow you to explain and evaluate a business plan or project.

### COURSE PEDAGOGY AND CONTENT

The allocation of time in the course is flexible and will proceed according to students' knowledge, interests, and abilities. Each session of the class will be a combination of interactive lecture and case study discussion. The components of the course will be as follows:

1. **Fundamental rationale for Risk Management in different settings:**
  - (i) What would Modigliani and Miller say about Risk Management?
  - (ii) What does the CAPM say about what kind of risks can and should be insured or hedged, and the cost of this?
  - (iii) What does the efficient markets theory say about arbitrage activities and its risks?
2. **What sort of financial imperfections make hedging and insurance valuable? What goes wrong in the absence of risk management:** short case study discussion on Stone Container.
3. **The basic tools for Financial Risk Management: call and put options, futures and forwards:** Pacific Salmon
4. **Risk Management in Corporations** Case Studies: Maxum Petroleum; Porsche.
5. **Risk Management in Financial Institutions:** Actively Managed Funds, Pension Funds, Insurance Companies, Banks. Each of these different settings introduces different challenges. We will explore some, but not necessarily all, of the following, depending on time and student interest and level: the provision of portfolio insurance using dynamic hedging strategies; the limits to arbitrage and the consequences for hedge funds involved in arbitrage; maturity matching for pension funds and the concept of duration (maturity) hedging for fixed income funds, pension funds, etc.;

At the end of this half-course, you have significant knowledge about the differences and commonalities in the practice of risk management across these different institutions. You will be able to suggest a risk management strategy for a corporation and discuss its pros and cons. You will have an understanding of the features of risk management in a range of financial institutions, including risk measures and strategies employed. You will not necessarily be able to price all of the strategies and instruments used in risk management. *This course is a complement to, not a substitute for, a technical derivatives pricing course.*

- The course will be a mix of
  - Lectures
  - Case studies
  - Examples
  - Discussion of current events

## COURSE MATERIALS

- We will begin by using *Corporate Finance* by Jonathan Berk and Peter DeMarzo, 5th edition (including MyFinanceLab access kit), Pearson. **This is the same textbook that you have used in your core finance courses. Hopefully, you still have access to this textbook and to the MyFinanceLab website, which we will use for class online homeworks and in class quizzes.** In case you no longer have access to the book, it costs \$99 and includes the e-textbook for this course (see below), as well as many multimedia videos and study aids, and a large number of practice questions. A two-week “free trial” of Myfinancelab should be available, but you will need to purchase access after that, so time your free trial carefully. To purchase or get a free trial of myfinancelab, arm yourself with the course registration ID (which will be posted as a pdf file on blackboard) and follow the instructions therein, or go to:  
<https://www.pearsonmylabandmastering.com/northamerica/myfinancelab/students/get-registered/index.html>
- Additional, more advanced, textbook: More advanced material is contained in *Options, Futures and Other Derivatives* by John Hull (any edition will be useful), Pearson. Students who have already mastered the basics of financial options; and know the Modigliani Miller theorem may wish to read with this book instead of the Berk and de Marzo one.
- **Harvard Business School cases. These cost \$4.25 each and are available from the Harvard Business School Publishing website. Cases can be purchased at the following weblink:**  
<https://hbsp.harvard.edu/import/1094536>

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## PERFORMANCE EVALUATION

Your FE870 grade is comprised of the following components, with the following weights:

Component	Total Weight
• Online homework assignments	20%
• Quizzes (0, 1, or 2)	15%
• Team Risk Management Presentation	25%
• Case write up	15%
• Class Participation	25%

Note that the syllabus, and hence the evaluation, is intended to be flexible around students' needs and preferences. Accordingly, it may be that some of the above components do not occur exactly as described in the bullet points above. If that happens, the exact percentage allocated to each component may change: generally, the weight of all remaining components will be prorated accordingly.

### Details concerning Performance Evaluation

- **Online homework assignments:** Homework will be assigned through MyFinanceLab after each class (i.e. once per week). Generally, the purpose of the homework is to give students appropriate incentives to review material as we go along, and to help you see where you need to review. The precise instructions regarding registering and logging in into MyFinanceLab are found in the registration handout available in the "Resources" section of the class website. You will have up to 3 attempts and unlimited time to complete each question in the homework assignments. Homework assignments are to be prepared individually. They are to be submitted by 9am on the morning of the following class unless otherwise specified.
- **Quizzes:** May occur on the second and third days of class as a substitute for a more formal exam. Will take 30 mins-1 hour. TBD depending on progress and level of class.
- **Cases:** We will study some cases to get a feel for risk management in practice. These cases will generally be assessed by class participation. However, at the end of the course, you will be asked to provide a case write up for a risk management situation described in one case to be assessed as part of your grade. I will provide detailed questions to help you through the analysis. The write up will be relatively short (around 3 pages) and will contain your assessment and recommendations for the situation described in the case and answers to assignment questions as appropriate.
- **Class participation:** I expect and encourage active participation from all students. "Active participation" does not mean that you need to try to answer every single question posed in class. But it does mean that you regularly volunteer to answer questions. Thoughtful questions and remarks will also be rewarded. "Thoughtful" does not necessarily, or even generally, coincide with "correct". I reserve the right to pose questions to individual students during class ("cold calls") to stimulate class participation.
- **Final Exam:** Given how short our time is together, I decided not to grade this course using a final exam, since it takes learning time together out of class. Instead, I will invite student presentations to allow you to specialize and learn more about your particular topic of interest in this area – and

to allow you to learn about other areas through student presentations (see fuller description below).

- **Open Book Policy for exams and Quizzes:** All quizzes in this course are **open-book**, that is, *you can use whatever material you like during the exam*. What is prohibited is communication with anyone else during the exams or quizzes. Your exams, quizzes, homeworks, and data case should all be your own work. For homeworks, you may discuss problems and work with other students, but what you actually submit should be entirely your own work (that means, for example, that you should have created your own spreadsheet to solve the problems, and should never be relying on other peoples' calculations or spreadsheets, you should always be able to produce your own calculations on request).
- **The Risk Management Presentation** is a team project to be undertaken singly or in pairs. Only one submission/presentation will be made per team. Students can choose a topic or episode that interests them under the general heading of risk management and research the topic to present to the class (topics should be approved the week before the presentations). Presentations will be graded according to the clarity, relevance, concision and interest of the presentation, as well as the ability of students to explain their material and answer questions from the audience, and the quality of the insights gained from the presentation. Presentations will probably be 10-15 minutes long, but the exact length will depend on how many student teams we end up having.

#### **DIVERSITY AND INCLUSIONS STATEMENT**

- In developing and delivering this course, I aim to be thoughtful about how identity and culture impact the classroom experience and the course content.
- However, like everyone else, I am human and I make mistakes. Please let me know if I am unconsciously exhibiting a bias that I may not be aware of. I also encourage you to share your personal experiences and perspective related to the course content. If there are topics or conversations that you feel would benefit from incorporation of social context, a differing perspective, please do let me know so that I can seek out resources and opportunities for us to engage a wider variety of perspectives in our classroom.

#### **ACCOMMODATIONS FOR STUDENTS WITH SPECIAL NEEDS:**

- In keeping with University policy, any student with a disability who needs academic accommodations should call the Office of Disability Services at 353-3658, or visit 19 Deerfield Street to arrange a confidential appointment with a Disability Services staff member. Please try to deliver accommodation letters to me in a timely fashion. Please note that accommodations cannot be provided without an official letter of accommodation.

#### **SEXUAL MISCONDUCT/ TITLE IX POLICY**

- The Questrom School of Business is committed to fostering a safe learning environment for all members of the community and preventing sexual misconduct.
- All forms of sexual misconduct, including rape, acquaintance rape, sexual assault, domestic and dating violence, stalking, and sexual harassment are violations of Boston University's policies, whether they happen on campus or off campus.

- Title IX of the Education Amendments of 1972 is a federal civil rights law that prohibits sex-based discrimination in federally funded education programs and activities. This law makes it clear that violence and harassment based on sex and gender is a Civil Rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, etc.
- If you or someone you know has been harassed or assaulted, you can find the appropriate resources at <http://www.bu.edu/safety/sexual-misconduct/>

## **ACADEMIC INTEGRITY POLICY**

- The Questrom School has developed an Academic Conduct Code ([link here](#)). You should make sure that you are in compliance with this code of conduct. In particular, all submitted work – homework, quizzes, exams should be your own work, unless express permission has been given otherwise. (An exception is that general help with homework by one student in response to (an)other's question can be provided on the course forum on Questrom tools, so that all students can access it and it is fair.) Group projects should be the joint work of the whole group – the object is that the whole group learns how to do the project through collaboration. It should not be the case that the project is undertaken by only one or a few members of the group and others don't understand it but nevertheless have their names on it. It is the duty of group members to ensure that all group members understand and could reproduce the analysis their group has undertaken.

## **COURSE RECORDING POLICY**

- All class sessions will be recorded for the benefit of registered students who are unable to attend live sessions (either in person or remotely) due to time zone differences, illness or other special circumstances. Recorded sessions will be made available to registered students ONLY via their password-protected BU account. Students may not share such sessions with anyone not registered in the course and may certainly not repost them in a public platform. Students have the right to opt-out of being part of the class recording. Please contact your instructor or teaching assistant to discuss options for attending the course in such cases. More information on this topic is available at <https://digital.bu.edu/lfa-classroom-recordings/>.