

Energy Financial Risk Management
FIN 377.5
Unique number: 03379

Fall 2010

GSB 5.153

Monday- Wednesday, 11.00-12.30

Instructor: Malcolm Wardlaw

Contact Info: CBA 6.492, malcolm@mail.utexas.edu

Office hours: TBA

TA: TBA

I. Overview

This class presents the fundamental concepts and techniques of risk management. We adopt the perspective of a non-financial corporation and we focus on financial risks; with an emphasis on energy applications (e.g. managing risk associated with fluctuating oil prices). The main mechanism through which companies manage financial risk is through the use of derivatives (e.g. forward contracts or options); and so much of the course will focus on understanding how derivatives are used to manage risk. An integral part of this exercise is to understand how derivatives are valued, since the economic rationale for risk management critically hinges on the price at which risk management can be executed.

At the end of the course, students should: (i) have a clear understanding of the economic rationale for risk management; (ii) master the basic techniques for the valuation of forwards, futures, and vanilla options (calls and puts); (iii) master the basic techniques for engineering hedges using forwards, futures, and options; (iv) understand the specifics of risk management in terms of energy risk.

Prerequisite: FIN 367 (Investments).

II. Grading

There will be three exams, each covering a subsection of the material; and each counting 20% towards the final grade. Failure to attend an exam will result in a grade of zero. There will be 7-8 homework assignments. Each homework assignment may be completed by groups of up to 3 students.

Homeworks count 30% towards the final grade and are graded on a discrete 0-3 scale. Homeworks are due no later than midnight of the day specified in the table under point III below. Late homeworks are not accepted and will obtain a grade of zero. **Homework assignments will be posted online via Blackboard and are to be handed in also via Blackboard (digital dropbox).**

Class participation counts 10% of the final grade.

Final grades will be given on a curve, according to official University guidelines.

Please note that all three exams will be given in class, and no makeup exam dates will be given. Any student who cannot attend class the exam due to serious extenuating circumstances *must* contact me before the exam date and will be dealt with on a case by case basis.

III. Lecture guide and Tentative Assignment/Exam Dates

The table below describes the material to be covered in each class, respective book chapter(s), and tentative homework dates. **Please be aware** that this schedule *may change* and speaker dates and due dates for assignments may be rescheduled. Any changes will be announced on Blackboard, along with the lecture slides. The student is responsible for keeping up with *all* announced changes.

Class no.	Date	Class subject	References
1	Wed, Aug. 25	Class objectives and policies. Basic notions of futures and options. Specifics of energy risk management.	--
2	Mon, Aug. 30	The economics of risk management: when and how should firms hedge?	--
3	Wed, Sep. 1	Introduction to derivatives (1/2).	Hull, ch.1
4	Wed, Sep. 8	Introduction to derivatives (2/2). HW 1 assigned.	Hull, ch.1
5	Mon, Sep. 13	Mechanics of futures markets (1/2).	Hull, ch.2
6	Wed, Sep. 15	Mechanics of futures markets (2/2). HW 1 due.	Hull, ch.2
7	Mon, Sep. 20	Hedging strategies using futures (1/2). HW 2 assigned.	Hull, ch.3

8	Wed, Sep. 22	Outside speaker (Rob Jones)	--
9	Mon, Sep. 27	Hedging strategies using futures (2/2) HW 2 due.	Hull, ch.3
10	Wed, Sep. 29	Determination of futures and forwards prices (1/2). HW 3 assigned.	Hull, ch.5
11	Mon, Oct. 4	Determination of futures and forwards prices (2/2). HW 3 due.	Hull, ch.5
12	Wed, Oct. 6	Exam 1 (20%)	--
13	Mon, Oct. 11	Mechanics of option markets.	Hull, ch.8
14	Wed, Oct. 13	Properties of stock options.	Hull, ch.9
15	Mon, Oct. 18	Outside speaker (Ehud Ronn).	Hull, ch.11
16	Wed, Oct. 20	Binomial trees. HW 4 assigned.	Hull, ch.11
17	Mon, Oct. 25	The Black-Scholes-Merton model (1/3). HW 4 due. HW 5 assigned.	Hull, chs.12 and 13
18	Wed, Oct. 27	The Black-Scholes-Merton model (2/3). HW 5 due	Hull, chs.12 and 13
19	Mon, Nov. 1	Outside Speaker (Vince Kaminsky).	--
20	Wed, Nov. 3	Exam 2 (20%).	Hull, chs.12 and 13
21	Mon, Nov. 8	The Greek letters (1/2).	Hull, ch.17
22	Wed, Nov. 10	The Greek letters (2/2). HW 6 assigned.	Hull, ch17
23	Mon, Nov. 15	Value at Risk (1/2). HW 6 due.	Hull, ch.20
24	Wed, Nov. 17	Value at Risk (2/2). HW 7 assigned.	Hull, ch.20
25	Mon, Nov. 22	Weather, energy, and insurance derivatives (1/2). HW 7 due. HW 8 assigned.	Hull, ch.25
26	Wed, Nov. 24	Weather, energy, and insurance derivatives (2/2).	Hull, ch.25
27	Mon, Nov. 29	Outside speaker 4 (TBA). HW 8 due.	--
28	Wed, Dec. 1	Exam 3 (20%).	--

IV. Textbook and materials

This course has one required textbook, which is followed closely:

Hull, John C., "Options, Futures, and Other Derivatives", 7th edition, Pearson

Students can use the 6th or 5th editions of the same book, which cover most of the material I use from the 7th edition. I may complement the book's material, especially on topics related to energy risk management; but in such cases the lecture notes will suffice.

Students are required to have a calculator capable of performing log and exponential functions. This will be important for exams, as well as participation for certain lectures.

V. Academic integrity

University of Texas Honor Code:

"The core values of The University of Texas at Austin are learning, discovery, freedom, leadership, individual opportunity, and responsibility. Each member of the university is expected to uphold these values through integrity, honesty, trust, fairness, and respect toward peers and community."

Each student in this course is expected to abide by the University of Texas Honor Code. **[See the UT Honor Code above.]** Any work submitted by a student in this course for academic credit will be the student's own work.

You are encouraged to study together and to discuss information and concepts with other students. You can give "consulting" help to or receive "consulting" help from other students taking the same class. However, this permissible cooperation should never involve one student having possession of a copy of all or part of work done by someone else, in the form of an e-mail, an e-mail attachment file, a diskette, or a hard copy.

Should copying occur, both the student who copied work from another student and the student who gave material to be copied will both automatically receive a zero for the assignment. Penalty for violation of this Code can also be extended to include failure of the course and University disciplinary action.

During examinations, you must do your own work. Talking or discussion is not permitted during the examinations, nor may you compare papers, copy from others, or collaborate in any way. Any collaborative behavior during the examinations will result in failure of the exam, and may lead to failure of the course and University disciplinary action.

VI. Students with disabilities

Any student with a documented disability who requires academic accommodations should contact Services for Students with Disabilities (SSD) at (512) 471-6259 (voice) or 1-866-329-3986 (video phone). Faculty are not required to provide accommodations without an official accommodation letter from SSD.

- Please notify me as quickly as possible if the material being presented in class is not accessible (e.g., instructional videos need captioning, course packets are not readable for proper alternative text conversion, etc.).
- Contact Services for Students with Disabilities at 471-6259 (voice) or 1-866-329-3986 (video phone) or reference SSD's website for more disability-related information:
http://www.utexas.edu/diversity/ddce/ssd/for_cstudents.php

VII. Classroom conduct

In order for you to get the most out of this class, please consider the following:

- (i) Attend all scheduled classes and arrive on time. Late arrivals and early departures are very disruptive and violate the first basic principle listed above.
- (ii) Please do not schedule other engagements during this class time. I will try to make the class as interesting and informative as possible, but I can't learn the material for you.
- (iii) If you have trouble hearing the lecture or media presentation because of distractions around you, quietly ask those responsible for the distraction to stop. If the distraction continues, please let me know. It is often impossible for me to hear such things from my position in the classroom.
- (iv) Please let me know immediately if you have any problem that is preventing you from performing satisfactorily in this class.