UNIVERSITY OF TORONTO
DEPARTMENT OF ECONOMICS
ST. GEORGE CAMPUS

ECO461/ECO2506 – ECONOMICS OF FINANCIAL RISK MANAGEMENT
SPRING 2014

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Course Description:

The course focuses on understanding how institutions manage interest rate risk, exchange rate risk, and commodity price risk using derivatives. More specifically the course examines the use of forwards, futures, SWAPs, options, and related financial derivatives for hedging, arbitrage, and speculation in the global environment. The emphasis is on developing the motivation, issues, and techniques behind financial engineering with these derivatives, as practiced by firms and individuals.

The topics covered in this course include, the basics and the pricing of the derivatives securities, the hedging using derivatives, the value-at-risk (VaR) measure of risk, as well as credit risk:

By the end of this course you would learn:

I.   How the derivatives markets work.
II. How they can be used to manage risk.
III. How derivative prices are determined.
IV. What VaR is and how it works.
V. How to measure and hedge credit risk.

Textbook:

Required Text: Hull, J, 2011, *Options, Futures, and Other Derivatives*, 8th edition, Prentice-Hull Inc.

Evaluation:

Mid-term Examination	40%
Final Examination	60%
TOTAL	100%

Both exams are closed book. However, you are permitted to bring a calculator and a **hand-written** "crib sheet" to each of the exams. For the mid-term, you may use **one side** of one 8½" × 11" page with notes and/or formulae. For the final exam, you may use **two sides** of an 8½" × 11" page. The midterm test is a two hour test while the final is three hours long.

Assignments:

There are three optional assignments each worth 5%. They will be marked as follows: 5: Perfect, 2.5 satisfactory, 0: otherwise. The first two assignments are computer-based. The third consists of a short paper (no more than 5 pages double spaced; 800-1000 words) discussing the use of forwards, futures, SWAPs, options, or related derivatives in managing some aspect of financial risk in global markets. A possible paper topic could be to write a case discussing a specific firm's use (or misuse) of derivatives in managing (or mismanaging) some aspect of risk. See Hull's book, Chapter 23, which discusses specific cases of firms' use of derivatives in managing risk. The Wall Street Journal articles accessible through E-Journal electronic provides many examples of derivatives failures for specific firms that offer good ideas for this paper. In addition, Harvard Business School (HBS) materials can also be used, but you need to expand on the available studies. A few cases of interest are:

Why Manage Risk? HBS Note 294107
American Barrick Resources Corp: Managing Gold Price Risk, HBS 9-293-128
Swaps background: A Note on Currency Swaps, HBS 9-292-043
Walt Disney Company's Yen Financing, HBS 9-287-058
How Financial Engineering Can Advance Corporate Strategy, HBS 96112
Long-Term Capital Management (A & C), HBS 9-200-007 & 9-200-009

These materials are available from Harvard Business: [http://www.hbsp.harvard.edu]

The current US first financial crisis also presents an excellent topic. However, this requires an understanding of Credit Default Swaps (CDS) as well as Collateralized Debt Obligations (CDOs) which are a relatively recent innovation, but the risk they are designed to manage is fundamental and pervasive. It is no surprise that the market for credit derivatives has developed enormously fast. A good write-up is:

Crouhy, Jarrow, and Turnbull. "The Subprime Credit Crisis of 07." Journal of Derivatives, Fall 2008.

Preparation

- This is rather fast moving course so you need to study hard. The lecture notes are posted several days ahead of the lecture. It is important to read them <u>before</u> attending each lecture. It is also important for you to study the textbook on a regular basis otherwise you will soon find yourself lost!
- Lectures include questions/examples and I will also post practice questions, I expect you to learn those.
- There are also questions assigned from the book. Although I do not consider them as important as my own questions, it will help your understanding if you solve some of them on a weekly basis.

Course Schedule

Date	Topic	Session Material	Recommended Questions
Week-1	**Introduction, Futures Markets**	Chapter 1, Chapter 2	1.25, 1.26, 1.27
Week-2	**Futures Markets, Hedging Strategies Using Futures**	Chapter 2 (Cont'd) Chapter 3	2.16, 2.17, 2.23 3.16, 3.18, 3.19, 3.20
Week-3	**Interest Rates & Duration Interest Rate Futures**	Chapter 4 Chapter 6	4.5, 4.11, 4.17, 4.22, 4.23 6.6, 6.10, 6.14, 6.17, 6.19
Week-4	**Determination of Forwards and Futures Prices**	Chapter 5	5.16, 5.17, 5.21, 5.22, 5.23
Week-5	**Swaps**	Chapter 7	7.2, 7.3, 7.9, 7.10, 7.12
Week-6	**Midterm** **Options Markets:** **Mechanisms, Properties, Strategies** **Binomial Tree, Dynamic Hedging**	Chapter 9 Chapter 10 Chapter 11 Chapter 12	9.9, 9.16 10.13, 10.15 11.7, 11.12, 11.18 12.4-12.6, 12.8-1-13
Week-7	**Option Valuation** **[The Black-Scholes-Merton Model]**	Chapter 14 (Excluding 14.6)	14.13-13.16, 14.19-13.21
Week-8	**Exotic Options**	Chapter 25	25.4, 25.12, 25.19
Week-9	**Option Sensitivities & Delta Hedging [The Greek Letters]**	Chapter 18	18.2, 18.3, 18.8-10, 18.14, 18.16
Week-10	**Value at Risk**	Chapter 21: 1-4	21.8,21.11,21.13,21.16,21.21
Week-11	**Credit Risk**	Chapter 23	23.1, 23.3, 23.5
Week-12	**Securitization and Credit Crisis of 2007**	Chapter 8	

Note: Chapter references are to John C. Hull's textbook