

Hong Kong University of Science & Technology

FINA 515: Corporate Risk Management

Fall 2008

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Class Schedule: September 6 to October 25, Saturdays from 2:30 to 5:50PM, Room: 4620

Course Website: <http://lmes.ust.hk>

COURSE OBJECTIVE

This course introduces you to financial risk management and financial engineering from the perspective of non-financial corporations. You will learn why firms should or should not manage risk, whether they do manage risk, and how to measure and manage risk. Whereas previous courses you have taken examine the institutional details and valuation of derivative securities, this course shows you how to maximize shareholder value through proper risk management. As Rene Stulz points out in the preface to the course textbook, most students are trained to price derivatives but few are trained how to use them. In reality, most students will become users of derivatives but few will trade them. This course aims to correct this imbalance by equipping you with the right tools and insights to manage risk in a corporate setting. To highlight the practical relevance of the course materials we will discuss a number of real-world cases throughout the course.

INSTRUCTION

This course is co-taught by Professor MacKay of HKUST and Mr. Pascal Vinais, an industry practitioner with over twenty years' experience in risk management. Professor MacKay will teach five lectures, administer the exam, and oversee the academic aspects of the course. Mr. Vinais has kindly agreed to teach two lectures related to his area of expertise, thus providing insights on the more practical side of real-world corporate risk management.

COURSE PREREQUISITES

Prerequisite to this course is the successful completion of FINA 512: Corporate Finance, or equivalent. You should also be familiar with the basic aspects of derivative securities. A derivatives course such as FINA551: Options and Futures Markets is highly recommended. Material covered in those courses is assumed knowledge. Finally, prior completion of a course in international finance or economics will prove useful but not essential.

If you are not yet proficient with the spreadsheet program Microsoft EXCEL it is vital that you become so now. We will be using this program extensively throughout the course. In the past, many students have wasted a lot of time simply because they did not know how to use EXCEL effectively. If you have never used EXCEL, or if you are rusty, we recommend you go through an EXCEL tutorial such as Excel Applications for Investments by Troy A. Adair, Jr., McGraw Hill Irwin International. A copy is on reserve at the library.

READINGS

1. Required Materials

René Stulz (2003), Risk Management and Derivatives, Thomson – South-Western College Publishing, ISBN 0-538-86101-0.

Harvard Business School (HBS) materials:

Learning by the Case Method, HBS 9-376-241 (*Optional*)

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 & HBS 9-200-009

These materials will be supplied to students courtesy of the MSc program office.

Other course materials will be posted on the course website as they become available. The following is a list of useful reference books (in decreasing order of relevance to the course).

2. Additional References and Background Reading

R.L. McDonald (2005), Derivatives Markets, Pearson Addison Wesley.

J.C. Hull (2000), Options, Futures and other Derivative Securities, Prentice Hall, 4th edition.

P. Jorion, Value at Risk, McGraw-Hill, 2nd edition.

S. N. Neftci (2004), Principles of Financial Engineering, Elsevier Academic Press.

Smithson, Smith, and Wilford (1995), Managing Financial Risk, Irwin.

S. Titman and M. Grinblatt (2002), Financial Markets and Corporate Strategy, McGraw-Hill, 2nd edition.

R. Brealey and S. Myers (2000), Principles of Corporate Finance, McGraw-Hill, 6th edition.

Z. Bodie, A. Kane, and A.J. Marcus (2005), Investments, McGraw Hill Irwin, 6th edition.

COURSE ACTIVITIES AND EVALUATION

Class participation	15%
Case reports (team-work)	30% (three reports)
Case presentation (team-work)	10% (one presentation)
Team peer evaluation	5%
Final exam (closed-book, crib-sheet, to be held in week 8)	40%

1. Class Participation

Class participation includes attendance, attitude, and volunteered and “cold call” responses. We may call on you regarding discussion questions, readings, and cases. It therefore behooves you to show up for class well prepared. Specifically, all reading assignments should be completed *before* the class we cover them. It is your responsibility to be active in class. Do not simply wait for to be called on; raise your hand or speak out. The points you receive for class participation will reflect the quality and quantity of your contribution. We will take attendance and penalize those without a previously-excused absence. Moreover, skipping class seriously jeopardizes your success in the course. To help us learn your names and assign proper credit for class participation, we ask that you use name tents at all times.

Late arrivals, early departures, chatter, ring tones, unwarranted laptop or PDA usage, eating, chewing, or drinking are rude and disruptive to the quality of the learning environment in the classroom. Any such behavior will be noted and count against your participation grade.

2. Cases and Teamwork

Cases are an integral part of this course. To lower the work load for everyone, we ask that you form teams to tackle the cases. To help you prepare the cases for class discussion, we require every team to turn in a report for each case. The report must summarize the central problem in the case and propose a solution. We have prepared a series of study questions for each case to aid your analysis. Additionally, we recommend that you read Learning by the Case Method (HBS 9-376-241) to understand more about case pedagogy and to develop some general case-solving strategies. Each team must also present one of the cases. We discuss our specific expectations regarding the cases in a latter section of the syllabus.

Teams may have as few as five (5) members but no more than seven (7). These bounds will be adjusted depending on class enrollment. Please form your teams by the second week of class when you must identify your team members and the case you would prefer to present.

Because so much of your grade depends on teamwork, we want to encourage good team work by asking each team member to evaluate all other team members on a variety of dimensions. To this end, the last page of this syllabus contains an evaluation form which must be completed and tendered in hardcopy format when you sit for the final exam.

3. Final exam

The exam will cover all assigned textbook and supplementary readings, problems and exercises, handouts and anything said or written in class.

The letter grade you earn depends on your performance relative to other students taking the course. The final distribution of letter grades will be set in accordance with departmental and school policy.

STUDENT TEACHER INTERACTION

Office Consultation with Professor MacKay

I hope you will drop by my office from time to time so we can chat. Otherwise, office consultations are meant to help you with material you find unclear once you have made every effort to understand it. These efforts include: preparing for class (do assigned readings and problems *before* class), attending class (no private make-up classes), participating in class (ask questions as they arise), consulting your peers (form study groups), re-reading the relevant sections, letting the matter sit for a few hours, then approaching the problem/question from another angle. Only once you have exhausted all these avenues should you consider visiting with me. For best results, have specific questions ready if and when you do decide to consult me. I will not respond favorably to vague pleas for help, requests to solve problems from scratch, review entire book chapters or pour over class notes. Aside from posted hours, I will meet with you at any other mutually convenient time. I will hold extra office hours in the days before the exam.

Phone Use and Email Consultation with Professor MacKay

You may contact me by phone to set up an office meeting or occasionally to ask short questions (preferably of the yes/no variety). Email is an efficient alternative to office consultation. I will try to respond to your queries promptly. However, as in all good things, a law of decreasing returns applies: Repeated emails will lower my propensity to respond.

COURSE OUTLINE AND READING ASSIGNMENTS

Week 1 (6/09, MacKay): Overview and Review

Review of Derivatives: Particulars, Payoffs, and Pricing
Basics of Corporate Risk Management

Read: Stulz Chapter 1 – Introduction to Corporate Risk Management

Read: Stulz, Rene, 2004, “Should We Fear Derivatives?”, *Journal of Economic Perspectives*, Vol. 18 No. 3, pp: 173-192.

Optional: Bodie, Kane, and Marcus (Chapters 20, 21, 22)

Optional: McDonald (Chapters 1, 2, 3)

Week 2 (13/09, MacKay): Risk Management and Firm Value: Theory and Evidence

Class debate: Should or shouldn't firms manage risk?

Read: Why Manage Risk? HBS Note 294107

Read: Stulz Chapter 2 – Investors and Risk Management

Read: Stulz Chapter 3 – Creating Value with Risk Management (Financial factors)

Optional: Bodnar, Marston, and Hyat, *1998 Survey of Financial Risk Management by U.S. Non-Financial Firms*, George Weiss Center for International Financial Research, Wharton School, <http://finance.wharton.upenn.edu/weiss/survey98.pdf>.

Optional: 2008 Association of Corporate Treasurers/Citi FX Risk Management Survey

Optional: Tufano (Journal of Finance, 1996 – Managerial factors)

MacKay & Moeller (Journal of Finance 2007 – Real factors)

McDonald (Chapter 4)

Week 3 (20/09, MacKay): Risk Management and Firm Value: Application

Case: American Barrick Resources Corp: Managing Gold Price Risk, HBS 9-293-128

Two team case presentations (2 x 20 minutes)

Read: A Note on Currency Swaps, HBS 9-292-043 (Background for Swaps case)

Week 4 (27/09, MacKay): Swaps and Total Risk Management: Theory

Case: Walt Disney Company's Yen Financing, HBS 9-287-058

Two team case presentations (2 x 20 minutes)

Read: Stulz Chapter 4 – A Firm-Wide Approach to Risk Management

Read: Stulz Chapter 7 – Optimal Hedges for the Real World

Week 5 (4/10, MacKay): Total Risk Management: Application

Read: Stulz Chapter 8 – Identifying and Managing Cash Flow Exposures

Application: Washington Controls (price and quantity risk, forecasting, *pro forma*, natural hedges, on and off-balance-sheet hedging, sensitivity analysis, Monte Carlo simulation).

Week 6 (11/10, Vinais): Corporate Finance Problems & Equity Derivatives Solutions

Read: How Financial Engineering Can Advance Corporate Strategy, HBS 96112

Week 7 (18/10, Vinais/MacKay): Corporate Risk Management in the Real World

Case: Long-Term Capital Management (A & C), HBS 9-200-007 & 9-200-009

Two team case presentations (2 x 20 minutes)

Week 8 (25/10): Exam – room TBA

CASE METHOD AND DELIVERABLES

1. Tackling Cases

The purpose of the cases is to demonstrate the relevance of the course materials and to apply the financial concepts covered in class. You need not explain these concepts in your case reports, but can assume that the reader is familiar the relevant theory.

Support any claims you make by references to the information given in a case, graphs, or figures. Good case reports do not contain vague statements or guesses. It is possible that the information in a case does not provide enough information to make a clear judgment. In this case it is better to say so than to make a guess. Read Learning by the Case Method (HBS 9-376-241) to understand more about the case method.

2. Case Reports

Reports must be well written, free of grammatical errors and typos, and offer compelling arguments. Reports are due in hardcopy format at the start of class on the day we cover the case. Since we discuss the case solutions in class, late reports cannot be accepted. All team members will receive the same grade. Note that while the case report is teamwork, the in-class discussion of the case is individual and counts toward your class participation grade.

Your reports should consist of concise and brief answers to the case questions. Make sure you adequately address all case questions. The report must contain a 1-page, single-spaced executive summary, followed by no more than 5 pages of double-spaced explanatory text and analysis, and an unspecified number of tables, graphs, and appendices. Reports must be laser-printed in 12-point Times New Roman font on plain white paper and bound or stapled. Your report must properly reference any cited sources. Note: **Plagiary will spell failure!**

The key ingredients we are looking for when evaluating reports and presentations are: originality, thoroughness, and professionalism. Your supporting arguments must be

compelling and your recommendations must be relevant. Write in good business English, and keep the style crisp and clear. Proof read your report before turning in the final copy.

Any spreadsheet printout included in a case report should be *self-contained*, i.e., one should be able to understand the information given in a table without relying on the main text of the analysis. Tables should include all your assumptions as well as the formulas that are not immediately transparent. Furthermore, the body of the report should refer to any and all tables, graphs, or figures and state what specific element of these supporting documents is relevant to your argument. It is not enough to slap on a pile of tables or graphs without duly explaining in the text why you have produced them and what point they support.

3. Case Presentations

Each team must also present one of the cases. The presentation must be of a professional caliber. It should last no less than 15 minutes but no more than 20 minutes, including a compulsory question and answer session from the class. The presentation should convey, in an interesting and effective manner, the issues you encountered in the case. It should therefore *not* consist of reading or reciting your written report, but rather displaying your mastery of the case in a structured but free-flowing manner. You probably should support your presentation with Power Point slides, or other graphical aids, but such is not required. Business attire is suggested but also not required. Not every team member is required to speak, but the instructors may direct their questions to any team member.

CASE STUDY QUESTIONS

1. American Barrick Resources Corporation: Managing Gold Price Risk

Case objectives: Should firms hedge, financial engineering

- 1) In the absence of a hedging program using financial instruments, how sensitive would Barrick stock be to gold price changes? For every 1% change in gold prices, how might its stock be affected? How could the firm manage its gold price exposure without the use of financial contracts? Use the data on the course website to support your analysis.
- 2) What is the stated intent of ABX's hedging program? What should be the goal of a gold mine's price risk management program? Contrast with Homestake Mining Co.'s policy.
- 3) What would convince you that a price risk management program created value for its shareholders *ex ante*?
- 4) How would you characterize the evolution of Barrick's price risk management activities? Are they consistent with the stated policy goals?
- 5) How should a gold mine which wants to moderate its gold risk compare hedging strategies (using futures, forwards, gold loans, or spot deferred contracts) with insurance strategies (using options)? On what basis should these decisions be made? Once a firm has decided on either a hedging or an insurance strategy, how should it choose from among specific alternatives?
- 6) What is a "spot deferred contract?" Is it an option? A forward contract? Why has ABX chosen to rely on spot deferred contracts relative to other gold derivatives?

2. The Walt Disney Company's Yen Financing

Case objectives: The use and benefits of swaps

- 1) Should Disney hedge its yen royalty cash flow? Why or why not? Do not simply recite the theories of hedging but show whether and how they apply in the case of Disney. If so, how much should be hedged and over what time frame? Hint: international parity conditions.
- 2) Assuming a hedge is in fact desirable, what hedging techniques are available to the treasurer and what are the advantages and disadvantages of each?
- 3) In light of the various other techniques for hedging currency exposures, why does a market for currency swaps exist? Who benefits and who loses in such an arrangement? Can a swap really create value for a corporation, and if so, where does the value come from? What risks does a swap carry for the various parties involved?
- 4) Evaluate Goldman's proposal for an ECU bond issue accompanied by an ECU/yen swap. How does its 'all-in' yen cost compare to that of the proposed yen term loan or using outright forwards? Why would the French utility consider swapping obligations with Disney? How well do the French utility and the swap bank (IBJ) fare in the deal? (Note: "all-in" cost refers to that discount rate which equates the present discounted value of future debt service payments with the financing proceeds less front-end fees [i.e., the internal rate of return], expressed as an annual rate).

3. Long-Term Capital Management (LTCM)

Case objectives: The limits to risk management

- 1) What is the business of LTCM? Describe some strategies LTCM was using. Give some examples. About the Ciena Corp vs. Tellabs Inc. trade, it is written that the "risk of a break was manifestly very small". Does it imply that what may be lost in this trade is small too?
- 2) Describe the capital and funding structure? Is it consistent with the strategies used? Were other hedge funds able to get similar terms? How had LTCM been able to achieve this?
- 3) Describe the faulty assumptions and weaknesses of the model. Were LTCM's assumptions sustainable? How does the disbanding of the Salomon US bond arbitrage group fit with the LTCM's risk management assumptions?
- 4) Would more transparency have helped LTCM? Why did banks have to cooperate? Link their market exposure and credit risk to LTCM situation. What role plays the mark-to-market in this instance?

