NUS
Enterprise Risk Management – Course Outline

February 18, 2010

COURSE DESCRIPTION

This course will cover Enterprise Risk Management principles, frameworks and practices. Students will learn about Strategic, Operational, Financial Market, Political, Legal/Regulatory and Event risks through lectures and case studies. They will also learn how to identify risk drivers in corporations and financial institutions. The course will cover how to: assess the mix and level of risk exposures, quantify earnings-at-risk, value-at-risk and cashflow-at-risk, and make capital allocation decisions using risk-adjusted metrics.

Both professors are risk management professionals, each with 20 years experience developing and implementing risk management for companies across many sectors in the US, Europe and Asia. They are co-founders of a New York City based consulting firm focused on risk advisory, investment analysis, and strategy. Class discussions will be enriched by discussions about seminal cases in risk management and insights drawn from the professors’ personal experiences.

LEARNING OBJECTIVES

- Understand risk issues faced by corporations across many sectors
- Understand risk management frameworks used in managing risks
- Learn how to assess risk drivers for a corporation
- Learn why risk quantification is important and basic quantification approaches
- Understand how risk management is a powerful tool for both strategic and tactical decisions

ASSESSMENT METHOD

- Class Participation: 25% (including 2 homework assignments)
- Mid-Term: 25%
- Final Examination: 25%
- Group Project and Presentation: 25% (Content, Team & Individual Contribution)
CLASS SESSIONS AND TOPICS

Session 1

**Enterprise Risk Management Introduction – Risk Management Frameworks and Definitions**
- What is risk?
- Why risk management?
- What risk management is
- Types of risk
- Evolution of risk management

Session 2

**Risk Management in Corporations**
- EAR, VAR, CFAR frameworks discussed
- Difference between accounting earnings vs. economic risk
- Examples of corporate risk management from the following industries
  - Airlines
  - Energy
  - Trading (chemicals and metals)
  - Banks

Session 3

**Operational Risk**
- Definition of operational risk and examples of operational risk management
- Operational risk management framework
- Operational risk quantification methodology
- Importance of and challenges in measuring operational risk
- Basel 2 operational risk measurement
- Cases for discussion
  - BP Alaska Oil Leak & Texas Refinery Explosion
  - Tokyo Stock Exchange

Session 4

**Strategic Risk**
- Strategic risk framework
- Overview of strategic risk assessment and quantification
- Cases for discussion
  - Boeing & Airbus
  - DaimlerChrysler
Session 5

Financial Risk Management
- Financial market risk drivers & implication of market volatilities
- Quantification of Financial Market Risks: Equities, Commodities, Currencies, Interest Rates
- Taxonomy of financial instruments
- Risk unbundling for capital markets products
- Cases for discussion
  - Sumitomo
  - LTCM

Session 6

Introduction to VAR & Financial Instruments
- What is VAR
- Uses of VAR
- VAR Methodologies
- Case for discussion
  - Amex
- Derivatives and overview of risk management
- Risk unbundling for capital markets products

Session 7

Trading Risk & Credit Risk
- Trading Risk and Importance of Liquidity
- Credit Risk Framework and Quantification
- Cases for discussion
  - SocGen
  - HSBC
  - Bear Stearns

Session 8

Regulatory, Country, Political & Legal Risk
Reputational Risk, Resulting from linkages to all other Risk Types
- Definition of regulatory, country, political & legal risk
- Examples of regulatory, country, political & legal risk management
- Reputational risk framework
- Cases for discussion
  - Shell Sakhalin
  - Shin Corp
  - Dell Computer
  - Coke & Pepsi
  - Putnam
  - Tylenol
Session 9

**Extreme Market Volatility and Stress-Testing**
- Why do stress testing
- What is stress testing
- Stress testing approaches
- Case for discussion
  - Metallgesellschaft

Session 10

**RAROC / Risk Capital Setting**
- Introduction to RAROC (Risk Capital)
- Computation of RAROC
- RAROC implementation
- Uses of RAROC
- Basel II -- Regulatory Capital
  - Reasons behind development of Basel
  - Why Basel II could not stop the US financial crisis

Session 11

**Risk Governance and Management**
- Policies and mandate
- Organizational structure
- Risk culture
- Making risk management effective
- Case for discussion
  - CAO

Session 12 & 13

**Class Presentations**

**Wrap-up and Lessons Learned**