

Hong Kong University of Science and Technology
Department of Economics

ECON 6110E: Macroeconomic and Financial Risk Management
Spring 2019

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Description

Macroeconomic and financial risk is the likelihood that changes in macroeconomic or financial conditions like interest rates, exchange rates, sovereign credit rating, government policy or regulation, political stability, commodity prices, or equity prices will affect the economic profit or investment return of an entity. For instance, if the central bank tightens monetary policy by increasing interest rates, the cost of borrowing will rise and it will lower profit for a firm which relies on debt financing. The rising interest rates also lower the investment return for bondholders. If a country devalues its currency or defaults on its sovereign debt, creditors or investors from foreign countries will realize investment loss. This course introduces fundamental concepts of macroeconomic and financial risk management. It focuses on the identification, quantification, and management of various macroeconomic and financial risks. It evaluates and applies different tools and procedures, comprising quantitative measures and qualitative assessment, to measure and manage risk. Problems and challenges that arise in risk management process are also addressed.

Prerequisite

ECON 5280

Course Intended Learning Outcomes (CILOs)

Upon successful completion of this course, students will be able to:

1. Analyze qualitatively and quantitatively economic and financial risk exposures for financial institutions. (PILG 1, 4)
2. Apply risk management tools and procedures to manage economic and financial risks. (PILG 1, 4)
3. Address problems and challenges in the risk management process. (PILG 1, 4)

Teaching Approach

This course is primarily delivered through lectures, in-class discussion, and a group project with presentation.

Teaching & Learning Activities	Roles in the Course	Course Learning Outcomes Addressed
Lectures	Explain key concepts and models to students.	1, 2, 3
In-class discussions	Learn to develop critical thinking in analyzing risk-management questions.	1, 2, 3
Group project with presentation	Learn to apply theories to analyze real world issues and present case-study analysis.	1, 2, 3

Course Outline

1. Foundation of Risk Management

- Identification of macroeconomic and financial risks
- Introduction to risk measurement and management tools
- Delineating efficient portfolios
- Capital asset pricing model
- Risk-adjusted performance measurement
- Multi-factor models of economic risk and return

2. Quantitative Methods for Risk Management

- Time value of money
- Probability
- Basic statistics
- Estimating correlation and volatility using EWMA and GARCH models

3. Mechanics and Valuation of Financial Products

- Interest rates and valuation of bonds
- Mechanics and valuation of forwards and futures contracts
- Mechanics and properties of options contracts
- Options pricing: binomial model, Black-Scholes-Merton model, Greek letters

4. Risk Management Models for Macroeconomic and Financial Risk

- Value-at-risk and stress testing
- Hedging strategies using futures contracts
- Risk metrics and hedges for fixed income securities
- Foreign exchange risk management
- Country and sovereign risk models and management
- Operational risk measurement and management

Assessments

Case Study Analysis	15%	A group project, 5 students per group
Presentation	10%	Presentation of the group project
Midterm*	35%	2 nd or 3 rd week of March (to be confirmed later)
Final Exam	40%	Any day during May 17-29 (to be confirmed later by AR)

*If you miss the midterm due to sickness or other unforeseeable emergencies, you must present an official document (e.g., medical proof from your doctor) justifying the absence. The weight of the midterm will be added to the final exam.

Teaching Materials

- Lecture notes and supplementary readings (downloadable from the course's CANVAS)

Other References (available from HKUST library, either online access or hardcopy)

- Allen, L., Boudoukh, J., Saunders, A., (2004). *Understanding Market, Credit and Operational Risk: The Value at Risk Approach*, New York: Wiley-Blackwell.
- Allen, S., (2013). *Financial Risk Management: A Practitioner's Guide to Managing Market and Credit Risk*, 2nd Edition, New York: John Wiley & Sons.
- Amenc, N., Le Sourd, V., (2003). *Portfolio Theory and Performance Analysis*, West Sussex, England: John Wiley & Sons.
- Hull, J., (2014). *Options, Futures, and Other Derivatives*, 9th Edition, New York: Pearson.
- Hull, J., (2015). *Risk Management and Financial Institutions*, 4th Edition, Hoboken, NJ: John Wiley & Sons.
- Lam, J., (2014). *Enterprise Risk Management: From Incentives to Controls*, 2nd Edition, Hoboken, NJ: John Wiley & Sons.
- Miller, M., (2013). *Mathematics and Statistics for Financial Risk Management*, 2nd Edition, Hoboken, NJ: John Wiley & Sons.
- Schroeck, G., (2002). *Risk Management and Value Creation in Financial Institutions*, New York: John Wiley & Sons.
- Tuckman, B. (2011). *Fixed Income Securities*, 3rd Edition, Hoboken, NJ: John Wiley & Sons.

Academic Policy

Dishonesty or plagiarism will not be tolerated. Any student violating HKUST Academic Integrity and Honor Code (<http://www.ust.hk/vpao/integrity>) will be subjected to disciplinary procedure.