

Course Outline

Course Code : RE4807
Course Title : Real Estate Risk Analysis and Management
Semester : Semester 2, Academic Year 2023/2024
Faculty : Assistant Prof Li Zhonglin
Department : Real Estate
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Overview

This course introduces the concepts, principles, theories, techniques and practices of risk analysis and management in real estate investments. Topics include concept of real estate market risks, real estate strategic risk management, Value-at-Risk (VaR), sensitivity and scenario analyses, Monte Carlo simulation, risk hedging and property derivatives, option pricing theory and real options.

Learning Outcomes

Through this course, student will be able to:

- Revise the concept of probability and axioms of probability.
- Understand why Risk management is important in Real Estate investments.
- Understand the fundamental philosophy behind risk management.
- Gaining an understanding of the DCF approach used by private equity and finance professionals.
- Understand the benefits and the potential inapplicability of Monte Carlo methods.
- Understand exactly what VaR is measuring and risk of using VaR.
- Understand how to calculate VaR and CVaR. Be familiar with uses of VaR measures.
- Understand concepts of forward contracts.
- Understand concepts of forward contracts and option contract.
- Understand fundamental idea behind real option.
- Process of binomial model for real option.
- The Bible of Option Strategies.
- Understand the current state of property derivatives market.
- Look at current issues that impact real estate investments.

Course Prerequisite(s)

RE3701 Real Estate Investment Analysis

Course Preclusion(s)

Nil

General Guide & Reading

- Geltner, D., Miller, N., Clayton, J and Eichholt, P (2007), **Commercial Real Estate Analysis and Investments**.

Tentative Schedule & Outline

Week	Date	Topic	Activity
1	15 – 19 Jan	Course Introduction Introduction to Probability	
2	22 – 26 Jan	Introduction to Risk Management Tools	
3	29 Jan – 2 Feb	Sensitivity and Scenario Analysis Free Operating Cash Flow DCF analysis	<ul style="list-style-type: none"> • Distribution of individual project • Tutorial I
4	5 – 9 Feb <i>CNY: 10 – 11 Feb. Following Monday is a PH.</i>	Understand the Monte Carlo Simulation method	
5	12 – 16 Feb <i>12 Feb PH (see above)</i>	Value-at-Risk for Real Estate Risk Management	Tutorial II
6	19 – 23 Feb	Probability Models for Risks WACC and DCF	Distribution of Group Project
	24 Feb – 3 Mar	RECESS WEEK	
7	4 – 9 Mar	Introduction to Derivatives	Tutorial III
8	11 – 15 Mar	Introduction to Forwards	
9	18 – 22 Mar	Introduction to Options	Tutorial IV
10	25 – 29 Mar <i>28 Mar: NUS Well-Being Day</i> <i>29 Mar: Good Friday</i>	Real Options	
11	1 – 5 Apr	Risk Hedging and Property Derivatives	
12	8 – 12 Apr <i>10 Apr: Hari Raya Puasa</i>	Topical Issues on Risk pertaining to Real Estate Review	
13	15 – 19 Apr	Test	
	20 – 26 Apr	READING WEEK	
	27 Apr – 11 May <i>1 May: Labour Day</i>	EXAMINATION (2 WEEKS)	

Assessment

Assessment Components	Weightage (%)
• Group Project	30
• Individual Project	30
• Participation in Tutorials	20
• Final Test	20
Total	100

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Academic integrity and honesty is essential for the pursuit and acquisition of knowledge. The University and School expect every student to uphold academic integrity & honesty at all times. Academic dishonesty is any misrepresentation with the intent to deceive, or failure to acknowledge the source, or falsification of information, or inaccuracy of statements, or cheating at examinations/tests, or inappropriate use of resources.

Plagiarism is “the practice of taking someone else’s work or ideas and passing them off as one’s own” (The New Oxford Dictionary of English). The University and School will not condone plagiarism. Students should adopt this rule - You have the obligation to make clear to the assessor which is your own work, and which is the work of others. Otherwise, your assessor is entitled to assume that everything being presented for assessment is being presented as entirely your own work. This is a minimum standard. In case of any doubt, you should consult your instructor.

Additional guidance is available at:

- <http://www.nus.edu.sg/registrar/administrative-policies-procedures/acceptance-record#NUSCodeofStudentConduct>
- <http://nus.edu.sg/osa/resources/code-of-student-conduct>

About me

I am an assistant professor in the Department of Real Estate, NUS Business School, National University of Singapore. I am an empirical IO economist with research interests in the broad areas of industrial organization and urban economics. My current research focuses on retailers and consumer welfare. I obtained a PhD degree in economics at the University of Chicago Booth School of Business.