

Module Outline

Module Code : RE4807
Module Title : Real Estate Risk Analysis and Management
Semester : Semester 2, Academic Year 2022/2023
Faculty : Assistant Professor Li Zhonglin
Department : Real Estate
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Overview

This module 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 module, 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.

Module Prerequisite(s)

RE3701 Real Estate Investment Analysis

Module Preclusion(s)

Nil

General Guide & Reading

Nil

Tentative Schedule & Outline

Week / Dates	Lecture	Tutorial	Assignment	Learning Outcomes
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			#/ Due Dates	
1 Jan 9-13	Course Introduction Introduction to Probability Distribution			Revise the concept of probability and axioms of probability
2 Jan 16-20	Introduction to Risk Management Tools			Understand why Risk management is important in Real Estate investments. Understand the fundamental philosophy behind risk management.
3 Jan 23-27 *CNY 22/1 & 23/1 Sun/Mon (24/1 is public holiday)	Sensitivity and Scenario Analysis Introduction to the Free Operating Cash Flow DCF analysis	Tutorial I		Gaining an understanding of the DCF approach used by private equity and finance professionals.
4 Jan 30-3 Feb	Understand the Monte Carlo Simulation method			Understand the benefits and the potential inapplicability of Monte Carlo methods.
5 Feb 6-10	Value-at-Risk for Real Estate Risk Management	Tutorial II		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.
6 Feb 13-17	Introduction to Derivatives			Understand concepts of forward contracts.
Recess Week 18 Feb to 26 Feb 2023				
7 Feb 27-4 Mar	Introduction to Forwards and Options	Tutorial III		Understand concepts of forward contracts and option contract.
8 Mar 6-10	Options and Option Pricing Model			Understand fundamental idea behind real option. Process of binomial model for real option.
9 Mar 13-17	Options and Option Pricing Model		Individual Project Due	

10 Mar 20-24	Real Options	Tutorial IV		The Bible of Option Strategies.
11 Mar 27-31	Risk Hedging and Property Derivatives		Group Project Due	Understand the current state of property derivatives market.
12 Apr 3-7 *Good Friday 7/4	Topical Issues on Risk pertaining to Real Estate			Looking at current issues that impact real estate investments
13 Apr 10-14	Test		Test	Covers the materials in the entire course
Reading Week 15 Apr to 21 Apr 2023				
Examination Weeks 22 Apr to 6 May 2023				

Assessment

Assessment Components	Weightage (%)
Group Project	30
Individual Project	30
Quizzes/Tests	20
Participation in Classes/Tutorials	20
Total	100

Academic Honesty & Plagiarism

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’ 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.