Financial Technology and digital innovation to modeRnise and develop cUrricula of VietnameSe and Philippines UniversiTies

Project № 610256-EPP-1-2019-1-IT-EPPKA2-CBHE-JP

MASTER IN FINTECH AND DIGITAL INNOVATION

- MODULE SYLLABUS -

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DELIVERABLE DESCRIPTION	
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1. Module details

Module Title	Asset Pricing and Portfolio Management
Credits	3
Hours	Number of hours module evaluation-4
N° of hours in presence	25
N° of hours in distance learning	25
Types and n° hours of summative evaluation	Topical quickcheck questions (open-ended and multiple choice) Self-evaluation test (open-ended and multiple choice) Group drills and project works Number of hours in presence summative evaluation 2 Number of hours online summative evaluation 2
Name of the leading institution	University of Cebu

2. Module description

The module will cover most of the standard theoretical tools in asset pricing, e.g., stochastic discount factor, no-arbitrage, factor pricing models, complete markets, equilibrium asset pricing, beta pricing models, risk neutral valuations, contingent claims, mean variance analysis, intertemporal asset pricing, conditional asset pricing, and modern portfolio theory. It will also present a unified approach treatment of popular empirical methods, including time-series and cross-sectional regressions, in addition to methods based on generalised method of moments (GMM) and maximum likelihood.

This module provides you with a critical understanding of techniques used for investments and portfolio management. The teaching is accompanied by case studies and realistic practical examples that you will solve each week using programming software such as R. By the end of the module you will be able to implement trading strategies and portfolio construction methods in a wide range of assets. This module will to introduce you to corporate responsibility and professional standards for financial analysts. You will be taken through a review of the key factors and responsibilities for ethical practice in finance.

3. Learning Outcomes

The course overall learning outcomes are:

Knowledge and Understanding:

a. Demonstrates in-depth understanding of core concepts of investment and portfolio management
b. Demonstrates a critical understanding of investment concepts both from individual and institutional perspectives
c. Demonstrates a critical understanding of the range of investment avenues available within the financial market system.
d. Demonstrates in depth understanding and awareness of market implications from firm, industry and macroeconomic environment
e. Convincingly establish the link between modern investing approaches and the available tools of the current, emerging and future issues more especially in FinTech.

Application and Problem-Solving Abilities:

a. Practice at least few ranges of investment activities within the financial market system;
b. Do actual investment decisions using available FinTech tools and other technologically enabling financial softwares solutions;
c. Applies an integrated understanding of entrepreneurial dynamics, project and innovation management in the context of financial market;
d. Plans and executes significant research and development projects of financial system and technology;
e. Demonstrates innovations and entrepreneurial thinking in terms of interaction with the financial system.

4. Module knowledge, skills and competencies (EQF*)

Moreover, at the end of this course, the student will be able to (*https://europa.eu/europass/en/european-qualifications-framework-eqf) :
https://pqf.gov.ph/Home/Details/4

- Enumerate and discuss the different major topics and subtopics in asset pricing and portfolio management ;
- Exploit different tools available in the areas of investment and portfolio management; Identify the main problems and questions of financial management;
- Apply solutions, methods and models of financial theory in the corporate problem-solving and decision-making processes;
- Classify, analyze, interpret, and predict the behaviour of the main financial variables both from domestic and international market
- Design future competitive scenarios and hypothesize financial strategies and policies for domestic and multinational companies;
- Evaluate convenience and profitability of corporate financial and investment policies estimating their impact on the firm value.

5. Module lessons

Lesson N.	1
Lesson title	Investment groups
Duration	2 hours
Specific objectives	• Explain the basic functions of different investment institutions available from the point of view of investors • Enumerate the differences of the different risks and return scenario of different investment groups • Discuss the taxes incentive and disincentive as well as other regulatory implication of different investment groups
Topics	• Banks • Foundations and endowments • Insurance companies • Mutual funds • Pension funds • Individual private investors • Institutional investors
In presence activity	lecture video presentation, individual problem solving activities, in group interactive discussion

Distance learning type of learning object /task	● Audio/Video Lessons and duration: 3 video lessons of about 20 minutes each one ● Virtual classrooms/ web-streaming conference and duration: 1 Virtual classrooms/ web-streaming of about 1 hour ● Lecture note: yes ● Case Study: no
Other supporting material	Reference article: Yes Video Documentary : Yes
Formative evaluation	● Topical quickcheck questions (open-ended and multiple choice)

Lesson N.	2
Lesson title	Asset Allocation and Investing
Duration	2 hours and 20 minutes
Specific objectives	● Be able to explain what is involved in the asset allocation process ● Enumerate and explain what are the four steps in the portfolio management ● Be able to know what is the role of asset allocation in investment planning ● Explain why is a policy statement important to the planning process ● Discuss what objectives and constraints should be detailed in a policy statement ● Explain how and why do investment goals change over a person's lifetime ● Understand why do asset allocation strategies differ across national boundaries ● Measuring Historical Rates of Return on Investment ● Computing Mean Historical Return on Investment ● Calculating Expected Rates of Return on Investment ● Measuring the Risk of Expected Rates of Return on Investment ● Determinants of Required Returns on Investment

Topics	● Asset allocation process ● Steps in the portfolio management ● Asset allocation and investment planning ● Asset allocation policy and its importance ● Changes in investment goals ● Asset allocation in international scene ● Risk and return on investment >Historical >Mean >Calculation >Measurement >Determinants
In presence activity	lecture video presentation, individual problem solving activities, in group interactive discussion
Distance learning type of learning object /task	Audio/Video Lessons and duration: 4 video lessons of about 20 minutes each one Virtual classrooms/ web-streaming conference and duration: 1 Virtual classrooms/ web-streaming of about 1 hour Lecture note: yes Case Study: no
Other supporting material	Online video reference: Yes
Formative evaluation	Topical quickcheck questions (open-ended and multiple choice)

Lesson N.	3
Lesson title	Portfolio and arbitrage pricing theory
Duration	2 hours
Specific objectives	
Topics	● Portfolio mean and variance ● Diversification ● Portfolio frontier with 2 assets ● Portfolio frontier with more than 2 assets (Markowitz problem)

	• The 2-fund theorem (with no risk-free asset) • The 1-fund theorem (with risk-free asset) • Factor models • No arbitrage conditions • APT • APT and CAPM
In presence activity	lecture video presentation, individual problem solving activities, in group interactive discussion
Distance learning type of learning object /task	Audio/Video Lessons and duration: 3 video lessons of about 20 minutes each one Virtual classrooms/ web-streaming conference and duration: • 1 Virtual classrooms/ web-streaming of about 1 hour • Lecture note: yes • Case Study: no
Other supporting material	Video links and references: yes
Formative evaluation	Topical quickcheck questions (open-ended and multiple choice) Sample application problem

Lesson N.	4
Lesson title	Derivatives and Options
Duration	2 hours and 30 minutes +-
Specific objectives	
Topics	• Forward, futures, and swaps • Options • Put-call parity • Binomial model • Option pricing through replication • Option pricing through risk neutral probability • Stochastic calculus (Brownian motion and Ito’s lemma) • Option pricing through replication (delta hedge) • Option pricing through risk neutral probability • Black-Scholes option pricing formula

In presence activity	lecture video presentation, individual problem solving activities, in group interactive discussion
Distance learning type of learning object /task	Audio/Video Lessons and duration: 3 video lessons of about 25 minutes each one Virtual classrooms/ web-streaming conference and duration: ● 1 Virtual classrooms/ web-streaming of about 1 hour ● Lecture note: yes ● Case Study: no
Other supporting material	Text reference link : yes
Formative evaluation	Topical quickcheck questions (open-ended and multiple choice) Sample application problem

Lesson N.	5
Lesson title	Global market investments
Duration	2 hours
Specific objectives	● Explain why should investors should have global perspective regarding investments ● Explain what has happened to the relative size of foreign stock and bond markets ● Understand what are the differences in the rates of return on U.S. and foreign securities markets ● Know how can changes in currency exchange rates affect the returns that U.S. investors experience on foreign securities ● Determine if there is an additional advantage of diversifying in international markets beyond the benefits of domestic diversification ● Identify what alternative securities are available and what are their cash flow and risk properties ● Describe what is the historical return and risk characteristics of the major investment instruments

	● Discover what is the relationship among returns for foreign and domestic investment instruments and what is the implication of these relationships for portfolio diversification
Topics	● Global investment perspective ● Background on stock and bond markets ● Currency differences; Its impact on expected ● International market diversification ● Alternative securities ; cash flow and risk properties ● Investment instrument ● Relationship between foreign and domestic investment instruments ● Portfolio diversification
In presence activity	lecture video presentation, individual problem solving activities, in group interactive discussion
Distance learning type of learning object /task	Audio/Video Lessons and duration: 3 video lessons of about 20 minutes each one Virtual classrooms/ web-streaming conference and duration: ● 1 Virtual classrooms/ web-streaming of about 1 hour ● Lecture note: yes ● Case Study: no
Other supporting material	
Formative evaluation	Caselet discussion Project work

Lesson N.	6
Lesson title	Securities Markets; Organization, Functions and Indices
Duration	2 hour and 30 minutes +-
Specific objectives	● Discuss what is the purpose and function of a market

	● Enumerate what are the characteristics that determine the quality of a market ● Distinguish what is the difference between a primary and secondary capital market and how do these markets support each other ● Discuss the national exchanges and how are the major security markets becoming linked ● Understand what are the regional stock exchanges and the over-the-counter (OTC) market ● Familiar with the alternative market-making arrangements available on the exchanges and the OCT market ● Identify some major uses of security-market indexes ● Determine the major characteristics that cause various indexes to differ ● Discuss the major stock-market indexes in the United States and globally, and what are their characteristics ● Study the major bond-market indexes for the United States and the world ● Understand why are bond indexes more difficult to create and maintain than stock indexes ● Describe some of the composite stock-bond market indexes ● Determine sources of historical and current data for all the indexes ● Discuss the relationship among many of these indexes in the short-run (monthly)
Topics	● Functions stock market ● Quality of market ● Primary and secondary capital market ● National exchanges/stock exchanges ● Over-the-counter (OTC) market ● Alternative market ● Uses of security-market indexes ● Indices and its changes ● Stock-market indexes in the advance economies and globally ● Bond-market ● Stock vs bond indexes

	• Composite indexes • Short run and long run indexes
In presence activity	lecture video presentation, individual problem solving activities, in group interactive discussion
Distance learning type of learning object /task	Audio/Video Lessons and duration: 4 video lessons of about 20 minutes each one Virtual classrooms/ web-streaming conference and duration: • 1 Virtual classrooms/ web-streaming of about 1 hour • Lecture note: yes • Case Study: no
Other supporting material	Video link supplements : yes Video documentary : yes
Formative evaluation	Topic drill questions

Lesson N.	7
Lesson title	Asset Pricing Models
Duration	2 hours
Specific objectives	• Identify the assumptions of the capital asset pricing model • Determine the risk-free asset and what are its risk-return characteristics • Discuss the relationship of covariance and correlation between the risk-free asset and a risky asset or portfolio of risky assets • Determine the expected return when combining the risk-free asset and a portfolio of risky assets • Discuss the standard deviation when combining it with the risk-free asset and a portfolio of risky assets • Study the combination of risk-free asset and a portfolio of risky assets on the Markowitz efficient frontier

Topics	● Capital asset pricing model (CAPM) ● Risk-return ● Covariance and correlation > free asset and > risky asset > portfolio of risky assets ● Expected return ● Standard deviation ● Markowitz efficient frontier >risk-free asset >portfolio of risky assets
In presence activity	lecture video presentation, individual problem solving activities, in group interactive discussion
Distance learning type of learning object /task	Audio/Video Lessons and duration: 3 video lessons of about 20 minutes each one Virtual classrooms/ web-streaming conference and duration: ● 1 Virtual classrooms/ web-streaming of about 1 hour ● Lecture note: yes ● Case Study: no
Other supporting material	
Formative evaluation	Topical quickcheck questions both multiple choice and open ended.

Lesson N.	8
Lesson title	Introduction to Portfolio Management
Duration	2 hours
Specific objectives	● Discuss risk aversion, and what evidence indicates that investors are generally risk averse ● Describe the basic assumptions behind the Markowitz portfolio theory ● Understand and explain what is meant by risk, and what are some of the alternative measures of risk used in investments

	● Explain and demonstrate how to compute the expected rate of return for an individual risky asset or a portfolio of assets ● Explain and demonstrate how to compute the standard deviation of rates of return for an individual risky asset
Topics	● Risk aversion and its evidences ● Markowitz portfolio theory ● Investment risk ● Expected return >individual assets >portfolio of assets ● Standard deviation of rates of return >individual risky asset
In presence activity	lecture video presentation, individual problem solving activities, in group interactive discussion
Distance learning type of learning object /task	Audio/Video Lessons and duration: 3 video lessons of about 20 minutes each one Virtual classrooms/ web-streaming conference and duration: ● 1 Virtual classrooms/ web-streaming of about 1 hour ● Lecture note: yes ● Case Study: no
Other supporting material	Video link supplements: yes
Formative evaluation	Topical quickcheck questions multiple choice and/or open ended.

Lesson N.	9
Lesson title	Capital Markets; Microanalysis and Macrovaluation
Duration	2 hours
Specific objectives	● Discuss what is meant by capital market is efficient ● Understand why should capital markets needs to be efficient

	• Determine the factors contribute to an efficient market • Discuss how to test the three efficient market subhypotheses and their result of test • Explain the behavioral finance and how does it relate to efficient market hypotheses • Discuss the expected and the empirical relationships between economic activity and security markets • Understand the macroeconomic approach to estimating future market returns • Determine the major macroeconomic techniques used to project the securities market • Identify the leading economic indicator approach what are its uses and shortcomings • Explain with depth the expected and the empirical relationships between the growth of the money supply and stock prices
Topics	• Capital market efficiency • Factors contributing to an efficient market • Three efficient market subhypotheses and their result of test • Behavioral finance and market hypotheses • Economic activity and security markets relationship • Macroeconomic environment • PESTL (Political, Economic, Social, Technological and Legal) in securities market • Economic indicators in capital market • Stock prices and money supply
In presence activity	lecture video presentation, individual problem solving activities, in group interactive discussion
Distance learning type of learning object /task	Audio/Video Lessons and duration: 3 video lessons of about 20 minutes each one Virtual classrooms/ web-streaming conference and duration: • 1 Virtual classrooms/ web-streaming of about 1 hour • Lecture note: yes • Case Study: no

Other supporting material	
Formative evaluation	Topical quickcheck questions multiple choice and/or open ended.

Lesson N.	10
Lesson title	Industry Analysis and Financial Statement Analysis
Duration	2 hours and 30 minutes+-
Specific objectives	● Discuss what is an industry ● Determine which industries will benefit most from present and emerging economic environment ● Describe the industry life cycle and its features ● Identify the tools for industry analysis ● Discuss what are financial statements ● Understand the importance of financial statement in doing investment ● Determine the users of financial statements ● Identify the various tools, methods and techniques necessary in financial statement analysis
Topics	● Industry and its economic environment ● Industry life cycle and its features ● Tools for industry analysis ● Financial statements ● Importance of financial statement ● Users and uses of financial statements ● Tools and techniques in FS analysis
In presence activity	lecture video presentation, individual problem solving activities, in group interactive discussion
Distance learning type of learning object /task	Audio/Video Lessons and duration: 3 video lessons of about 25 minutes each one Virtual classrooms/ web-streaming conference and duration: ● 1 Virtual classrooms/ web-streaming of about 1 hour ● Lecture note: yes ● Case Study: no

Other supporting material	
Formative evaluation	Topical quickcheck questions multiple choice and/or open ended.

Lesson N.	11
Lesson title	Security Valuation and Equity Portfolio Management Strategies
Duration	2 hours
Specific objectives	● Discuss the valuation philosophy, approaches, and techniques ● Describe the valuation techniques for market, industries and securities ● Enumerate and discuss macroeconomic indicators ● Discuss the relationship of structural changes to securities valuation ● Discuss equity in a portfolio ● Describe the passive equity portfolio management ● Identify some passive equity strategies ● Explain the index portfolio construction techniques ● Discuss and present a demo problem on Quadratic Optimization or programming techniques
Topics	● Valuation philosophies and techniques ● Macroeconomic indicators ● Structural changes to securities valuation ● Equities portfolio ● Passive equity portfolio management ● and strategies ● Index portfolio construction techniques ● Quadratic Optimization or programming techniques
In presence activity	lecture video presentation, individual problem solving activities, in group interactive discussion

Distance learning type of learning object /task	Audio/Video Lessons and duration: 3 video lessons of about 20 minutes each one Virtual classrooms/ web-streaming conference and duration: ● 1 Virtual classrooms/ web-streaming of about 1 hour ● Lecture note: yes ● Case Study: no
Other supporting material	
Formative evaluation	Topical quickcheck questions multiple choice and/or open ended.