

NATIONAL UNIVERSITY OF SINGAPORE
NUS Business School
Department of Finance

FIN3702B INVESTMENT ANALYSIS & PORTFOLIO MANAGEMENT

Instructor: Dr Low Chee Kiat
Adjunct Associate Professor
cheekiat.low@nus.edu.sg

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Course Objective

This is an introductory course in investments. It provides a comprehensive coverage of basic concepts, theories, applications and decision-making rules in financial investment.

Topics to be covered include fundamental security analysis on stocks, bonds, options and futures as well as modern portfolio management.

On completion, candidates should be conversant in investment management in preparation for careers in financial analysis and financial planning, investment banking, and corporate finance. Candidates should also be equipped to write the Chartered Financial Analysts (CFA) Level I examinations in quantitative analysis, equity securities analysis and portfolio management.

Basic Textbook

RBL: Reilly, Frank K., Brown, Keith C. and Leeds, Sanford J., Investment Analysis and Portfolio Management, Eleventh Edition, 2019, Cengage Learning, Inc.

Supplementary Readings

Students are expected to read financial news in *The Business Times*, *The Wall Street Journal*, *Financial Times*, and business periodicals like *The Economist*, *Fortune*, *Forbes*. Continual assessment will also be based on the student's understanding and analysis of market issues.

Prerequisite

Only students who have completed FIN2704 can enrol. A strong foundation in Statistics and Finance is required to do well in this course. Students should already be familiar with the following topics:

1. Risk, Portfolio Theory & CAPM **RBL#6, 7**
2. Discounted Cash Flow & Ratio Analysis **RBL#8**

Course Content

1. Introduction to investments
 - a. The process of portfolio management
 - b. Profiling the investor
2. Investment in stocks
 - a. Fundamental analysis
 - i. Stock market analysis
 - ii. Industry analysis
 - iii. Company analysis and stock selection
 - b. Technical analysis
 - i. Assumptions of technical analysis
 - ii. Advantages of and challenges to technical analysis
 - iii. Technical rules and indicators
 - c. Efficient market hypotheses
 - i. Forms of market efficiency
 - ii. Tests of market efficiency
 - iii. Implications of efficient capital markets
 - d. Challenges from behavioural finance
3. Investment in bonds
 - a. Bond fundamentals
 - i. Bond features and characteristics
 - ii. Bond yields
 - b. Bond analysis and valuation
 - i. Determinants of interest rates
 - ii. Term structure theories
 - c. Bond volatility measures
 - i. What determines bond price volatility?
 - ii. Duration measures
 - iii. Determinants of convexity
 - d. Bond portfolio management strategies
 - i. Passive portfolio strategies
 - ii. Active portfolio strategies
 - iii. Matched-funding techniques
 - iv. Contingent procedures
4. Investment in options and futures
 - a. Payoff diagrams of forwards, futures and options
 - b. Hedging with forwards, futures and options
 - c. Pricing of options
5. Asset allocation
 - a. Active versus passive asset allocation
 - b. Mutual funds, hedge funds and alternative investments
 - c. Environmental, Social and Governance considerations of an investment
6. Performance evaluation
 - a. What is required of a fund manager?
 - b. Composite portfolio performance measures
 - c. Style analysis
7. Ethical and professional conduct
 - a. CFA Code Of Ethics And Standards Of Professional Conduct
 - b. Illustrations from CFA Standards Of Practice Handbook

Assessment Components

1. Quizzes I & II	40%) 50% individual credit
2. Term paper	10%)
3. Group written report of stock valuation project	25%] 50% group credit
4. Group in-class presentation of research paper	25%]

Assessment Approach

Students will be tested on their understanding of the prescribed body of knowledge as well as their analytical skills. The prescribed textbooks and readings are basic requirements for the body of knowledge for this course. Students who have a good understanding of the prescribed readings should be able to pass the course. Students who aspire for an A grade would need to be able to interpret financial reports, analyse issues and offer a view of the market.

Quizzes (40%)

Quiz I (5%) is on CFA Ethics and will be conducted on LumiNUS in the CFA ethics component administered by Associate Professor Lee Hon Sing.

Quiz II (35%) will be held in class in week 13. Details of Quiz II will be announced later.

Term Paper (10%)

Each student is required to write a term paper in the format of an op-ed. This paper shall be about 1000 words in length. There is penalty for submitting a paper exceeding 1100 words.

Students are to state, explore and defend a position in a contemporary investments-related debate. Examples of such debates are: (a) behavioural finance; (b) retail investor protection; (c) crypto assets; (d) active vs. passive investment; (e) technical analysis; (f) efficient market hypotheses; (g) ESG investing; (h) alternative investments. Students can learn more about such debates from financial newspapers and research papers.

Students earn credit by writing clearly and concisely about their opinions of their chosen topics. Good command of the language is as critical as the substance of their arguments. Plagiarism will result in zero marks. Turnitin score should be $\leq 5\%$. The term paper is due by the Friday of week 14.

Group Assignments (50%)

Students are to organize themselves into groups of 6 or 7 members each and appoint a group coordinator who will communicate with the instructor on behalf of the group.

There are 2 group assignments:

1. Written report of stock valuation project (25%)

The goal in this component is to practise fundamental analysis in valuing a small-cap stock in SGX/Catalist. Each group must submit a stock proposal to the instructor for approval by week 4. The final report shall be about 20 double-spaced pages, including cover page and appendices. Plagiarism will result in zero marks. Turnitin score should be $\leq 5\%$. The final report is due by the Friday of week 8.

2. In-class discussion of research paper – class participation (25%)

This component will be evaluated on the amount of team learning and class interaction, besides clarity of presentation and the ability to motivate the class to learn together with the team. Therefore, having one student dominating the entire delivery is not encouraged. Splitting the research paper into segments and having each student focusing only on one segment is not an indication of team learning as well. There is generally more team learning when the class participates in interactive learning. This is the reward for class participation at the group level.

The research papers are:

- 1a. *An introduction to technical analysis (The Reuters financial training series)*. (1999). Singapore: J. Wiley & Sons (Asia).
- 1b. Scott, G., Carr, M., & Cremonie, M. (2016). *Technical analysis: Modern perspectives*. CFA Institute Research Foundation.
2. Statman, M. (2018). Behavioral finance lessons for asset managers. *Journal of Portfolio Management*, (Summer), 135-147.
3. Elton, E. J., Gruber, M. J., & de Souza, A. (2019). Are passive funds really superior investments? An investor perspective. *Financial Analysts Journal*, 75(3), 7-19.
- 4a. Chambers, D., Dimson, E., & Kaffe, C. (2020). Seventy-five years of investing for future generations. *Financial Analysts Journal*, 76(4), 5-21.
- 4b. Ennis, R. M. (2021). Failure of the endowment Model. *Journal of Portfolio Management*, 47(5), 128-143.
5. Bianchi, D. (2020). Cryptocurrencies as an asset class? An empirical assessment. *Journal of Alternative Investments*, 23(2), 162-179.
6. Giese, G., Lee, L., Melas, D., Nagy, Z., & Nishikawa, L. (2019). Foundations of ESG investing: how ESG affects equity valuation, risk, and performance. *Journal of Portfolio Management*, 45(5), 69-83.

Course Schedule I (Tuesday)

Subject	Description	Reference	Group Activity
WEEK 1 [August 9]			
National Day			
WEEK 2 [August 16]			
Introduction	Portfolio Management Process	RBL#2	Form groups of ≤ 7 members; email names to instructor
Fundamental Analysis	Fundamental Analysis <ul style="list-style-type: none"> • Stock Market Analysis • Industry Analysis • Company Analysis 	RBL#9	
WEEK 3 [August 23]			
Fundamental Analysis	Fundamental Analysis (cont'd) <ul style="list-style-type: none"> • Stock Valuation 	RBL#8	
Technical Analysis	Technical Analysis <ul style="list-style-type: none"> • Assumptions • Advantages and Challenges • Technical Rules and Indicators 	RBL#5	
WEEK 4 [August 30]			
Efficient Market Hypotheses	Efficient Market Hypotheses <ul style="list-style-type: none"> • Forms of Market Efficiency • Tests of Market Efficiency • Implications of Efficient Capital Markets 	RBL#5	All groups email proposed company names and listing dates to instructor
Behavioural Finance	Behavioural Finance <ul style="list-style-type: none"> • Forms of Biases • Criticisms of Behavioural Finance 	RBL#5	
Stock Proposal Due			
WEEK 5 [September 6]			
Equity Portfolio Management Strategies	Equity Portfolio Management <ul style="list-style-type: none"> • Passive Strategies • Active Strategies • Style Investing 	RBL#11	Group 1 presents (20%) Group 5 reviews (5%) Tutorial 1 All groups submit to LumiNUS by 2359hrs
Research Papers 1ab		Research Papers 1ab. Technical Analysis	
Tutorial 1			
WEEK 6 [September 13]			
Bond Valuation & Term Structure of Interest Rates	Bond Fundamentals <ul style="list-style-type: none"> • Bond Yields • Bond Valuations • Determinants of Interest Rates • Term Structure Theories 	RBL#12	Group 2 presents (20%) Group 6 reviews (5%) Tutorial 2 All groups submit to LumiNUS by 2359hrs
Research Paper 2		Research Paper 2. Behavioural Finance	
Tutorial 2			
RECESS			

Subject	Description	Reference	Group Activity
WEEK 7 [September 27]			
Bond Volatility Measures Research Paper 3 Tutorial 3	Bond Volatility <ul style="list-style-type: none"> • What Determines Bond Price Volatility? • Duration measures • Convexity measures 	RBL#13 Research Paper 3. Active vs Passive	Group 3 presents (20%) Group 1 reviews (5%) Tutorial 3 All groups submit to LumiNUS by 2359hrs
WEEK 8 [October 4]			
Bond Portfolio Management Valuation Report (25%) Due	Bond Portfolio Management <ul style="list-style-type: none"> • Passive Portfolio Strategies • Active Portfolio Strategies • Contingent Procedures 	RBL#13	All groups submit to LumiNUS by 2359hrs, Oct 7 <ul style="list-style-type: none"> • 20 pages, double-spaced • MS Word, no encryption • Plagiarism zero marks
WEEK 9 [October 11]			
Evaluation of Portfolio Performance Research Papers 4ab	Portfolio Performance <ul style="list-style-type: none"> • Composite Performance Measures 	RBL#18 Research Papers 4ab. Endowment Model	Group 4 presents (20%) Group 2 reviews (5%)
WEEK 10 [October 18]			
Forward & Futures Research Paper 5 Tutorial 4	Hedging with Forwards and Futures	RBL#14, 15 Research Paper 5. Crypto	Group 5 presents (20%) Group 3 reviews (5%) Tutorial 4 All groups submit to LumiNUS by 2359hrs
WEEK 11 [October 25]			
Options Research Paper 6 Tutorial 5	Option Payoff Diagrams Option Pricing <ul style="list-style-type: none"> • Black-Scholes Valuation Model 	RBL#16 Research Paper 6. ESG	Group 6 presents (20%) Group 4 reviews (5%) Tutorial 5 All groups submit to LumiNUS by 2359hrs
WEEK 12 [November 1]			
Option Pricing Review Tutorial 6 Tutorial 7	Option Pricing (cont'd) <ul style="list-style-type: none"> • Binomial Option Pricing Model Stocks, Bonds, Derivatives, Performance	RBL#16	Tutorial 6 All groups submit to LumiNUS by 2359hrs Tutorial 7 Solutions to be discussed in class

Subject	Description	Reference	Group Activity
WEEK 13 [November 8]			
Quiz II (35%)			All students attend class <ul style="list-style-type: none"> • Paper & pen test • 2 hrs • Details tba
READING WEEK 14 [November 18]			
Term Paper (10%) Due			All students submit op-ed to LumiNUS by 2359 hrs, Nov 18 <ul style="list-style-type: none"> • 1000 words • MS Word, no encryption • Plagiarism zero marks

Course Schedule II (Friday)

Subject	Description	Reference	Group Activity
WEEK 1 [August 12]			
Introduction	Portfolio Management Process	RBL#2	Form groups of ≤ 7 members; email names to instructor
Fundamental Analysis	Fundamental Analysis <ul style="list-style-type: none"> • Stock Market Analysis • Industry Analysis 	RBL#9	
WEEK 2 [August 19]			
Fundamental Analysis	Fundamental Analysis (cont'd) <ul style="list-style-type: none"> • Company Analysis • Stock Valuation 	RBL#8	
Technical Analysis	Technical Analysis <ul style="list-style-type: none"> • Assumptions • Advantages and Challenges • Technical Rules and Indicators 	RBL#5	
WEEK 3 [August 26]			
Efficient Market Hypotheses	Efficient Market Hypotheses <ul style="list-style-type: none"> • Forms of Market Efficiency • Tests of Market Efficiency • Implications of Efficient Capital Markets 	RBL#5	
WEEK 4 [September 2]			
Behavioural Finance	Behavioural Finance <ul style="list-style-type: none"> • Forms of Biases • Criticisms of Behavioural Finance 	RBL#5	All groups email proposed company names and listing dates to instructor
Equity Portfolio Management Strategies	Equity Portfolio Management <ul style="list-style-type: none"> • Passive Strategies • Active Strategies 	RBL#11	
Stock Proposal Due			
WEEK 5 [September 9]			
Equity Portfolio Management Strategies	Equity Portfolio Management <ul style="list-style-type: none"> • Style Investing 	RBL#11	Group 1 presents (20%) Group 5 reviews (5%) Tutorial 1 All groups submit to LumiNUS by 2359hrs
Research Papers 1ab		Research Papers 1ab. Technical Analysis	
Tutorial 1			
WEEK 6 [September 16]			
Bond Valuation & Term Structure of Interest Rates	Bond Fundamentals <ul style="list-style-type: none"> • Bond Yields • Bond Valuations • Determinants of Interest Rates • Term Structure Theories 	RBL#12	Group 2 presents (20%) Group 6 reviews (5%) Tutorial 2 All groups submit to LumiNUS by 2359hrs
Research Paper 2		Research Paper 2. Behavioural Finance	
Tutorial 2			
RECESS			

Subject	Description	Reference	Group Activity
WEEK 7 [September 30]			
Bond Volatility Measures Research Paper 3 Tutorial 3	Bond Volatility <ul style="list-style-type: none"> • What Determines Bond Price Volatility? • Duration measures • Convexity measures 	RBL#13 Research Paper 3. Active vs Passive	Group 3 presents (20%) Group 1 reviews (5%) Tutorial 3 All groups submit to LumiNUS by 2359hrs
WEEK 8 [October 7]			
Bond Portfolio Management Valuation Report (25%) Due	Bond Portfolio Management <ul style="list-style-type: none"> • Passive Portfolio Strategies • Active Portfolio Strategies • Contingent Procedures 	RBL#13	All groups submit to LumiNUS by 2359hrs, Oct 7 <ul style="list-style-type: none"> • 20 pages, double-spaced • MS Word, no encryption • Plagiarism zero marks
WEEK 9 [October 14]			
Evaluation of Portfolio Performance Research Papers 4ab	Portfolio Performance <ul style="list-style-type: none"> • Composite Performance Measures 	RBL#18 Research Papers 4ab. Endowment Model	Group 4 presents (20%) Group 2 reviews (5%)
WEEK 10 [October 21]			
Forward & Futures Research Paper 5 Tutorial 4	Hedging with Forwards and Futures	RBL#14, 15 Research Paper 5. Crypto	Group 5 presents (20%) Group 3 reviews (5%) Tutorial 4 All groups submit to LumiNUS by 2359hrs
WEEK 11 [October 28]			
Options Research Paper 6 Tutorial 5	Option Payoff Diagrams Option Pricing <ul style="list-style-type: none"> • Black-Scholes Valuation Model 	RBL#16 Research Paper 6. ESG	Group 6 presents (20%) Group 4 reviews (5%) Tutorial 5 All groups submit to LumiNUS by 2359hrs
WEEK 12 [November 4]			
Option Pricing Review Tutorial 6 Tutorial 7	Option Pricing (cont'd) <ul style="list-style-type: none"> • Binomial Option Pricing Model Stocks, Bonds, Derivatives, Performance	RBL#16	Tutorial 6 All groups submit to LumiNUS by 2359hrs Tutorial 7 Solutions to be discussed in class

Subject	Description	Reference	Group Activity
WEEK 13 [November 11]			
Quiz II (35%)			All students attend class <ul style="list-style-type: none"> • Paper & pen test • 2 hrs • Details tba
READING WEEK 14 [November 18]			
Term Paper (10%) Due			All students submit op-ed to LumiNUS by 2359 hrs, Nov 18 <ul style="list-style-type: none"> • 1000 words • MS Word, no encryption • Plagiarism zero marks