HKUST Business School – Department of Economics

Financial Economics: Corporate Finance

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Lecture (L1):   Fr 09:00 – 12:20, LSK G003 (Oct. 27 ~ Dec. 8)

Final Exam: Friday Dec. 15 in LTC (more details TBA)

Course web: http://canvas.ust.hk

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COURSE DESCRIPTION

This course tracks the life and times of a firm as it grows from a small, private-equity start-up to a large, publicly financed conglomerate. The knowledge, skills, and insights thus gained are relevant to you, whether you wish to operate a family business, launch your own venture, manage a venture capital or private-equity fund, become an investment or commercial banker, or climb the corporate ladder. Tracking the life cycle of a business allows us to examine crucial corporate-finance policies and to demonstrate their importance in creating firm value – or in *destroying* firm value, if done wrong! These policies are investment policy (e.g., mergers and acquisitions), financing policy (e.g., IPO), and payout policy (e.g., pay dividends). These policies are the basis of all work in corporate finance and are vital to your knowledge arsenal.

Financial Economics consists of two broad areas: Investment/Portfolio Analysis and Corporate Finance. While Portfolio Analysis helps investors decide how best to *invest a surplus of cash* across the various investment vehicles it can buy in the market (stocks, bonds, cash, derivatives), Corporate Finance helps company managers decide how best to *fund a deficit of cash* among the various financing securities it can sell (issue) in the market (stocks, bonds, cash, derivatives). Portfolio Analysis examines how investor behavior affects the **demand** for securities and portfolio construction. Corporate Finance examines how managerial behavior affects the **supply** of securities and corporate policy.

This course aims to develop your skills as a corporate manager rather than an investor. As managers, your goal is to create value for your organization. The value creation process is part art

and part science. This course does not address the creative (art) part of the process, which boils down to your entrepreneurial talent, experience, and field expertise. Rather, the course shows you how to evaluate your creative ideas from a disciplined, scientific perspective. In short, the course shows you how to formally distinguish between good and bad ideas, i.e., how to identify projects that are likely to create or destroy value and how to quantify their potential impact.

In summary, the course shows you how to value *any* asset using simple, universal principles. Project cash flows are identified then discounted to reflect their timing and risk. Financial policy supports investment policy by identifying the financial structure that minimizes funding costs. The payout policy is part of the firm's broader financial policy and can also affect firm value.

TEACHING MATERIALS

1. Recommended textbook

Stephen Ross, Randolph Westerfield, Jeffrey Jaffe, and Bradford Jordan (RWJJ), Corporate Finance (Asia Global Edition), McGraw-Hill Irwin.

This is a very popular and well-known book. I strongly recommend that you get it. You can use an older edition of the book by the same authors from the library or from a friend.

2. Suggested Reading

A measure of a financial market's development is how well news is reflected in securities prices. Market players who ignore the news inevitably fail. Consequently, I would encourage you to get in the habit of keeping up with current events and world affairs by reading a good daily financial newspaper (Financial Times, Wall Street Journal, South China Morning Post) and a business periodical (The Economist, Business Week, Fortune, Forbes, Far Eastern Economic Review).

All course materials and announcements will be posted on the CANVAS course website. It is YOUR responsibility to check constantly for the latest information.

GRADING

Your grade will be based on two case reports, three problem sets, and a final exam. The relative weightings are as follows.

Case reports	16% (2 * 8% each)
Problem sets	24% (3 * 8% each)
Final exam	60%

The letter grade you earn depends on your performance relative to other students taking the course. The final distribution of letter grades will be set in accordance with departmental and school policy.

ASSIGNMENT GROUPING AND WRITE-UP

There will be three problem sets and two case reports, all of which are to be done on a team basis. Each team should consist of **no more than 5** people, and all members should stay together until the end of the term. Each team needs to submit only one write-up of each homework assignment and case report, and all members will receive the same grade for their work. It is therefore important

that all team members **contribute equally** to all the assignments. At the end of the course, you will be asked to evaluate your teammates' performance, and final grades will be adjusted accordingly.

Please self-sign-up on CANVAS and inform TA of your grouping choice by Oct. 30. Otherwise, you will be randomly assigned to a group.

Each homework assignment and case report **must** contain a **cover page** that clearly labels the group number as well as the names and student IDs of each member to receive credit. You should NOT TALK ACROSS TEAMS in preparing homework solutions and case reports.

All problem sets and case reports should be written in an easily readable fashion. For problems handled through Excel, it is **NOT acceptable** to email your TA a big spreadsheet. You need to summarize your results clearly and indicate how you obtain these answers in a separate write-up, along with the solutions to other questions.

Problem sets will be made available on the course website once I have prepared them. You will have roughly two weeks to complete the assignment. Every question in the problem sets will be graded for correctness. Solutions will be available on the CANVAS website after the due date.

For case reports, you MUST submit them online via the CANVAS website. No hard copies, faxes, or emails will be accepted. Case reports will be evaluated by the effort shown as well as legibility, not by the correctness of your answers and opinions. We will discuss cases in class after the due dates.

Please note that both problem sets and case reports MUST be turned in on time to receive credit. Late submission will result in ZERO score for whatever reasons. Please plan accordingly and avoid last-minute submissions.

EXAMS

There will be a comprehensive final exam, which will normally consist of short answer / multiple-choice as well as longer quantitative questions. It will be a closed-book exam, but you are allowed to bring a piece of A4 paper with formulas and tips. I will offer guidance on the content and format of the exam one week before the scheduled exam.

There will be no make-up exams offered. It is your responsibility to schedule the rest of your activities such that you can attend the scheduled final exam.

*Cheating will **not** be tolerated.* Any student caught cheating will receive zero credit and an automatic "F" for the course. I will report any cases to the University WITHOUT EXCEPTIONS.

Please refer to http://www.ust.hk/vpaao/integrity/ for HKUST rules regarding academic integrity.

GRADING DISPUTES

Please check your problem set and case report scores as soon as they are released. Any disagreement should be reported to the TA within one week of the grade release date. Late complaints will not be accommodated.

We have a strict NO PENCIL policy. You lose your right to appeal if any answers received by the TA are written in pencil.

In case of a successful appeal, not just the discrepancy part but the entire assignment or exam will be reassessed for the whole class. The reassessment may result in a grade higher or lower than the one previously given.

The TA and I will do our best to help you succeed in the course. Please remember that, ultimately, it is YOU who EARN the grade. Please make the corresponding effort in achieving your goal.

CLASS PARTICIPATION

Active class participation is important for your learning experience and highly encouraged. It helps you to think *actively* rather than *passively*. Active participation also keeps you involved and motivated rather than removed and disinterested. Your class participation also helps me gauge whether you understand the material.

CLASS CONDUCT

To foster the best learning environment, I ask that everyone please **mute** your mobile phones and beepers during lectures. If you must take an important call, please step out as quietly as possible.

STUDENT TEACHER INTERACTION

Students are always welcome to talk to me before or after class whenever desired or drop by my office for a chat. I also urge you to check the course website from time to time, and use emails for questions and concerns. For best results, *have specific questions ready* and *include both the TA and me in your emails* so that whoever gets the message first can reply to you. TA and I may also answer common questions on the course website.

Student feedback is essential for course improvement. I strongly encourage continuous teaching evaluation. You may verbally or anonymously (slip a note under my door or on the lecture table) give me your feedback about my teaching at any time. This evaluation may include 1) things that you like; 2) things that you dislike; and 3) suggestions for improvement. I will take all comments seriously and confidentially.

IMPORTANT DATES

Oct. 30	Self-sign-up and inform TA of your grouping choice.
Lec. 3 (Nov. 10)	Problem set 1 due by 9am
Lec. 4 (Nov. 17)	Case report 1 due by 9am
Lec. 6 (Dec. 1)	Problem set 2 due by 9am
Lec. 7 (Dec. 8)	Case report 2 due by 9am
Dec. 11	Problem set 3 due by 9am
Dec. 15	Final exam at 9am with more details TBA

COURSE OUTLINE

Date	Topics	Suggested reading	Discussion & exercises
Lectures 1-3	• Course overview • Investment policy: the capital budgeting process	• RWJJ Ch 1, 2, 4, 7, 8	• Problem set 1 • Baldwin Case (RWJJ 8.2) • Case 1 (Ocean Carriers)
Lectures 3-5	• Financial policy: the cost of capital • Financial policy: capital structure	• RWJJ Ch 11, 12, 14, 15, 19	• Problem set 2 • Case 2 (Prada)
Lectures 6-7	• Payout (dividend) policy • Review for the final exam	• RWJJ Ch 16	• Problem set 3 • Sample final exam

COURSE INTENDED LEARNING OBJECTIVES (ILOS)

Upon successful completion of this course, students are expected to be able to

1) Overall
1. Correctly use the tools of finance to add value to your firm (and avoid destroying value).
2. Describe and interrelate the three main corporate finance policies (investment, financial, payout).
3. Relate the three main corporate finance policies to corporate governance (and *vice versa*).
4. Apply all knowledge, skills, and insights gained in the course to tackle real-world situations.
5. Subject proposed actions to the three lenses (economic, legal, ethical) of corporate responsibility.

2) Introduction
1. Explain how financial markets help money flow between those who need/have money.
2. Compare and contrast the two broad views of finance: corporate finance and investment analysis.
3. Describe the three main policies of corporate finance: investment, financial, and payout policies.
4. Relate the three main policies of corporate finance to the relevant areas of the balance sheet.
5. Frame corporate finance (and its policies) in terms of the flow of cash and all firm stakeholders.
6. Explain why the sole goal of management should be to maximize the long-term stock price.
7. Discuss competing managerial pursuits (e.g., maximize profits, growth) and their deficiencies.
8. Propose a general, rigorous way to value any asset (discounted cash-flow analysis).
9. Provide two ways to tell whether a corporate decision is good or bad (valuation, market reaction).
10. Explain how misusing the three corporate-finance policies can lead to value destruction.
11. Explain how investment policy (project selection, firm valuation) can add value to the firm.
12. Explain how financial policy (project funding, firm financing) can add value to the firm.

13. Explain how payout policy (use or disburse firm cash flows) can add value to the firm.
14. State the purpose of the capital budgeting process, its uses, and discuss all the steps involved.
15. Describe the three main decisions within financial policy (WCM, capital structure, and WACC).
16. Describe the three main decisions within payout policy (re-investment, dividends, and buybacks).

3) Investment Policy: The Capital Budgeting Process – Firm Cash Flows
1. Situate the calculation of firm cash flows in the capital-budgeting process and investment policy.
2. Postulate the cash-flow identity and list the sources and uses of cash flow and their components.
3. Refer to the appropriate financial statements to extract data on the sources and uses of cash flow.
4. Interpret the accounts shown on the income statement (operations, finance, taxes, and profit).
5. Calculate operating cash flow from the income statement.
6. Interpret the accounts shown on the balance sheet (short and long-term assets and liabilities).
7. Calculate the cash flow related to capital expenditures using the balance sheet.
8. Calculate the cash flow related to changes in net working capital from the balance sheet.
9. Find the cash flow to debtholders and shareholders from financial statements (and footnotes).
10. Verify the cash-flow identity and correct any discrepancies.

4) Investment Policy: The Capital Budgeting Process – Time Value of Money
1. Situate discounted cash-flow valuation in the capital-budgeting process and investment policy.
2. Explain why money tomorrow is worth less than money today (deferral, inflation, and risk).
3. Make cash flows occurring at different points in time comparable (present and future values).
4. Calculate the future value of money that will grow at a given rate over time (compounding).
5. Calculate the present value of money to be paid or received at a future time (discounting).
6. Calculate future values with simple interest, compound interest, and continuous compounding.
7. Calculate present and future values over multiple periods.
8. Illustrate the long-run effect of the compound/discount rates on present and future values.
9. Calculate the rate of return or time needed to accumulate monetary targets (e.g., Rule of 72).
10. Go from annual percentage rate (APR) to effective annual rate (EAR) and vice-versa.
11. Value cash flows occurring in one period in terms of any other period.
12. Show that present values are additive and express value as the sum of discounted cash flows.
13. Describe and value regular cash-flow streams (level and growing perpetuities and annuities).
14. Value modestly complex cash-flow streams such as time-share properties and firms.
15. Analyze modestly complex personal savings problems such as a college savings plan.

5) Investment Policy: The Capital Budgeting Process – Net Present Value and project selection
1. Situate NPV and project selection in the capital-budgeting process and investment policy.
2. Calculate the NPV of a project and decide whether to accept or reject the project.
3. Discuss the virtues (and potential limitations) of the NPV criterion for project selection.
4. Illustrate the main limitations of the payback period criterion and discuss its potential benefits.
5. Find a project's Internal Rate of Return (IRR) and decide whether to accept or reject the project.
6. Illustrate the main limitations of the IRR criterion (invest or finance, multiples values, scale).
7. Give some practical reasons to use the IRR and offer some economic interpretations as well.
8. Calculate the Profitability Index (PI), relate it to NPV, and state the related decision rule.
9. Illustrate the flaw that the PI shares with the IRR in the context of mutually exclusive projects.
10. Illustrate how the PI is "better" than NPV in handling independent projects with limited funds.

11. Combine independent projects with limited funds so that the NPV still delivers the right decision.
12. Compare and contrast NPV, IRR, PI, and payback criteria for investment decisions.
13. Identify all relevant (incremental) project cash flows, including internal and external side effects.
14. Identify and exclude irrelevant factors such as non-cash items, sunk costs, and allocated costs.
15. Distinguish between the cash flow patterns of economic, accounting, and fiscal depreciation.
16. Produce project *pro forma* cash flows from financial statements, assumptions, and projections.
17. Comment on the validity and completeness of the assumptions underpinning an investment project.
18. Complete a discounted cash-flow analysis and test the sensitivity of results to key assumptions.
19. Formulate a capital-budgeting recommendation based on a thorough project analysis.

6) Financial Policy: The Cost of Capital
1. Situate cost of capital and project funding in the capital-budgeting process and financial policy.
2. Compute the Weighted Cost of Capital (WACC) and its components from first principles.
3. Execute a WACC calculation for the applied case of a specific company (e.g., IBM).
4. Compute the average realized (historical) return on an investment such as stocks and bonds.
5. Define and compute expected return and risk (variance) given possible outcome probabilities.
6. Define and compute covariance and correlation given possible outcome probabilities.
7. Populate and interpret variance-covariance and correlation matrices.
8. Compute return and risk (variance-covariance matrix) for a portfolio of two (or more) securities.
9. Explain and illustrate how diversification works and when it can lower the risk of a portfolio.
10. Explain and illustrate how the risk and return of a two-asset portfolio hinges on asset correlation.
11. Trace the efficient frontier as a function of the risk and return of two or *N*-risky assets.
12. Identify the optimal risky portfolio given a riskless asset and an efficient frontier.
13. Determine how many securities are needed to lower portfolio risk to a desired level.
14. Distinguish between unique and market risk and explain why only the latter deserves a premium.
15. Sketch the derivation of the Capital Asset Pricing Model (CAPM) in terms of risk and return.
16. Formulate and interpret the main result of the CAPM regarding the expected return on a security.
17. Relate the expected return on a security to its systemic risk (β) and the market risk premium.
18. Compute a security's beta using sample statistics (variance, covariance) and regression analysis.
19. Find the cost of equity using a security's beta, the riskless rate, and the market risk premium.
20. Find the cost of debt as the yield (required return) on a bond or the interest rate on a loan.

7) Financial Policy: Capital Structure & Sources
1. Situate capital structure and firm financing in the financial policy and value creation process.
2. Quantify the effect of financial leverage on firm returns (ROA, ROE, EPS), risk, and value.
3. Show the equivalence of corporate and homemade leverage on value via numerical analysis.
4. State and interpret the Modigliani-Miller Proposition I (no taxes) and its implications for firms.
5. Show the equivalence of debt and equity financing on value via their effect on the WACC.
6. State and interpret the Modigliani-Miller Proposition II (no taxes) and its implications for firms.
7. Quantify the effect of financial leverage on firm value when interest on debt is tax deductible.
8. The value of the debt tax shield given interest and corporate tax rates and the level of debt in place.
9. Show that firm value is the sum its unlevered value and the value of its debt tax shield.

10. Show that an all-debt capital structure maximizes firm value when debt interest is tax deductible.
11. Restate and re-interpret the Modigliani-Miller Propositions when debt interest is tax deductible.
12. Relate the sources of financing (seed capital, etc.) to the stages of development of a typical firm.
13. Compare Modigliani-Miller's all-debt capital structure prescription to actual corporate practice.
14. Identify the factors that limit the use of debt (distress costs, agency and information problems).
15. Diagnose financial distress and describe the related direct costs (bankruptcy) and indirect costs.
16. Illustrate how debt can cause shareholders to take too much or too little risk (financial agency).
17. Explain how and why manager and shareholder interests differ (principal-agency).
18. Frame the costs and benefits of debt financing as a trade-off theory of financial leverage.
19. Explain the cause and effects of information asymmetry between firm insiders and outsiders.
20. Relate the insider-outsider information asymmetry to a pecking order theory of financing.
21. Cite some of the main findings on firm financing and relate these to capital structure theory.
22. Describe the financial life of a firm, from early-stage finance through to going public (IPO).
23. Describe the basic steps and procedures of the IPO process (alternatives and underwriters).
24. Explain IPO underpricing, its consequences, and the main reasons proposed for its existence.
25. Apply the material to a real case and recommend necessary changes in policy and practice.

8) Payout (Dividend) Policy
1. List the competing uses for firm cash and situate payout policy in the value creation process.
2. Explain the nature, commonly observed practices, and mechanics of cash dividends.
3. Compare and contrast share repurchases (buybacks) and cash dividends.
4. Illustrate why payouts made in stock (or stock splits) are actually not payouts (pseudo-payouts).
5. Illustrate why, according to Modigliani-Miller, payout policy has no bearing on firm value.
6. Illustrate why, according to Modigliani-Miller, payout policy is irrelevant to investors.
7. Discuss the types of share repurchases (open market, tender offer, and targeted purchase).
8. Illustrate why the form of payout, buybacks or dividends, may not matter to firms or investors.
9. Explain why the form of payout, buybacks or dividends, may actually matter in practice.
10. Describe executive stock options and why compensation policy might affect the form of payout.
11. Discuss real-world frictions (taxes, floatation costs) that make corporate payouts suboptimal.
12. Discuss real-world frictions (agency, lack of good projects) that make retentions suboptimal.
13. Determine which type of payout, buybacks or dividends, is most tax efficient.
14. Discuss reasons for paying cash dividends despite their inefficiencies.
15. Discuss under what conditions catering to dividend clienteles can create value.
16. Cite some of the main findings on firm payouts and relate these to payout-policy theory.
17. Apply the material to a real case and recommend necessary changes in policy and practice.