

National Tsing Hua University
QF5277 Topics in Financial Economics
Course Syllabus

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Course Description

This a 16-week course that discusses finance theory and explores recent developments in the field. The primary objective is to equip students with analytical frameworks for comprehending issues in financial economics and establishing a theoretical background for future research. The course is structured into two parts.

- Part 1: We will cover classic models in the area of corporate finance and asset pricing. This lays the groundwork for understanding how market imperfections influence corporate policies.
- Part 2: We will broadly survey recent theoretical and applied works in financial economics that view market imperfections as first-order factors. These works offer insights into corporate investment and financing in dynamic economic environments, macro fluctuations in the presence of financial intermediation, and contemporary research on U.S. public debt and sustainability investment.

Papers to be discussed are selected based on their modeling simplicity, impact, and recent relevance. The emphasis is on enabling students, regardless of their specialization, to engage and analyze important financial issues in a logically coherent manner. Empirical works will only be used as motivations or verification.

Prerequisites

No formal prerequisites. But you should be familiar with intermediate microeconomics and macroeconomics, calculus (multi-variable differentiation, Taylor's approximation, basic optimization) and probability (expectations, variance, covariance, normal distribution). We will use elementary stochastic calculus, and a cookbook overview will be provided.

Textbook

No required textbook. Materials are based on papers and references. A detailed list of references will be provided in the first week of the class.

Grading Policy

Grades are based on class participation (10%), assignments (40%), a reading report (50%).

- The reading report will be based on course-related papers and must be written in English.
- Selectable papers on different topics will be posted around the mid-term. The report is due by the end of the semester.

Topics

This is an approximate schedule of topics that will be covered.

1. The Basics of Asset Pricing, Investment, and Financing
 - Intertemporal choice, stochastic discount factor, consumption-CAPM
 - Hayashi's q theory of investment, Modigliani-Miller theorem
 - Optimal capital structure: the trade-off theory
 - Debt-equity conflicts: debt overhang and asset substitution
2. Introduction to Stochastic Calculus
 - Brownian motions, Ito's Lemma, martingale method
3. Dynamic Capital Structure
 - Leland-type models: endogenous default and credit risk
 - Applications: short-term debt, liquidity risk, leverage dynamics, business cycles
4. Dynamic Liquidity Management
 - Bolton-Chen-Wang: costly equity issuance, q theory revisited, risk management
 - Applications: banking, long-term contracting
5. Macro-Finance Models with Heterogeneous Agents
 - Holmstrom-Tirole: financial contracting and bank monitoring
 - The paradigm of Brunnermeier-Sannikov and He-Krishnamurthy: intermediary asset pricing, endogenous risk dynamics
6. Government Debt and Financial Markets
 - Blanchard's discussion on $r < g$ and sustainability of public debt
 - Convenience yield, safe assets, fiscal capacity
7. ESG-Related Topics But Mainly E
 - Sustainability investment, disaster risk, carbon credits
8. Other Topics (only if time permitted)
 - Foundations of banking: delegated monitoring, diversification, bank runs
 - Tokenomics: network externality, token pricing, stable coins