

# Course Evaluation: ECON 4335 The Economics of Banking

Instructor: Jin Cao

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## 1 Brief review of the course

### 1.1 Syllabus

The course aims to provide a state-of-art introduction to the economics of banking for second-year master students. The course starts with the introduction of market failure and financial frictions that motivate the role of banks, explains how the financial frictions affect the microeconomic incentives of participants in banking relationships and amplify the micro-level market stresses to economic recessions and financial crises, and why there is a role of monetary authorities and banking regulators to reduce systemic fragility as well as to improve the macroeconomic stability. The course addresses the key questions in banking, including

- What distinguishes banks from other firms?
- What determines their behavior when they set interest rates and extend loans?
- What is their role in the economy?
- Why is banking subject to a long list of specific regulations?
- How is monetary policy transmitted through the banking system?
- Why do banking crises occur and what are their consequences for the macroeconomy?

The course has a broad coverage of microeconomics of banking, macroeconomics of banking, central banking, and banking regulation. The course tries to strike a balance between theory and empirics: It builds a sound foundation of fundamental banking theories, at the same time, it presents the empirical facts as well as the established evidence that supports the theories. See the details of the syllabus in the Appendix.

### 1.2 Teaching

This course contains 13 lectures (once a week throughout the semester, 26 hours in total) and 10 seminars (starting from the fourth week, once a week, 20 hours in total). Seminar assignments are posted online, and participants of the course are advised to work on the assignments before the seminars.

The course resources include the lecture notes and reading material. The reading material is available in the library. The course has a Canvas page where the lecture notes and supplementary material are posted. The Canvas page is also a space for questions and answers regarding the lectures. Lectures and seminars are given in the classrooms with visual-audio devices, where instructor can present slides of the course, and both instructor and participants can write notes on the touch screen.

### 1.3 Exam

Participants of the course are evaluated by the final exam. The 3-hour exam is conducted currently over the Inpera system. One third of the exam is based on short questions which participants can answer verbally; this part tests the understanding of important concepts and mechanisms at work. The rest of the exam consists of analytical questions which test the analytical skills that are learned in the course. The exam is evaluated by a committee that contains the instructor and other reviewers.

## **2 Learning outcome**

From the exam evaluation and the feedback from the participants in the course, the desired learning outcome in the course description has been well achieved, particularly in three dimensions:

### **Knowledge outcomes**

The main economic theories about bank behavior, bank regulation, banking crises and the role of banks in the economy (including in the transmission mechanism of monetary policy), as well as important institutional and historical facts related to the same areas;

### **Skills**

Analytical skills to investigate how banks adapt to shifting environments and constraints, how they are affected by banking regulations, and how monetary policy and bank behavior interact to affect aggregate demand and the risks which affect individual banks and the banking system as a whole;

### **Competence**

Capability to read and understand analytical reports and journal articles that make use of the concepts and methods that are introduced in the course; capability to make use of the course content in academic work such as master's thesis. Quite a few previous participants chose banking related topics in their these.

## **3 Satisfaction of the course**

Each year the course attracts 20-30 highly motivated participants. Results are highly satisfactory. As of Fall 2018, 26 participants took part in the final exam, and 85% achieved very good results ("B" or above). Feedback from course participants generally confirms that the desired learning outcome has been well achieved, and the syllabus is properly designed. More than 90% of the participants regard the course as above expectation.

The course is placed in a proper semester (typically the third semester of the master program), when participants have gained prerequisites from other courses and need a "topical" course for inspiring their thesis work. The course is built on game theory, contract theory, macroeconomic / monetary theory and econometrics that participants have learned from related courses. With brief refreshing, participants are usually comfortable when these techniques are applied during the course.

## **4 Evolution of the course of potential for improvement**

The course is a very applied course that has strong implications in the real world, therefore, during the past years, the contents of the course have been always evolving to keep the course up to date. The introductory part of the course has been always updated each year, to present the realist overview of the banking world. A lecture on securitization has been added to show how modern banking is organized, and the module on banking regulation has been updated yearly to reflect the progress of establishing the new global regulatory framework. Generally, participants are very happy to see how this course works to explain the questions and understand policy debates in the real world.

There are still potentials to improve. First is to address the main challenge to this course that there is no single textbook available in the market so that the course has to be built on a long reading list of papers and book chapters. On the one hand, it is a good training for students to gain knowledge directly from original research, but on the other hand, there lacks a web of knowledge, or, a framework of thinking. To address this issue, the course has been organized as a series lectures of topics, and lecture notes that follow the same

theme and notations are provided for most of the lectures. We hope this helps students build a “big picture” of the course.

Another issue is how to strike a balance between theoretical and empirical analysis. There is no doubt that the course should be built on sound foundations of the key theories, however, the economics of banking has such a strong real-life basis that the capability to apply the theories in the real world is equally important. Over the years, the course has been trying to improve the linkages between theories and empirical facts / evidence in the lectures; as a next step, it may be useful to provide empirical exercises in the class sessions as well to develop quantitative skills for analyzing real-life questions.

## **Appendix: Syllabus of ECON4335 (as of Fall 2018)**

### **Part I Introduction**

We start the course with a brief introduction to banking and the economics of banking. Different from most of the previous courses, the economics of banking stems from various frictions and market failures --- exactly because of these frictions and failures, banking becomes necessary and welfare improving. However, banks themselves are subject to frictions and failures, too; therefore, they are also sources of inefficiencies and instabilities.

We first explain why banking is special and important and show how real-world banks are working through a stylized example. Then we present an overview on banking industry and the structure of the course. Overall, we start the semester in a linear way, going through the terms and jargons that are unfamiliar to outsiders and will be frequently used in the rest of the semester.

References: The lecture will be mostly based on the lecture notes; however, interested readers can take a look at the reading list in the end of the notes.

### **Part II The Microeconomics of Banking**

In this part, we look into various financial frictions and market failures that motivate banking, and investigate the new problems arising from banking within the corresponding contexts.

#### ***Lecture 1: Fragile Banks***

In this lecture, we start with one friction that people may have different preferences on liquidity. Potential lenders may have relatively short time preference for consumption, while potential borrowers may need long term funding. Without intermediaries, long term projects with high yields are probably never funded. Banks who provide funding for long assets via rolling over debts from lenders thus help improve social welfare.

However, the maturity mismatch between bank assets and liabilities exposes banks to liquidity risks, that they may not be able to roll over debts and / or meet the withdrawal demand, leading to bank runs. We further discuss how everything looks like in the real world on securitized banking.

**References:**

This lecture is based on (those with \* are core papers)

\* Diamond, D. W. and Dybvig, P. H. Bank Runs, Deposit Insurance, and Liquidity, 1983. *Journal of Political Economy*, 91: pp. 401-419

Cao, J. and Illing, G. Endogenous Exposure to Systemic Liquidity Risk, 2011. *International Journal of Central Banking*, 7(2): pp. 173-216.

And more readings can be found in the lecture notes for interested readers.

### ***Lecture 2: Limited Liability, Liquidity Hoarding, and Market Freezes***

We continue with another friction, limited liability, in this section. Banks' limited liability creates conflicts between banks and their clients, that banks have strong incentive to gamble for the high yields on the heads as long as their losses on the tails are limited. In this lecture we discuss the issue in the context of liquidity management; we will see how banks' excess risk-taking incentive leads to inefficiencies in building liquidity buffers, and how this leads to market freezes that turn liquidity shocks to systemic liquidity crunches.

#### **References:**

This lecture is based on

\* Diamond, D. W. and Rajan, R. G. Fear of Fire Sales, Illiquidity Seeking, and Credit Freezes, 2011. *Quarterly Journal of Economics*, 126(2): 557-591.

However, we also briefly discuss

Tirole, J. "Consumer Liquidity Demand" in Tirole, J. *The Theory of Corporate Finance*, 2006. Princeton, Princeton University Press. ISBN: 9780691125565, chapter 12

Tirole, J. Illiquidity and All Its Friends, 2011. *Journal of Economic Literature*, 49(2): pp. 287-325.

### ***Lecture 3: Moral Hazard, Bank Capital, and Market Segregation***

From this section on, we examine the consequences of asymmetric information. The lending-borrowing relationships are strongly featured by asymmetric information: Lenders have limited knowledge about the credibility of borrowers (principal agent problem). Banks who have expertise in producing information thus can select the truly credit-worthy borrowers and ensure they behave properly for lenders' interests, improving social welfare.

However, the same principal agent problem holds for banks, too. Once they are monopoly of information, they might not work for lenders' best interests, either. In order to convince lenders, banks need to "skin-in-the-game" and put their own stake in the lender-borrower relationships. We will discuss the consequences to the credit market.

#### **References:**

This lecture is based on

\* Holmstrom, B. and Tirole, J. Financial Intermediation, Loanable Funds, and the Real Sector, 1997. *Quarterly Journal of Economics*, 112(3): pp. 663-691.

### ***Lecture 4: Adverse Selection and Credit Rationing***

Besides moral hazard, the other consequence of asymmetric information is adverse selection. When the quality of the borrowers is private information, low quality borrowers may drive high quality ones out of credit market and lead to market break-down. Banks as information producer thus can screen the credit-worthy borrowers, and improve social welfare. However, as long as the screening technology is not perfect, banks may want to reduce type-I error and leave some (possibly eligible) borrowers unserved. The consequence is a persistent excess demand in the credit market.

### **References:**

This lecture is based on

\* Stiglitz, J. E. and Weiss, A. Credit rationing in markets with imperfect information, 1981. *American Economic Review*. 71, 393-410.

### ***Lecture 5: The Industrial Organization of Banking***

We discuss the market structure of banking in this section. The key question here is: How does bank competition affect the stability of banking sector? On one hand, competition helps remove certain inefficiencies and improve resource allocation, this may increase the stability of banking sector; on the other hand, competition may also reduce banks' security buffers and / more force them to take more risks, hence reduce the stability of banking sector. Of course, there is no easy answer to this question, and it really depends on the conditions.

### **References:**

This lecture is based on

\* Hellmann, T. F., Murdoch, K. C. and Stiglitz, J. E. Liberalization, Moral Hazard in Banking, and Prudential Regulation: Are Capital Requirements Enough?, 2000. *American Economic Review*, 90(1): pp. 147-165

\* Boyd, J. H. and De Nicolo, G. The theory of bank risk taking and competition revisited, 2005. *Journal of Finance* 60, 1329-1343.

And we also briefly discuss

Allen, F. and Gale, D. Competition and Financial Stability, 2004. *Journal of Money, Credit and Banking*, 36(3), pp. 453-480

Vives, X. Competition and stability in banking, 2010. Center for Economic Policy Research, *Policy Insight*, 50: pp. 1-21.

### **Part III The Macroeconomics of Banking**

In this part, we look at how banking sector is affecting the macroeconomy. That is, how inefficiencies and failures in banking sector amplify booms and busts in the macroeconomy, leading to economy-wide bubbles and crunches.

### ***Lecture 6: Central Banking***

In this lecture we look at the working of "the bank of all banks". Generally speaking, the central bank tunes the real economy using financial instruments, i.e., conducting monetary policy through various tools. Usually these tools work through the banking sector and affect banks' credit supply to the real economy; therefore, efficient transmission mechanisms of monetary policy are at the core of efficient monetary policy.

This lecture is based on both general principles and Norwegian reality

\* Rødseth, A. Banks, Monetary Policy and Aggregate Demand, mimeo, 2014

\* Bernhardsen, T., and Kloster, A. Liquidity management system: Floor or corridor? 2010. *Norges Bank Staff Memo*, 4.

### ***Lecture 7: Financial Accelerator, Booms, and Busts***

In this lecture we explain how financial frictions in the banking sector can amplify booms and busts in the real economy, leading to bubbles and crises. Financial frictions lead to systemic misallocation of resources, often excess debt exposures and shortages in safety buffers. Therefore, in the boom, leverage allows excess returns, fueling the bubbly growth; while in the bust, buffer shortages lead to forced deleverage, triggering a vicious cycle into crises.

#### **References:**

This lecture is based on

\* Bianchi, J. Overborrowing and Systemic Externalities in the Business Cycle, 2011. *American Economic Review*, 101(7). 3400-3426

\* Martin, A. and Ventura, J. Theoretical Notes on Bubbles and the Current Crisis, 2011. *IMF Economic Review*, 59(1), 6-40.

And we will briefly discuss

Brunnermeier, M. K. and Oehmke, M. Bubbles, Financial Crises, And Systemic Risk, 2013. *Handbook of the Economics of Finance*, 2: pp. 1221-1288.

### **Part IV Banking Regulation**

Inefficiencies in industries need public intervention, while this is especially crucial for the banking sector. Banking regulation is particularly special, as it focuses more on safety as well as tax payer protection. We start with general principles for banking regulation, then focus more on the sources of systemic risks and the need for macroprudential regulation. In the end, we look through the new updates in the design of new banking regulation framework, and discuss the limits of the instruments.

#### **References:**

This lecture is based on

\* Borchgrevink, H., Ellingsrud, S. and Hansen, F. Macroprudential Regulation - What, Why and How? 2014. *Norges Bank Staff Memo*

\* The Fundamental Principles of Financial Regulation; *Geneva Reports on the World Economy*, CEPR, June 2009.

Freixas, X. and Rochet, J. "Regulation of Banks", in Freixas, X and Rochet, J. *Microeconomics of Banking (2nd Edition)*, 2008. Cambridge Massachusetts: MIT Press. ISBN: 9780262062701, chapter 9 (sections 9.5.3, 9.6 and 9.7 can be skipped).