

BANKING AND FINANCE

Academic Year 2021/2022

Lecturer: Damiano B. Silipo

Outline of the Course

Banking and Finance is one-semester subject for the 1-th year students of the Finance and Insurance Course. Introductory Calculus and Microeconomics are pre-requisites. Lessons and exams are in English. The course surveys the main models and tools used in banking and finance. The aim is to provide tools of analysis and insight on banking behavior and its interaction with financial markets and the economy. After providing an overview on the role and operation of the bank, the course investigates the determinants of funding and lending decisions of the banks and their impact on the credit and market risk. Then, we will investigate the links between banks and financial markets, and the conditions that may transform structural weakness of few financial institutions into systemic risk. The last part will be devoted to the understanding of the 2007-2008 financial crash and the micro-prudential regulation and macro-prudential tools used by central banks and regulators to address bank's risk and systemic risk.

The aim of the course is to provide a deep understanding of the banking behavior and the link between bank and financial markets. The student will be able to use the tools of risk analysis and portfolio management, and understand how to pursue the aim of the bank in several market conditions.

Specific skills: The student will learn how to manage bank's portfolio allocation and to identify and manage the several sources of financial risks.

Soft skills: A more general required ability is to combine theoretical tools with practical applications and to be able to interact in a team.

REQUIREMENTS:

Knowledge of English, Calculus, Microeconomics.

Expected hours

Total	Contact hours		Self hours study
	Lectures	Tutorials	
284	84	40	160

Academic Year 2021-2022 TIMETABLE –I SEMESTER

Day	Time	Room	Course	Teacher	
Mon	11:00-13:00pm	EP6	Banking and Finance <i>Banche e Finanza</i>	Damiano B. Silipo	Beginning: September 27 th , 2021. End: Dec 22th, 2021
Tue	11:00-13:00pm	EP6	Banking and Finance <i>Banche e Finanza</i>	“ –	
Wed	11:00-13:00pm	EP6	Banking and Finance <i>Banche e Finanza</i>	“ –	
Thurs	9:00-11:00am	EP6	Banking and Finance <i>Banche e Finanza</i>	“ –	

Prof. Damiano B. Silipo
Office hours

Wed 4:00-6:00pm

Thurs 11:00am-1:00 pm

Dipartimento di Economia, Statistica e Finanza
Third Floor

Exams

1) Probanker exercises taking place in the last day of the course. It counts 25% of the final grade.

2) One hour written exam. It includes two questions and one exercise. It counts 75% of the final mark.

The grades for the exercises and the written exam are on a scale of 30.

Written exams will take place on:

05/11/2021; 13/01/2022; 14/02/2022; 04/04/2022;
14/06/2022; 08/07/2022; 16/09/2022.

Topics:

1. Why do banks exist and what do they do?

Liquidity - Assets transformation - Managing risk – Monitoring and information processing.

Types of banks. Non-banking financial institutions.

[Rochet], Ch. 1. Heffernan (2005), Ch. 1. Mishkin (2004), Ch. 2.

2. The role of financial intermediaries and the coexistence of direct and intermediate lending

Economies of scale and economies of scope.

Asymmetric information and delegated monitoring.

Market versus Bank Finance.

[Rochet], Ch. 2. Mishkin (2004), Ch. 1-2.

3. Assets, liabilities and the creation of loans and deposits

Bank balance sheet.

Financial ratios and bank performance measures.

The process of creation of loans and deposits.

The role of the Central Bank in the creation of deposits.

[Howells], Ch. 3. Bank of England (2010).

4. The Industrial Organization Approach

Measuring the activity of the bank.

The perfect competitive model.

Monopolistic competition.

Estimating market power in banking.

[Rochet], Ch. 3.

5. The Lender-Borrower Relationship

Optimal contract with and without costly state verification.

Collaterals and loan size.

Optimal contract with moral hazard.

[Rochet], Ch. 4.

6. Equilibrium and rationing in the credit market

Equilibrium in the credit market.

Definition and explanations of the credit rationing.

Adverse selection, moral hazard and credit rationing.

Lending and Credit Risk. Default risk and credit rationing.

Estimating default probability: Loss Given Default and Expected Loss.

[Rochet], Ch. 5.

7. Risks in Banking

Classification of banking risks:

1. Interest rate risk.
2. Liquidity risk.
3. Operational risks.
4. Credit and counterparty risk.
5. Market risks. Sovereign and political risks.

Interaction among risks.

References:

[Rochet], Ch. 8. Heffernan, Ch. 3.

8. Managing credit risk

Introduction to risk management and measurement techniques.

- 1. Credit Risk Decisions: Retail versus Corporate.**
- 2. Ways to Minimizing Credit Risk.**
- 3. Assessing the Default Risk of Individual Loans and Corporations.**
- 4. The *Z-score*.**
- 5. Aggregate Credit Risk Exposure and Management.**

References:

Heffernan, Ch. 3. [Howells], Ch. 7. [Saunders]

Chapters 8, 9, 17, 18.

9. Managing Interest Rate Risk

The Term Structure of Interest Rates.

Measuring Interest Rate Risk Exposure.

Applications to Asset-Liability Management.

Interest Rate Risk and Asset–Liability Management.

2. Gap analysis and duration analysis.

3. Financial derivatives and risk management

References:

Heffernan, Ch. 3. [Howells], Ch. 7. [Saunders]

Chapters 8, 9, 17, 18. Mishkin (2004), Ch. 4-6.

10. Managing Market risk

- 1. Risk Adjusted Return on Capital**
- 2. Market Risk and Value at Risk (VaR)**
- 3. Risk Management by Major Global Banks**

References:

Heffernan, Ch. 3. [Howells], Ch. 7. [Saunders]

Chapters 8, 9, 17, 18.

11. Securitization and risk management

Why bank securitize loans

The securitization process

The impact of securitization on bank's and systemic risk.

Shadow banking

References:

Marques-Ibanez, D. and Scheicher, M. (2011). Stein, J.C. (2010). Harutyunyan et al. (2015).

12. Banking behavior and systemic risk

Confidence and overconfidence in banking.

Lending, leverage and bubbles.

Banking behavior and the 2007-2008 financial crisis.

The Causes of Instability.

Bank Runs.

Systemic Risk and Contagion.

Minsky (1992). Akerlof-Shiller (2009). Rajan (2005). Barberis (2013). [Rochet], Ch. 7. Adrian-Shin (2013). Geanakoplos, J. (2010). Brunnermeier (2009). [Saunders], Ch. 26-27. De Nicolò-Lucchetta (2012). Diamond-Dybvig (1983). Allen-Gale (2000). Allen et al. (2011).

13. Asset allocation

The relationship between risk and return.

The capital allocation line and the capital market line.

The optimal portfolio allocation.

Passive Strategies and the Capital Market Line.

A portfolio with two risky assets.

A portfolio containing two risky-assets and one risk-free asset.

Risk-aversion and portfolio allocation.

References:

Bodie- Kane- Marcus, Ch.5-7. Van Der Wijst, Ch. 3.

14. Expected Return and Risk In a Passive and Active Portfolio Management

The Capital Asset Pricing Model (CAPM).

Portfolio Choice in the CAPM World.

Decomposition of return: Exceptional Returns, Benchmark, and Value-Added.

Active risk, residual risk and the cost of risk.

References:

Bodie- Kane- Marcus, Ch. 9. Van Der Wijst, Ch. 3.

15. Finance and financial markets

The CAPM model and the APT model.

Models of optimal capital structure.

The Efficient Markets Hypothesis and the limit of arbitrage.

The Behavioral finance approach.

Heffernan (2005), Ch. 2. [Van], 2.4-2.5, Ch. 3, 5, 6. [Bailey], Ch. 4-8. Barberis and Thaler (2003).

16. Behavioral Finance and Technical Analysis

Behavioral Biases.

Limits to arbitrage.

Banking and market behavior in the behavioral finance approach.

Sentiment Indicators.

Technical Analysis: 1) Momentum and Moving Averages; 2) Relative strength.

References:

Bodie- Kane- Marcus, Ch. 12. Barberis and Thaler (2003).

17. Bubbles

Bubbles and Behavioral Economics.

Confidence and overconfidence in banking.

The causes of increasing risk-taking.

The financial instability hypothesis.

The Causes of Instability.

Lending, leverage and bubbles.

Banking and systemic risk.

References:

Minsky (1992). Akerlof-Shiller (2009). Rajan (2005). Barberis (2013). Adrian-Shin (2011, 2013). Geanakoplos, J. (2010). Brunnermeier (2009). [Saunders], Ch. 26-27. De Nicolò-Lucchetta (2012). Diamond-Dybvig (1983). Allen-Gale (2000). Allen et al. (2011).

18. The Regulation of Banks

Systematic risk and specific risk.

Justifications for Banking Regulation.

A Framework for Regulatory Analysis.

Global regulation of banks: from Basel I to Basel III.

Macro-prudential regulation.

Heffernan (2005), Ch. 4-5. [Rochet], Ch. 9.

19. The role of central banks during and after the 2007-2008 financial crash

The role of lender of last resort.

Tools and effects of the monetary policy after the financial crisis.

The consequences of negative interest rates.

Financial Fragility and Economic Performance.

Financial Development and Economic Growth.

Bank of England (2015). Buitert (2008). Borio-Disyatat (2010). [BIS], 2011. Woodford (2012). Bernanke (2012). Gertler-Karadi (2013).

Altavilla et al. (2015). Gambacorta et al. (2012). IMF (2013). [Rochet], Ch. 6. Stiglitz (2010). Blanchard et al. (2010). Mishkin (2010).

References: Books:

Freixas, X. and Rochet, J.C. (2008). Microeconomic of Banking. MIT Press, 2nd Edition. [Rochet]

Heffernan, S. (2005), Modern Banking, Wiley.

Howells, P., and K. Bain (2007), Financial Markets and Institutions, 5th ed. Prentice Hall. [Howells].

Van Der Wijst, N. (2013). Finance. Cambridge University Press. [Van]

Akerlof, G. A., Shiller, R. J. (2009), Animal Spirits, Princeton University Press, pp. 230.

Mishin F. S. (2004), The Economics of Money, Banking, and Financial Markets. Pearson.

Allen, F. and Gale, D. (2009). Understanding Financial Crises .Clarendon Lectures in Finance. Oxford University Press, 2009.

Bailey, R.E. (2005). The Economics of Financial Markets. CUP. [Bailey].

[Freixas](#), X. [Laeven](#) L. and [Peydró](#) J-L (2015). Systemic Risk, Crises, and Macroprudential Regulation, MIT Press.

Saunders, A., “Financial Institution Management: A Modern Perspective”, McGraw-hill, 2000. [Saunders].

Wessel D (2013) edited by Central Banking after the Great Recession

Articles:

Adrian, T. and Shin, H. S. (2011), Financial Intermediary Balance Sheet Management, Federal Reserve Bank of New York Staff Reports no. 532.

Adrian, T. and Shin, H. S. (2013), Procyclical Leverage and Value-at-Risk, Systemic Risk Center, London School of Economics, Discussion Paper No 1.

Allen F. and D. Gale, 2000, Financial Contagion, Journal of Political Economy, 108: 1-34.

Allen, F., A. Babus and E. Carletti, 2011, Financial Connections and Systemic Risk, mimeo, European University Institute.

Altavilla et al. (2015). Asset purchase programmes and financial markets: lessons from the euro area. ECB Working paper n. 1864.

Bank for International Settlements[BIS]. Central bank governance and financial stability. May 2011

Bank of England (2015). Understanding the central bank balance sheet.pdf

Barberis, N. 2013. Psychology and the financial crisis of 2007—2008. In M. Haliassos (ed.), Financial innovation: Too much or too little? MIT Press.

[Barberis](#), N. and [Thaler](#), R. (2003), A survey of behavioral finance, in [Handbook of the Economics of Finance](#), [Vol. 1, Part B](#), Elsevier, p. 1053–1112.

Bernanke, Ben (2012), “Monetary Policy since the Onset of the Crisis,” at the Federal Reserve Bank of Kansas City Economic Symposium, Jackson Hole, WY, August 31, www.federalreserve.gov/newsevents/speech/bernanke20120831a.htm

Blanchard, O. Della Riccia, G. and Mauro, P. (2010). Rethinking Macroeconomic Policy. IMF Staff paper. February 12, 2010 SPN/10/03.

Blanchard, O. Giovanni Dell’Ariccia, and Paolo Mauro (2010).

Borio, C. Disyatat, P. (2010). UNCONVENTIONAL MONETARY POLICIES: AN APPRAISAL. The Manchester School 53–89 Supplement.

Buiter, W. H. (2008). Central banks and financial crises. Lse-Discussion Paper No 619.

Brunnermeier, M. K. (2009), “Deciphering the Liquidity and Credit Crunch 2007-2008”. *Journal of Economic Perspectives* 23: 77-100.

De Nicolò, G. and M. Lucchetta (2012), “Systemic Risks and the Macroeconomy,” IMF Working Paper 10/29.

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

Diamond D., and R. Rajan, 2005, Liquidity shortage and banking crises. *Journal of Finance*, 60(2): 615-647.

Diamond, D. W. and Rajan, R. (2009), *The Credit Crisis: Conjectures About Causes and Remedies*, National Bureau Of Economic Research, Working Paper 14739.

Gambacorta, Leonardo, Boris Hofmann, and Gert Peersman, 2012, “The Effectiveness of Unconventional Monetary Policy at the Zero Lower Bound: A Cross-Country Analysis,” BIS Working Paper, No. 384.

Geanakoplos, J. (2010), *The Leverage Cycle*, Cowles Foundation Discussion Paper n. 1715R.

Gertler, M. and Karadi, P. (2013). “QE 1 vs. 2 vs. 3. . . : A Framework for Analyzing Large-Scale Asset Purchases as a Monetary Policy Tool,” *International Journal of Central Banking*, January.

IMF (2013). *Unconventional Monetary Policies—Recent Experience and Prospects*.

Minsky, P. H. (1992). *The Financial Instability Hypothesis*. The Levy Economics Institute of Bard College, Working Paper N. 74.

Mishkin, F. S. (2010). *Monetary Policy Strategy: Lessons from the Crisis*. National Bureau of Economic Research. December.

Niu, J., 2010. The effect of CEO overconfidence on bank risk taking. *Economics Bulletin* 30, 3288–3299.

Rajan, R. G. (2005), HAS FINANCIAL DEVELOPMENT MADE THE WORLD RISKIER?, NBER, Working Paper n. 11728.

Stiglitz, J. E. (2010). RETHINKING MACROECONOMICS: WHAT WENT WRONG AND HOW TO FIX IT. Adam Smith Lecture - European Economic Association. Glasgow August 24, 2010

Woodford, M.(2012), "Methods of Policy Accommodation at the Interest-Rate Lower Bound," in The Changing Policy Landscape, Federal Reserve Bank of Kansas City.

PROBANKER

It is a program allowing to simulate how to manage a bank. We'll keep the institution very simple, and build up the various types of decisions you will need to make in ProBanker.

Table 1.2. Basic Bank Balance Sheet

Assets	Liabilities
Loans	Deposits
G-Bonds	Equity

It funds an asset portfolio composed of loans and government bonds ("G-Bonds") with deposits and equity capital.

The bank therefore has an important decision to make about what loan rate to charge. The bank's rate paid on deposits affects the volume of deposit dollars.

G-Bonds differ from loans and deposits. Rather than setting an interest rate on bonds, the bank can only choose the quantity of bonds to buy. Finally, equity is the shareholder's capital. Management is expected to provide a reasonable (risk-adjusted) return on shareholders' invested equity funds.

Managers affect profits by choosing what loan rates to charge, and what deposit rates to pay. We can illustrate the main idea by considering two alternative decision sets.

CEO Decisions and ProBanker's Timing Convention

The individual decisions you make each quarter fall into several groups:

- ❖ Quantities of assets to buy and liabilities to issue,
- ❖ Interest Rates on Rate-Set loan and deposit products,
- ❖ Advertising expenditures,
- ❖ Capital structure decisions (issue/retire shares, pay dividends)
- ❖ Miscellaneous other decisions

The Effects of Your Decisions

ProBanker then shows the effects of the individual decisions you will make each quarter.

There are two types of games:

1. Autosim Mode
2. Competitive Mode

Autosim:

1. Management team selects a Template and creates a "game" (See Section 2.3).
2. Each player or team reviews reports from the most recent simulated quarter and assesses their bank's condition.

3. Players make decisions and save them to the ProBanker website's database.
4. Players simulate the next quarter: the costs, revenues, loan demands, and deposit supplies resulting from their decisions are available in reports. Each bank competes against pre-programmed competitors. Players can roll back quarters.
5. Begin another cycle: return to Step 2.

Competitive Mode

1. Administrator selects starting financial condition for all banks in the "economy." Each management team controls a single bank.
2. Each player or team reviews reports from the most recent simulated quarter and assesses their bank's condition.

3. Players make decisions and save them to the ProBanker website's database before the Administrator's announced deadline.

4. At a pre-announced time, the Administrator simulates the next quarter: the costs, revenues, loan demands, and deposit supplies resulting from Player decisions are available in Reports. Players cannot simulate or roll back in a competitive game.

5. Begin another cycle: return to Step 2.