

# **Advanced Topics in Macro-Finance**

**Spring 2020**

**Institute of New Structural Economics, Peking University**

## **Administration Information**

**Instructor:** *Junjie XIA*

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## **Course Description**

- **Audience and prerequisite**

This course is designed to graduate students who have finished first-year graduate courses, including macroeconomics, microeconomics and econometrics. Although it is not required, having knowledge on programming and advanced applied econometric methodology is highly encouraged.

- **Course Objectives**

The primary goal of this course is to teach students advanced models and tools in Macro-Finance topics.

Finance plays a crucial role in the modern economy. In terms of financial institutions, banks and stock markets channel funds from savers towards borrowers – productive ventures, while managing economic risks and liquidity. In terms of households, portfolio choices affect households investment, saving and consumption decisions, which has impact on social mobility and inequality. Standard macro-finance theories study the link between asset prices and economic fluctuations. All theories are designed to understand simple facts in real worlds. Students are expected to learn different classes of models in this course. Detailed layouts are discussed in the course outline section.

- **Course Plan**

This course can be structured into four parts: a) Preliminary review for some fundamental approaches and theories on the advance macroeconomic research; b) core models on the advance Macro-Finance research; c) New structural economics perspectives; d) in-class existing paper presentation and research proposal presentation. Please also see more details in Course Outline session.

## **Textbooks**

There is *NO* required textbook, but the following references could be helpful.

- “*Recursive Macroeconomic Theory*”, by Ljungqvist L., and Sargent T., MIT Press
- “*Methods for Applied Macroeconomic Research*”, Fabio Canova, Princeton University Press
- “*Dynamic General Equilibrium Modeling*”, Heer, B. and Maussner A, Springer
- “*Structural Macroeconometrics*”, by David De Jong and Chetan Dave, Princeton University Press
- “*Frontiers of Business Cycle Research*”, Cooley, T. F., Princeton University Press
- “*Time Series Analysis*”, Hamilton, J.D., Princeton University Press, 1994
- “*Handbook of Macroeconomics*”, Volume 2 (2016), Taylor J. B. and Uhlig H.

## **Course Policy**

- **Grading**

Class participation	10%
Problem sets	20%
Paper presentation	30%
Referee report	10%
Research project	30%

- **Class Participation**

Students are expected to attend all classes at their scheduled time, and are responsible for all assigned materials, and participate in discussion. I randomly check the class attendance. Two absences are equal to 1% deduction of total grade. Medical or other extenuating excuses are granted upon valid documentary proofs.

- **Homework**

Each student has five assignments. The best four scores are counted into your grade (5% per each assignment). Students must turn in all five assignments. Missing one submission will deduct 5% from total grade.

- **Paper presentation and referee report**

Each student needs to give an individual in-class paper presentation and submit a referee report for the same paper. Students may choose journal articles in the literature or your own research paper.

The presentation is 40 minutes, including 10 minutes Q and A. Presenting is an important skill for academic research. A successful presentation may cover concisely the following four points: a) what is the motivation; b) what does the paper do; c) what are the results; d) your comments and criticisms of the paper.

The referee report is no more than three pages. Each student is required to read a paper critically and write down the virtues and limitations of this paper.

- **Research project**

Each student has a research project in which includes a short research proposal (no more than 5 pages) and a 15-minute presentation. A successful paper is considered to be modestly, rather than overly ambitious. You can identify a question that you are interested in related to financial intermediation, banking, household portfolio, etc. The topic could be one that has been tackled to some extent already in the literature and add to its existing treatment. Even small or incremental progress over existing work is a contribution.

## **Course Outline**

*(Note: the allocation of lectures in each topic may be subject to change)*

### **I. Preliminary review**

#### **a) Dynamic programming, some key general equilibrium notions and two workhorse models: Lucas tree and RBC**

*References*

- “*Recursive Macroeconomic Theory*”, Chapters 3, 4, 8, 12, 13

#### **b) Numerical approximation**

*References*

- “*Dynamic General Equilibrium*”, Heer, B. and Maussner, A (2009), Chapters 2, 6
- Lecture notes (in-class handouts)

#### **c) Calibration and structural estimation – some tools**

*References*

- “*Methods for Applied Macroeconomic Research*”, Canova F. (2007), Chapters 3, 4, 7, 9, 11
- “Bayesian Analysis of DSGE Models”, An, S. and Schorfheide, F. (2007), *Econometric Reviews*, 26(2-4), 113-72
- “Effects of the Hodrick-Prescott Filter on Trend and Difference Stationary Time Series: Implications for Business Cycle Research,” JEDC, Timothy Cogley and James Nason, 1995 (Univariate time series)
- “Monetary policy shocks: What have we learned and to what end?” In *Handbook of Macroeconomics*, pp. 65-148. Lawrence J. Christiano, Martin Eichenbaum and Charles L. Evans, 1999 (Vector autoregressions)
- Measuring the effects of monetary policy: A factor-augmented vector autoregressive (FAVAR) approach (2005), Ben Bernanke, Jean Boivin, and Piotr Eliaszc, *Quarterly Journal of Economics*, 120(1), 387-422 (Kalman Filter and dynamic factor models)

## II. Core models on financial frictions

### a) Introduction: modeling financial frictions

- 1) Missing markets: exogenous market incompleteness; endogenous market incompleteness (limited enforcement and information asymmetry)
- 2) Heterogeneity: finite life span; different discounting; tax benefits; bargaining position

#### References

- “Financial frictions in Macroeconomic Fluctuations”, Quadrini, Vincenzo, (2011), *Federal Reserve Bank of Richmond Economic Quarterly*, 97 (3), pp 209-254
- Lecture notes (in-class handouts)

### b) First generation models

We will consider some of the most common approaches that can be used to introduce financial frictions in macroeconomic models. We will look at two approaches – information asymmetries and collateral or enforcement constraints. The following papers in the earlier literature have focused on financial accelerators in representative firm environment.

#### References

- “Agency Costs, Net Worth, and Business Fluctuations”, Bernanke, B. and Gertler, M. (1989), *American Economic Review*, 79(1), pp. 14-31
- “Credit Cycles”, Kiyotaki, N. and Moore, J.H. (1997), *Journal of Political Economy*, 105(2), pp. 211-48.
- “The Financial Accelerator in a Quantitative Business Cycle Framework”, Bernanke, B., Gertler, M., Gilchrist, S. (1999), *Handbook of Macroeconomics*, North Holland, Volume 1C, Chapter 21, pp. 1341-96

### c) Second generation models

#### References

- “Macroeconomic Effects of Financial Shocks”, Jermann, U. and Quadrini, V. (2012), *American Economic Review*, 102(1), pp. 238-271
- “Finance and Misallocation: Evidence from Plant-Level Data”, Midrigan, V. and Xu Y. (2014), *American Economic Review*, 104(2), pp. 422-58
- “A Macroeconomic Model with a Financial Sector”, Brunnermeier, M.K., and Sannikov Y. (2014), *American Economic Review*, 104(2), pp. 379-421

## III. Heterogeneity in macroeconomics and inequality

**(may not fully cover, will be conditional on time availability)**

We start from two types of heterogeneity: overlapping generations and heterogeneity in asset holdings when agents face uninsurable idiosyncratic risks. Then, we discuss a broad range of preferences and market

structures, such as Habits (e.g., Campell and Cochrane 1999a, 1999b), idiosyncratic risk (e.g., Constantinides and Duffie, 1996), heterogeneous preferences (Garleanu and Panageas, 2015) and ambiguity aversion (Hansen and Sargent, 2001).

#### *References*

- “Recursive Macroeconomic Theory”, Chapters 9, 16, 17
- Lecture notes on the inequality of China
- “Cost of Business Cycles With Indivisibilities and Liquidity Constraints”, Imrohroglu, A. (1989), *Journal of Political Economy*, 97(6), pp. 1364-83.
- “Uninsured Idiosyncratic Risk and Aggregate Saving”, Aiyagari, S. R. (1994), *Quarterly Journal of Economics*, CIX(3), pp. 659-84
- “Income and Wealth Heterogeneity in the Macroeconomy”, Krusell, P. and Smith, A. A. (1998), *Journal of Political Economy*, 106(5), pp. 867-896.

#### **IV. Fiscal policy, government spending and macroeconomics (*may not fully cover, will be conditional on time availability*)**

##### *References*

- "Measuring the Output Responses to Fiscal Policy," Gorodnichenko, Y. and Auerbach A., (2012), *American Economic Journal – Economic Policy* 4, 1-27
- “Government Spending Multipliers in Good Times and in Bad: Evidence from US Historical Data”, Ramey, V.A. and Zubairy, S. (2018), *Journal of Political Economy*, 126(2), 850-901
- “Geographic Cross-Sectional Fiscal Spending Multipliers: What Have We Learned?”, Gabriel Chodorow-Reich (2019), *American Economic Journal: Economic Policy*, 11(2), 1-34
- “Fiscal Multiplier in Recession and Expansion”, Gorodnichenko, Y. and Auerbach A., 2012, *Fiscal Policy after the Financial Crisis*, University of Chicago Press, 2012
- “Can Government Purchases Stimulate the Economy?” V.A. Ramey (2012), *Journal of Economic Literature*, 49(3), 673-85

#### **V. Further references (by fields)**

##### **a) Macroeconomic models with financial imperfections**

##### *Macro models with financial frictions (further readings)*

- “Agency Costs, Net Worth and Business Fluctuations: A Computable General Equilibrium Approach”, Carlstrom, C. and Fuerst, T., *American Economic Review*, 1997
- “Endogenous Liquidity and the Business Cycle”, Bigio, S., *American Economic Review*, 2015
- “Uncertainty Shocks and Balance Sheet Recessions”, Di Tella, *American Economic Review*, 2015

Quantifying Financial Frictions

- “Accounting for Business Cycles”, Chari, V., Kehoe, P. and McGrattan, E., *Econometrica*, 2007
- “Quantifying the Forces Leading to the Collapse of GDP after the Financial Crisis”, *NBER Macroeconomics Annual*, 2014
- “Has the U.S. Finance Industry Become Less Efficient?” *American Economic Review*, 2015

Models with Heterogeneous Firms

- “Credit Shocks and Aggregate Fluctuations in an Economy with Production Heterogeneity”, Khan, A., and Thomas, J.K., *Journal of Political Economy*, 2014
- “Aggregate Implications of Corporate Debt Choices”, Crouzet, N., *Review of Economic Studies*, 2017

Monetary Policy

- “Banking and Interest Rates in Monetary Policy: A Quantitative Exploration”, *Journal of Monetary Economics*, 2008
- “A Model of Unconventional Monetary Policy”, *Journal of Monetary Economics*, 2011

**b) Quantitative Models of Debt: Corporate, Household and Sovereign**

Optimal Capital Structure of Firms

- “Liquidation Values and Debt Capacity: A Market Equilibrium Approach”, Shleifer, A. and Vishny, R., *Journal of Finance*, 1992
- “Optimal Capital Structure, Endogenous Bankruptcy, and the Term Structure of Credit Spreads”, Hayne, L. and Toft, K., *Journal of Finance*, 1996
- “Collateral and Capital Structure”, Rampini, A. and Viswanathan, S., *Journal of Financial Economics*, 2013

Corporate Investment with Debt

- “How Costly is External Financing? Evidence from a Structural Estimation”, Hennessy, C. and Whited T. M., *Journal of Finance*, 2007

Credit Spreads

- “The Risk-Adjusted Cost of Financial Distress”, Almeida, H. and Philippon, T., *Journal of Finance*, 2007
- “Macroeconomic Conditions and the Puzzles of Credit Spreads and Capital Structure”, Chen Hui, *Journal of Finance*, 2011
- “Endogenous Liquidity and Defaultable Bonds”, He, Z. and Milbradt, K., *Econometrica*, 2013

Household and Sovereign Debt

- “Self-Fulfilling Debt Crises”, Code, H. and Kehoe, T., *Review of Economic Studies*, 2000

- “A Quantitative Theory of Unsecured Consumer Credit with Risk of Default”, Chatterjee, S., Corbae, D., Nakajima, and Rios Rull, V., *Econometrica*, 2006
- “Default Risk and Income Fluctuations in Emerging Economies”, Arellano, C., *American Economic Review*, 2008
- “A General Equilibrium Model of Sovereign Default and Business Cycles”, Mendoza, E., and Yue, V., *Quarterly Journal of Economics*, 2012

**c) Quantitative Corporate Finance**

Optimal investment with frictions

- “A Unified Model of Investment Under Uncertainty”, Abel, A. and Eberly, J., *American Economic Review*, 1994
- “Explaining the Investment Dynamics in U.S. Manufacturing: A Generalized (S, s) Dynamics”, *Econometrica*, 1999
- “Dynamic Agency and the Q Theory of Investment”, Demarzo, P, Fishman, M., He Z. and Wang, N., *Journal of Finance*, 2009

Industry equilibrium without investment

- “Entry, Exit, and Firm Dynamics in Long Run Equilibrium”, *Econometrica*, 1992
- “Selection, Growth and the Size Distribution of Firms”, Luttmer, E., *Journal of Political Economy*, 2007
- “Granular Origins of Business Cycles”, Gabaix, X., *Econometrica*, 2011

Macro Investment

- “The Stock Market and Capital”, Hall, R., *American Economic Review*, 2001
- “The Impact of Uncertainty Shocks”, Bloom, N., *Econometrica*, 2007
- “The Bond Market’s Q”, Philippon, T., *Quarterly Journal of Economics*, 2009

**d) Misallocation and production networks**

- “Policy Distortions and Aggregate Productivity with Heterogeneous Plants”, Restuccia, D. and Rogerson R., *Review of Economic Dynamics*, 2008
- “Misallocation and manufacturing TFP in China and India”, Hsieh C. and Klenow P., *Quarterly Journal of Economics*, 2009
- “Intermediate Goods and Weak Links in the Theory of Economic Development”, Charles, J. I., *American Economic Journal: Macroeconomics*, 2011
- “The Network Origins of Aggregate Fluctuations”, Acemoglu, D., Carvalho, V. M., Ozdaglar, A., Tahbaz-Salehi, A., *Econometrica*, 2012
- “Organizing the Global Value Chain”, Antras, P. and Chor, D., *Econometrica*, 2013.
- “Misallocation, Economic Growth, and Input-Output Economics”, Hugo, H. A., *Advances in Economics and Econometrics*, Tenth World Congress,

Volume II, Cambridge University Press

- “Finance and Misallocation: Evidence from Plant-Level Data”, Midrigan, V. and Xu Y. (2014), *American Economic Review*, 104(2), pp. 422-58
- “Industrial Policies in Production Networks”, Liu, E., Unpublished Manuscript, 2018
- “Distortions in Production Networks”, Bigio, S. and La’O J., Unpublished Manuscript, 2019

**e) Inequality**

- “Uninsured Idiosyncratic Risk and Aggregate Saving”, Aiyagari, S. R., *Quarterly Journal of Economics*, 1994
- “Income and Wealth Heterogeneity in the Macroeconomy”, Krusell, P. and Smith, A. A. , *Journal of Political Economy*, 1998
- “Entrepreneurship, Saving, and Social Mobility”, Quadrini, V., *Review of Economic Dynamics*, 2000
- “Capital-Skill Complementarity and Inequality: A Macroeconomic Analysis”, Krusell, P., Ohanian, L., Rios-Rull, J., and Violante, G., *Econometrica*, 2000
- “Entrepreneurship, Frictions, and Wealth”, Cagetti M., and De Nardi M., *Journal of Political Economy*, 2006
- “Consumption Inequality and Partial Insurance”, Blundell R., Pistaferri L., and Preston I., *American Economic Review*, 2008
- “Unequal We Stand: An Empirical Analysis of Economic Inequality in the United States, 1967-2006”, Heathcote, J., Storesletten, K., Violante, G.L., *Review of Economic Dynamics*, 2010
- “Pareto and Piketty: The Macroeconomics of Top Income and Wealth Inequality”, Jones, C. *Journal of Economic Perspectives*, 2015
- “Has Consumption Inequality Mirrored Income Inequality”, Aguiar M., and Bils M., *American Economic Review*, 2015
- “Capital Accumulation, Private Property and Rising Inequality in China, 1978-2015”, Piketty T., Zucman G. and Yang L., *American Economic Review*, 2018