

Topics in Macroeconomics VI

Finance, Firm Dynamics, and Aggregate Outcomes

2019-20 Academic Year
Master of Research in Economics, Finance and Management

1. Description of the subject

- Topics in Macroeconomics VI
- Total credits: 3 ECTS Workload: 75 hours
- Term: 3rd
- Type of subject: Optative
- Department of Economics and Business
- Teaching team: Andrea Caggese

2. Teaching guide

◉ Introduction

We will cover recent research exploring the relation between firm-level frictions, firm dynamics, and their aggregate implications.

The main objectives of the course are the following:

- 1) Illustrate empirical evidence on frictions, firm dynamics, and their aggregate implications.
- 2) Derive and solve a basic firm dynamics framework with heterogeneous firms.*
- 3) Extend the basic model and introduce frictions. Although we will mostly analyze financial factors, we will illustrate a general framework applicable to study also the effects of other frictions.*
- 4) Applications: we will review selected recent research on the aggregate implications of frictions and firm dynamics.

* Even though the course will not include formal practice sessions, students will be provided with code and optional exercises they can do to learn how to solve and simulate the models.

◉ Content (might be subject to small changes, especially parts 3 and 4).

1. **Introduction to Firm Dynamics**
 - a. Stylized facts on firm dynamics.
 - b. Basic models of firm dynamics: derivation and numerical solution.
2. **Financial frictions and Firm Dynamics.**
 - a. Micro foundation and empirical testing of firm level financial frictions.
 - b. The causal link from financial frictions to firm decisions at the micro-level, and their aggregate implications.
 - c. Theoretical framework on financial frictions and firm dynamics.
3. **Firm dynamics, misallocation, and aggregate productivity: Basic theory and applications**
 - a. Dispersion in productivity, frictions, and misallocation of resources: theoretical framework and empirical evidence.
 - b. Fast growing young firms and aggregate employment dynamics.
 - c. Innovation, reallocation, and growth.
 - d. Financial frictions, and the misallocation of intangible (human) capital.
4. **Finance, firm dynamics and the business cycle: theory and applications**
 - a. Credit Cycles, with and without banks. Empirical Evidence and Theory.

Preliminary Syllabus

Note: this is preliminary and based on last year's course, which had a different format . New papers will be added before the course starts.

1) Firm dynamics, misallocation, and aggregate productivity.

Papers de noted with a * will be discussed in the lectures

- *John Asker, Allan Collard-Wexler, and Jan De Loecker, Dynamic Inputs and Resource (Mis)Allocation, *Journal of Political Economy* 2014 122:5, 1013-1063
- *Mark Bilts, Peter J. Klenow, Cian Ruane, Misallocation or Mismeasurement?, Stanford University, December 4, 2018
- Lucia Foster, Cheryl Grin, John C. Haltiwanger, Zoltan Wolf, 2018, Innovation, Productivity Dispersion and Productivity Growth. NBER Working Paper 24420
- *Hsieh, C. and P.J. Klenow (2009). "Misallocation and Manufacturing TFP in China and India", *The Quarterly Journal of Economics* 124, 1403-1448.
- *Joel David, Venky Venkateswaran, 2019, The Sources of Capital Misallocation, *American Economic Review*, forthcoming.
- *Haltiwanger, John, Robert Kulick and Chad Syverson. 2018. "Misallocation Measures: The Distortion that Ate the Residual." NBER Working Paper No. 24199
- *John Haltiwanger, Ron S. Jarmin, Robert Kulick, Javier Miranda, High Growth Young Firms: Contribution to Job, Output, and Productivity Growth, Chapter in NBER book *Measuring Entrepreneurial Businesses: Current Knowledge and Challenges* (2017), John Haltiwanger, Erik Hurst, Javier Miranda, and Antoinette Schoar, editors (p. 11 - 62).
- *Restuccia, Diego, and Richard Rogerson. 2017. "The Causes and Costs of Misallocation." *Journal of Economic Perspectives*, 31 (3): 151-74.
- *Syverson, C. 2004, "Product Substitutability and Productivity Dispersion." *Review of Economics and Statistics*, 86(2): 534–50.
- Syverson, C., 2011, What Determines Productivity?, *Journal of Economic Literature* 2011, 49:2, 326–365

2) Finance and firm dynamics: the facts and a basic framework.

Empirical evidence

- *Almeida, H., Campello, M., Laranjeira, B., Weisbenner, S. 2012. Corporate Debt Maturity and the Real Effects of the 2007 Credit Crisis. *Critical Finance Review*, 1: 3-58
- Santiago Bazdresch, R. Jay Kahn, Toni M. Whited, Estimating and Testing Dynamic Corporate Finance Models, *The Review of Financial Studies*, Volume 31, Issue 1, January 2018, Pages 322–361
- Cabral, Luís M B, and José Mata. 2003. "On the Evolution of the Firm Size Distribution: Facts and Theory." *American Economic Review*, 93(4): 1075-1090.
- *Chen Lian, Yueran Ma, 2018, Anatomy of Corporate Borrowing Constraints, working paper.

- Chodorow-Reich, G. (2014). The Employment Effects of Credit Market Disruptions: Firm-level Evidence from the 2008–9 Financial Crisis. *The Quarterly Journal of Economics*, 129(1), 1-59.
- Dell'Ariccia, Giovanni, Detragiache, Enrica, and Rajan, Raghuram, 2008, "The real effect of banking crises," *Journal of Financial Intermediation*, Elsevier, vol. 17(1), pages 89-112.
- Farre-Mensa, Joan, and Alexander Ljungqvist. "Do Measures of Financial Constraints Measure Financial Constraints?" *Review of Financial Studies* 29, no. 2 (February 2016): 271–308.
- Hadlock, Charles J., and Joshua R. Pierce, 2010, New evidence on measuring financial constraints: Moving beyond the KZ Index, *Review of Financial Studies* 23, 1909–1940.
- Kaplan, Steven N., and Luigi Zingales, 1997, Do investment-cash flow sensitivities provide useful measures of financing constraints?, *Quarterly Journal of Economics* 115, 707–712.
- Simon Gilchrist, Jae Sim and Egon Zakrajsek, 2013, "Misallocation and Financial Frictions: Some Direct Evidence from the Dispersion in Borrowing Costs", *Review of Economic Dynamics*, January 2013.
- *Nikolov, Boris and Schmid, Lukas and Steri, Roberto, The Sources of Financing Constraints (November 30, 2018). Swiss Finance Institute Research Paper No. 18-74. Available at SSRN: <https://ssrn.com/abstract=3293849> or <http://dx.doi.org/10.2139/ssrn.3293849>

Theory

- Buera, Francisco J., Joseph P. Kaboski, and Yongseok Shin. 2011. "Finance and Development: A Tale of Two Sectors." *American Economic Review*, 101(5).
- Buera, Francisco J. and Benjamin Moll. 2015. "Aggregate Implications of a Credit Crunch: The Importance of Heterogeneity." *American Economic Journal: Macroeconomics*, 7(3): 1-42.
- Caggese, A., and V. Cuñat, 2013, "Financing Constraints, Firm Dynamics, Export Decisions, and Aggregate Productivity", *Review of Economic Dynamics*, Special Issue on Misallocation and Productivity, edited by Diego Restuccia & Richard Rogerson, vol. 16(1), pages 177-193, January 2013.
- * G. Clementi, H.Hopenyain, A Theory of Financing Constraints and Firm Dynamics, *Quarterly Journal of Economics*, Volume 121, Issue 1, February 2006, pages 229-265
- *Midrigan, Virgiliu, and Daniel Yi Xu. 2014. "Finance and Misallocation: Evidence from Plant-Level Data." *American Economic Review*, 104(2): 422-58
- Moll, Benjamin. 2014. "Productivity Losses from Financial Frictions: Can Self-Financing Undo Capital Misallocation?" *American Economic Review*, 104(10): 3186-3221.
- Oberfield, Ezra, 2013. Productivity and misallocation during a crisis: Evidence from the Chilean crisis of 1982. *Review of Economic Dynamics* 16 (1), 100–119

3) Applications.

- Acemoglu, D., U. Akcigit, N. Bloom, and W. R. Kerr (2013). Innovation, Reallocation and Growth. National Bureau of Economic Research WP 18993.
- Daron Acemoglu, Ufuk Akcigit, Murat Alp Celik, 2014, Young, Restless and Creative: Openness to Disruption and Creative Innovations, NBER Working Paper No. 19894
- Ufuk Akcigit, William R. Kerr, 2010, Growth Through Heterogeneous Innovations, NBER Working Paper No. 16443
- *Albert, C., and A. Caggese, 2019, Cyclical Fluctuations, Financial Shocks, and the Entry of Fast Growing Entrepreneurial Startups, working paper.
- *Caggese, A., 2019, “Financing Constraints, Radical versus Incremental Innovation, and Aggregate productivity”, American Economic Journal: Macroeconomics.
- *Caggese, A., Metzger, D., and V. Cunat, 2016, “Firing the Wrong Workers: Financing Constraints and Labor Misallocation”, forthcoming, Journal of Financial Economics.
- Caggese, A., 2012, "Entrepreneurial Risk, Investment and Innovation", Journal of Financial Economics, n.106, November 2012, 287-307.
- Hsieh, Chang-Tai and Klenow, Peter J., 2014, The Life Cycle of Plants in India and Mexico, Quarterly Journal of Economics, Vol. 129, Issue 3
- Klette, T. J. and S. Kortum (2004). Innovating Firms and Aggregate Innovation. Journal of Political Economy, 112, 986-1018.
- Daniel Garcia-Macia, Chang-Tai Hsieh, Peter J. Klenow, 2019, How Destructive is Innovation?, working paper.
- Pugsley, Benjamin, Petr Sedlacek, and Vincent Sterk, “The Nature of Firm Growth,” CEPR Discussion Papers 12670, C.E.P.R. Discussion Papers January 2018.
- Sedlacek, P., and V. Sterk, 2016, The Growth Potential of Startups over the Business Cycle, American Economic Review.

4) Finance, firm dynamics and the business cycle: empirical evidence and theory.

- *Arellano, C., Yan, Bai, and Patrick Kehoe, 2019, Financial Frictions and Fluctuations in Volatility, Journal of Political Economy, Forthcoming.
- Bernanke, B. S., M. Gertler, and S. Gilchrist, "The Financial Accelerators in a Quantitative Business Cycle Framework," in John B. Taylor and Michael Woodford, eds., Handbook of Macroeconomics, 1999, pp.1341-1393.
- Bloom, Nicholas. 2009. “The Impact of Uncertainty Shocks.”Econometrica 77(3): 623-686.
- Bloom, Nicholas, Max Floetotto, Itay Saporta-Eksten, Nir Jaimovich, and Stephen Terry, 2011, Really Uncertain Business Cycles.”Stanford University Working Paper.
- Braun, M, and B. Larrain, 2005, Finance and the Business Cycle: International, Inter-Industry Evidence, The Journal of Finance, Vol. 60, No. 3, pp. 1097-1128.
- Caggese, A., and A. Perez, 2016, “Reallocation of Intangible Capital and Secular Stagnation”, Working paper.

- Caggese, A. and Perez, A., 2016, “The Interaction Between Household and Firm Dynamics and the Amplification of Financial Shocks”, working paper, Barcelona Graduate school of Economics
- Caggese, A., 2012, How important are capital markets imperfections in determining firm decisions and aggregate fluctuations? CREI Opuscles, http://www.crei.cat/files/filesOpuscle/39/121127131924_ENG_33_ANG3.pdf
- Woon Gyu Choi, David Cook, Fire sales and the financial accelerator, *Journal of Monetary Economics*, Volume 59, Issue 4, May 2012, Pages 336-351
- Christiano, Lawrence J., Roberto Motto, and Massimo Rostagno. 2014. "Risk Shocks." *American Economic Review*, 104(1): 27-65.
- Juan-Carlos Cordoba & Marla Ripoll, 2004. "Credit Cycles Redux," *International Economic Review*, vol. 45(4), pages 1011-1046, November.
- *Jermann, Urban J. and Quadrini, Vincenzo, Macroeconomic Effects of Financial Shocks, *American Economic Review*: Vol. 102 No. 1 (February 2012)
- Aubhik Khan, Julia K. Thomas, 2013, “Credit Shocks and Aggregate Fluctuations in an Economy with Production Heterogeneity,” *Journal of Political Economy*, 121, no. 6 (2013): 1055-1107.
- Gaulti B. Eggertsson and Paul Krugman, Debt, Deleveraging, and the Liquidity Trap: A Fisher-Minsky-Koo Approach, *The Quarterly Journal of Economics* (2012) 127(3): 1469-1513
- Gilchrist, S., Sim, J., and Zakrajsek, E., (2014). "Uncertainty, Financial Frictions and Investment Dynamics," Working Paper.
- * Mark Gertler, Nobuhiro Kiyotaki, 2015, Banking, Liquidity and Bank Runs in an Infinite-Horizon Economy, *American Economic Review*.
- Zhigu He and Arvind Krishnamurthy, A Model of Capital and Crises, *Review of Economic Studies* (2012) 79(2): 735-777
- * Kiyotaki, N., and J. Moore. "Credit Cycles." *Journal of Political Economy* 105 (1997): 211-248.
- Kiminori Matsuyama, Credit Traps and Credit Cycles," *American Economic Review*, 97, March 2007, 503-516
- Mian, A., and Sufi, A. (2014). "What Explains the 2007-2009 Drop in Employment?" *Econometrica*, Vol. 82, No. 6, November, 2014, 2197-2223.
- Simon Gilchrist & Egon Zakrajsek, 2012. "Credit Spreads and Business Cycle Fluctuations," *American Economic Review*, American Economic Association, vol. 102(4), pages 1692-1720, June.
- Xavier Giroud, Holger M. Mueller, 2015, Firm Leverage and Unemployment during the Great Recession, , NBER Working Paper No. 2107.
- Veronica Guerrieri, Guido Lorenzoni, Credit Crises, Precautionary Savings, and the Liquidity Trap, NBER Working Paper No. 17583

◉ **Admission Criteria**

This course is for Mres/PhD students. MSc Economics students can register in this course if:

- i) Their average grade in the first term courses is above 6.5.
- ii) The total number of students attending is not larger than 15.

◉ **Teaching methodology**

During the last week of the course, each student will make a presentation:

Presentations can be chosen as follows:

- i. A recent paper of her/his choice that is related to the topics seen in the lectures.
 - a. I will provide a list of suitable papers before the beginning of the course. A paper outside the reading list can also be presented, subject to my approval.
 - b. I will value: i) the ability to explain the motivation and the objectives, and to illustrate the methods used and main results obtained within the time of the presentation; ii) a critical evaluation of the results, whenever relevant also by comparing them to the papers discussed in the course.
- ii. A research project, which can be either an original empirical or quantitative work, or an original theoretical work (topic of project subject to my approval).
- iii. A survey of research on a topic related to the course (subject to my approval).

◉ **Assessment and Grading System**

The final grade structure is as follows:

- 1) Presentations: the presentation of a paper or of a survey of research will count for 25%. A presentation of original research will count for 50% of the final mark.
- 2) Final take home exam: 4 questions, 1 question from each topic. Must answer at least 2 questions if the exam counts for 50% of the final mark, and at least 3 questions if it counts for 75% of the final mark.

3. Programme of activities

- Estimated time spent on the subject: 75 hours
 - In the classroom: 20
 - Outside the classroom: 55

Weekly timetable of learning and assessment activities

Week (dates)	Work in the classroom (plenary, seminar, practical, etc.)	Estimated time	Activities outside the classroom (time studying, preparing activities, etc.)	Estimated time
1st week	Topic	4 hours	Study lecture material, read the papers, and solve non compulsory problem sets	8 Hours
2nd week	Topic 2	4 hours	Study lecture material, read the papers, and solve non compulsory problem sets	8 Hours
3rd week	Topic 3	4 hours	Study lecture material, read the papers, and solve non compulsory problem sets	8 Hours
4th week	Topic 4	4 hours	Study lecture material, read the papers, and solve non compulsory problem sets	8 Hours
5th week	Students Presentations	4 hours	Prepare presentation	8 Hours
Exam Period	Final take home Exam		Exam preparation	15 Hours
Total hours		20 Hours		55 Hours