

Finance, Firm Dynamics, and Aggregate Outcomes

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18, 21 and 22 December, 2020

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 methods used to identify firm-level frictions, and quantify 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 financial frictions and firm dynamics.

Content

1. **Introduction to Firm Dynamics and Misallocation**
 - a. Stylized facts on firm dynamics.
 - b. Dispersion in productivity, frictions, and misallocation of resources: theoretical framework and empirical evidence.
2. **Financial frictions and Firm Dynamics: empirical evidence and theory**
 - a. Micro foundation and empirical testing of firm level financial frictions, and of their aggregate implications.
 - b. Firm dynamics and financial frictions: basic model and applications
 - i. Uncertainty, bankruptcy risk, and selection.
 - ii. Radical and Incremental innovation.
3. **Finance, firm dynamics and the business cycle: theory and applications**
 - a. Credit Cycles, with and without banks. Empirical Evidence and Theory.

Syllabus

(Preliminary, some changes are possible before the course starts)

1) Introduction to Firm Dynamics and Misallocation.

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 Bilal, 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) Financial frictions and Firm Dynamics: empirical evidence and theory

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 Bazzdrusch, 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
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- *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

- *Hopenhayn, Hugo A, 1992. "Entry, Exit, and Firm Dynamics in Long Run Equilibrium," *Econometrica*, Econometric Society, vol. 60(5), pages 1127-1150, September.
- *Buera, Francisco J., Joseph P. Kaboski, and Yongseok Shin. 2011. "Finance and Development: A Tale of Two Sectors." *American Economic Review*, 101(5).
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- *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.
- *Caggese, A., 2019, "Financing Constraints, Radical versus Incremental Innovation, and Aggregate productivity", *American Economic Journal: Macroeconomics*.
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- *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
- 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

- 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., Metzger, D., and V. Cunat, 2016, "Firing the Wrong Workers: Financing Constraints and Labor Misallocation", forthcoming, Journal of Financial Economics.
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- 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.

3) Finance, firm dynamics and the business cycle: theory and applications

- *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.
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- * Mark Gertler, Nobuhiro Kiyotaki, 2015, Banking, Liquidity and Bank Runs in an Infinite-Horizon Economy, *American Economic Review*.
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- Veronica Guerrieri, Guido Lorenzoni, Credit Crises, Precautionary Savings, and the Liquidity Trap, NBER Working Paper No. 17583