

IWH-DPE/CGDE

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**April 24 to April 28, 2017**

## **SPECIAL COURSE**

**Finance, Firm Dynamics and the Business Cycle: Theory and Empirical Evidence**

### **Overview and Objectives**

This course is designed for PhD students interested in doing research on the relation between financial markets and the macro-economy. We will cover recent research exploring the relation between financial factors, firm dynamics, and aggregate fluctuations. We will consider theories and empirical studies that attempt to identify the causal link from financial frictions to firm investment, employment and innovation decisions at the micro-level, and their implications for both aggregate productivity and business cycle fluctuations.

Applications include financial shocks and the 2007-2009 recession, and firm dynamics and the secular stagnation hypothesis.

The objective of the course is twofold: first, to analyse the extent to which recent theories are successful in explaining the empirical evidence, and which relevant questions remain unanswered; second, to illustrate the building blocks of a theoretical framework able to address such questions.

### **Course outline (Lectures)**

- 1. Finance and firm dynamics: the facts.**
  - a. Empirical evidence: from firm level financial frictions to the financial accelerator
- 2. Entry, exit, and the aggregate implications of firm level financial frictions.**
  - a. Financial frictions, misallocation, and aggregate productivity
- 3. Finance, innovation, and productivity growth**
  - a. Firm dynamics, technology adoption and innovation, and how they affect firms growth and aggregate productivity
- 4. Credit, banking and business cycles: the basic framework**
  - a. Credit cycles
  - b. Heterogeneous firms, heterogeneous projects and bank runs
- 5. Finance, firm dynamics and the business cycle: theory and applications**
  - a. Apply the theory to the 2007-2009 financial crisis
  - b. Finance, firm dynamics and secular stagnation

### **Schedule**

**24-27 April:** 9:00-12:00 and 13:00-16:00 / **28 April:** 9:00-12:30

### **Venue**

Halle Institute for Economic Research (IWH) – Member of the Leibniz Association, Kleine Maerkerstrasse 8, 06108 Halle (Saale), Germany, conference room (ground floor)

The course is designed for at most 25 participants.

### **Registration**

Please contact Annett Hartung, Phone: +49 345 7753 751, e-mail: [annett.hartung@iwh-halle.de](mailto:annett.hartung@iwh-halle.de), until March 15, 2017.

## Required Activities

### Monday 24/4

09:00-12:00: Lecture 1

13:00-16:00: Complete lecture 1 (if needed) and Practice session 1 (Problem set on an empirical dataset on STATA)

### Tuesday 25/4

09:00-12:00: Lecture 2

13:00-16:00: Complete lecture 2 (if needed) and Practice session 2 (Problem set on an empirical dataset on STATA)

### Wednesday 26/4

09:00-12:00: Lecture 3

13:00-16:00: Complete lecture 3 (if needed) and Practice session 3 (Problem set on Matlab, code on firm dynamics)

### Thursday 27/4

09:00-12:00: Lecture 4

13:00-16:00: Complete lecture 4 (if needed) and Practice session 4 (Problem set on Matlab, code on firm dynamics and uncertainty shocks)

### Friday 28/4

09:00-12:30: Lecture 5

Lecture notes will be provided 2 weeks in advance. The material for the practice sessions will be provided before the start of the course. Below, references are separately listed for each topic. References denoted with \* are the most relevant ones, and having a look at them in advance is useful to better follow the lectures.

## List of References

### 1) Finance and firm dynamics: the facts

#### Main Papers

- \* 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.
- \* 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.
- \* 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.
- Campello, M., J. Graham, C.R. Harvey, 2010. "The Real Effects of Financial Constraints: Evidence from a Financial Crisis", *Journal of Financial Economics*, Volume 97, Issue 3, September 2010, Pages 470–487.
- \* Chodorow-Reich, G. (2014). The Employment Effects of Credit Market Disruptions: Firmlevel 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. Additional Readings
- Kroszner, Randall S. & Laeven, Luc & Klingebiel, Daniela, 2007, "Banking crises, financial dependence, and growth," *Journal of Financial Economics*, Elsevier, vol. 84(1), pages 187-228, April.

#### Other Papers

- Almeida, Heitor, Murillo Campello, and Michael Weisbach, 2004, The cash flow sensitivity of cash, *Journal of Finance* 59, 1777–1804.
- Bernanke, Ben, Gertler, Mark, and Gilchrist, Simon, 1996. "The Financial Accelerator and the Flight to Quality", *The Review of Economics and Statistics*, MIT Press, vol. 78(1), pages 1-15, February.
- Caggese, A., 2007, Testing Financing Constraints on Firm Investment Using Variable Capital, *Journal of Financial Economics* n.86, December 2007, 683-723.
- Caggese, A., Metzger, D., and V. Cunat, 2016, "Firing the Wrong Workers: Financing Constraints and Labor Misallocation", Working Paper.

- Fazzari, Steven M., R. Glenn Hubbard, and Bruce C. Petersen, 1988, Financing constraints and corporate investment, Brookings Papers on Economic Activity.
- 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.
- Rodano, Serrano-Velarde, and E. Tarantino, 2016, Lending Standards over the Cycle, Working Paper.

## 2) Entry, exit, and the aggregate implications of firm level financial frictions.

### Main Papers

- \* Buera, Francisco J., Joseph P. Kaboski, and Yongseok Shin. 2011. "Finance and Development: A Tale of Two Sectors." *American Economic Review*, 101(5).
- \* 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.
- 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. Hopenhayn, A Theory of Financing Constraints and Firm Dynamics, *Quarterly Journal of Economics*, Volume 121, Issue 1, February 2006, pages 229-265
- \* Hsieh, C. and P.J. Klenow (2009). "Misallocation and Manufacturing TFP in China and India", *The Quarterly Journal of Economics* 124, 1403-1448.
- \* Jermann, Urban J. & Quadrini, Vincenzo, 2007. "Stock market boom and the productivity gains of the 1990s," *Journal of Monetary Economics*, Elsevier, vol. 54(2), pages 413-432, March.

### Other Papers

- 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.
- Francisco Buera, Yongseok Shin, 2011, Self-Insurance vs. Self-Financing: A Welfare Analysis of the Persistence of Shocks", *Journal of Economic Theory*, 2011.
- 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.
- Manova, K., 2013, Credit Constraints, Heterogeneous Firms, and International Trade, *Review of Economic Studies* 80, p.711-744.
- 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.
- Klette, T. J. and S. Kortum (2004). Innovating Firms and Aggregate Innovation. *Journal of Political Economy*, 112, 986-1018.
- Syverson, C., 2011, What Determines Productivity?, *Journal of Economic Literature* 2011, 49:2, 326–365.

## 3) Finance, innovation, and productivity growth

### Main Papers

- \* Caggese, A., 2016, "Financing Constraints, Radical versus Incremental Innovation, and Aggregate productivity", CREI working paper.
- \* Midrigan, Virgiliu, and Daniel Yi Xu. 2014. "Finance and Misallocation: Evidence from Plant-Level Data." *American Economic Review*, 104(2): 422-58
- \*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

### Other Papers

- 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

- Caggese, A., 2012, "Entrepreneurial Risk, Investment and Innovation", *Journal of Financial Economics*, n.106, November 2012, 287-307.

#### 4) Credit, banking and business cycles: The basic framework

##### Main Papers

- \* Kiyotaki, N., and J. Moore. "Credit Cycles." *Journal of Political Economy* 105 (1997): 211-248.
- \* Mark Gertler, Nobuhiro Kiyotaki, 2015, *Banking, Liquidity and Bank Runs in an Infinite-Horizon Economy*, *American Economic Review*, Forthcoming.

##### Other Papers

- Kiminori Matsuyama, *Credit Traps and Credit Cycles*, " *American Economic Review*, 97, March 2007, 503-516
- 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.
- Juan-Carlos Cordoba & Marla Ripoll, 2004. "Credit Cycles Redux," *International Economic Review*, vol. 45(4), pages 1011-1046, November.
- Woon Gyu Choi, David Cook, *Fire sales and the financial accelerator*, *Journal of Monetary Economics*, Volume 59, Issue 4, May 2012, Pages 336-351
- Zhigu He and Arvind Krishnamurthy, *A Model of Capital and Crises*, *Review of Economic Studies* (2012) 79(2): 735-777

#### 5) Finance, firm dynamics and the business cycle: theory and applications.

##### Main Papers

- \* Arellano, C., Yan, Bai, and Patrick Kehoe, 2012, *Financial Markets and Fluctuations in Volatility*, Mimeo, Minneapolis Fed.
- \* Jermann, Urban J. and Quadrini, Vincenzo, *Macroeconomic Effects of Financial Shocks*, *American Economic Review*: Vol. 102 No. 1 (February 2012)
- \* Caggese, A., and A. Perez, 2016, "Capital Misallocation and Secular Stagnation", Working paper.
- Sedlacek, P., and V. Sterk, 2016, *The Growth Potential of Startups over the Business Cycle*, Mimeo.
- 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.
- Christiano, Lawrence J., Roberto Motto, and Massimo Rostagno. 2014. "Risk Shocks." *American Economic Review*, 104(1): 27-65.
- Gilchrist, S., Sim, J., and Zakrajsek, E., (2014). "Uncertainty, Financial Frictions and Investment Dynamics," Working Paper.

##### Other Papers

- 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.
- Mian, A., and Sufi, A. (2014). "What Explains the 2007-2009 Drop in Employment?" *Econometrica*, Vol. 82, No. 6, November, 2014, 2197-2223.
- 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.
- 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](http://www.crei.cat/files/filesOpuscle/39/121127131924_ENG_33_ANG3.pdf)
- Gauti 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
- 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