Reading Group in *Advanced Macroeconomics*.
Module on
Financial Frictions
(Domenico Delli Gatti)

Objective of the module

The New Keynesian DSGE framework is essentially the output of the incorporation of real and nominal *frictions* into an otherwise standard Real Business Cycle model. The real friction is *market power* (firms are price setters in a monopolistic competition setting). The nominal friction is *price stickyness*.
Since the end of the '90s, the NK-DSGE literature has branched in two strands, which enrich the standard framework by incorporating additional frictions. The first strand focuses on additional real frictions, namely *labour market imperfections*. The second strand emphasizes *financial frictions,* such as asymmetric information on capital markets. A number of NK-DSGE models with financial frictions have been developed since the appearance of the seminal paper by Bernanke, Gertler and Gilchrist (1999). For obvious reasons, this literature has boomed especially in the aftermath of the Global Financial Crisis. In the last decade or so, moreover, a sizable literature has emerged that incorporates financial frictions in macroeconomic Agent Based Models (ABMs).
The objective of the module is to explore the most important variants of financial frictions and the way in which they impact upon the macroeconomic outcomes in NK-DSGE model and in macroeconomic ABMs.

Structure of the module

The first part of the module consists of lectures that I will give to overview different sources of financial frictions and their incorporation in DSGE models (6 hours). I will then venture briefly into Agent Based Macroeconomic models with financial frictions (2 hours).
The second part of the module will be devoted to students' presentations of scientific papers (around 30 minutes per presentation) related to the topics discussed in the first part of the course. For instance

- Asymmetric information/external finance premium (Bernanke, Gertler and Gilchrist,1999)
- Collateral constraint (Kiyotaki and Moore, 1997)
- Risk shocks (Christiano, Motto and Rostagno, 2014)
- Credit spread (Curdia and Woodford)
- Housing and the mortgage market (Iacoviello 2005)
- Interbank market (Gertler-Kiyotaki 2010)

Exam

The evaluation of the students' performance will be carried out by grading the presentation and a report on the papers chosen for presentation.

Reading list (selected)

Bernanke, Ben, Mark Gertler and Simon Gilchrist (1999). "The Financial Accelerator in a Quantitative Business Cycle Framework", in Taylor, John and Michael. Woodford, eds., *Handbook of Macroeconomics*, Elsevier, 1999.

Brunnermeier, Markus K., Thomas M. Eisenbach and Yuliy Sannikov (2012), "Macroeconomics with Financial Frictions: A Survey", downloadable from Brunnermeier's website.

Christiano, L., R. Motto, and M. Rostagno (2014), "Risk shocks", *American Economic Review* Vol. 104, No. 1, pp. 27-65

Curdia, V., and M. Woodford (2010), "Credit Spreads and Monetary Policy", *Journal of Money, Credit and Banking*, 42, 3-35.

Dawid, H. and D. Delli Gatti (2018), "Agent-Based Macroeconomics", in *Handbook of Computational Economics*, B. LeBaron and C. Hommes (ed.), Elsevier.

Gertler, Mark and Nobuhiro Kiyotaki (2010), "Financial Intermediation and Credit Policy in Business Cycle Analysis" in Friedman, Benjamin M., and Michael. Woodford, eds., *Handbook of Monetary Economics*, Elsevier.

Iacoviello, M. (2005), "House Prices, Borrowing Constraints, and Monetary Policy in the Business Cycle", *American Economic Review*, 2005.

Kiyotaki, N., and J. Moore (1997), "Credit Cycles", *Journal of Political Economy*, 105(2), 211-248.

Quadrini, V. (2011), "Financial Frictions in Macroeconomic Fluctuations", *FRB Richmond, Economic Quarterly*, Volume 97, Number 3, 209–254