

# Macroeconomics IV

Bocconi University

Ph.D. in Economics

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**Time:** Th. 16:30 – 18:00  
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**Course description.** This course is divided into three parts. In the first part, we will cover the workhorse New-Keynesian model. We will use this model to draw normative lessons for monetary policy, both with and without commitment of the Central Bank. We will also discuss the empirical evidence quantifying the importance of nominal rigidities.

The second part of the course focuses on the effect of financial frictions on macroeconomic outcomes. Loosely speaking, financial frictions refer to the informational, behavioral, or institutional features that constrain the flow of resources from savers to potential investors or consumers. This course introduces some of these frictions and analyzes their effect on investment, consumption, asset prices, financial crises, and business cycles.

In the third part, we will study models with informational frictions. Starting from the seminal work of Lucas (1972) on money non-neutrality, the course will cover the business-cycle properties of models with dispersed information and the social value of information.

We will discuss (most of) the papers marked with an asterisk. The other papers are recommended to those who are interested in the topic.

# The New Keynesian Model

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## Theory

- \* Jordi Galí. *Monetary policy, inflation, and the business cycle: an introduction to the new Keynesian framework and its applications*. Princeton University Press, 2015
- Carl E Walsh. *Monetary theory and policy*. MIT press, 2017
- Michael Woodford. *Interest and prices*. Princeton University Press, 2011
- Lawrence J Christiano, Martin Eichenbaum, and Charles L Evans. Nominal rigidities and the dynamic effects of a shock to monetary policy. *Journal of Political Economy*, 113(1):1–45, 2005
- Jordi Galí. Technology, employment, and the business cycle: do technology shocks explain aggregate fluctuations? *American Economic Review*, 89(1):249–271, 1999
- Marvin Goodfriend and Robert G King. The new neoclassical synthesis and the role of monetary policy. *NBER Macroeconomics Annual*, 12:231–283, 1997
- Robert G King and Sergio T Rebelo. Resuscitating real business cycles. *Handbook of macroeconomics*, 1:927–1007, 1999
- Mikhail Golosov and Robert E Lucas Jr. Menu costs and phillips curves. *Journal of Political Economy*, 115(2):171–199, 2007
- Olivier Wang and Ivan Werning. Dynamic oligopoly and price stickiness. *MIT Mimeo*, October 2020

## Optimal Policy

- Richard Clarida, Jordi Galí, and Mark Gertler. The science of monetary policy: a new keynesian perspective. *Journal of Economic Literature*, 37(4):1661–1707, 1999
- Michael Woodford. Optimal monetary stabilization policy. *Handbook of Monetary Economics*, 3:723–828, 2010

## Zero-Lower Bound

- Gauti B. Eggertsson and Michael Woodford. Zero bound on interest rates and optimal monetary policy. *Brookings papers on economic activity*, 2003(1):139–233, 2003
- Lawrence Christiano, Martin Eichenbaum, and Sergio Rebelo. When is the government spending multiplier large? *Journal of Political Economy*, 119(1):78–121, 2011
- Florin O Bilbiie, Tommaso Monacelli, and Roberto Perotti. Is government spending at the zero lower bound desirable? *American Economic Journal: Macroeconomics*, 11(3):147–73, 2019

## Empirical Evidence

- \* Mark Bilal and Peter J Klenow. Some evidence on the importance of sticky prices. *Journal of Political Economy*, 112(5):947–985, 2004
- \* Emi Nakamura and Jón Steinsson. Five facts about prices: A reevaluation of menu cost models. *The Quarterly Journal of Economics*, 123(4):1415–1464, 2008
- \* George-Marios Angeletos, Fabrice Collard, and Harris Dellas. Business-cycle anatomy. *American economic review*, 110(10):3030–70, 2020
- Emi Nakamura and Jon Steinsson. Fiscal stimulus in a monetary union: Evidence from us regions. *American Economic Review*, 104(3):753–92, 2014
- Valerie A Ramey and Sarah Zubairy. Government spending multipliers in good times and in bad: evidence from us historical data. *Journal of Political Economy*, 126(2):850–901, 2018
- Michael McLeay and Silvana Tenreyro. Optimal inflation and the identification of the phillips curve. *NBER Macroeconomics Annual*, 34(1):199–255, 2020
- Marvin Goodfriend and Robert G King. The new neoclassical synthesis and the role of monetary policy. *NBER Macroeconomics Annual*, 12:231–283, 1997
- Peter Karadi, Raphael Schoenle, Jesse Wursten, et al. Measuring price selection in microdata- it's not there. Technical report, 2020

## Financial Frictions

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### Collateral Constraints and Business Fluctuations

- \* Nobuhiro Kiyotaki and John Moore. Credit cycles. *Journal of Political Economy*, 105(2):211–248, 1997
- \* John Geanakoplos. The leverage cycle. *NBER Macroeconomics Annual*, 24(1):1–66, 2010
- \* Guido Lorenzoni. Inefficient credit booms. *The Review of Economic Studies*, 75(3):809–833, 2008
- \* Ricardo J Caballero and Alp Simsek. A risk-centric model of demand recessions and speculation. *The Quarterly Journal of Economics*, 135(3):1493–1566, 2020
- Arvind Krishnamurthy. Collateral constraints and the amplification mechanism. *Journal of Economic Theory*, 111(2):277–292, 2003
- Charles T Carlstrom and Timothy S Fuerst. Agency costs, net worth, and business fluctuations: A computable general equilibrium analysis. *American Economic Review*, 87(5):893–910, 1997

- Ben Bernanke and Mark Gertler. Agency costs, net worth, and business fluctuations. *American Economic Review*, 79(1):14–31, 1989
- Markus K. Brunnermeier, Thomas Eisenbach, and Yuliy Sannikov. Macroeconomics with financial frictions: A survey. In *Advances in Economics and Econometrics, Tenth World Congress of the Econometric Society*. New York. Cambridge University Press, 2013
- Sebastian Di Tella. Uncertainty shocks and balance sheet recessions. *Journal of Political Economy*, 125(6):2038–2081, 2017
- Kenneth A Froot, David S Scharfstein, and Jeremy C Stein. Risk management: Coordinating corporate investment and financing policies. *The Journal of Finance*, 48(5):1629–1658, 1993
- Adriano A Rampini and S Viswanathan. Collateral, risk management, and the distribution of debt capacity. *The Journal of Finance*, 65(6):2293–2322, 2010

### **Imperfect Intermediation**

- \* Douglas W Diamond and Philip H Dybvig. Bank runs, deposit insurance, and liquidity. *Journal of Political Economy*, 91(3):401–419, 1983
- \* Charles J Jacklin. Demand deposits, trading restrictions, and risk sharing. *Contractual arrangements for intertemporal trade*, 1:26–47, 1987
- \* Markus K Brunnermeier and Yuliy Sannikov. A macroeconomic model with a financial sector. *American Economic Review*, 104(2):379–421, 2014
- \* Zhiguo He and Arvind Krishnamurthy. Intermediary asset pricing. *American Economic Review*, 103(2):732–70, 2013
- Douglas W Diamond and Raghuram G Rajan. Liquidity risk, liquidity creation, and financial fragility: A theory of banking. *Journal of Political Economy*, 109(2):287–327, 2001
- Zhiguo He and Arvind Krishnamurthy. Intermediary asset pricing and the financial crisis. *Annual Review of Financial Economics*, 10:173–197, 2018
- Mark Gertler and Nobuhiro Kiyotaki. Financial intermediation and credit policy in business cycle analysis. In *Handbook of Monetary Economics*, volume 3, pages 547–599. Elsevier, 2010
- Markus K Brunnermeier and Yuliy Sannikov. The I theory of money. *Princeton University Mimeo*, August 2016
- Victoria Ivashina and David Scharfstein. Bank lending during the financial crisis of 2008. *Journal of Financial Economics*, 97(3):319–338, 2010
- Tobias Adrian and Hyun Song Shin. Liquidity and leverage. *Journal of Financial Intermediation*, 19(3):418–437, 2010
- Nuno Coimbra and Helene Rey. Financial cycles with heterogeneous intermediaries. *London Business School Mimeo*, April 2020

## Liquidity

- \* Bengt Holmström and Jean Tirole. Private and public supply of liquidity. *Journal of Political Economy*, 106(1):1–40, 1998
- \* Arvind Krishnamurthy and Annette Vissing-Jorgensen. The aggregate demand for treasury debt. *Journal of Political Economy*, 120(2):233–267, 2012
- \* George-Marios Angeletos, Fabrice Collard, and Harris Dellas. Public debt as private liquidity: Optimal policy. *MIT Mimeo*, November 2020
- Michael Woodford. Public debt as private liquidity. *American Economic Review*, 80(2):382–388, 1990
- Nobuhiro Kiyotaki and John Moore. Liquidity, business cycles, and monetary policy. *Journal of Political Economy*, 127(6):2926–2966, 2019
- Marco Del Negro, Gauti Eggertsson, Andrea Ferrero, and Nobuhiro Kiyotaki. The great escape? a quantitative evaluation of the fed’s liquidity facilities. *American Economic Review*, 107(3):824–57, 2017
- Ricardo J Caballero, Emmanuel Farhi, and Pierre-Olivier Gourinchas. The safe assets shortage conundrum. *Journal of Economic Perspectives*, 31(3):29–46, 2017
- Pablo Kurlat. Lemons markets and the transmission of aggregate shocks. *American Economic Review*, 103(4):1463–89, 2013
- Saki Bigio. Endogenous liquidity and the business cycle. *American Economic Review*, 105(6):1883–1927, 2015
- Vladimir Asriyan. Balance sheet channel with information-trading frictions in secondary markets. *The Review of Economic Studies*, 88(1):44–90, 10 2020

## Empirical Evidence

- \* Owen Lamont. Cash flow and investment: Evidence from internal capital markets. *The Journal of Finance*, 52(1):83–109, 1997
- \* Joshua D Rauh. Investment and financing constraints: Evidence from the funding of corporate pension plans. *The Journal of Finance*, 61(1):33–71, 2006
- \* Thomas Chaney, David Sraer, and David Thesmar. The collateral channel: How real estate shocks affect corporate investment. *American Economic Review*, 102(6):2381–2409, 2012
- \* Chen Lian and Yueran Ma. Anatomy of corporate borrowing constraints. *The Quarterly Journal of Economics*, 136(1):229–291, 2021
- Gabriel Chodorow-Reich. 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, 2014

- Daniel Greenwald et al. Firm debt covenants and the macroeconomy: The interest coverage channel. 2019

## Informational Frictions

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- \* Robert E Lucas Jr. Expectations and the neutrality of money. *Journal of Economic Theory*, 4(2):103–124, 1972
- \* George-Marios Angeletos and Jennifer La'O. Noisy business cycles. *NBER Macroeconomics Annual*, 24(1):319–378, 2010
- \* Stephen Morris and Hyun Song Shin. Social value of public information. *American Economic Review*, 92(5):1521–1534, 2002
- \* George-Marios Angeletos and Alessandro Pavan. Efficient use of information and social value of information. *Econometrica*, 75(4):1103–1142, 2007
- Bartosz Mackowiak and Mirko Wiederholt. Optimal sticky prices under rational inattention. *American Economic Review*, 99(3):769–803, 2009
- Guido Lorenzoni. A theory of demand shocks. *American Economic Review*, 99(5):2050–84, 2009
- George-Marios Angeletos and Jennifer La'O. Optimal monetary policy with informational frictions. *Journal of Political Economy*, 128(3):1027–1064, 2020