Risk-Centric Macroeconomics (14.462a)
Spring 2023

Instructors Prof: Ricardo Caballero (caball@mit.edu); TA: Marc de la Barrera i Bardalet (mbarrera@mit.edu)

Course Overview. Financial markets play an increasingly important role in driving macroeconomic outcomes and policies. Similarly, macroeconomic policies are increasingly central to asset prices and markets. This course reviews the recent literature that delves into the rich set of interactions between financial markets and macroeconomics.

Loosely speaking, financial markets matter for the economy through two main channels: "financial frictions" and "aggregate demand." Financial frictions refer to informational, behavioral, or institutional factors that constrain the flow of resources from financiers to potential investors, consumers, or firms. Financial intermediaries and markets mitigate financial frictions and therefore facilitate the flow of credit. The failure of intermediaries can lead to credit crunches and financial crises. We covered many of these topics in 14.454. The aggregate demand channel emerges because firms' and consumers' spending decisions depend on financial conditions such as interest rates, credit spreads, stock prices, and house prices. Financial conditions are determined in financial markets and drive aggregate demand (hence the "risk-centric"). Monetary policy is concerned with aggregate demand management and therefore closely interacts with financial markets to achieve its objectives.

Although there will be some discussion of the financial frictions channels, the main goal of this course is to introduce the aggregate demand channels of macro-finance interactions and develop their positive and normative implications.

Assignments.

1. One "make-believe" paper outline (40%)
   (a) It must be related to (at least) one of the topics described below
   (b) Structure:
      i. A title and an abstract (100 words or less)
      ii. One intro paragraph based on current news or a very prominent non-model based fact
      iii. One or two paragraphs highlighting how your paper sheds light on the fact (I expect this to be the most "make-believe" part of your outline)
      iv. A five pages (or more) review of the relevant literature. For each subsection, you need to explain what is the value added of your paper over the existing literature (this is also likely to be "make-believe")
   (c) Due: 04/07/23
2. One long pset (30%). Posted by: 02/10/23. Due: 03/17/23
3. Final (30%). Date: 03/23/23

1 Introduction: asset prices and macroeconomic policy

- Caballero, R.J., and A. Simsek, "Risk-Centric Macroeconomics," NBER Reporter, #2, July 2022.

Suggested further reading:

- Bernanke, B.S., and K.H. Kuttner (2005), "What Explains the Stock Market's Reaction to Federal Reserve Policy?" *Journal of Finance*
- Mian, A., K. Rao, and A. Sufi (2013), "Household Balance Sheets, Consumption, and the Economic Slump," *The Quarterly Journal of Economics* 128(4), 1687-1726.
- Chodorow-Reich G., P.T. Nenov, and A. Simsek (2021), "Stock Market Wealth Effects and the Real Economy: A Local Labor Market Approach," *American Economic Review.*
- Gilchrist, S., and E. Zakrajšek (2012), "Credit spreads and business cycle fluctuations," *American Economic Review*, 102(4), 1692-1720.
- Cieslak, A., and A. Vissing-Jorgensen (2020), "The Economics of the Fed Put," *The Review of Financial Studies.*
- Pflueger, C., Siriwardane, E., Sunderam, A. (2020), "Financial market risk perceptions and the macroeconomy," *The Quarterly Journal of Economics*, 135 (3), 1443–1491.
- Haddad, V., Moreira, A., and T. Muir (2021), "When selling becomes viral: Disruptions in debt markets in the COVID-19 crisis and the Fed's response," *Review of Financial Studies.*
- Bernanke, Ben S. (2022), *21st Century Monetary Policy*, Chapter 10, "Pandemic"

2 Continuous time macro-finance models and the safe interest rate

- *Brunnermeier, M.K. and Y. Sannikov (2016), "Macro, Money, and Finance: A continuous-time approach," *Handbook of Macroeconomics,* 2, 1497-1545.

Suggested further reading:

- Basak, S. and D. Cuoco (1998), "An Equilibrium Model with Restricted Stock Market Participation," *Review of Financial Studies,* 11.
- He, Z., and A. Krishnamurthy (2013), "Intermediary Asset Pricing," *American Economic Review,* vol 103(2), 732-770.
- Brunnermeier, M.K. and Y. Sannikov (2014), "A Macroeconomic Model with a Financial Sector," *American Economic Review,* 104(2), 379-421.

- Di Tella, S. (2017), “Uncertainty Shocks and Balance Sheet Recessions,” *Journal of Political Economy,* 125(6), 2038-2081.
- Di Tella, S. and R. Hall (2020), “Risk Premium Shocks Can Create Inefficient Recessions,” Stanford working paper.

3 Risk-centric demand recessions

- Caballero R.J., and A. Simsek (2020), “A Risk-centric Model of Demand Recessions and Speculation,” *Quarterly Journal of Economics,* vol 105(3).

Suggested further reading:

- Caballero R.J., and A. Simsek (2021), “Prudential Monetary Policy,” NBER working paper.
- Basu, S. and B. Bundick (2017), “Uncertainty shocks in a model of effective demand,” *Econometrica*, 85(3), 937-958.
- Lorenzoni, G. (2009), “A Theory of Demand Shocks,” *American Economic Review,* 99(5), p.2050-84.
- Cao, D., Luo, W., and G. Nie (2019), “Fisherian Asset Price Deflation and the ZLB,” Georgetown working paper.
- Farhi, E. and I. Werning (2020), “Taming a Minsky Cycle,” mimeo

4 Amplification and large-scale asset purchases

- Caballero R.J., and A. Simsek (2021), “A Model of Endogenous Risk Intolerance and LSAPs: Asset Prices and Aggregate Demand in a “COVID-19” Shock,” *Review of Financial Studies.*
- Gabaix, X. and R.S. Koijen (2021), “In Search of the Origins of Financial Fluctuations: The Inelastic Markets Hypothesis,” NBER WP 28967.
- Haddad, V., A. Moreira and T. Muir, “Whatever it takes? The Impact of Conditional Policy Promises,” mimeo, September 2022.

Suggested further reading:

- Bernanke, Ben S. (2022), *21st Century Monetary Policy,* Chapter 11, “The Fed’s Post-2008 Toolkit: Quantitative Easing and Forward Guidance.”
- Bernanke, B. S. (2020), “The new tools of monetary policy,” *American Economic Review*, 110 (4), 943–83.
- Kuroda, H. (2013), “Japan’s Unconventional Monetary Policy and Initiatives Toward Ensuring Stability of the Global Financial System,” Jackson Hole remarks.
- Gertler, M. and P. Karadi (2011), “A Model of Unconventional Monetary Policy,” *Journal of Monetary Economics,* 58(1), p17-34.

- Barbon, A., Gianinazzi, V. (2019), "Quantitative easing and equity prices: Evidence from the ETF program of the bank of japan," *Review of Asset Pricing Studies*, 9 (2), 210–255.

5 Monetary policy shocks and the risk premium

- Bauer, M.D., B.S. Bernanke, and E. Milstein, "Risk Appetite and the Risk-Taking Channel of Monetary Policy," mimeo, December 2022.

- Kekre, R. and M. Lenel (2020), "Monetary policy, redistribution, and risk premia," University of Chicago, Becker Friedman Institute for Economics working paper.

Suggested further reading:

- Hanson, Samuel G., and Jeremy C. Stein (2015), "Monetary policy and long-term real rates," *Journal of Financial Economics*, 115(3), p.429-448.

- Kekre, Rohan, Moritz Lenel, and Federico Mainardi (2022), "Monetary Policy, Segmentation, and the Term Structure."

- Kekre, R. and M. Lenel (2021) "The flight to safety and international risk sharing", working paper.

- Pflueger, C. and G. Rinaldi (2020), "Why does the fed move markets so much? A model of monetary policy and time-varying risk aversion," NBER working paper No. 27856

- Kashyap, A.K. and J.C. Stein, "Monetary Policy when the Central Bank Shapes Financial-Market Sentiment," JEPm 37(1): 53-76.

6 Monetary policy with Fed-market disagreements

- Caballero and Simsek (2022), "Monetary Policy with Opinionated Markets," *American Economic Review*.

- Nakamura, E. and J. Steinsson (2018), "High Frequency Indentification of Monetary Non-Neutrality: The Information Effect," *Quarterly Journal of Economics*, 133(3), 1283-1330.

- Bauer, Michael and Eric T. Swanson (2020), "An alternative explanation for the 'Fed information effect'," working paper.

Suggested further reading:

- Gürkaynak, R. S., Sack, B., Swanson, E. T. (2005), "Do actions speak louder than words? The response of asset prices to monetary policy actions and statements," International Journal of Central Banking.

- Sastry, K., "Disagreement about monetary policy," MIT mimeo, October 2020.

- Stein, J. C., Sunderam, A., (2018), "The fed, the bond market, and gradualism in monetary policy," *The Journal of Finance*, 73 (3), 1015–1060.

- Blinder, A. S., Ehrmann, M., Fratzscher, M., De Haan, J., Jansen, D.-J. (2008), "Central bank communication and monetary policy: A survey of theory and evidence," *Journal of Economic Literature*, 46 (4), 910–45.
- Bauer, M.D. and E.T. Swanson, "A Reassessment of Monetary Policy Surprises and High Frequency Identification," NBER wp29939, April 2022

7 Monetary policy and asset price overshooting

- Caballero R.J., and A. Simsek (2020), "Monetary Policy and Asset Price Overshooting: A Rationale for the Wall/Main Street Disconnect," working paper.
- van Binsbergen, Jules H. (2020), "Duration-Based stock valuation: Reassessing stock market performance and volatility." NBER working paper no. 27367.

Suggested further reading:

- Caballero, R. J., Simsek, A. (forthcoming), "A note on temporary supply shocks with aggregate demand inertia," *American Economic Review: Insights.*
- Knox, Benjamin and Annette Vissing-Jorgensen (2022), "A stock return decomposition using observables," working paper.
- Boyd, J.H., J. Hu, and R. Jagannathan (2005), "The Stock Market's Reaction to Unemployment News: Why Bad News is Usually Good for Stocks," *The Journal of Finance.*
- Law, T-H., Song, D., and A. Yaron (2020), "Fearing the Fed: How Wall Street Reads Main Street."

8 Asset pricing implications of optimal monetary policy

- Caballero and Simsek (2022), "A Monetary Policy Asset Pricing Model," working paper.

Suggested further reading:

- Campbell, J. Y., Pflueger, C., Viceira, L. M. (2020), "Macroeconomic drivers of bond and equity risks," *Journal of Political Economy*, 128(8), p.3148-3185.
- Bianchi, F., Lettau, M., Ludvigson, S. C. (2022), "Monetary policy and asset valuation," *Journal of Finance*, 77(2), 967-1017.

9 Safe assets and low interest rates

- Caballero, R.J. and E. Farhi (2017), "The Safety Trap," *Review of Economic Studies*
- Mian, A., L. Straub, A. Sufi (2021), "Indebted Demand," Harvard mimeo, January.
- Caballero, R.J., E. Farhi, and P.O. Gourinchas (2008), "An Equilibrium Model of "Global Imbalances" and Low Interest Rates," *American Economic Review* 98.1 (2008), 358-393

- Mian, A., L. Straub, A. Sufi (2021), “The Saving Glut of the Rich,” Harvard mimeo, January.

Suggested further reading on safe assets:

- He, Z., A. Krishnamurthy, and K.Milbradt (2019), “A Model of Safe Asset Determination,” *American Economic Review,* vol 109(4), April, 1230-1262
- Lenel, M. (2020), “Safe Assets, Collateralized Lending and Monetary Policy,” Princeton mimeo, January.
- Woodford, M. (1990), “Public debt as private liquidity,” *American Economic Review, Papers and Proceedings*, 80, p.382-88.
- Caballero, R.J. and A. Krishnamurthy (2010), “Global Imbalances and Financial Fragility,” *AER-PP*.
- Caballero, R.J., E. Farhi, and P.O. Gourinchas (2017), “The Safe Asset Shortage Conundrum,” *Journal of Economic Perspectives,* p.29-46
- Gorton, G.B. (2017), “The History and Economics of Safe Assets,” *Annual Review of Economics,* 9, 547-586.
- Caramp, N. and S.R. Singh (2020), “Bond Premium Cyclicality and Liquidity Traps,” UCD mimeo, November.
- Coppola, A., A. Krishnamurthy, and Ch. Xu (2023), “Liquidity, Debt Denomination, and Currency Dominance,” NBER wp30984, February
- Caballero, R.J. (2006), “On the Macroeconomics of Asset Shortages,” ECB’s Fourth Euopean Central Banking Conference. pp 271-283

On measuring the convenience yield:

- Krishnamurthy, A., and A. Vissing-Jorgensen (2012), “The Aggregate Demand for Treasury Debt,” *Journal of Political Economy,* 120(2), 233-267.
- Del Negro, M., D. Giannone, M.P. Giannoni, and A. Tambalotti (2018), “Global Trends in Interest Rates,” NY Fed wp 866.
- Koijen, R.S., and M. Yogo (2020), “Exchange Rates and Asset Prices in a Global Demand System,” U. Chicago working paper.
- Jiang, Zhengyang, Arvind Krishnamurthy, and Hanno Lustig (2018), “Foreign safe asset demand and the dollar exchange rate,” NBER working paper No. w24439.
- Mota, L., “The Corporate Supply of (Quasi) Safe Assets,” (2021), Columbia mimeo.

10 Interest rates with supply-demand effects [Reference, only]

- Vayanos, D. and JL Vila (2021), "A Preferred-Habitat Model of the Term Structure of Interest Rates," *Econometrica*, 89(1). 77-112.
- Greenwood, R. and D. Vayanos (2014), "Bond supply and excess bond returns," *Review of Economic Studies,* 27(3), p.663-713.

Suggested further reading:

- Gromb, D. and D. Vayanos (2010), "Limits of arbitrage," *Ann. Review of Financial Economics,* 2(1), p.251-275
- Krishnamurthy, A. and A. Vissing-Jorgensen (2011), "The Effects of Quantitative Easing on Interest Rates: Channels and Implications for Policy," *Brookings Pappers on Economic Activity*
- Gourinchas, P.O., Walker D.R., and D. Vayananos,"A Preferred-habitat Model of the term Premia, Exchange Rates, and Monetary Policy Spillovers," NBER WP 29875.
- Greenwood, R., S. Hanson, J. Stein, and A. Sunderam (2020), "A Quantity-driven Theory of Term Premia and Exchange Rates," NBER WP 27615.
- Walker, R„ "Monetary Policy and the Limits to Arbitrage: Insights from a New Keynesian Preferred Habitat Model," mimeo January 2019.

11 Exchange rates and interest parity

- Engel, Charles (2014), "Exchange rates and interest parity," *Handbook of international economics*, no. 4, 453-522.
- Du, W. and J. Schreger, "CIP Deviations, the Dollar, and Frictions in International Capital Markets," mimeo May 2021.

Suggested further reading:

- Hassan, Tarek Alexander and Tony Zhang (2021), "The economics of currency risk," *Annual Review of Economics.*
- Lustig, Hanno, Nikolai Roussanov, and Adrien Verdelhan (2011), "Common risk factors in currency markets," *Review of Financial Studies*, 24(11), 3731-3777.
- Caballero, R.J. and J.B. Doyle, "Carry Trade and Systemic Risk: Why are FX options so Cheap?" NBER wp18644, December 2012.

12 Exchange rates with supply-demand effects

- Maggiori, Matteo (2022), "International macroeconomics with imperfect financial markets," *Handbook of international economics*, no. 6, 199-236
- Itskhoki, Oleg, and Dmitry Mukhin (2022), "Exchange rate disconnect in general equilibrium," *Journal of Political Economy*, 129(8), p.2183-2232.

Suggested further reading:

- Gabaix, Xavier, and Matteo Maggiori (2015), "International liquidity and exchange rate dynamics," *Quarterly Journal of Economics*, 130, no. 3, 1369-1420
- Du, Wenxin and Jesse Schreger (2021), "Cip deviations, the dollar, and frictions in international capital markets," *Handbook of international economics,* NBER workin paper no. 28777.
- Du, W., A. Tepper, A. Verdelhan (2018), "Deviations from Covered Interest Rate Parity," *Journal of Finance*, 73(3), 915-957.
- Itskhoki, Oleg and Dimitry Mukhin (2022), "Optimal exchange rate policy," working paper.
- Itskhoki, Oleg and Dimitry Mukhin (2021), "Mussa Puzzle Redux," mimeo
- Bianchi, Javier and Guido Lorenzoni (2022), "The prudential use of capital controls and foreign currency reserves," *Handbook of International Economics.*
- Caballero, Ricardo J., Emmanuel Farhi, and Pierre-Olivier Gourinchas (2021), "Global Imbalances and Currency Wars at the ZLB," *Review of Economic Studies.*

13 International capital flows: Stylized facts [Reference, only]

- Gourinchas, Pierre-Olivier, and Hélène Rey (2014), "External adjustment, global imbalances, valuation effects," In *Handbook of international economics*, vol. 4, pp. 585-645.
- Miranda-Agrippino, Silvia, and Hélène Rey (2022), "The global financial cycle," *Handbook of International Economics.*
- Gourinchas, Pierre-Olivier, Hélene Rey, and Maxime Sauzet (2019), "The international monetary and financial system," *Annual Review of Economics*, 11, 859-893.

Suggested further reading:

- Lewis, Karen K. (2011), "Global Asset Pricing," *Annu. Rev. Financ. Econ.*, 3(1), p.435-466.
- Broner, Fernando, Tatiana Didier, Aitor Erce, and Sergio L. Schmukler (2013), "Gross capital flows: Dynamics and crises," *Journal of monetary economics*, 60(1), p.113-133
- Avdjiev, Stefan, Bryan Hardy, Sebnem Kalemli-Özcan and Luis Servén (forthcoming), "Gross capital flows by banks, corporates and sovereigns," *Journal of European Economic Association.*
- Kacperczyk, Marcin, Jaromir Nosal, and Tianyu Wang (2022), "Global volatility and firm-level capital flows," working paper.

14 International capital flows: A theory of fickleness and retrenchment [Reference, only]

- Caballero, R.J. and A. Krishnamurthy (2010), "Global Imbalances and Financial Fragility," *AER-PP*.
- Caballero, Ricardo and Alp Simsek (2020), "A model of fickle capital flows and retrenchment," *Journal of Political Economy*, 128(6), 2288-2328.

Suggested further reading:

- Farhi, E. and M. Maggiori (2018), "A Model of the International Monetary System," *Quarterly Journal of Economics*
- Lorenzoni, Guido. (2014), "International Financial Crises," *Handbook of international economics*, 4, 689-740
- Caballero, R.J., E. Farhi, and P.O. Gourinchas (2008), "An Equilibrium Model of "Global Imbalances" and Low Interest Rates," *American Economic Review* 98.1 (2008), 358-393
- Bruno, Valentina and Hyun Song Shin (2015), "Cross-border banking and global liquidity," *Review of Economic Studies*, 82(2), 535-564
- Clayton, Christopher and Andreas Schaab (2022), "Multinational Banks and Financial Stability," *Quarterly Journal of Economics*, 137(3), 1681-1736.
- Caballero, Ricardo J. and Alp Simsek (2018), "Reach for yield and fickle capital flows," In AEA P&P, 108, 493-98.