

**ECONOMICS 8200-001**  
**TOPICS IN ADVANCED MACROECONOMICS**  
*FINANCIAL GLOBALIZATION: WHAT HAVE WE LEARNED?*  
**International Macroeconomics with Incomplete Markets & Heterogeneous Agents**

**MONDAYS, 3:30-6:30PM, ROOM 625 PCPE**

This course studies the positive and normative implications of the process of global financial integration of the last 30 years through the lens of quantitative dynamic macroeconomic models with incomplete markets and heterogeneous agents. The course blends elements of International Finance, Asset Pricing Theory and Recursive Macroeconomic Theory. A thorough understanding of first-year Ph.D. Macro and Micro material, particularly stochastic dynamic programming, general equilibrium analysis, and Bewley models of heterogeneous agents is critical. Knowledge of computational methods used in Macro modeling is also useful, particularly global methods for solving nonlinear models and models with incomplete markets. Familiarity with the principles of International Macro is helpful but not required.

The course starts with a review of two workhorse models in International Macroeconomics, namely an endowment economy model of a small open economy with non-state-contingent assets and an extension to an RBC model. We examine key economic implications of market incompleteness for the analysis of wealth dynamics and capital flows in open economies and study the critical tradeoffs they create in the use of local v. global methods for solving open-economy models with incomplete markets. The course explores then models of financial crises and sudden reversals of capital inflows, or Sudden Stops, in economies that are fully integrated to world financial markets, including a discussion of an accurate and easy to use global solution method. We study optimal policies to tackle inefficiencies present in Sudden Stop models with credit constraints linked to market prices and models in which financial innovation interacts with Bayesian learning to produce credit booms and busts. Next, we study reputational models of sovereign default, focusing on their interaction with business cycles. Then we move to examine open-economy models with heterogeneous agents. We start with a two-country Bewley model that yields key insights on the role that domestic financial development plays in determining the positive and normative effects of financial globalization. Then we examine a dynamic Melitz-OLG model that shows the large unintended effects of capital controls on factor misallocation, inequality, and social welfare. Finally, we introduce defaultable public debt into an otherwise standard Bewley economy and examine the interaction between sovereign default and the roles of public debt as the asset use for liquidity-provision, self-insurance, risk-sharing.

**Grading:** The course is graded with a final exam (40%), a term paper (35%), and two components of in-class participation (25%), which include (i) a presentation of the work related to the term paper, (ii) and class attendance/participation. The term paper is required, without it the final grade defaults to a D.

**Term paper:** The paper must be original research and must apply numerical methods. It is highly recommended that the paper be original research on an open-economy macro topic, but other macro topics may be acceptable, and it may also be possible to combine the term paper for this class with other term papers for graduate courses. The paper may be a straightforward extension of an existing model applied to an already known question, may propose a completely new model and/or a new question, or somewhere in between, with the understanding that more original work will carry a premium. A two-page (maximum) proposal must be submitted for approval no later than October 11, 2023. Presentations of term papers will take place at dates to be determined near the end of the term. These presentations should include a discussion of the paper's motivation and its contributions, the model itself and its analytic

properties, and any preliminary quantitative findings. The final draft must not exceed 20 double-spaced pages in a 12-point font and 1.5-inch margins (no exceptions). The papers' due date will be extended beyond the end of the term. Papers are due on March 15, 2024. Following department guidelines, initial course grades will be posted as B- in lieu of "incomplete," but this B- should be interpreted as identical to an "incomplete," and not conveying information about the final grade. Final grades will be issued after the papers are graded.

## Reading List

### Suggested reference texts:

- SL Ljungqvist, L. & Sargent, T. J., *Recursive Macroeconomic Theory*, MIT Press, 2012.
- CV Végh, C.A. *Open Economy Macroeconomics in Developing Countries*, MIT Press, 2013
- US Uribe, M. and Schmitt-Grohe, S. *Open Economy Macroeconomics*, Princeton Univ. Press, 2017
- OR Obstfeld, M. & Rogoff, K. *Foundations of Intl. Macroeconomics*, MIT Press 1996.
- RR Reinhart, C. M. & Rogoff, K., *This Time is Different: Eight Centuries of Fin. Folly*, Princeton U. Press.

### I.- Workhorse Models & Solution Methods

de Groot, O., C.B Durdu, and E. G. Mendoza, 2019, "Approximately Right?: Global v. Local Methods for Open-Economy Models with Incomplete Markets," NBER Working Paper WP26426, <https://www.sas.upenn.edu/~egme/wp/w26426.pdf>, appendix at [https://data.nber.org/data-appendix/w26426/Appendix\\_UpdateforNBER.pdf](https://data.nber.org/data-appendix/w26426/Appendix_UpdateforNBER.pdf).

Mendoza, E. G., and S. Villalvazo, "FiPit: A Simple, Fast Global Method for Solving Models with Two Endogenous States & Occasionally Binding Constraints," *Review of Economic Dynamics*, 2020, available at <https://www.sas.upenn.edu/~egme/pp/MendozaVillRED.pdf>

Users guide: [https://www.sas.upenn.edu/~egme/econ712/files/FPI\\_Appendix\\_v6.pdf](https://www.sas.upenn.edu/~egme/econ712/files/FPI_Appendix_v6.pdf)

Matlab codes: <https://www.sas.upenn.edu/~egme/econ712/files/MendozaVillalvazoFiPitCode.zip>

NBER WP version: <https://www.nber.org/papers/w26310>

**Reference:** SL chs. 8, 16, 17 (2<sup>nd</sup> edition) CV Chs. 1, 3, 4 US Chs. 1-8 OR 1.1, 1.2, 1.3, 2.1, 2.2, and ch. 5

### II.- Financial Crises, Sudden Stops and Macroprudential Policy

Bianchi, J. and E.G. Mendoza, 2018, "Optimal, Time-Consistent Macroprudential Policy," *Journal of Political Economy*, <https://www.sas.upenn.edu/~egme/pp/JPE2018.pdf>, see also the Appendix included in the working paper version available here <http://www.sas.upenn.edu/~egme/wp/w19704.pdf>

Bianchi, J. and E.G. Mendoza, 2015, "Phases of Global Liquidity, Fundamentals News, and the Design of Macroprudential Policy," BIS Working Paper No. 505 (<http://www.sas.upenn.edu/~egme/wp/work505.pdf>).

Bianchi, J. and E.G. Mendoza, 2020, "A Fisherian Approach to Financial Crises: Lessons from the Sudden Stops Literature," *Review of Economic Dynamics*, <https://www.sas.upenn.edu/~egme/pp/BianMendozaRED.pdf>

Boz. E. and E.G. Mendoza, 2014, "Financial Innovation, the Discovery of Risk, and the U.S. Credit Crisis," *Journal of Monetary Economics*, (<http://www.sas.upenn.edu/~egme/pp/BozMendozaJME.pdf>).

Mendoza, E.G. and V. Quadrini, 2023, "Unstable Prosperity: How Globalization Made the World Economy More Volatile," NBER WP w30832, <https://www.sas.upenn.edu/~egme/wp/NBERw30832.pdf>

Mendoza, E.G. and E. Rojas, 2019, "Positive and Normative Implications of Liability Dollarization for Sudden Stops Models of Macroprudential Policy," *IMF Economic Review*, <https://www.sas.upenn.edu/~egme/pp/MendozaRojas.pdf>

Mendoza, E.G. and K. Smith, 2006, "Quantitative Implications of a Debt-Deflation Theory of Sudden Stops and Asset Prices," *Journal of International Economics*, 2006. <http://www.sas.upenn.edu/~egme/pp/JIE06smith.pdf>

Mendoza, E.G., 2008, "Sudden Stops, Financial Crises and Leverage," *American Economic Review*, Dec. 2010, <http://www.sas.upenn.edu/~egme/pp/CompletePaperRevforDistribution.pdf>

**Reference texts:** US Ch. 12 CV Ch. 2, 16, 17, RR

### III.- Sovereign Default

Arellano, C., 2008, "Default Risk and Income Fluctuations in Emerging Economies," *AER*.

Eaton, Jonathan, and Mark Gersovitz, 1981, "Debt with Potential Repudiation: Theoretical and Empirical Analysis," *Review of Economic Studies*, v. XLVIII, 289-309.

Hamann, F., J.C. Mendez-Viscaino, E. G. Mendoza and P. Restrepo-Echavarría, 2023, "Natural Resources and Sovereign Risk in Emerging Economies: A Curse and a Blessing," NBER WP No. 31058,

<https://www.sas.upenn.edu/~egme/wp/w31058.pdf> (appendix at:

[https://www.sas.upenn.edu/~egme/wp/Country\\_Risk\\_Appendix.pdf](https://www.sas.upenn.edu/~egme/wp/Country_Risk_Appendix.pdf) )

Mendoza, E. and Z. V. Yue, 2012 "A General Equilibrium Model of Sovereign Default and Business Cycles," *Quarterly Journal of Economics*, <http://www.sas.upenn.edu/~egme/wp/w13861.pdf>

**Reference texts:** US Ch. 13, RR, OR. Ch. 6

### IV.- International Macroeconomics with Heterogeneous Agents

Andreasen, E., S. Bauducco, E. Dardati and E. Mendoza, 2023, "Beware the Side Effects: Capital Controls Misallocation and Welfare," NBER WP 30963, <https://www.sas.upenn.edu/~egme/wp/w30963.pdf> (appendix at: <https://www.sas.upenn.edu/~egme/wp/w30963app.pdf> )

D'Erasmus, P. and E. Mendoza, 2021, "History Remembered: Optimal Sovereign Default on Domestic and External Debt," *Journal of Monetary Economics*, also available as NBER WP 25073, <https://www.sas.upenn.edu/~egme/wp/w25073.pdf>

D'Erasmus, P. and E. Mendoza, 2016, "Distributional Incentives in an Equilibrium Model of Domestic Sovereign Default," *Journal of the Eur. Ec. Assoc.*, <http://www.sas.upenn.edu/~egme/pp/D%27ErasmusMendozaJEEA.pdf>

Mendoza, E., V. Quadrini, and J. V. Rios-Rull, 2009, "Financial Integration, Financial Development and Global Imbalances," *Journal of Pol. Econ.*, at <http://www.sas.upenn.edu/~egme/pp/JPEreprint.pdf>

Mendoza, E., V. Quadrini, and J. V. Rios-Rull, 2007 "On the Welfare Implications of Financial Globalization without Financial Development," *International Seminar on Macroeconomics*, R. Clarida & F. G. Giavazzi, eds. available at: <http://www.sas.upenn.edu/~egme/pp/Welfarefinancialintegration.pdf>

Mendoza, E. and V. Quadrini, 2010, "Financial Globalization, Financial Crises and Contagion," *Journal of Monetary Economics*, <http://www.sas.upenn.edu/~egme/pp/JME2010.pdf> .

## Additional References & Suggested Readings

### a) Workhorse Models & Solution Methods

Aguiar M. and G. Gopinath, 2007, "Emerging Market Business Cycles: The Cycle Is the Trend," *Journal of Political Economy* 115(1): 69-102.

Backus, D. "Interpreting Comovements in the Trade Balance and the Terms of Trade," *J. of Intn'l Econ.*, 1993.

Blanchard, O. and Fischer S. *Lectures on Macroeconomics*, section 2.4 and Ch.2 appendix C

Boz, E., C. Daude, and C. B. Durdu, 2011, "Emerging Market Business Cycles Revisited: Learning about the Trend," *Journal of Monetary Economics*, vol. 58(6), pages 616-631

Cole, H.L. and Obstfeld, M., "Commodity Trade and International Risksharing," *J. of Mon. Economics*, 1991.

Fernandez, A., S. Schmitt-Grohe and M. Uribe, 2017, "World shocks, world prices, and business cycles: An empirical investigation," *J. of International Econ.*, vol. 108, pages S2-S14.

Garcia-Cicco, J., R. Pancrazi, and M. Uribe, 2010, "Real Business Cycles in Emerging Countries?" *American Economic Review*, 100(5): 2510-31.

Mendoza, E. "Real Business Cycles in a Small Open Economy," *American Economic Review*, 1991, <https://www.sas.upenn.edu/~egme/pp/mendoza1991.pdf>

Mendoza, E. G., "The Terms of Trade, the Real Exchange Rate and Economic Fluctuations," *International Economic Review*, 1995. <http://www.sas.upenn.edu/~egme/pp/IER95.pdf>

Mendoza, E., G. "The Robustness of Macroeconomic Indicators of Capital Mobility," in *Capital Mobility*, L. Leiderman and A. Razin eds., Cambridge Univ. Press., 1994. <http://www.sas.upenn.edu/~egme/pp/sapir.pdf>

Nicolini, J. P., C. Hevia and J. Ayres, 2015, "Real Exchange Rates and Commodity Prices," mimeo, Federal Reserve Bank of Minneapolis.

Neumeyer, P.A. and F. Perri, "Business Cycles in Emerging Economies: The Role of Interest Rates," *JME*, 2005.

Schmitt-Grohe, S., and M. Uribe (2003), "Closing small open economies," *J. of Int. Econ.*, 61, 163-185.

Schmitt-Grohe, S., and M. Uribe (2017), "How Important are Terms of Trade Shocks," *Int. Ec. Rev.*

Uribe, M. and Z. V. Yue, "Country Spreads and Emerging Countries: Who Drives Whom?," *JIE*, 2006.

## **b) Financial Crises, Sudden Stops and Macroprudential Policy**

Bengui, J., E. Mendoza and V. Quadrini, 2012, "Capital Mobility and International Sharing of Cyclical Risk," *Journal of Monetary Economics*, <http://www.sas.upenn.edu/~egme/wp/w18372.pdf>

Ates, S.T. and F. Saffie, 2014, "Fewer but Better: Sudden Stops, Firm Entry and Financial Selection," available at <https://economics.sas.upenn.edu/sites/economics.sas.upenn.edu/files/14-043.pdf>

Adrian, T. and H. S. Shin, 2013, "Procyclical Leverage and Value-at-Risk," *Review of Financial Studies*.

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Benigno, G., H. Chen, C. Otrok, A. Rebucci & E. Young, 2016, "Optimal Capital Controls or Exchange Rate Policies? A Pecuniary Externality Perspective," *Journal of Monetary Economics*, v. 84, 147-165

Bernanke, B., M. Gertler, and S. Gilchrist, 1999, "The financial accelerator in a quantitative business cycle model," in *Handbook of Macroeconomics*, ed. by J. Taylor, and M. Woodford.

Bianchi, J. "Overborrowing and Systemic Externalities in the Business Cycle" *American Economic Review*, 2011.

Bianchi, J., E. Boz and E.G. Mendoza, 2012, "Macroprudential Policy in a Fisherian Model of Financial Innovation," *IMF Economic Review*, <http://www.sas.upenn.edu/~egme/pp/imfer20129a.pdf>

Borio, C., E. Kharroubi, C. Upper and F. Zampolli, 2016, "Labour reallocation and productivity dynamics: financial causes, real consequences," BIS Working Paper 534, <http://www.bis.org/publ/work534.htm>

Calvo, G.A., "Capital Flows and Capital-Market Crises: The Simple Economics of Sudden Stops," *Journal of Applied Economics*, v. 1, pp. 35-54, 1998

Calvo, G. and Mendoza, E.G. "Capital Markets Crises and Economic Collapse in Emerging Markets: An Informational Frictions Approach," *American Economic Review*, May 2000.

Calvo, G. and E.G. Mendoza "Rational Contagion and the Globalization of Securities Markets," *Journal of International Economics*, June 2000, [https://www.sas.upenn.edu/~egme/pp/JIE\\_last.pdf](https://www.sas.upenn.edu/~egme/pp/JIE_last.pdf)

Calvo, G., Izquierdo, A. and L. Mejia, "On the Empirics of Sudden Stops: The Relevance of Balance-Sheet Effects," mimeo, Inter-American Development Bank, 2004.

Carrillo, J., E.G. Mendoza, V. Nuguer, and J. Roldan-Peña, 2021, "Tight Money-Tight Credit: Coordination Failure in the Conduct of Monetary and Financial Policies," *American Economic Journal: Macroeconomics*, also available as NBER WP no. w23151 (<https://www.sas.upenn.edu/~egme/wp/w23151.pdf>).

Choi, W. G. and D. Cook, "Liability Dollarization and the Bank Balance Sheet Channel," *JIE*, 2003.

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Durdu, C.B. and E.G. Mendoza, 2006, "Are Asset Price Guarantees Useful for Preventing Sudden Stops?: A Quantitative Investigation of the Globalization Hazard Moral Hazard Tradeoff," *Journal of International Economics*. Available at <http://www.sas.upenn.edu/~egme/pp/JIE06Durdu.pdf>

Durdu, C.B., Mendoza, E. and Terrones, M., "Precautionary Demand for Foreign Assets in Sudden Stop Economies: An Assessment of the New Mercantilism," *JDE* 2009, available at [http://www.sas.upenn.edu/~egme/wp/Precautionary\\_durdu\\_terriones.pdf](http://www.sas.upenn.edu/~egme/wp/Precautionary_durdu_terriones.pdf)

Farhi, E. and I. Werning, 2016, "A Theory of Macropprudential Policy in the Presence of Nominal Rigidities," *Econometrica*.

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Gertler, M. and P. Karadi, 2012, "A Model of Unconventional Monetary Policy," *Journal of Monetary Economics*

Gertler, M. and N. Kiyotaki, 2010, "Financial Intermediation and Credit Policy in Business Cycle Analysis," in *Handbook of Monetary Economics*, B. Friedman and M. Woodford eds., Elsevier, vol. 3, no. 3.

Hernandez, J. and E.G. Mendoza, 2017, "Optimal v. Simple Financial Policy Rules in a Production Economy with "Liability Dollarization"," *Ensayos sobre Politica Economica*, <https://www.sas.upenn.edu/~egme/pp/HernandezMendoza.pdf>

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Korinek A. and Mendoza, E.G., (2014), "From Sudden Stops to Fisherian Deflation: Quantitative Theory and Policy Implications. *Annual Review of Economics*, <http://www.sas.upenn.edu/~egme/wp/w19362.pdf>

Lorenzoni, G., 2008, "Inefficient Credit Booms," *Review of Economic Studies*, 75, 809-833.

Mendoza, E.G., 2016, "Macroprudential Policy: Promise and Challenges," NBER WP no. 22868, <http://www.nber.org/papers/w22868>

Mendoza, E.G. "Real Exchange Rate Volatility and the Price of Nontradables in Sudden-Stop Prone Economies," *Economia*, vol. 6, no. 1, Fall 2005., <https://www.sas.upenn.edu/~egme/pp/EconomiaFall05.pdf>

Mendoza, E.G. "The Benefits of Dollarization when Stabilization Policy Lacks Credibility and Financial Markets are Imperfect," *Journal of Money, Credit, and Banking*, 2001. [https://www.sas.upenn.edu/~egme/pp/draft\\_jmcb.pdf](https://www.sas.upenn.edu/~egme/pp/draft_jmcb.pdf)

Mendoza, E.G. "Credit, Prices, and Crashes: Business Cycles with a Sudden Stop," in *Preventing Currency Crises in Emerging Markets*, ed. by S. Edwards and J. Frankel, Univ. of Chicago Press, 2002, also NBER WP no. w8338, 2001., [https://www.sas.upenn.edu/~egme/pp/sudden\\_stops\\_draft.pdf](https://www.sas.upenn.edu/~egme/pp/sudden_stops_draft.pdf)

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Mendoza, E.G. and Uribe, M. "Devaluation Risk and the Business Cycle Implications of Exchange Rate Management," *Journal of Mon. Economics*, 2001. Available at <http://www.sas.upenn.edu/~egme/pp/CRC00.pdf>

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### c) Fiscal Policy, Public Debt Sustainability & Sovereign Default

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Aguiar, M., S. Chatterjee, H.L. Cole, and Z. R. Stangebye, 2016, "Quantitative Models of Sovereign Debt Crises," *Handbook of Macroeconomics*.

Aguiar, M., M. Amador, E. Farhi, and G. Gopinath. 2013. "Coordination and Crisis in Monetary Unions," [http://scholar.harvard.edu/files/gopinath/files/monetary\\_union\\_sep8\\_2013.pdf](http://scholar.harvard.edu/files/gopinath/files/monetary_union_sep8_2013.pdf)

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Mendoza, E. and P.M. Oviedo, "Public Debt, Fiscal Solvency & Macroeconomic Uncertainty in Latin America: The Cases of Brazil, Colombia, Costa Rica and Mexico," NBER WP No. 10637, 2004.

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#### **d) International Macroeconomics with Heterogeneous Agents**

Asriyan, V., L. Laeven, A. Martin, A. Van der Ghote and V. Vanasco, 2021, "Falling Interest Rates and Credit Misallocation: Lessons from General Equilibrium," mimeo, CREI.

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