

**ECONOMICS 744**

**INTERNATIONAL MACROECONOMICS, INCOMPLETE MARKETS AND FINANCIAL FRICTIONS  
MONDAYS, 3:30-6:00PM, KEY (FRANCIS SCOTT KEY HALL) 0124**

This course studies International Macroeconomics from the perspective of a quantitative dynamic stochastic general equilibrium (DSGE) framework that emphasizes financial frictions and incomplete markets of state-contingent claims. The course blends elements of Real Business Cycle Theory, International Finance and Asset Pricing Theory and it relies heavily on Recursive Macroeconomic Theory. A thorough understanding of the material covered in the first-year Ph.D. Macro and Micro courses, particularly stochastic dynamic programming and general equilibrium analysis, are critical. The material of Economics 630 on computational methods in Macro (particularly global methods for solving DSGE models), as well as familiarity with principles of International Macroeconomics, computing software, including the Department's Matlab crash course, will also be useful.

The course begins with a review of canonical perfect foresight models, followed by a workhorse representative-agent RBC framework for small open economies that face stochastic, non-insurable shocks, and extending it to introduce multi-sector production and consumption structures and exchange-rate considerations. The course explores then how this framework can be modified and enriched to study financial crises, sovereign default, and sudden reversals of capital inflows driven by capital market imperfections. The course then moves to relax the representative agent assumption by introducing heterogeneous agents. We study how open-economy DSGE models with heterogeneous agents shed new light on important issues like the effects of financial globalization, the distributional incentives to default on domestic debt, and financial contagion.

The course is graded with a final exam (40%), a term paper (40%), and a presentation of the term paper and class attendance/participation (20%). The term paper must be an original research contribution that applies numerical methods. Papers with these characteristics are not easy to write within a semester, so the expectation is that they may not be as complete or polished as a publishable piece by the due date, and the due date itself will be extended beyond the end of the term. The papers are due on *January 28<sup>th</sup>, 2013*, but a preliminary draft must be presented in class at dates to be determined close to the end of the Fall semester. The papers should be related to the subject matter of the course, but broader topics in Macro, Finance, or International Macro, as well as papers prepared concurrently for related courses may also be acceptable. The final draft must not exceed 20 double-spaced pages in a 12 point font and with no less than 1.5-inch margins. Topics for the term paper need to be submitted for approval in a two-page (maximum) outline *before November 9*.

The course is based largely on journal articles and working papers. The reading list is intentionally comprehensive with the aim of providing suggestions for further reading (required readings are identified explicitly).

## Reference Texts:

- AM** Arellano, Cristina and Mendoza, Enrique G., "Credit Frictions and 'Sudden Stops' in Small Open Economies: An Equilibrium Business Cycle Framework for Emerging Markets Crises," in *Dynamic Macroeconomic Analysis: Theory and Policy in General Equilibrium*, ed. by S. Altug, J. Chadha and J. Nolan, Cambridge University Press, 2003.
- MQ** Mendoza, Enrique G. and Vincenzo Quadrini, "Notes on Open-Economy Macroeconomics with Incomplete Markets and Heterogeneous Agents"
- CV** Carlos A. Végh Open Economy Macroeconomics in Developing Countries, <http://econweb.umd.edu/~vegh/book/book.htm>
- OR** Obstfeld, M. & K. Rogoff, *Foundations of Intl. Macroeconomics*, MIT Press 1996.
- RR** Reinhart, Carmen M. & Kenneth Rogoff, *This Time is Different: Eight Centuries of Financial Folly*, Princeton Univ. Press.
- SL** Ljungqvist, Lars & Sargent, Thomas J., *Recursive Macroeconomic Theory*, MIT Press, 2004.

## I.- Workhorse Models

### Required readings:

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

Backus, D. "Interpreting Comovements in the Trade Balance and the Terms of Trade," *Journal of International Economics*, 1993.

Mendoza, E. G., "The Terms of Trade, the Real Exchange Rate and Economic Fluctuations,"

*International Economic Review*, 1995. Available at: <http://www.econ.umd.edu/~mendoza/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. Available at:

<http://www.econ.umd.edu/~mendoza/pp/sapir.pdf>

**SL** chs. 8, 16 and 17

**Reference:** **OR** 1.1, 1.2, 1.3, 2.1, 2.2, and ch. 5;

### Additional references:

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

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," *Journal of Monetary Economics*, 1991.

Lane, P. and G. M. Milesi-Ferretti, 2007. "The external wealth of nations mark II: Revised and extended estimates of foreign assets and liabilities, 1970-2004," *J. of International Econ*, vol. 73(2), pages 223-250.

Mendoza, E. "Real Business Cycles in a Small Open Economy," *American Economic Review*, 1991

Mendoza, E., "Capital Controls and the Gains from Trade in a Business Cycle Model of a Small Open Economy," *IMF Staff Papers*, 1991

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.

Oviedo, P.M., "World Interest Rate, Business Cycles, and Financial Intermediation in Small Open Economies," mimeo, Department of Economics, Iowa State University, 2005.

## II.- Financial Crises and Sudden Stops

### Required readings:

- Bianchi, J. and E. Mendoza, 2010, "Overborrowing, Financial Crises and Macro-Prudential Policy," NBER Working Paper no. w16091.
- Boz. E. and E. Mendoza, 2011, "Financial Innovation, the Discovery of Risk, and the U.S. Credit Crisis," mimeo, University of Maryland.
- 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
- Durdu, C.B. and Mendoza E. , "Are Asset Price Guarantees Useful for Preventing Sudden Stops?: A Quantitative Investigation of the Globalization Hazard Moral Hazard Tradeoff," *JIE*, 2006. Available at <http://www.econ.umd.edu/~mendoza/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," forthcoming, *JDE* 2009., available at [http://www.econ.umd.edu/~mendoza/wp/Precautionary\\_durdu\\_terrones.pdf](http://www.econ.umd.edu/~mendoza/wp/Precautionary_durdu_terrones.pdf)
- Mendoza, E. and Uribe, M. "Devaluation Risk and the Business Cycle Implications of Exchange Rate Management," Carnegie-Rochester Conference Series in Public Policy, 2001. Available at <http://www.econ.umd.edu/~mendoza/pp/CRC00.pdf>
- Mendoza, E. and K. Smith, "Quantitative Implications of a Debt-Deflation Theory of Sudden Stops and Asset Prices," *JIE*, 2006. <http://www.econ.umd.edu/~mendoza/pp/JIE06smith.pdf>
- Mendoza, E., "Sudden Stops, Financial Crises and Leverage," *American Economic Review*, Dec. 2010, <http://econweb.umd.edu/~mendoza/pp/CompletePaperRevforDistribution.pdf>, working paper version NBER WP, 2008 at <http://www.nber.org/papers/w14444>
- Mendoza, E. and M. Terrones, "An Anatomy of Credit Booms: Evidence From Macro Aggregates and Micro Data," Board of Governors of the Federal Reserve, International Finance Disc. Paper, 2008-936 July 2008. Available at <http://www.econ.umd.edu/~mendoza/wp/w14049.pdf>

**Reference texts:** RR, AM (also as NBER WP # w8880, 2002, available at <http://www.econ.umd.edu/~mendoza/pp/w8880.pdf> ).

### Additional references:

- Aghion, P., P. Bacchetta and A. Banerjee, "A Corporate Balance Sheet Approach to Currency Crises," mimeo, Harvard University, 2002 (also in *European Economic Review*).
- 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*, 2012.
- Caballero, R. and A. Krishnamurthy, "International and Domestic Collateral Constraints in a Model of Emerging Market Crises," *Journal of Monetary Economics*, 2001.
- Calvo, G. and Mendoza, E. "Capital Markets Crises and Economic Collapse in Emerging Markets: An Informational Frictions Approach," *American Economic Review*, May 2000.
- Calvo, G. and E. Mendoza "Rational Contagion and the Globalization of Securities Markets," *Journal of International Economics*, June 2000
- 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.
- Choi, W. G. and D. Cook, "Liability Dollarization and the Bank Balance Sheet Channel," *JIE*, 2003.
- Cook, D. and M. Devereux, "Accounting for the East Asian Crisis: A Quantitative Model of Capital Outflows in Small Open Economies," *JIE* 2006.
- Gertler, M., S. Gilchrist, and F. Natalucci (2007), "External constraints on monetary policy and the financial accelerator," *Journal of Money Credit and Banking*.

Gertler, M. and N. Kiyotaki, (2009), "Financial Intermediation and Credit Policy in Business Cycle Analysis," mimeo, NYU.

Gopinath, Gita, "Lending Booms, Sharp Reversals and Real Exchange Rate Dynamics," *JIE*, 2003

Korinek, Anton, "Excessive Dollar Borrowing in Emerging Markets: Balance Sheet Effects and Macroeconomic Externalities," mimeo, Univ. of Maryland, 2007

Jermann, Urban & Vincenzo Quadrini, 2009. "Macroeconomic Effects of Financial Shocks," NBER Working Papers 15338.

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

Mendoza, E. "Lessons from the Debt-Deflation Theory of Sudden Stops," *AER*, Pap. & Proc., May, 2006

Mendoza, E. "Real Exchange Rate Volatility and the Price of Nontradables in Sudden-Stop Prone Economies," *Economia*, vol. 6, no. 1, Fall 2005.

Mendoza, E. "The Benefits of Dollarization when Stabilization Policy Lacks Credibility and Financial Markets are Imperfect," *Journal of Money, Credit, and Banking*, 2001.

Mendoza, E. "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.

Paasche, B. "Credit Constraints and International Financial Crises," *JME*, 2001.

Uribe, M. "Individual Versus Aggregate Collateral Constraints and the Overborrowing Syndrome," 2006.

Schneider, M., and A. Tornell (2004), "Balance sheet effects, bailout guarantees and financial crises," *Review of Economic Studies*, pp. 883-913.

### III.- Sovereign Debt & Default

#### Required readings:

Aguiar, M. and G. Gopinath, "Defaultable Debt and Current Account Sustainability," *JIE*, 2006.

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

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

Mendoza, E. and J. Ostry, "International Evidence on Fiscal Solvency: Is Fiscal Policy 'Responsible'?", *Journal of Mon. Econ*, 2008. At: <http://www.econ.umd.edu/~mendoza/wp/MendozaOstryJME.pdf>

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

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

#### Additional references:

Bi, R., "Debt Dilution and the Maturity Structure of Sovereign Bonds," Ph.D Thesis, UMD, 2008

Bi, R., "'Beneficial' Delays in Debt Restructuring Negotiations," Ph.D Thesis, UMD, 2008.

Chang, R. and A. Velasco, "Banks, Debt Maturity and Financial Crises," *Journal of International Economics*, June 2000.

Cole, H.L. and T. Kehoe, "A Self Fulfilling Model of Mexico's 1994-95 Debt Crisis," *JIE*, 1996

Cuadra, G. and H. Sapriza, 2007, "Fiscal Policy and Default Risk in Emerging Markets," Bank of Mexico Working Paper.

D'Erasmus, Pablo, 2008, "Government Reputation and Debt Repayment in Emerging Economies," Ph.D. Dissertation, Department of Economics, University of Texas-Austin.

D'Erasmus, Pablo and E. G. Mendoza, 2012, "Domestic Sovereign Default as Optimal Redistributive Policy," mimeo, Department of Economics, University of Maryland.

Farhi, E. and I. Werning, 2012, "Fiscal Unions," mimeo, Department of Economics, MIT

Kohlscheen, Emanuel and S. A. O'Connell, 2008, "Trade Credit and Sovereign Debt," mimeo, Department of Economics, University of Warwick.

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.

Mendoza, E. and P.M. Oviedo, "Fiscal Policy & Macroeconomic Uncertainty in Developing Countries: The Tale of the Tormented Insurer," available at: <http://www.econ.umd.edu/~mendoza/wp/w12586.pdf>

Reinhart, C., K. Rogoff, and M. Savastano, "Debt Intolerance," Brookings Papers on Economic Activity, Vol. 1 Spring 2003, 1-74.

Tomz, Michael and Mark Wright, 2007, "Do Countries Default in 'Bad Times'?", mimeo, UCLA

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

Wright, Mark L.J., "Creditor Reputations in the Theory of Sovereign Risk," mimeo, Stanford Univ., 2002

Z. V. Yue, "Sovereign Default and Debt Renegotiation," *JIE*, 2010.

#### **IV.- Global Imbalances, Financial Development & Heterogeneous Agents**

##### **Required readings:**

Mendoza, E., V. Quadrini, and J. V. Rios-Rull, "Financial Integration, Financial Deepness and Global Imbalances," *Journal of Pol. Econ.*, at [http://www.econ.umd.edu/~mendoza/wp/vicver\\_resubmitted.pdf](http://www.econ.umd.edu/~mendoza/wp/vicver_resubmitted.pdf)

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

Mendoza, E. and V. Quadrini, "Financial Globalization, Financial Crises and Contagion," *Journal of Monetary Economics*, forthcoming 2010.

##### **Reference texts: MQ**

##### **Additional references:**

Backus, D., Henriksen, E., Lambert, F., & Telmer, C. (2005). "Current Account Fact and Fiction," mimeo NYU.

Benigno, P, "Are Valuation Effects Desirable from a Global Perspective?," NBER WP 12219, 2006.

Bernanke, B. (2005). The global saving glut and the U.S. current account deficit. Speech at the Sandridge Lecture, Virginia Association of Economists, March 10, 2005.

Blanchard, O., Giavazzi, F., and Sa, F. (2005). The U.S. current account deficit and the dollar. NBER Working Paper No. 11137.

Caballero, R. J., Farhi, E., & Gourinchas, P. O., "An Equilibrium Model of "Global Imbalances" and Low Interest Rates," *AER* 2008.

Devereux, M. and A. Sutherland, "Solving for Country Portfolios in Open Economy Macro Models," mimeo, Dept. of Economics, Univ. of British Columbia

Engel, C. and Rogers, J. H. (2006). The U.S. current account deficit and the expected share of world output. Board of Governors of the Federal Reserve System, International Finance Disc. Papers No. 856.

IMF, "Global Imbalances: A Saving, Investment Perspective" World Econ. Outlook, Ch. 2, Sept. 2005.

Martin, P. and H. Rey, "Financial Globalization and Emerging Markets: With or Without Crash?," *AER* 2007.

McGrattan, E. R. and Prescott, E. C. (2007). Technology capital and the U.S. current account. Federal Reserve Bank of Minneapolis, Staff Report 406.

Mendoza, E. and L. Tesar, "Why Hasn't Tax Competition Triggered a Race to the Bottom? Some Quantitative Lessons from the EU," *JME*, v. 52, no. 1, p. 163-204 (Carnegie-Rochester Conference Series on Public Policy), 2005.

Mendoza, E. and L. Tesar, "The International Ramifications of Tax Reforms: Supply-Side Economics in a Global Economy," with L. Tesar, *American Economic Review*, March, 1998.

Van Wincoop, E. and C. Tille, "International Capital Flows," mimeo, University of Virginia.

Willen, P. S. (2004). "Incomplete Markets and Trade". WP No. 04-8, Federal Reserve Bank of Boston.