

NORTHWESTERN UNIVERSITY

J.L. Kellogg
Graduate School of Management

FINANCE E20 – SEMINAR IN INTERNATIONAL FINANCE

WINTER 2000

PROFESSOR SERGIO REBELO

Classroom:
Office: Room 416, Anderson Hall
Phone: 847-467-2329
E-mail: s-rebelo@nwu.edu
Office Hours: Mondays 2:00-3:00 PM

COURSE DESCRIPTION

This course provides a selective discussion of tools, models, and empirical issues in International Finance. Topics covered include theory and evidence regarding exchange rate determination, the dynamics of the real exchange rate, the forward premium puzzle, exchange rate based stabilizations, speculative attacks on fixed exchange rate regimes, and optimal hedging of foreign exchange exposure.

TEXTBOOK

The textbook for the course is *Foundations of International Macroeconomics*, by Maurice Obstfeld and Kenneth Rogoff, MIT Press, 1996. We will also use some chapters from Robert Barro and Xavier Sala-i-Martin's *Economic Growth*, McGraw-Hill, 1995.

EVALUATION

To be discussed in class.

COURSE OUTLINE

1. Optimal Control (Review and Examples)

- Kamien, Morton and Nancy Schwartz *Dynamic Optimization: The Calculus of Variations and Optimal Control in Economics and Management*, North-Holland, 1981.
- Romer, Paul "Cake Eating, Chattering and Jumps: Existence Results for Variational Problems," *Econometrica* 54: 897-908, 1986.
- Weitzman, Martin "Duality theory for Infinite Horizon Convex Models," *Management Science*, 19: 783-789, 1973.
- Benveniste, Lawrence and Jose Scheinkman "Duality Theory for Dynamic Optimization Models of Economics: The Continuous Time case," *Journal of Economic Theory*, 27: 1-19, 1982.
- Cass, David "Optimum Growth in an Aggregative model of Capital Accumulation," *Review of Economic Studies*, 32: 233-240, 1965.

2. Dynamic Programming in Continuous Time (Review and Examples)

- Brock, W. and A. Malliaris *Stochastic Methods in Economics and Finance*, North-Holland, 1982.
- Dixit, Avinash and Robert Pyndick *Investment under Uncertainty*, Princeton University Press, 1994.
- Merton, Robert *Continuous Time Finance*, Basil Blackwell, 1992.
- Kraay, Aart and Jaime Ventura "Current Accounts in Debtor and Creditor Countries," Working Paper, MIT, 1997.
- Rebelo, Sergio and Danyang Xie "On the Optimality of Interest Rate Smoothing" *Journal of Monetary Economics*, 43: 263-282, 1999.

3. Small Open Economy Models

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|------------------------------|---|
| Basic Model: | Barro and Sala-i-Martin, Chapter 3.1 |
| Adjustment Costs: | Barro and Sala-i-Martin, Chapter 3.5 |
| Collateral constraints: | Barro, Robert Gregory Mankiw and Xavier Sala-i-Martin "Capital Mobility in Neoclassical Models of Economic Growth" <i>American Economic Review</i> , 85: 103-115, 1995. |
| Endogenous Debt Constraints: | Cohen, Daniel and Jeffrey Sachs "Growth and External Debt under Risk of Debt Repudiation," <i>European Economic Review</i> , 30: 529-60, 1986. |
| Recursive Preferences: | Epstein, Larry and Allan Hynes "The Rate of Time Preference in Dynamic Economic Analysis," <i>Journal of Political Economy</i> , 91: 611-635, 1983. |
| Finite Lives: | Blanchard, Olivier "Debt, Deficits, and Finite Horizons," <i>Journal of Political Economy</i> , 93: 223-247, 1985. |

4. Exchange Rate Models

4.1 Flexible Price Models

Obstfeld-Rogoff Chapter 8

Kareken, John and Neil Wallace “On the Indeterminacy of Equilibrium Exchange Rates,” *Quarterly Journal of Economics*, 1981.

Lucas, R.E., “Interest Rates and Currency Prices in a Two-Country World,” *Journal of Monetary Economics*, 1982.

Svensson, L.E.O., “Currency Prices, Terms of Trade and Interest Rates: A General Equilibrium Asset-Pricing, Cash-in-Advance Approach,” *Journal of International Economics*, 1985.

4.2 Models with Nominal Rigidities

Obstfeld-Rogoff Chapter 9

Obstfeld and Rogoff, “Exchange Rate Dynamics Redux,” *Journal of Political Economy*, 103: 624-660, 1995.

Obstfeld and Rogoff, “New Directions for Stochastic Open Economy Models,” NBER Working Paper 7313, 1999.

Rudiger Dornbusch “Expectations and Exchange Rate Dynamics,” *Journal of Political Economy*, 84: 1161-76, 1976.

Obstfeld and Rogoff, “Risk and Exchange Rates,” NBER Working Paper 6694, 1998.

Obstfeld, Maurice and Kenneth Rogoff “Exchange Rate Dynamics Redux,” *Journal of Political Economy*, 103: 624-60, 1995.

Chari, V.V., P.Kehoe and Ellen McGrattan “Monetary Shocks and Real Exchange Rates in Sticky Price Models of International Business Cycles,” NBER Working Paper 5876, January 1997.

Chari, V.V., P.Kehoe and Ellen McGrattan “Sticky Price Models of the Business Cycle: Can the Contract Multiplier Solve the Persistence Problem?,” NBER Working Paper 5809, October, 1996.

4.3 Empirical Evidence

Lewis, Karen K. “Puzzles in International Financial Markets,” in Gene Grossman and Kenneth Rogoff (eds.) *Handbook of International Economics*, vol. 3 Amsterdam: North Holland, 1995.

Froot, K. and R. Thaler “Anomalies: Foreign Exchange,” *Journal of Economic Perspectives*, 1990.

Taylor, M. “Exchange Rate Behavior,” *Journal of Economic Literature*, 1995.

Eichenbaum, Martin and Charles Evans “Some Empirical Evidence on the Effects of Monetary Policy Shocks on Exchange Rates,” *Quarterly Journal of Economics*, 1995.

5. International Parity Conditions

5.1 Purchasing Power Parity

Obstfeld-Rogoff Chapter 4 and 10 (pp. 711-712)

Froot, Kenneth and Kenneth Rogoff “Perspectives on PPP and Long-run Real Exchange Rates,” in G. Grossman and K. Rogoff (eds.) *Handbook of International Economics*, vol. III, 1647-1688.

Rogoff, K., “The Purchasing Power Parity Puzzle,” *Journal of Economic Literature*, 1996.

Engle, C. and J. Rogers, “How Wide is the Border?” *American Economic Review* December 1996.

Engel, Charles “Accounting for U.S. Real Exchange Rate Changes,” *Journal of Political Economy*, 107:

507-538, 1999.

5.1.1. Non-linear Aspects of PPP

- Wei, Shang-Jin and David Parsley “Purchasing Power Dis-Parity during the Floating Rate Period: Exchange Rate Volatility, Trade Barriers and Other Culprits,” mimeo, Harvard University.
- Obstfeld, Maurice and Alan Taylor “Non-linear Aspects of Goods-Market Arbitrage and Adjustment: Heckscher’s Commodity Points Revisited,” *Journal of Japanese and International Economics*, 11: 441-79, 1997.
- Panos, Michael, A. Robert Nobay and David Peel “Transactions Costs and Nonlinear Adjustment in Real Exchange Rates: An Empirical Investigation,” *Journal of Political Economy*, 105: 862-879, 1997.
- Sercu, Piet, Raman Uppal and Cynthia Van Hulle “The Exchange Rate in the Presence of Transactions Costs: Implications of Purchasing Power Parity,” *Journal of Finance*, 50: 1309-19, 1995.
- Stockman, Alan “New Evidence Connecting Exchange Rates to Business Cycles,” *Federal Reserve Bank of Richmond Economic Quarterly*, 84: 73-89, 1998.
- O’Connell, Paul “Market Frictions and Relative traded Goods Prices,” unpublished, Harvard University, 1997.
- O’Connell, Paul and Shang-Jin Wei “The Bigger They Are, the Harder They Fall: How Price Differences between U.S. Cities are Arbitraged,” unpublished, Harvard University, 1997.
- Taylor, Mark and David Peel “Non-Linearities in Real Exchange Rate Adjustment During the Recent Float: Empirical Evidence and Monte Carlo Analysis,” Working Paper, Oxford: University College, 1997.

5.2 Interest Rate Parity

- Bansal, Ravi and Magnus Dahlquist “The Forward Premium Puzzle: Different Tales from Developed and Emerging Economies,” Working Paper, Duke University, 1998.
- Alvarez, Fernando, Andrew Atkeson and Patrick Kehoe “Volatile Exchange Rates and the Forward Premium Anomaly: A Segmented Asset Market View,” Working Paper, Federal Reserve Bank of Minneapolis, 1999.
- Hodrick, Robert *The Empirical Evidence of the Efficiency of the Forward and Futures Foreign Exchange Market*, Harwood Academic Publishers, 1987.
- Fama, Eugene “Forward and Spot Exchange Rates,” *Journal of Monetary Economics*, 14: 319-338, 1984.

6. Fixed Exchange Rate Regimes

6.1 Exchange-Rate-Based Stabilization

- Calvo, Guillermo and Carlos Vegh “Inflation Stabilization and BOP Crises in Developing Countries,” forthcoming John Taylor and Michael Woodford (eds.) *Handbook of Macroeconomics*, North-Holland, 1998.
- Rebelo, Sergio and Carlos Vegh “Real Effects of Exchange Rate-Based Stabilizations: An Analysis of Competing Theories,” in Ben S. Bernanke and Julio J. Rotemberg, *NBER Macroeconomics Annual 1995*.
- Tornell A. and A. Velasco “Fixed versus Flexible Exchange Rates: Which Provides More Discipline?,” NBER Working Paper 5108, 1995.

Uribe, Martín, "Exchange-rate-based inflation stabilization: The initial real effects of credible plans," *Journal of Monetary Economics*, 39: 197-221, 1997.

6.2 Speculative Attacks

- Krugman, P., "A Model of Balance of Payments Crises," *Journal of Money Credit and Banking*, 1979.
- Flood and Garber "Collapsing Exchange Rate Regimes: Some Linear Examples," *Journal of International Economics*, 1984.
- Obstfeld, Maurice "Speculative Attack and the External Constraint in a Maximizing Model of the Balance of Payments," *Canadian Journal of Economics*, 1986.
- Calvo, Guillermo "Balance of Payments Crises in a Cash-in-Advance Economy," *Journal of Money Credit and Banking*, 1987.
- Drazen, Allan and Elhanan Helpman "Stabilization with Exchange Rate Management," *Quarterly Journal of Economics*, 1987.
- Obstfeld, M. "Models of Currency Crises with Self-Fulfilling Features," *European Economic Review*, 1996.
- Obstfeld, Maurice "Rational and self-fulfilling Balance-of-Payments Crises," *American Economic Review*, 76, 72—81, 1986
- Chari, V.V., and P. Kehoe, "Hot Money," Federal Reserve Bank of Minneapolis Working Paper, 1996.
- Burnside, C., M. Eichenbaum and S. Rebelo, "Prospective Deficits and the Asian Currency Crisis," NBER Working Paper, 1998.
- Caballero, Ricardo and Arvind Krishnamurthy "Emerging Markets Crises: An Assets Markets Perspective," Working Paper, MIT, 1998.
- Chang, Roberto and Andrés Velasco "The Asian Liquidity Crises," Working paper, New York University, 1998.
- Chang, Roberto and Andrés Velasco "Financial Fragility and the Exchange Rate Regime," NBER Working Paper, 6469, 1998.
- Chang, Roberto and Andrés Velasco "Financial Crises in Emerging Markets: A Canonical Model," Working paper, New York University, 1998.
- Kaminsky, Graciela and Carmen Reinhart "The Twin Crises: The Causes of Banking and Balance-of-Payments Problems," *American Economic Review*, 89, 473-500, 1999.
- Chang, Roberto and Andrés Velasco "Illiquidity and Crises in Emerging Markets: Theory and Policy," (paper prepared for the 1999 NBER Macroeconomics Annual).
- Aghion, Philippe, Philippe Bacchetta, and Abhijit Banerjee "A Simple Model of Monetary Policy and Currency Crises," Working Paper, Harvard University, 1999.
- Krugman, Paul "Analytical Afterthoughts on the Asian Currency Crisis," Working Paper, MIT, 1999.
- Drazen, Allan "Interest Rate Defense Against Speculative Attack Under Asymmetric Information," February 24, 1999.
- Olivier Jeanne, "Sovereign Debt Crises and the Global Financial Architecture," IMF Working paper, 1999.

7. Intertemporal Trade Models

Obstfeld-Rogoff Chapter 1-3

- Kehoe, Patrick and Fabrizio Perri, "International Business Cycles with Endogenous Incomplete Markets," working paper, Federal Reserve Bank of Minneapolis, 1998.
- Baxter, Marianne "International Trade and Business Cycles," in G. Grossman and K. Rogoff (eds.) *Handbook of International Economics* vol. 3, 1995.
- Backus, D., P. Kehoe and F. Kydland, "International Real Business Cycles," *Journal of Political Economy*, 1992.
- Baxter, M. and M. Crucini, "Explaining Savings-Investment Correlations," *American Economic Review* 1992.
- Mendoza, E., "Real Business Cycles in a Small Open Economy: The Canadian Case," *American Economic Review*, 1991.

Correia, Isabel Joao Neves and Sergio Rebelo "Business Cycles in a Small Open Economy," *European Economic Review*, 1995.

8. Exchange Rate Hedging

Albuquerque, Rui "Optimal Currency Hedging," Working Paper, University of Rochester, 1999.

Burnside, Craig, Martin Eichenbaum and Sergio Rebelo "Hedging, Financial Fragility and Fixed Exchange Rate Regimes," Working Paper, Northwestern University, 1999.

9. Optimal Currency Areas

Mundell, Robert "A Theory of Optimum Currency Areas," *American Economic Review*, 51: 657-665, 1961.

Aizenmann, J. and R. Flood "A Theory of Optimum Currency Areas: Revisited," Working paper 92/39, International Monetary Fund.

Bayoumi, T. "A Formal Model of Optimum Currency Areas," *International Monetary Fund Staff Papers*, 41: 537-554, 1995.

Neumeyer, Pablo "Currencies and the Allocation of Risk: The Welfare Effects of a Monetary Union," *American Economic Review*, 88: 246-259, 1998.

Canzoneri, Matthew and Rogers, Carol "Is the European Community an Optimal Currency Area? Optimal Taxation versus the Cost of Multiple Currencies," *American Economic Review*, 80: 419-33, 1990.

10. Target Zones

Krugman, Paul "Target Zones and Exchange Rate Dynamics," *Quarterly Journal of Economics*, 669-682, 1991.

Bertola, Giuseppe "Continuous-time Models of Exchange Rates and Intervention," in van der Ploeg (ed) *The Handbook of International Macroeconomics*, Blackwell, 1994.

Svensson, Lars "An Interpretation of Recent Research on Exchange Rate Target Zones," *Journal of Economic Perspectives*, 6: 119-144, 1992.

11. International Risk Sharing

Obstfeld, Maurice "International Risk Sharing and Capital Mobility," *Journal of International Money and Finance*, 115-21, February 1992.

Obstfeld, Maurice and Harold Cole "Commodity Trade and International Risk Sharing" *Journal of Monetary Economics*, 3-24, 1991.

Lewis, Karen "What Can Explain the Apparent Lack of International Consumption Risk Sharing?", NBER Working Paper No, 5203, August, 1995.

Athanasoulis, Stefano and Eric Van Wincoop "Growth Uncertainty and Risk Sharing," Working Paper, Federal Reserve Bank of New York, 1998.

12. Home Country Bias in Portfolios

Tesar, Linda and Ingrid Werner "Home Bias and the Globalization of Securities Markets," NBER Working Paper, N. 4218, November 1992.

Tesar, Linda and Ingrid Werner "International Equity Transactions and U.S. Portfolio Choice," in J.

- Frankel (ed.) *The Internationalization of Equity Markets*, Chicago University Press, 1994.
- Baxter, Marianne and Urban Jermann "The International Diversification Puzzle is Worse than You Think," *American Economic Review*, 87: 170-80, 1997.
- Baxter, Marianne, Urban Jermann and Robert G. King "Non-traded Goods, Non-traded factors and International Diversification," *Journal of International Economics*, March 1998.
- French, Kenneth and James Poterba "Investor Diversification and International Equity Markets," *American Economic Review*, 81: 222-26, 1991.

13. Technical Trading Models

- Cumby, Robert and David Modest "Testing for Market Timing Ability: A Framework for Forecast Evaluation," *Journal of Financial Economics*, 169-89, 1987.
- Engel, Charles and James D. Hamilton "Long Swings in the Dollar: Are They in the Data and Do Markets Know It?" *American Economic Review*, 80: 689-713, 1990.
- LeBaron, Blake "Technical Trading Rule Profitability and Foreign Exchange Intervention," *Journal of International Economics*, 1997.
- Silber, William "Technical Trading: When it Works and When it Doesn't," *Journal of Derivatives*, 1: 39-44, 1994.
- Taylor, Mark and Helen Allen "The Use of Technical Analysis in the Foreign Exchange Market," *Journal of International Money and Finance*, 304-14, 1992.
- Sapp, Stephen "An Empirical Study of the Sources of Technical Trading Rule Profitability in the Spot Foreign Exchange Market," working paper, Northwestern University, 1008.
- Rouwenhorst, K. "International Momentum Strategies," *Journal of Finance*, 53, 1998.
- Humpage, Owen "The Federal Reserve as an informed foreign-exchange trader," Working Paper, Federal Reserve Bank of Cleveland, Sep, 1998
(<http://www.clev.frb.org/research/workpaper/1998/Wp9815.pdf>)

14. Sovereign Debt and Emerging Markets

- Cole, Harold and Timothy Kehoe "A Self-Fulfilling Model of Mexico's 1994-95 Debt Crisis," *Journal of International Economics*, 41, 309-330, 1996.
- Symposium on "New Institutions for Developing Country Debt", *Journal of Economic Perspectives*, Winter, 1990.
- Bulow, J. and K. Rogoff "Sovereign Debt: Is to Forgive to Forget?", *American Economic Review*, 79: 43-50, 1989
- Bulow, J. and K. Rogoff "The Buyback Boondoggle", *Brookings Papers on Economic Activity*, 2: 675-98, 1988.
- Bekaert, G. C. Erb, C. Harvey and T. Vishanta "The Behavior of Emerging Market Returns," Working Paper, Duke University, 1996.
- Goetzman, W. and W. Jorion "Re-emerging Markets," Working Paper, Yale University, 1998
(<http://vikingsom.yale.edu/will/emerger/reemerge.htm>).