

# Macroeconomic Theory II.

## 14.452, Spring 2003

**Olivier Blanchard**

This is the second course in the four-quarter graduate sequence in macroeconomics. Its purpose is to introduce the basic models macroeconomists use to study fluctuations.

My email is [blanchar@mit.edu](mailto:blanchar@mit.edu). The TA for the course is Ruben Segula-Cayuela ([rubens@mit.edu](mailto:rubens@mit.edu)). The course is part of the OCW MIT project and the web page can be accessed from <http://web.mit.edu/course/14/14.452/www/>. Lecture notes for 2002 are posted there. Lecture notes for 2003 will replace them as the course progresses. (The structure of the course is roughly the same as last year).

It is essential that you be familiar with macroeconomics at the intermediate undergraduate level. If you have not done so yet, read an intermediate macro text (Take this recommendation seriously. If you are not familiar with macroeconomics, the risk is high that you will perceive the course as a series of methods and models, not as an attempt to understand fluctuations). Some texts are at a slightly higher level than others. Let me mention two:

Abel, A. and B. Bernanke, Macroeconomics, Addison-Wesley, 2002

Blanchard, O. , Macroeconomics, Prentice Hall, 2003

There are no textbooks for the course. However, I shall use material from:

Blanchard, O. and S. Fischer, Lectures on Macroeconomics, MIT Press 1989. (BF in what follows) [covers most bases, but is aging]

Obstfeld, M. and K. Rogoff, Foundations of International Economics, MIT Press 1996. (OR in what follows) [focuses more on open economy issues]

Ljungqvist, L. and T. Sargent, Recursive Macroeconomic Theory, MIT Press 2000 [focuses more on techniques]

Woodford, M. Interest and Prices, mimeo Princeton, 2002. [focuses more on nominal rigidities, and the role of monetary policy]. Available at <http://www.princeton.edu/~woodford/>

Macroeconomics is a rapidly changing field. To get a sense of the geography, you might find it useful to read two recent surveys:

Blanchard, O., “What Do We Know About Macroeconomics that Fisher and Wicksell Did Not?” QJE, November 2000, 115:4, 1375-1410.

Woodford, M., “Revolution and Evolution in Twentieth-Century Macroeconomics,” forthcoming in P. Gifford, ed., Frontiers of the Mind in the Twenty-First Century, Harvard University Press. (Available at <http://www.princeton.edu/~woodford/macro20C.pdf>)

The course is organized around nine topics/sections. For each topic, I have included basic readings, as well as a few papers showing further applications or extensions. A star denotes required reading.

### **1. Fluctuations. Facts.**

Covariance stationarity. Trends/cycles decompositions. Shocks and propagation mechanisms. Wold representation. ARMA, VARs, SVARS. Impulse responses.

Co-movements of GDP components. Correlations between real wages, interest rates, and output. The correlations of output and money.

Cycles, slumps, and depressions. Non linearities?

\* BF, Chapter 1

\* [Stock, J. and M. Watson](#), "[Business Cycle Fluctuations in U.S. Macroeconomic Time Series](#)," Chapter 1, Volume 1A, Handbook of Macroeconomics, J. Taylor and M. Woodford eds, North Holland, 1999

Stock, J. and M. Watson, "Vector Autoregressions", JEP, Fall 2001, 15-4, 101-115.

[Stock, J. and M. Watson](#), "Variable Trends in Economic Time Series", JEP, Summer 1988, 2-3, 147-174.

[Christiano L. and T. Fitzgerald](#), "The Business Cycle: It's Still a Puzzle", Economic Perspectives, Federal Reserve Bank of Chicago, 1998-4, 56-83

[Abraham, K. and J. Haltiwanger](#), "Real Wages and the Business Cycle," JEL, September 1995, Volume 33-3, 1215-1264

[Christiano, L., Eichenbaum M., and C. Evans](#), "The Effects of Monetary Policy Shocks: Evidence from the Flow of Funds," REStat, February 1996, 78-1, 16-34

## **2. The basic model. The consumption/saving choice.**

Setting up the optimization problem. Intertemporal choice, shocks, uncertainty. The first order conditions.

Solving the model. Numerically. Value functions. Log linearization. Special cases and other short cuts.

Equivalence between centralized and decentralized economies. The consumption problem in the decentralized economy.

\* BF, Chapter 2 and Section 6-2.

OR, Chapters 1 and 2

\* LS, Chapters 2 and 3

\* [Campbell J., Inspecting the Mechanism: An Analytical Approach to the Stochastic Growth Model](#), JME, 33, June 1994, 463-506

### **3. Allowing for a labor/leisure choice. (the RBC model)**

Why the extension? Movements in employment/unemployment. Interpreting the first order conditions. Solving the model numerically, and by log linearization. Special case: log and full depreciation.

Evidence on labor supply elasticity. Evidence on high frequency technological shocks. Solow residuals and their interpretation. Alternative models of innovation-driven booms.

[Prescott, E. C.](#), "Theory Ahead of Business Cycle Measurement," Quarterly Review, Federal Reserve Bank of Minneapolis, Fall 1986, 9-22

\* BF, Chapter 7

\* [King, R. and S. Rebelo](#), "Resuscitating Real Business Cycles," Chapter 14, Volume 1B, Handbook of Macroeconomics, J. Taylor and M. Woodford eds, North Holland, 927-1007

[Basu, S. and Fernald, J.](#), "Why is Productivity Procyclical? Why Do We Care?," NBER W7940, October 2000

[Jorgenson, D. and K. Stiroh](#), "Raising the Speed Limit: U.S. Economic Growth in the Information Age," BPEA, 2000-1, 125-235

Aghion, P. and P. Howitt, "Growth and Cycles", Chapter 8, Endogenous Growth Theory, MIT Press, 1998

[Shleifer, A.](#), "Implementation Cycles," JPE, 94-6, December 1986, 1163-1190

### **4. Allowing for non trivial investment decisions.**

Costs of adjustment for investment. Investment, consumption, and interest rates in the decentralized economy. The role of the term structure of interest rates. The stock market and investment. The effects of shocks on output, investment, the stock market, and the term structure.

The open economy version. Shocks, investment, saving, and movements in the current account.

Asset price bubbles, investment, and fluctuations

\* BF, Sections 2-4, 6-3

[Ventura, J.](#) "Towards a Theory of Current Accounts", MIT WP 02-99, August 2002

\* BF, Sections 5-1, 5-2

Shiller, R., Irrational Exuberance, Princeton University Press, 2000.

[Blanchard, O., Rhee, C. and L. Summers,](#) "The Stock Market, Profit, and Investment", QJE, 108-1, February 1993, 115-136

(For a recent compendium of articles on bubbles and activity, look at Asset Price Bubbles: The Implications for Monetary, Regulatory, and International Policies, W. Hunter, G. Kaufman, and M. Pomerleano, eds, MIT Press, 2003)

### **5. Allowing for two goods.**

Why introduce two goods? The pitfalls of one-good models.  
Capital/consumption goods. Tradable/non tradable goods. Domestic/foreign goods.  
The consumer problem with two goods. Intratemporal and intertemporal first order conditions.

Closing the model if tradables/non tradables. The Balassa-Samuelson effect.  
The transfer problem. Effects of technological shocks on relative prices, and on the current account.

OR, Chapter 4

\* [Obstfeld, M. and K. Rogoff,](#) "The Intertemporal Approach to the Current Account", Chapter 34, Volume 3, Handbook of International Economics, G. Grossman and K. Rogoff eds, 1731-1799

[Obstfeld, M. and K. Rogoff,](#) "Perspectives on OECD Economic Integration: Implications for U.S. Current Account Adjustment," in Global Economic Integration: Opportunities and Challenges, Kansas City Fed Symposium, 2000, 169-244

## **6. Introducing money.**

Decentralized exchange and the use of money. Cash-in-advance models. Money in the utility function. The effects of money growth on capital accumulation. Dynamics of hyperinflation. The Cagan model. The budget deficit and money growth.

\* BF, Sections 4.3 to 4.7; and Section 10.2

Woodford, M. Chapter 2-1, "Price Level Determination Under Interest Rate Rules"

[Dornbusch, R., Sturzenegger, F., and H. Wolf](#), "Extreme Inflation: Dynamics and Stabilization", Brookings Papers on Economic Activity, 1990-2, 1-84

## **7. Introducing price setting.**

Decentralized exchange, money, and price setters. A yeoman farmer model of price setting under monopolistic competition. The role of price above marginal cost, markups. Predetermined prices. The effects of money on output and welfare.

Role of wage versus price setting. The behavior of real wages. Revisiting the effects of technological and other shocks. Indexation. Macro-implications of the choice of numeraire.

The monetary policy problem. Time consistency.

\* [Blanchard, O.](#), "Why Does Money Affect Output? A Survey," in B. Friedman and F. Hahn eds, Handbook of Monetary Economics, North Holland, 1990, 779-835

\* BF, Sections 8-1, 11-4

\* Woodford, M., Chapter 3-1 ("Optimizing Models with Nominal Rigidities. A Basic Sticky-Price Model")

[Goodfriend, M.](#), "Monetary policy in the New Neoclassical Synthesis: A Primer," mimeo Federal Bank of Richmond, September 2002

## **8. Current and Past Workhorses**

Staggering of price decisions. Fischer-Taylor-Calvo models. Coordination problems. The "modern Phillips curve." Inflation inertia? The "modern IS-LM model", the "modern AS-AD model".

\* BF, Chapter 8-2, 8-3

\* Woodford, M., Chapter 3-2 ("Optimizing Models with Nominal Rigidities. Inflation Dynamics with Staggered Price Setting.)

[King, R.](#), "The New IS-LM model: Language, Logic, and Limits," Economic Quarterly, Federal Reserve Bank of Richmond, 86-3, Summer 2000, 45-103

[Gali J., Gertler M., and J. David Lopez Salido](#), "Markups, gaps, and the Welfare Costs of Business Fluctuations", NBER WP 8850, March 2002.

[Mankiw G., and R. Reis](#), "Sticky Information versus Sticky Prices: A Proposal to Replace the New Keynesian Phillips Curve", QJE, 117-4, November 2002, 1295-1328

[Blanchard, O.](#), "Output, The Stock Market, and Interest Rates," AER, March 1981, 71-1, 132-143.

[Dornbusch, R.](#), "Expectations and Exchange Rate Dynamics," JPE, December 1976, 84, 1161-1176.

[Tobin, J.](#) "Keynesian Models of Recession and Depression", AER, 65-2, May 1975, 195-202

## **9. Applications to fiscal and monetary policy.**

Inflation targeting. Interest rate rules. The liquidity trap. Perverse effects of fiscal expansions.

Woodford, M., Chapter 4-1, 4-2 ("A Neo-Wicksellian Framework for the Analysis of Monetary policy")

\* [Clarida, R., J. Gali, and M. Gertler](#), "The Science of Monetary Policy: A New Keynesian Perspective," NBER W7147, May 1999

[Gali, J.](#), "New Perspectives on Monetary Policy, Inflation, and the Business Cycle", NBER WP 8767, February 2002

[Krugman, P.](#) "It is Back: Japan's Slump and the Return of the Liquidity Trap," BPEA, 1998-2, 137-201

Shirakawa, M. "Monetary Policy Under the Zero Interest Rate Constraint and Balance Sheet Adjustment", *International Finance*, 4:3, 2001, 463-489

[McCallum, B.](#), "Japanese Monetary Policy", 1991-2001, *Economic Quarterly*, Federal Reserve Bank of Richmond, Winter 2003, 1-31

[Giavazzi, F., and M. Pagano](#), "Non-Keynesian Effects of Fiscal Policy Changes: International Evidence and the Swedish Experience," NBER W5332, October 1996.