

**European University Institute**  
Department of Economics

**Quantitative Dimensions of Debt Default**  
Spring 2012

<b>Instructor :</b>	Pablo D'Erasmus
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<b>Office Hours :</b>	TBA or by appointment

**Location :** Villa San Paolo

**Meeting schedule :**

First week:

- ✦ Tuesday May 15<sup>th</sup> : 15-17
- ✦ Wednesday May 16<sup>th</sup> : 15-17

Second week:

- ✦ Tuesday May 22<sup>nd</sup> : 8.45-10.45
- ✦ Wednesday May 23<sup>rd</sup> : 8.45-10.45
- ✦ Thursday May 24<sup>th</sup>: 8.45-10.45

**OUTLINE AND OBJECTIVE OF THE COURSE**

This course covers some of the standard models of debt default (consumer, corporations and sovereigns) as well as the computational methods frequently used to solve these models. We will focus on the quantitative implications of such models. We will use optimization methods, equilibrium analysis as well as dynamic programming extensively.

**TEXTBOOKS AND OTHER READING MATERIAL**

Most of the course will be based on articles which are listed on this course outline. The following books may be useful in certain parts of the course.

**Numerical Methods in Economics**, Judd, MIT Press, 1998

**Dynamic Economics: Quantitative Methods and Applications**, Adda and Cooper, MIT

Press, 2003

**Recursive Macroeconomic Theory**, Ljungqvist, Lars & Sargent, Thomas, MIT Press, 2003.

**Simulation-Based Econometric Methods**, Gourieroux and Monfort, Oxford University Press, 1996

**Computational Methods for the Study of Dynamic Economies**, Marimon and Scott , Oxford University Press, 1999

**Applied Computational Economics and Finance**, Miranda and Fackler, MIT Press, 2002

**Recursive Methods in Economic Dynamics**, Stokey and Lucas, Harvard University Press, 1989

## GRADING

There will be a problem set at the end of the course. You will have about a week to work on it. The details will be set in the first lecture. This problem set will require you to write code in MATLAB, C++ and/or Fortran 90/95. In addition to turning in a nicely-formatted description of your findings with all the necessary tables and figures, you will need to submit all the codes/files you created in order to find a solution.

## READING LIST

### 0) Introduction: Het. Agents, Incomplete Markets and Num. Preliminaries.

#### 0.1) Value Function and Markov Approximation:

- ⤴ Chapter 2 in Adda and Cooper (2003)
- ⤴ Chapters 1, 2, 5, 7.7, 12, 13, 16, and 17 in Judd (1998)
- ⤴ Tauchen, George (1986), "Finite State Markov-Chain Approximations to Univariate and Vector Autoregressions", *Economic Letters*, 20, 177-181
- ⤴ Chapter 3 in Adda and Cooper (2003)

#### 0.2) Workhorse Models of Het. Agents and Incomplete Markets:

- ⤴ Aiyagari, S.R. (1994), "Uninsured Idiosyncratic Risk and Aggregate Saving," *Quarterly Journal of Economics* 109, 659–684.
- ⤴ Huggett, M. (1993), "The Risk-Free Rate in Heterogeneous-Agents, Incomplete Markets Economies," *Journal of Economic Dynamics and Control* 17, 953–969.
- ⤴ Rios Rull (1999) "Computing of equilibria in heterogenous-agent models", Chapter 11 in Marimon, Ramon and Andrew Scott (1999)

### 1) Consumer Bankruptcy and Default

#### 1.1) Default and Unsecured Credit

- ⤴ Michelle White (2007) "Bankruptcy Law," *Handbook of Law and Economics*.

- ✦ Michelle White (2008) "Bankruptcy: Past Puzzles, Recent Reforms, and the Mortgage Crisis" NBER working paper #14549.
- ✦ Krueger and Perri (2006) "Does Income Inequality Lead to Consumption Inequality? Evidence and Theory," Review of Economic Studies.
- ✦ Zhang (1997). "Endogenous Borrowing Constraints with Incomplete Markets," Journal of Finance, 52(5), 2187-2209.
- ✦ Chatterjee, Corbae Nakajima Rios Rull (2007) "A Quantitative Theory of Unsecured Consumer Credit with Risk of Default," Econometrica.
- ✦ Igor Livshits, James MacGee and Michèle Tertilt (2007) "Consumer Bankruptcy: A Fresh Start," American Economic Review.
- ✦ Igor Livshits, James MacGee and Michele Tertilt (2010) "Accounting for the Rise in Consumer Bankruptcies," American Economic Journal: Macroeconomics.
- ✦ Athreya, Tam and Young (2009) "A quantitative Theory of Information and Unsecured Credit," Working Paper 08-06, Federal Reserve Bank of Richmond.
- ✦ Sanchez (2008) "The Role of Information in Consumer Debt and Bankruptcy," mimeo.
- ✦ Narajabad, Borghan (2007), "Information Technology and the Rise of Household Bankruptcy," mimeo, Rice University.
- ✦ Planas and Rios Rull (2008) "Credit Lines," mimeo.

## 1.2) Secured Credit

- ✦ Corbae and Quintin (2011) "Mortgage Innovation and the Foreclosure Boom," University of Wisconsin, mimeo.
- ✦ Chatterjee and Eyigungor (2009) "Foreclosures and house price dynamics: a quantitative analysis of the mortgage crisis and the foreclosure prevention policy," Working Papers 09-22, Federal Reserve Bank of Philadelphia.
- ✦ Leonardo Martinez, Juan Carlos Hatchondo and Juan M. Sanchez (2012) "Mortgage Defaults,"
- ✦ IMF Working Papers 12/26, International Monetary Fund.
- ✦ Bulent Guler (2008) "Innovations in Information Technology and the Mortgage Market," Indiana University, mimeo.

## 2) Sovereign Debt and Default

### 2.1) Basic Facts

- ✦ Eaton, Jonathan & Fernandez, Raquel (1995) "Sovereign debt," Handbook of International Economics.
- ✦ Qian, Rong, Carmen Reinhart, and Kenneth Rogoff (2010) "On Graduation from Default, Inflation, and Banking Crises: Elusive or Illusion?," in "NBER Macroeconomics Annual"
- ✦ Reinhart, Carmen and Kenneth Rogoff (2009) This Time is Different: Eight Centuries of Financial Folly", Princeton University Press.
- ✦ Tomz, Michael and Mark Wright (2007) "Do Countries Default in 'Bad Times'?", Journal of the European Economic Association.
- ✦ Reinhart, Carmen, Rogoff, Kenneth and Savastano, Miguel (2003). "Debt intolerance," MPRA Paper 13932, University Library of Munich, Germany.
- ✦ Martinez, J.V. and Sandleris, Guido, (2011) "Is it punishment? Sovereign defaults and the decline in trade," Journal of International Money and Finance.

- ✦ Levy Yeyati, Eduardo and Panizza, Ugo (2011) "The elusive costs of sovereign defaults," *Journal of Development Economics*.
- ✦ Eduardo Borensztein and Ugo Panizza (2009) "The Costs of Sovereign Default," *IMF Staff Papers*.
- ✦ Gelos, Gaston, Sahay, Ratna and Sandleris, Guido (2011) "Sovereign borrowing by developing countries: What determines market access?," *Journal of International Economics*.
- ✦ Richard Cantor and Frank Packer (1996) "Determinants and impacts of sovereign credit ratings,"
- ✦ Research Paper 9608, Federal Reserve Bank of New York.
- ✦ Federico Sturzenegger and Punan Chuham, (2003) "Default`s in the 1990`s: What have we learned?"
- ✦ Business School Working Papers seis, Universidad Torcuato Di Tella.
- ✦ Juan J. Cruces and Christoph Trebesch, (2011) "Sovereign Defaults: The Price of Haircuts," *CESifo Working Paper Series 3604*, CESifo Group Munich.

## 2.2) Basic Framework

- ✦ Eaton, Jonathan, and Mark Gersovitz (1981) "Debt with Potential Repudiation: Theoretical and Empirical Analysis," *Review of Economic Studies*.
- ✦ Aguiar, M. and G. Gopinath (2006) "Defaultable Debt and Current Account Sustainability," *Journal of International Economics*.
- ✦ Arellano, C (2008) "Default Risk and Income Fluctuations in Emerging Economies," *American Economic Review*.
- ✦ Mendoza, E. and Z. V. Yue, (2011) "A Solution to the Default Risk-Business Cycle Disconnect," forthcoming *Quarterly Journal of Economics*.
- ✦ Juan Carlos Hatchondo, Leonardo Martinez and Horacio Sapriza (2010) "Quantitative properties of sovereign default models: solution methods," *Review of Economic Dynamics*.

## 2.3) Extensions: Renegotiation, Long-Term Debt and Others.

- ✦ Yue, Vivian (2010) "Sovereign Default and Debt Renegotiation," *Journal of International Economics*.
- ✦ D'Erasmus, Pablo, 2011, "Government Reputation and Debt Repayment in Emerging Economies," University of Maryland, mimeo.
- ✦ David Benjamin and Mark L. J. Wright (2009) "Recovery Before Redemption: A Theory Of Delays In Sovereign Debt Renegotiations," UCLA, mimeo.
- ✦ Satyajit Chatterjee and Burcu Eyigungor (2011) "Maturity, indebtedness, and default risk," Working Papers 11-33, Federal Reserve Bank of Philadelphia.
- ✦ Hatchondo, Juan Carlos & Martinez, Leonardo (2009) "Long-duration bonds and sovereign defaults," *Journal of International Economics*.
- ✦ Leonardo Martinez & Juan Carlos Hatchondo & Cesar Sosa Padilla (2011) "Debt Dilution and Sovereign Default Risk," *IMF Working Papers 11/70*, International Monetary Fund.
- ✦ Gabriel Cuadra, Juan Sanchez and Horacio Sapriza (2010) "Fiscal Policy and Default Risk in Emerging Markets," *Review of Economic Dynamics*.
- ✦ Cuadra, Gabriel and Sapriza, Horacio (2008) "Sovereign default, interest rates and political uncertainty in emerging markets," *Journal of International Economics*.

- ✦ Broner, Fernando, Alberto Martin, and Jaume Ventura, "Sovereign Risk and Secondary markets," American Economic Review, forthcoming.
- ✦ Gennaioli, Nicola & Martin, Alberto & Rossi, Stefano, 2011. "Sovereign Default, Domestic Banks and Financial Institutions," CREI mimeo.

### **3) Firm Dynamics, Financial Frictions and Corporate Default**

#### **3.1) Basic Models**

- ✦ Hopenhayn (1992) "Entry, Exit, and Firm Dynamics in Long Run Equilibrium," Econometrica.
- ✦ Jovanovic (1982) "Selection and the Evolution of Industry," Econometrica.
- ✦ Cooley and Quadrini (2001) "Financial Markets and Firm Dynamics," American Economic Review.
- ✦ Hennessy and Whited (2005) "Debt Dynamics," Journal of Finance.
- ✦ Miao (2005) "Optimal Capital Structure and Industry Dynamics," Journal of Finance.

#### **3.2) Corporate Default and Bankruptcy**

- ✦ Michelle White (2007) "Bankruptcy Law," Handbook of Law and Economics.
- ✦ Arellano, Bai and Zhang (2010) "Firm Dynamics and Financial Development," Journal of Monetary Economics forthcoming.
- ✦ D'Erasmus and Moscoso Boedo (2011) "Financial Structure, Informality and Development," Journal of Monetary Economics forthcoming.
- ✦ Hopenhayn and Werning (2008) "Equilibrium Default".
- ✦ Eraslan (2008) "Corporate Bankruptcy Reorganizations Estimates from a Bargaining Model," International Economic Review.
- ✦ Corbae and D'Erasmus (2009) "Reorganization or Exit: Bankruptcy Decisions and Firm Dynamics," mimeo.
- ✦ Arellano, Bai and Kehoe (2010) "Financial Markets and Fluctuations in Uncertainty," mimeo.