

**FINANCE 937**  
**Advanced Topics in Macro Finance**  
**Fall 2017**

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**DESCRIPTION**

Finance 937 is a *half semester* advanced course in **quantitative macro-finance**. It is intended for doctoral students in finance, economics and related fields. The course covers five interconnected literatures: (i) firm selection, investment and growth; (ii) models of corporate, household and sovereign debt; (iii) macro models with a financial sector; (iv) dynamic banking models; and (v) asset pricing.

This course is part of the Doctoral sequence in Finance. It follows logically from FNCE 924. It is intended to complement (with minimum overlap) the asset pricing courses FNCE 921 and (especially) FNCE 934. The choice of topics is also designed to appeal to economics students with an interest in Macro or IO.

My approach is to develop and discuss in detail a unified framework that is suited to address the central topics. Most classes and course notes summarize and combine the material from several key papers, using a consistent notation and methodology. These core insights are then used to discuss related literature.

The reading list has two parts. My expectation is that you will read the core papers and those I assign for presentation. The supplementary readings are reasonably extensive. Past students found this to be a very useful reference for the remaining of their graduate studies and beyond.

Despite the quantitative nature of the material there is only a limited time for teaching numerical methods. Students are strongly encouraged to take the (excellent) classes offered in the Economics department.

**GRADES**

**Problem Set 50%**

There will be two large quantitative problem sets to capture the key ideas from each subsection. The problem sets are designed to help you understand the key issues involved in

numerically solving a particular class of models. To maximize learning they should be done in teams of 2 students.

## **Paper Presentations 50%**

Towards the end of the course I will assign two or three recent papers for presentation at the conclusion. Everyone is expected to prepare a brief 10 slide (20 minute) summary discussion of **each** assigned paper. I will randomly select a student to present and we will have a general discussion after the presentation.

**Please note: Homework and presentations should be submitted on Canvas.**

**There is no final exam.**

## **CORE READINGS**

### **1. Quantitative Corporate Finance**

- Gomes, João, Financing Investment, *American Economic Review*, 2001
- Chatterjee, Satyajit, and Eyigungor, Burcu, Maturity, Indebtedness, and Default Risk, *American Economic Review*, 2012
- Hennessy, Christopher, and Toni Whited, Debt Dynamics, *Journal of Finance*, 2005
- Leland, Hayne, Corporate Debt Value, Bond Covenants, and Optimal Capital Structure, *Journal of Finance*, 1994

### **2. Asset Pricing with Leverage**

- Gomes, João and Lukas Schmid, Levered Returns, *Journal of Finance*, 2010
- Gomes, João and Schmid, Lukas, Equilibrium Asset Pricing with Leverage and Default, Working Paper, Wharton School, 2017

### **3. Macroeconomic Models with Financial Imperfections**

- Bernanke, Ben, Gertler, Mark and Gilchrist, Simon, The Financial Accelerator in a Quantitative Business Cycle Framework, *Handbook of Macroeconomics*, 1999
- Gomes, João, Jermann, Urban and Schmid, Lukas, Sticky Leverage, *American Economic Review*, 2016

### **4. Quantitative Models of Banking**

- Corbae, Dean and Pablo D'Erasmus, A Quantitative Model of Banking Industry Dynamics, working paper, Federal Reserve Bank of Philadelphia, 2014
- Gertler, Mark and Nobuhiro Kiyotaki, Bank Liquidity and Bank Runs in an Infinite Horizon Economy, *American Economic Review*, 2016
- Van den Heuvel, The Welfare Cost of Bank Capital Requirements, *Journal of Monetary Economics*, 2006

## FURTHER READINGS

### Quantitative Corporate Finance: Investment

#### *Continuous Time Tools*

- Dixit, Avinash, and Pindyck, Robert, Ch. 5, 6, 10 and 11, *Investment Under Uncertainty*, Princeton University Press, 1994

#### *Optimal Investment with Frictions*

- Abel, Andrew and Eberly, Janice, A Unified Model of Investment Under Uncertainty, *American Economic Review*, 1994
- Bond, Stephen, and Meghir, Costas, Dynamic Investment Models and the Firm's Financial Policy, *Review of Economic Studies*, 61, 1994
- Caballero, Ricardo, and Engel, Eduardo, Explaining the Investment Dynamics in U.S. Manufacturing: A Generalized (S,s) Dynamics, *Econometrica*, 1999
- DeMarzo, Peter, Michael Fishman, Zhiguo He, and Neng Wang, Dynamic Agency and the Q Theory of Investment, *Journal of Finance*, 2009
- Whited, Toni, Debt, Liquidity Constraints, and Corporate Investment: Evidence from Panel Data, *Journal of Finance*, 1992

#### *Mergers and Corporate Restructuring*

- Gomes, João and Livdan, Dmitry, Optimal Diversification: Reconciling Theory and Evidence, *Journal of Finance*, 2004
- Jovanovic, Boyan and Rousseau, Peter, The Q-Theory of Mergers, *American Economic Review*, 2002.

#### *Industry Equilibrium without Investment*

- Ericson, Richard and Pakes, Ariel, Markov Perfect Industry Dynamics: A Framework for Empirical Work, *Review of Economic Studies*, 1995
- Gabaix, Xavier, Granular Origins of Business Cycles, *Econometrica*, 2011
- Hopenhayn, Hugo, Entry, Exit, and Firm Dynamics in Long Run Equilibrium, *Econometrica*, 1992
- Lucas, Robert, On the Size Distribution of Business Firms, *Bell Journal of Economics*, 1978
- Luttmer, Erzo, Selection, Growth and the Size Distribution of Firms, *Journal of Political Economy*, 2007

#### *Macro Investment*

- Bloom, Nicholas, The Impact of Uncertainty Shocks, *Econometrica*, 2007
- Hall, Robert, The Stock Market and Capital, *American Economic Review*, 2001
- Lucas, Robert, and Prescott, Edward, Investment Under Uncertainty, *Econometrica*, 1971
- Philippon, Thomas, The Bond Market's Q, *Quarterly Journal of Economics*, 2009

#### *Some Recent Papers*

- Carvalho, Vasco and Grassi, Basile, Large Firms and the Business Cycle, unpublished manuscript, 2016

- Clementi, Gian Luca and Dino Palazzo, Entry, Exit, Firm Dynamics, and Aggregate Fluctuations, *American Economic Journal: Macroeconomics*, 2015

### **Quantitative Models of Debt: Corporate, Household and Sovereign**

#### *Optimal Capital Structure of Firms*

- Fischer, Edwin, Heinkel, Robert, and Zechner, Josef, Dynamic Capital Structure Choice: Theory and Tests, *Journal of Finance*, 1989
- Glover, Brent, The Expected Cost of Default, *Journal of Financial Economics*, 2014
- Goldstein, Robert, Ju, Nengjiu, and Leland, Hayne, An EBIT Based Model of Dynamic Capital Structure, *Journal of Business*, 2001
- Leland, Hayne, and Klaus Toft, Optimal Capital Structure, Endogenous Bankruptcy, and the Term Structure of Credit Spreads, *Journal of Finance*, 1996
- Rampini, Adriano and S. Viswanathan, Collateral and Capital Structure, *Journal of Financial Economics*, 2013.
- Riddick, Leigh, and Whited, Toni, The Corporate Propensity to Save, *Journal of Finance*, 2009
- Shleifer, Andrei, and Robert Vishny, Liquidation Values and Debt Capacity: A Market Equilibrium Approach, *Journal of Finance*, 1992
- Strebulaev, Ilya, Do Tests of Capital Structure Theory Mean What They Say? *Journal of Finance*, 2007.

#### *Corporate Investment with Debt*

- Abel, Andrew, Investment and Leverage, Working Paper, Wharton School, 2016.
- Hennessy, Christopher, and Toni M. Whited, How Costly is External Financing? Evidence from a Structural Estimation, *Journal of Finance*, 2007.

#### *Credit Spreads*

- Almeida, Heitor, and Thomas Philippon, The Risk-Adjusted Cost of Financial Distress, *Journal of Finance*, 2007.
- Bhamra, Harjoat, Lars Alexander Kuehn and Ilya Strebulaev, The Levered Equity Risk Premium and Credit Spreads: A Unified Framework, *Review of Financial Studies*, 2010
- Chen, Hui, Macroeconomic Conditions and the Puzzles of Credit Spreads and Capital Structure, *Journal of Finance*, 2011
- Chen, Long, Pierre Collin-Dufresne, and Robert Goldstein, On the Relationship Between the Credit Spread Puzzle and the Equity Premium Puzzle, *Review of Financial Studies*, 2009
- Hackbarth, Dirk, Jianjun Miao, and Erwan Morellec, Capital Structure, Credit Risk, and Macroeconomic Conditions, *Journal of Financial Economics*, 2006
- He, Zhinguo and Milbradt, Konstantin, Endogenous Liquidity and Defaultable Bonds, *Econometrica*, 2013.

#### *Household and Sovereign Debt*

- Arellano, Cristina, Default Risk and Income Fluctuations in Emerging Economies. *American Economic Review*, 2008

- Arellano, Cristina, and Ramanarayanan, Ananth, Default and the Maturity Structure in Sovereign Bonds, *Journal of Political Economy* 2012
- Chatterjee, Satyajit, Corbae, Dean, Nakajima, Makoto and Rios-Rull, Jose-Victor, A Quantitative Theory of Unsecured Consumer Credit with Risk of Default, *Econometrica*, 2007
- Cole, Harold, and Kehoe, Timothy, Self-Fulfilling Debt Crises, *Review of Economic Studies*, 2000
- Corbae, Dean, Quintin, Erwan, Leverage and the Foreclosure Crisis, *Journal of Political Economy*, 2015
- Eaton, Jonathan, and Gersovitz, Mark, Debt with Potential Repudiation: Theoretical and Empirical Analysis, *Review of Economic Studies*, 1983
- Hatchondo, Juan Carlos, Martinez, Leonardo and Saprizza, Horacio, Quantitative Properties of Sovereign Default Models: Solution Methods Matter, *Review of Economic Dynamics* 2010
- Mendoza, Enrique, and Yue, Vivian, A General Equilibrium Model of Sovereign Default and Business Cycles, *Quarterly Journal of Economics*, 2012.

#### *Empirical Work*

- Andrade, Gregor, and Steven N. Kaplan, How Costly is Financial (Not Economic) Distress? Evidence from Highly Leverage Transactions that Became Distressed, *Journal of Finance*, 1998
- Covas, Francisco, and den Haan, Wouter, The Cyclical Behavior of Debt and Equity Finance, *American Economic Review*, 2009
- Graham, John, Debt and the Marginal Tax Rate, *Journal of Financial Economics*, 1996
- Kaplan, Steve and Stein, Jeremy, How Risky is the Debt in Highly Leveraged Transactions?, *Journal of Financial Economics*, 1990
- Korteweg, Arthur, The Net Benefits to Leverage, *Journal of Finance*, 2010
- Leary, Mark and Roberts, Michael, Do Firms Re-Balance Their Capital Structures? *Journal of Finance*, 2005
- Rajan, Raghuram, and Zingales, Luigi, What do we Know About Capital Structure? Some Evidence From International Data, *Journal of Finance*, 1995
- Welch, Ivo, Capital Structure and Stock Returns, *Journal of Political Economy*, 2004.

### **Macroeconomic Models with Financial Imperfections**

#### *Monetary Policy*

- De Fiore, Fiorella, Teles, Pedro and Tristani, Oreste, Monetary Policy and the Financing of Firms, *American Economic Journal: Macroeconomics*, 2011
- Gertler, Mark and Peter Karadi, A Model of Unconventional Monetary Policy, *Journal of Monetary Economics*, 2011
- Goodfriend, Marvin and McCallum, Bennett, Banking and Interest Rates in Monetary Policy: A Quantitative Exploration, *Journal of Monetary Economics*, 2008

#### *Macro Models with Financing Frictions*

- Bigio, Saki, Endogenous Liquidity and the Business Cycle, *American Economic Review*, 2015.
- Brunnermeier, Markus and Yuliy Sannikov, A Macroeconomic Model with a Financial Sector, *American Economic Review*, 2013
- Carlstrom, Charles and Fuerst, Timothy, Agency Costs, Net Worth and Business Fluctuations: A Computable General Equilibrium Approach, *American Economic Review*, 1997
- Di Tella, Sebastian Uncertainty Shocks and Balance Sheet Recessions, *American Economic Review*, 2015
- Jermann, Urban and Quadrini, Vincenzo, Macroeconomic Effects of Financial Shocks, *American Economic Review*, 2011
- Kiyotaki, Nobuhiro and John Moore, Credit Cycles, *Journal of Political Economy*, 1999

#### *Quantifying Financing Frictions*

- Chari, V. Kehoe, Patrick and McGrattan, Ellen, Accounting for Business Cycles, *Econometrica*, 2007
- Christiano, Lawrence, Motto, Roberto, and Rostagno, Massimo, Financial Factors in Business Cycles, working paper, Northwestern University, 2010
- Hall, Robert, Quantifying the Forces Leading to the Collapse of GDP after the Financial Crisis, *NBER Macroeconomics Annual*, 2014
- Phillipon, Thomas, Has the U.S. Finance Industry Become Less Efficient? *American Economic Review*, 2015

#### *Models with Heterogeneous Firms*

- Crouzet, Nicolas, Corporate Debt Structure and the Macroeconomy, working paper, Columbia University, 2015
- Khan, Aubhik and Julia K. Thomas, Credit Shocks and Aggregate Fluctuations in an Economy with Production Heterogeneity, *Journal of Political Economy*, 2014

## **Quantitative Models of Banking**

#### *Financial Stability*

- Allen, Franklin, Elena Carletti and Douglas Gale, Money, Financial Stability and Efficiency, *Journal of Economic Theory*, 2012

#### *Banking Regulation*

- Begenau, Julianne, Capital Requirements, Risk Choice and Liquidity Provision in a Business Cycle Model, working paper, Harvard Business School, 2015.
- Begenau, Julianne and Tim Landoigt, Financial Regulation in a Quantitative Model of the Modern Banking System, working paper, Harvard Business School, 2016.
- Boissay, Frederic, Collard, Fabrice and Smets, Frank, Booms and Banking Crises, *Journal of Political Economy*, 2016
- Nguyen, Thien, Bank Capital Requirements: A Quantitative Analysis, Working Paper, Wharton School, 2014