14.462 Advanced Macroeconomics / 14.129 Advanced Contract Theory
Spring 2013

Lectures: Tuesday 1-2:30 (E51-361)
Thursday 1-4 (E51-361)

Recitations: Friday 1-2:30 (E51-361)

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Contents: The course shows how contract and general equilibrium theory can help our understanding of the functioning of financial markets, the occurrence of crises, and to evaluate the rationale for financial regulation. In particular, it emphasizes that identifying the *nature* of financial frictions is crucial to determining potential market failures – we will see many instances in which markets achieve on their own constrained-optimal outcomes. We will then move to micro-foundations of limited trade, such as separation in time and space, to address the role of circulating private debt, fiat money, notions of liquidity, and optimal monetary policy.

Requirements: The grade will be based on class participation, problem sets, and a research proposal. The problem sets will cover theoretical problems related to papers discussed in the class. The proposal should consist of a research strategy to address questions that came up during the class. Ideally such proposal could lead to a third year paper. There is an additional class on Tuesday April 30 evening that is reserved for student presentations followed by a discussion of the proposals.

Readings:Most readings can be reached through the links on the stellar website. Please inform the TA of any broken links. You may need to be on campus to access links to copy-written materials (e.g. NBER working papers, JSTOR). Readings that are not available online will be available via library reserve.

Schedule of lectures

Date	Lecture	Day	Topic
2-Apr	1	Tuesday	**Introduction**
4-Apr	2	Thursday	**Foundations of General Equilibrium. Walrasian vs explicit markets with price formation, all in basic environments without imperfections.**
4-Apr	3	Thursday	**Decentralization, explicit competition, and markets with limited information as an obstacle to trade.**
5-Apr	*Rec 1*	*Friday*	*Guerrieri, Shimer and Wright (2010)*
9-Apr	4	Tuesday	**Welfare theorems and pricing with limited commitment**
11-Apr	5	Thursday	**Bank runs and retrading**
11-Apr	6	Thursday	**Pecuniary externalities and interconnectedness**
12-Apr	*Rec 2*	*Friday*	*Golosov, Farhi and Tsyvinski (2009)*
16-Apr	Patriot's Day	Tuesday	
18-Apr	7	Thursday	**General equilibrium with incomplete markets and risk of default**
18-Apr	8	Thursday	**Implementation and regulation, ex-ante vs. ex-post competition**
19-Apr	*Rec 3*	*Friday*	*Allen and Gale (1991)*
23-Apr	9	Tuesday	**Bubbles with limited markets and limited participation**
25-Apr	10	Thursday	**Money, monetary policy, real bills vs quantity theory**
25-Apr	11	Thursday	**Private money, limited participation, and the value of named traders**
26-Apr	*Rec 4*	*Friday*	*Caballero and Krishnamurthy (2006)*
30-Apr	12	Tuesday	**Money and liquidity, inventory, payment systems**
30-Apr	13	Tuesday Evening	Research proposal presentation by students
2-May	*Rec 5*	*Thursday*	*Lester, Postlewaite and Wright (2006)*

(1) April 2 (Tuesday) Introduction

Current financial market regulation topics. How markets and institutions are put together, how they actually function, viewed through the lens of theories with obstacles to trade.

Past

- Townsend, R.M., 1990. *Financial Structure and Economic Organization*, Blackwell Publishers 2003.
- Bagehot, W., 1873. *Lombard Street: A Description of the Money Market*
- Calomiris, Charles. *Banking Crisis and the Rules of the Game*. NBER, October, 2009.

Present: in the US

- Duffie, D., 2012. Market Making Under the Proposed Volcker Rule. *SSRN eLibrary*.
- Adrian, Tobias, and Hyun Shin. "The changing nature of financial intermediation and the financial crisis of 2007-09." *FRB of New York Staff Report* 439 (2010).

Present: in developing countries

- Kinnan, C. & Townsend, R.M., 2012. Kinship and Financial Networks, Formal Financial Access, and Risk Reduction. *American Economic Review Papers and Proceedings*, 102(3), pp.289–293.
- Sripakdeevong, P. and Townsend, R. 2012. Bridge Loans, the Village Money Market, and Risk Sharing, mimeo MIT

Future

- Berger, S.C. & Gleisner, F., 2009. Emergence of Financial Intermediaries in Electronic Markets: The Case of Online P2p Lending. *BuR Business Research Journal*, 2(1)

Prudential regulation debate

- De Nicolò, G., Favara, G. & Ratnovski, L., 2012. Externalities and Macroprudential Policy. *IMF Staff Discussion Note*, SDN/12/05.
- Hansen, L.P., 2012. Challenges in Identifying and Measuring Systemic Risk. *mimeo University of Chicago*

(2) April 4 (Thursday part 1) Foundations of General Equilibrium. Walrasian vs explicit markets with price formation, all in basic environments without imperfections.

- Shapley, L. & Shubik, M., 1977. Trade Using One Commodity as a Means of Payment. *Journal of Political Economy*, 85(5), pp.937–968
- Ostroy, J.M. & Starr, R.M., 1974. Money and the Decentralization of Exchange. *Econometrica*, 42(6), pp.1093–1113.
- Dubey, P., 1982. Price-Quantity Strategic Market Games. *Econometrica*, 50(1), pp.111–126.
- Wilson, R., 1978. Competitive Exchange. *Econometrica*, 46(3), pp.577–585.
- Klemperer, P.D. & Meyer, M.A., 1989. Supply Function Equilibria in Oligopoly under Uncertainty. *Econometrica*, 57(6), pp.1243–1277.

- Townsend, R.M., 1983. Theories of intermediated structures. *Carnegie-Rochester Conference Series on Public Policy*, 18, pp.221–272.

See also

- MWG Section 18.C

(3) April 4 (Thursday part 2) Decentralization, explicit competition, and markets with limited information as an obstacle to trade.

- **Prescott, E.C. & Townsend, R.M., 1984. General Competitive Analysis in an Economy with Private Information. *International Economic Review*, 25(1), pp.1–20.**
- **Prescott, E.C. & Townsend, R.M., 1984. Pareto Optima and Competitive Equilibria with Adverse Selection and Moral Hazard. *Econometrica*, 52(1), pp.21–45.**

Related Literature

- Netzer, N. & Scheuer, F., 2012. A Game Theoretic Foundation of Competitive Equilibria with Adverse Selection. *NBER Working Paper No. 18471.*
- Boyd, J.H. & Prescott, E.C., 1986. Financial intermediary-coalitions. *Journal of Economic Theory*, 38(2), pp.211–232.
- Townsend, R.M. & Zhorin, V., (2013) Spatial Competition among Financial Service Providers and Optimal Contract Design., Working paper.
- Boyd, J.H. & De Nicoló, G., 2005. The Theory of Bank Risk Taking and Competition Revisited. *The Journal of Finance*, 60(3), pp.1329–1343.
- Schaeck, Klaus, and Martin Cihák. "How does competition affect efficiency and soundness in banking? New empirical evidence." (2008).
- Bisin, A. & Gottardi, P., 2006. Efficient Competitive Equilibria with Adverse Selection. *Journal of Political Economy*, 114(3), pp.485–516.
- Stiglitz, J.E. & Weiss, A., 1981. Credit Rationing in Markets with Imperfect Information. *The American Economic Review*, 71(3), pp.393–410.

Recitation 1

- Guerrieri, V. , Shimer, R. & Wright, R. 2010. Adverse Selection in Competitive Search Equilibrium, *Econometrica*, 78 (6), 1823-1862

(4) April 9 (Tuesday) Welfare theorems and pricing with limited commitment

- **Alvarez, F. & Jermann, U.J., 2000. Efficiency, Equilibrium, and Asset Pricing with Risk of Default. *Econometrica*, 68(4), pp.775–797.**

Related Literature

- Thomas, J. & Worrall, T., 1988. Self-Enforcing Wage Contracts. *The Review of Economic Studies*, 55(4), pp.541–553.
- Kehoe, T.J. & Levine, D.K., 1993. Debt-Constrained Asset Markets. *The Review of Economic Studies*, 60(4), pp.865–888.
- Kocherlakota, N.R., 1996. Implications of Efficient Risk Sharing without Commitment. *The Review of Economic Studies*, 63(4), pp.595 –609.
- Kehoe, T.J. & Levine, D.K., 2001. Liquidity Constrained Markets Versus Debt Constrained Markets. *Econometrica*, 69(3), pp.575–598.
- Ligon, E., Thomas, J.P. & Worrall, T., 2002. Informal Insurance Arrangements with Limited Commitment: Theory and Evidence from Village Economies. *The Review of Economic Studies*, 69(1), pp.209–244.
- Hellwig, C. & Lorenzoni, G., 2009. Bubbles and Self-Enforcing Debt. *Econometrica*, 77(4), pp.1137–1164.

(5) April 11 (Thursday Part 1) Bank runs and retrading

- **Jacklin, C., 1987. Demand Deposits, Trading Restrictions, and Risk Sharing in E. C. Prescott & N. Wallace, *Contractual Arrangements for Intertemporal Trade*. Univ Of Minnesota Press.**

Related Literature

- Diamond, D.W. & Dybvig, P.H., 1983. Bank Runs, Deposit Insurance, and Liquidity. *The Journal of Political Economy*, 91(3), pp.401–419.
- Green, E. & Lin, P., 2003. Implementing the Efficient Allocation in a Model of Financial Intermediation. Journal of Economic Theory, 109, pp.1-23
- Peck, J. & Shell, K. , 2003. Equilibrium Bank Runs, *The Journal of Political Economy*, 111(1), 103-123.
- Gorton, G. & Metrick, A., 2012. Securitized banking and the run on repo. *Journal of Financial Economics*, 104(3), pp.425–451.
- Krishnamurthy, A., Nagel, S. & Orlov, D., 2012. *Sizing Up Repo*, National Bureau of Economic Research.

(5) April 11 (Thursday part 2) Pecuniary externalities and interconnectedness

- Prescott, Edward Simpson, and Robert M. Townsend. 2006. "Firms as Clubs in Walrasian Markets with Private Information." *Journal of Political Economy* 114, no. 4: 644-671
- Kilenthong, Weerachart T. and Robert M. Townsend (2010) "Information-Constrained Optima with Retrading: An Externality and Its Market-Based Solution" Journal of Economic Theory
- Kilenthong, T. and R. M. Townsend (2009): "Market Based, Segregated Exchanges in Securities with Default Risk", Working Paper

- Lorenzoni, G., 2008. Inefficient Credit Booms. *The Review of Economic Studies*, 75(3), pp.809 –833.
- Geanakoplos, J. & Polemarchakis, H.M., 1986. Existence, Regularity and Constrained Suboptimality of Competitive Allocations When the Asset Market Is Incomplete. *Uncertainty, information and communication: essays in honor of KJ Arrow*, 3, pp.65–96.
- Greenwald, B.C. & Stiglitz, J.E., 1986. Externalities in Economies with Imperfect Information and Incomplete Markets. *The Quarterly Journal of Economics*, 101(2), pp.229 –264.

Recitation 2

- Farhi, E., Golosov, M. & Tsyvinski, A., 2009. A Theory of Liquidity and Regulation of Financial Intermediation. *The Review of Economic Studies*, 76(3), pp.973 –992.

(6) April 18 (Thursday part 1) General equilibrium with incomplete markets and risk of default

- **F. Allen, D Gale, (2004), "Financial intermediaries and markets", Econometrica, 72(4), 1023-1061.**

Related Literature

- Dubey, P., Geanakoplos, J. & Shubik, M., 2005. Default and Punishment in General Equilibrium. *Econometrica*, 73(1), pp.1–37.
- Zame, W.R., 1993. Efficiency and the Role of Default When Security Markets are Incomplete. *The American Economic Review*, 83(5), pp.1142–1164.
- Handout for Case-Shiller-Index
- Handouts for Cat Bonds and Reinsurance

(7) April 18 (Thursday part 2) Implementation and regulation, ex-ante vs. ex-post competition

- **Pesendorfer, W., 1995. Financial Innovation in a General Equilibrium Model. *Journal of Economic Theory*, 65(1), pp.79–116.**

Related Literature

- Makowski, L., 1980. Perfect Competition, the Profit Criterion, and the Organization of Economic Activity. *Journal of Economic Theory*, 22(2), pp.222–242.
- Acemoglu, D. & Zilibotti, F., 1997. Was Prometheus Unbound by Chance? Risk, Diversification, and Growth. *Journal of Political Economy*, 105, pp.709–751.

- Townsend, R. & Xandri, J.P., 2012. Regulation and the Optimal Design of Financial Markets

Recitation 3

- Allen, F. & Gale, D., 1991. Arbitrage, Short Sales, and Financial Innovation. *Econometrica*, 59(4), pp.1041–1068.

(8) April 23 (Tuesday) Bubbles with limited markets and limited participation

- **Santos, M.S. & Woodford, M., 1997. Rational Asset Pricing Bubbles. *Econometrica*, 65(1), pp.19–57.**

Related Literature:

- Samuelson, P.A., 1958. An Exact Consumption-Loan Model of Interest with or without the Social Contrivance of Money. *Journal of Political Economy*, 66(6), pp.467–482.
- Garber, P.M., 1989. Tulipmania. *Journal of Political Economy*, 97(3), pp.535–560.
- Kocherlakota, N., 2009. Bursting Bubbles: Consequences and Cures. mimeo, Federal Reserve Bank of Minneapolis.
- Caballero, R.J. & Krishnamurthy, A., 2006. Bubbles and capital flow volatility: Causes and risk management. *Journal of Monetary Economics*, 53(1), pp.35–53.

(9) April 25 (Thursday Part 1) Money, monetary policy, real bills vs quantity theory

- **Townsend, Robert M., (1980) "Models of Money with Spatially Separated Agents", In: Models of Monetary Economies, ed. by J. H. Kareken and Neil Wallace, Minneapolis: Federal Reserve Bank of Minneapolis, pp. 265--304.**
- **Manuelli, Rodolfo and Thomas J. Sargent (2009) "Alternative Monetary Policies in a Turnpike Economy: Vintage Article," Mimeo**

Related Literature:

- Townsend, Robert (1989) "Currency and Credit in a Private Information Economy." Journal of Political Economy, 97, no. 6 (December 1989): 1323-1345
- Sargent, Wallace (1982), "The real-bills doctrine versus the quantity theory: A reconsideration", The Journal of Political Economy
- Bewley, T., 1980. The Optimum Quantity of Money. In J. H. Kareken & N. Wallace, eds. *Models of Monetary Economies*. Minneapolis: Federal Reserve Bank of Minneapolis, pp. 169–210.
- Bewley, T., 1983. A Difficulty with the Optimum Quantity of Money. *Econometrica*, 51(5), pp.1485–1504.
- Woodford, M., 1990. Public Debt as Private Liquidity. *The American Economic Review*, 80(2), pp.382–388.

- TJ Kehoe, DK Levine, M Woodford, “The Optimum Quantity of Money Revisited,” in D. Gale and O. Hart, eds., “Economic Analysis of Markets and Games”, Cambridge: M.I.T. Press, 1992.

(11) April 25 (Thursday Part 2): Private money, limited participation, and the value of named traders

- **R Townsend, N Wallace, "Circulating Private Debt: An Example with Coordination Problem," in Contractual Arrangements for Intertemporal Trade, 1987.**
- **Chandrasekhar, Townsend, Xandri**

Related Literature:

- R. Caballero, A Simsek, “Fire sales in a model of complexity”

Recitation 4

- Caballero, R.J. & Krishnamurthy, A., 2006. Bubbles and capital flow volatility: Causes and risk management. *Journal of Monetary Economics*, 53(1), pp.35–53.

(12) April 30 (Tuesday) Money and liquidity, inventory, payment systems

Part 1: Demand for cash

- **Alvarez, F. & Lippi, F., 2009. Financial Innovation and the Transactions Demand for Cash. *Econometrica*, 77(2), pp.363–402.**

Related literature

- Miller, M.H. & Orr, D., 1966. A Model of the Demand for Money by Firms. *The Quarterly Journal of Economics*, 80(3), pp.413–435.
- Alvarez, F., Pawasutipaisit, A. & Townsend, R.M., 2011. Household as Firms: Cash Management in Thai Villages. *mimeo University of Chicago*
- Alvarez, F. & Lippi, F., 2012. The Demand of Liquid Assets with Uncertain Lumpy Expenditures. *National Bureau of Economic Research Working Paper*, No. 18152.

Part 2: Payments and clearing

- **W. Jack, T. Suri, R Townsend (2010) “Monetary Theory and Electronic Money: Reflections on the Kenyan Experience,” Economic Quarterly – Federal Reserve Bank of Richmond, 96, no. 1: 83-122.**

Related literature

- Warren Weber, Clearing Arrangements in the United States Before the Fed

- Material from Consortium of Financial Systems and Poverty, "The Optimal Design of Payments Systems"
- Friedman, M. & Schwartz, A.J., 1971. *A monetary history of the United States, 1867-1960*, Princeton University Press.

Part 3: Search

- **PO Weill (2011), "Liquidity Provision In Capacity-Constrained Markets", Macroeconomic Dynamics**

Related literature

- Duffie, D., Garleanu, N. & Pedersen, L.H., 2005. Over-the-Counter Markets. *Econometrica*, 73(6), pp.1815–1847
- Lagos, R., Rocheteau, G. & Weill, P.-O., 2011. Crises and liquidity in over-the-counter markets. *Journal of Economic Theory*, 146(6), pp.2169–2205.
- Diamond, P., 1984. Money in Search Equilibrium. *Econometrica*, 52(1), pp.1–20.
- Kiyotaki, N. & Wright, R., 1989. On Money as a Medium of Exchange. *Journal of Political Economy*, 97(4), pp.927–954.
- Kiyotaki, N. & Wright, R., 1993. A Search-Theoretic Approach to Monetary Economics. *The American Economic Review*, 83(1), pp.63–77.

Recitation 5

- Lester, B. , Postlewaite, A. & Wright, R. , (2011). Information and Liquidity, Journal of Money, Credit and Banking, 43(2) pp. 355–37