Northwestern University
Kellogg School of Management

Professors Krishnamurthy and Rampini — Seminar in Finance
Finance 520 — Spring 2005

Seminar in Finance: Aggregate Implications of Financial Contracting
Syllabus

This course studies the equilibrium implications of endogenous financial contracts. Static and dynamic models of economies with contracting frictions (e.g., imperfect information and limited enforceability) and optimally determined financial contracts are covered and the implications for both quantities and prices are considered. The course is thus at the intersection of corporate finance/contract theory and asset pricing/macroeconomics. Specific topics covered include the dynamics of agency costs, financial intermediation, liquidity, capital reallocation, collateral, default and non-exclusive contracts.

We will use Ljungqvist, L., and T. Sargent (2004), *Recursive Macroeconomic Theory*, Second Edition, MIT Press, Cambridge, as the main reference for macroeconomics. You may also want to refer to Stokey, N., and R. Lucas with E. Prescott (1989), *Recursive Methods in Economic Dynamics*, Harvard University Press, Cambridge, and Judd, K. (1998), *Numerical Methods in Economics*, MIT Press, Cambridge.

Prerequisites. This is a second year graduate course in financial economics. There are no specific prerequisites for this class, but a background in either Corporate Finance and Asset Pricing or Contract Theory (or Information Economics) and Macroeconomics is recommended. To prepare for this class you may want to review the equilibrium implications of complete market models in Ljungqvist and Sargent (2004), chapter 8 and 13.

Requirements. The class meets on Wednesdays from 3:15pm to 5pm and Thursdays from 1:30pm to 3:15pm in Andersen 430. Grades will be based on 3 problem sets (10% each), two referee reports (and in class discussion) (10% each) and a final exam (50%). The first referee report on the paper by Gomes, Yaron, and Zhang (2003) is due at the beginning of class on April 7th, 2005. You can choose to write your second referee report about any of the assigned readings marked [$\mathcal{R}$]. Sign up by the beginning of class in week 2. Sign up is on a first come basis and at most two students can sign up for any one paper. You should be prepared to give a ten minute discussion of the paper you refereed when that paper is discussed in class. This reading list includes both assigned readings (marked [$*$]) as well as additional references.

Course Web Page. A web page with a preliminary class schedule and additional course information is available at `http://www.kellogg.nwu.edu/faculty/rampini/htm/fin520sp05.html`.

1. Dynamics of Agency Costs and Aggregate Activity

Scheinkman, J., and L. Weiss (1986). "Borrowing Constraints and Aggregate Economic Activity." *Econometrica* 54, 23-45. [$*$]

Bernanke, B., and M. Gertler (1989). "Agency Costs, Net Worth, and Business Fluctuations." *American Economic Review* 79(1), 14-31. [$*$]

Bernanke, B., M. Gertler, and S. Gilchrist (1999). "Financial Accelerator in a Quantitative Business Cycle Framework." In: J. Taylor and M. Woodford (eds.), *Handbook of Macroeconomics*, Elsevier Science, Amsterdam.

Rampini, A. (2004). "Entrepreneurial Activity, Risk, and the Business Cycle." *Journal of Monetary Economics* 51, 555-573.

Fuerst, T. (1992). "Liquidity, Loanable Funds, and Real Activity," *Journal of Monetary Economics* 29, 3-24.

Kocherlakota, N. (1998). "The Effects of Moral Hazard on Asset Prices When Financial Markets Are Complete." *Journal of Monetary Economics* 41, 39-56.

2. Financial Frictions and Asset Prices

Gomes, J., A. Yaron, and L. Zhang (2003). "Asset Pricing Implications of Firms' Financing Constraints." [$*$, *required referee report*]

Kiyotaki, N., and J. Moore (1997). "Credit Cycles." *Journal of Political Economy* 105, 211-48. [$*, \mathcal{R}$]

Krishnamurthy, A. (2003). "Collateral Constraints and the Amplification Mechanism." *Journal of Economic Theory* 111, 277-292.

Shleifer, A., and R. Vishny (1997). "Limits of Arbitrage." *Journal of Finance* 52, 35-55. [$*$]

Dow, J., G. Gorton, and A. Krishnamurthy (2005). "Equilibrium Asset Prices under Imperfect Corporate Control." *American Economic Review*, forthcoming. [$*$]

Grossman, S., and B. Zhou (1996). "Equilibrium Analysis of Portfolio Insurance." *Journal of Finance* 51, 1379-1403. [$*, \mathcal{R}$]

Shleifer, A., and R. Vishny (1992). "Liquidation Values and Debt Capacity: A Market Equilibrium Approach." *Journal of Finance* 47, 1343-66. [$*$]

Allen, F., and D. Gale (1994). "Limited Market Participation and Stock Market Volatility." *American Economic Review* 84, 933-55.

Duffie, D., N. Garleanu and L. Pedersen (2002). "Securities Lending, Shorting, and Pricing." *Journal of Financial Economics* 66, 307-339.

Kyle, A., and W. Xiong (2001). "Contagion as a Wealth Effect." *Journal of Finance* 56, 1401-1440.

Geanakoplos, J., and W. Zame (2002). "Collateral and the Enforcement of Intertemporal Contracts." Working Paper, Yale University.

Aiyagari, R., and M. Gertler (1991). "Asset Returns with Transactions Costs and Uninsured Individual Risk." *Journal of Monetary Economics* 27, 311-31.

Eisfeldt, A. (2004). "Endogenous Liquidity in Asset Markets." *Journal of Finance* 59, 1-30.

Ljungqvist and Sargent (2004), chapter 16 and 17. [$*$]

Hertzberg, A. (2003). "Managerial Incentives, Misreporting, and the Timing of Social Learning: A Theory of Slow Booms and Rapid Recessions." Working Paper, MIT. [$*$]

3. Reallocation and Q

Caballero, R., and M. Hammour (1998). "The Macroeconomics of Specificity." *Journal of Political Economy* 106, 724-67. [$*$]

Eisfeldt, A., and A. Rampini (2004a). "Letting Go: Managerial Incentives and the Reallocation of Capital." Working Paper, Northwestern University. [$*$]

Eisfeldt, A., and A. Rampini (2004b). "New or Used? Investment with Credit Constraints." Working Paper, Northwestern University. [$*$]

Eisfeldt, A., and A. Rampini (2005). "Capital Reallocation and Liquidity." Working Paper, Northwestern University.

Caballero, R., and M. Hammour (2000). "Institutions, Restructuring, and Macroeconomic Performance." NBER working paper 7720.

Abel, A., and J. Eberly (1994). "A Unified Model of Investment under Uncertainty." *American Economic Review* 84, 1369-84.

Abel, A., and J. Eberly (1996). "Optimal Investment with Costly Reversibility." *Review of Economic Studies* 63, 581-93.

Jovanovic, B., and P. Rousseau (2002). "The Q-Theory of Mergers." *American Economic Review Papers and Proceedings* 91(2), 336-41.

4. Financial Intermediation and Liquidity

Holmström, B., and J. Tirole (1997). "Financial Intermediation, Loanable Funds, and the Real Sector." *Quarterly Journal of Economics* 112, 663-91. [$*, \mathcal{R}$]

Diamond, D., and P. Dybvig (1983). "Bank Runs, Deposit Insurance, and Liquidity." *Journal of Political Economy* 91, 401-19.

Jacklin, C. (1987). "Demand Deposits, Trading Restrictions, and Risk Sharing." In: E. Prescott and N. Wallace (eds.), *Contractual Arrangements for Intertemporal Trade*, University of Minnesota Press, Minneapolis. [$*$]

Wallace, N. (1988). "Another Attempt to Explain an Illiquid Banking System: The Diamond and Dybvig Model with Sequential Service Taken Seriously" *Federal Reserve Bank of Minneapolis Quarterly Review* 12(4), 3-16.

Morris, S., and H. Shin (1998). "Unique Equilibrium in a Model of Self-fulfilling Attacks." *American Economic Review* 88, 587-97.

Hellwig, M. (1994). "Liquidity Provision, Banking, and the Allocation of Interest Rate Risk" *European Economic Review* 38, 1363-89.

Holmström, B., and J. Tirole (1998). "Private and Public Supply of Liquidity." *Journal of Political Economy* 106, 1-40. [$*, \mathcal{R}$]

Caballero, R., and A. Krishnamurthy (2005). "A Model of Flight to Quality and Central Bank Interventions." Working Paper, Northwestern University. [$*$]

Kiyotaki, N., and J. Moore (1997). "Credit Chains." Working Paper, LSE.

Kiyotaki, N., and J. Moore (2000). "Inside Money and Liquidity." Working Paper, LSE.

Allen, F., and D. Gale (1998). "Optimal Financial Crises." *Journal of Finance* 53, 1245-84.

Allen, F., and D. Gale (2000). "Financial Contagion." *Journal of Political Economy* 108, 1-33.

5. Recursive Contracts

Townsend, R. (1982). "Optimal Multiperiod Contracts and the Gain from Enduring Relationships under Private Information." *Journal of Political Economy* 90, 1166-86.

Green, E. (1987). "Lending and the Smoothing of Uninsurable Income." In: E. Prescott and N. Wallace (eds.), *Contractual Arrangements for Intertemporal Trade*, University of Minnesota Press, Minneapolis.

Lucas, R. (1992). "On Efficiency and Distribution." *Economic Journal* 102, 233-47.

Ljungqvist and Sargent (2004), chapter 19 and 20. [$*$]

Atkeson, A., and R. Lucas (1992). "On Efficient Distribution with Private Information." *Review of Economic Studies* 59, 427-53.

Atkeson, A., and R. Lucas (1995). "Efficiency and Equality in a Simple Model of Efficient Unemployment Insurance." *Journal of Economic Theory* 66, 64-88.

Kehoe, T., and D. Levine (1993). "Debt-constrained Asset Markets." *Review of Economic Studies* 60, 865-88.

Kehoe, T., and D. Levine (2001). "Liquidity Constrained Markets vs. Debt Constrained Markets." *Econometrica* 69, 575-98.

Kocherlakota, N. (1996). "Implications of Efficient Risk Sharing without Commitment." *Review of Economic Studies* 63, 595-609. [$*, \mathcal{R}$]

Albuquerque, R., and H. Hopenhayn (2004). "Optimal Dynamic Lending Contracts with Imperfect Enforceability." *Review of Economic Studies* 71, 285-315.

Alvarez, F., and U. Jermann (2000). “Efficiency, Equilibrium, and Asset Pricing with Risk of Default.” *Econometrica* 68, 775-97.

Alvarez, F., and U. Jermann (2001). “Quantitative Asset Pricing Implications of Endogenous Solvency Constraints.” *Review of Financial Studies* 14, 1117-51. [$*, \mathcal{R}$]

Kocherlakota, N. (1996). “Consumption, Commitment, and Cycles.” *Journal of Monetary Economics* 37, 461-74.

Lustig, H. (2001). “The Market Price of Aggregate Risk and the Wealth Distribution.” Working Paper, Stanford University.

6. Markets and Contracts

Allen, F. (1985). “Repeated Principal-agent Relationships with Lending and Borrowing.” *Economic Letters* 17, 27-31. [$*$]

Cole, H., and N. Kocherlakota (2001). “Efficient Allocation with Hidden Income and Hidden Storage.” *Review of Economic Studies* 68, 523-42.

Hammond, P. (1987). “Markets as Constraints: Multilateral Incentive Compatibility in Continuum Economies.” *Review of Economic Studies* 54, 399-412.

Heaton, J., and D. Lucas (1996). “Evaluating the Effects of Incomplete Markets on Risk Sharing and Asset Pricing.” *Journal of Political Economy* 104, 443-87.

Phelan, C. (1995). “Repeated Moral Hazard and One-Sided Commitment.” *Journal of Economic Theory* 66, 488-506.

DeMarzo, P. and M. Fishman (2001). “Optimal Long-Term Financial Contracting with Privately Observed Cash Flows.” Working Paper, Northwestern University.

Bisin, A., and D. Guaitoli (2004). “Moral Hazard and Non-exclusive Contracts.” *RAND Journal of Economics* 35, 306-328.

Bisin, A., and A. Rampini (2004). “Exclusive Contracts and the Institution of Bankruptcy.” *Economic Theory*, forthcoming.

Bisin, A., and A. Rampini (2005). “Markets as Beneficial Constraints on the Government.” Working Paper, Northwestern University. [$*$]