Financial Crises: Theories and Models

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This short series of lectures will serve as an introduction to the theory of financial crises, with an emphasis on the analysis of coordination failures. In particular, these lectures will outline the theory and applications of so-called 'global games', first introduced by Carlsson and van Damme. These games incorporate the feature that economic agents' actions are mutually complementary, but that they face some uncertainty about the beliefs of others. Many situations in economics and finance conform to this setting, and is particularly appropriate for the analysis of financial crises. One motivation for distinguishing 'theories' from 'models' in the title of these lectures is to point to the diverse world views concerning the origin and propagation of financial crises (different *theories*), as well as the many alternative formalizations even within a broadly similar class of explanations (the various *models*).

The perspective gained from some background in the history of international finance and that of financial crises is very valuable in theoretical work. Barry Eichengreen's book *Globalizing Capital* (Princeton University Press, 1996) is a useful reference for a brief history of the international financial system over the last two hundred years. Charles Kindleberger's book *Manias, Panics and Crashes* (Basic Books, 1989) is something of a classic in the history of financial crises (and is still in print).

Topics and Reading.

The key readings are marked with (*).

1. **First and Second Generation Models**. Price fixing with exhaustible resources, balance of payments crises, government loss functions, multiple equilibria.

    - (*) *Foundations of International Macroeconomics*, by Maurice Obstfeld and Kenneth Rogoff, MIT Press, 1997, pp.559 - 566, pp.648-653.
    - (*) Salant, S. and D. Henderson (1978) "Market Anticipation of Government Policies and the Price of Gold" *Journal of Political Economy*, 86, 627-648.
    - (*) Krugman, P. (1979) "A Model of Balance of Payments Crises" *Journal of Money, Credit and Banking*, 11, 311-325.
    - Flood, R. and P. Garber (1984) "Collapsing Exchange rate Regimes: Some Linear Examples" *Journal of International Economics*, 17, 1-13.
    - Obstfeld (1996) "Models of currency Crises with Self-fulfilling Features" *European Economic Review*, 40, 1037-1047
    - Flood, R. and N. Marion (1998) "Perspectives on the Recent currency Crisis Literature" NBER working paper, available on http:// papers.nber.org /papers/W6380

2. **Introduction to Global Games.** Games with strategic complementarities, failure of common knowledge, uniqueness of equilibrium.

    - (*) Carlsson, H. and E. van Damme (1993) "Global Games and Equilibrium Selection." *Econometrica*, *61*, 989–1018.
    - (*) "A Simple Two Player Analysis" notes prepared for the NAKE workshop (in the course reader).
    - Cooper, R. and A. John (1988) "Coordinating Coordination Failures" *Quarterly Journal of Economics*, 103, 441-463.
    - Milgrom, P. and J. Roberts (1990) "Rationalizability, Learning and Equilibrium in Games with Strategic Complementarities", *Econometrica*, 58, 1255-1278.

- Rubinstein, A. (1989) "The Electronic Mail Game: Strategic Behavior under almost Common Knowledge." *American Economic Review, 79,* 385–391.
- Morris, S. and H. S. Shin (1998), "Unique Equilibrium in a Model of Self-Fulfilling Currency Attacks" *American Economic Review,* 88, 587 - 597.
- Fischer, S. (1999) "On the Need for an International Lender of Last Resort" IMF document, available on http://www.imf.org /external/np/ speeches/1999/ 010399.htm
- Radelet, S. and J. Sachs (1998) "The Onset of the East Asian Financial Crisis" mimeo, http://www.hiid. harvard.edu/research /newnote.html #asia
- Financial Stability Review, Bank of England, November 1999, on http:// www.bankofengland.co.uk /fsr/index.htm

3. **Deposit Contract and Bank Runs**. Rationale for deposit contract, bank runs.

   - (*) "Model of Bank Runs" notes prepared for the NAKE workshop (in the course reader).
   - Diamond, D. and P. Dybvig (1983) "Bank Runs, Deposit Insurance and Liquidity" *Journal of Political Economy*, 91, 401-419.
   - Allen, F. and D. Gale (1998) "Optimal Financial Crises" *Journal of Finance*, 53, 1245-1284
   - Goldstein, I. and A. Pauzner (1999) "Endogenous Probability of Bank Runs in a Rational Expectations Model" mimeo, TelAviv University (in the course reader).
   - Morris, S. and H. S. Shin (2000) "Rethinking Multiple Equilibria in Macroeconomic Modelling" paper prepared for the *NBER Macroeconomics Annual*, 2000 (in the course reader).

4. **Creditor Coordination**. Common pool problem for creditors, pricing of defaultable debt securities.

   - (*) S. Morris and H. S. Shin (1999) "Coordination Risk and the Price of Debt" (in the course reader).
   - Merton, R. C. (1974) "On the Pricing of Corporate Debt: the Risk Structure of Interest Rates" *Journal of Finance*, 29, 449-470, reprinted in *Continuous Time Finance*, Blackwell, Oxford 1990.
   - Anderson, R. and S. Sundaresan (1996) "Design and Valuation of Debt Contracts" *Review of Financial Studies*, 9, 37-68.
   - Jones, E., S. Mason and E. Rosenfeld (1984) "Contingent Claims Analysis of Corporate Capital Structures: an Empirical Analysis" *Journal of Finance*, 39, 611-625.

5. **Contagion**. Interbank deposits and runs on the banking system.

   - (*) Allen, F. and D. Gale (2000) "Financial Contagion" *Journal of Political Economy*, 108, 1- 33.
   - Goldstein, I. and A. Pauzner (2000) "Contagion of Self-Fulfilling Financial Crises" mimeo, Tel Aviv University (in the course reader).
   - Dasgupta, A. (2000) "Financial Contagion through Capital Connections: A Model of the Origin and Spread of Bank Panics" mimeo, Yale University (in the course reader).
   - Blum, J. and M. Hellwig (1995) "The Macroeconomic Implications of Capital Adequacy Requirements for Banks" *European Economic Review*, 39, 739 - 49.
   - Hellwig, M. (1994) "Liquidity Provision, Banking and the Allocation of Interest Rate Risk" *European Economic Review*, 38, 1363 - 1398.