

## TOPICS ON LIQUIDITY IN MACRO FINANCE ECON 4533

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**Salón:** ML 607

**Fechas:** 1 al 11 de julio (incluye el sábado 5 de julio).

**Horario:** 07:00 a 10:00 am

### CONTENT

This class will cover recent theoretical research on asset liquidity in the financial economics and in the macroeconomic literature. The definitions of liquidity are very broad and imprecise within economics. In this class, we will view liquidity as a property of an asset within an economic environment: an asset is liquid if the existence of gains from trading the asset is a sufficient conditions for trade to occur. If an asset is not traded at all or traded with some probability when there are gains from trading it, then the asset is illiquid or partially liquid.

The tool we will study in this class will offer insight into the following questions: (i) what properties of an economic environment lead to liquidity differences across assets and over time?, (ii) how does asset illiquidity prevent efficient allocations?, (iii) what are the macroeconomic effects of changes in liquidity?, and (iv) what are the effects of policy interventions in illiquid asset markets?

**Course Outline:** The first part, classes 1-5, will cover search-and-matching models of over-the-counter markets. In search-and-matching models, the liquidity of assets is determined by a feature of the physical environment: the meeting technology is assumed to be imperfect. Namely, some gains from trade do not materialized because sellers and buyers cannot find each others instantly. This represents actual physical limitations of the transaction technology (think of the time consuming process of purchasing a house or finding investors for a new venture), and is sometimes thought to stand in for a broad range of informational frictions. In the second part, classes 6-10, illiquidity will arise explicitly from moral hazard, enforcement, and asymmetric information frictions. We will show how such market imperfections can prevent asset trades. This second part will also emphasize some macroeconomic consequences of these frictions.

**Prerequisites:** Students are assumed to have knowledge equivalent or above a first year masters's sequence in economics (). We will study formal models that are between macroeconomics, microeconomics and finance.

## SYLLABUS

### Part I: OTC markets

Traditional Walrasian modeling of financial markets takes the view that fragmentation does not matter: it analyzes trading "as if" it were happening in a centralized marketplace in which a fictitious auctioneer provides all transaction services, instantly and at no cost. The search-and-matching approach runs counter to this view. It builds on the premise that trading occurs more slowly than commonly assumed, within many subgroups of investors exchanging subsets of tradable assets, and who make decisions based on partial information about aggregate conditions.

Perhaps the clearest example of a fragmented financial market is an over-the-counter (OTC) market such as the corporate bond market or markets for financial derivatives such as Credit Default Swaps, where investors have to contact each other by phone to bargain over the terms of trades. But even relatively centralized markets (e.g. electronic trading platforms such as Island) are fragmented because they do not simultaneously involve all potential asset holders. Finally, a commonly held view is that during financial disruptions, asset markets become more fragmented: because intermediaries have a harder time accessing the capital that would allow them to participate actively, outside investors find it more difficult to buy and sell assets.

In this class, we will cover recent advances in modeling fragmented financial market using search-and-matching techniques.

#### Class 1: Foundations.

Poisson processes continuous time dynamic programming. Nash and Rubinstein bargaining.

- Rubinstein, A. (1982). Perfect equilibrium in a bargaining model. *Econometrica*, 50:97-109. ([link](#))

#### Class 2:

Search-and-matching models of OTC markets.

Some empirical evidence from Aschcraft and Duffie (2007). Duffie, Gârleanu, and Pedersen (2005) with a continuum of types.

- Aschcraft, A. and Duffie, D.(2007). Systemic illiquidity in the federal funds market. *American Economic Review*, 97:221-225. ([link](#))
- Duffie, D. Gârleanu, N. and Pedersen, L.(2005). Over-the-counter markets. *Econometrica*, 73:1815-1847. ([link](#))

#### Class 3:

Partially centralized markets with divisible assets.

- Lagos, R. and Rocheteau, G. (2009). Liquidity in asset markets with search frictions. *Econometrica*, 77:403-426. ([link](#))

- Gârleanu, N. (2009). Portfolio choice and pricing in illiquid markets. *Journal of Economic Theory*, 144:532-564. ([link](#))

#### Class 4:

Liquidity provision.

- Weill, P.(2007). Leaning against the wind. *Review of Economic Studies*, 74:1329-1354. ([link](#))
- Lagos, R., Rocheteau, G. and Weill, P.(2011). Crises and liquidity in over-the-counter markets. *Journal of Economic Theory*, 146:2169-2205. ([link](#))
- Biais, B., Hombert, J. and Weill, P.(2010). Trading and liquidity with imperfect cognition. Working paper, TSE, HEC, UCLA. ([link](#))

#### Class 5:

Information diffusion in search and matching markets.

- Amador, M., and Weill, P. (2006). Learning by matching. Meeting Papers 373, *Society for Economic Dynamics*. ([link](#))
- Duffie, D., Malamud, S. and Manso, G. (2009). Information percolation with equilibrium search dynamics. *Econometrica*. ([link](#))
- Golosov, M., Lorenzoni, G. and Tsyvinski, A.(2008). Decentralized trading with private information. Working Paper, MIT and Yale. ([link](#))

### **Part II: Financial Frictions and Aggregate Implications of illiquidity**

From a methodological perspective, the first part of the class studies liquidity from a partial equilibrium perspective (focusing on particular assets and market. In the second part, we study liquidity frictions from a general equilibrium perspective where these emerge due to. The modeling approach will be quite different: we will not try to precisely describe the microstructure of any particular asset market, and instead work with models that make aggregation simple enough in order to derive the macroeconomic implications of liquidity frictions.

#### Class 6:

Limited Enforcement

- Kiyotaki, N. and Moore, J. (2008). Liquidity, business cycles, and monetary policy. ([link](#))

#### Class 7:

Macroeconomic Consequences

- Brunnermeier, M. and Sannikov, Y. (2012). The i-theory of money. ([link](#))

- Moll, B (2014). Productivity losses from financial frictions: Can self-financing undo capital misallocation? *American Economic Review*, forthcoming. ([link](#))
- Bigio, S. (2009). Liquidity shocks and the business cycle. ([link](#))

### Class 8:

#### Asymmetric Information

- Eisfeldt, A.(2004).Endogenous liquidity in asset markets. *The Journal of Finance*, 59(1):1-30. ISSN 00221082. ([link](#))
- Bigio, S. (2011). Endogenous liquidity and the business cycle. Unpublished Manuscript. ([link](#))

### Class 9:

#### Models with Financial Intermediaries

- He, Z., and Krishnamurthy, A.(2012). A model of capital and crises. *Review of Economic Studies*, 79(2): 735-777. ([link](#))
- Brunnermeier, M., and Sannikov, Y. (2009). A macroeconomic model with a financial sector. ([link](#))
- Gertler, M., and Kiyotaki, N. (2012). Banking, liquidity and bank runs in an infinite horizon economy. ([link](#))

### Class 10:

#### Limited Liability - Debt overhand and Risk-Shifting

- Gomes, J., Jermann, U., and Schmid, L.(2014). Sticky leverage. Unpublished. ([link](#))

### **CALIFICACIÓN:**

Numérica de acuerdo con la escala de la Universidad de los Andes (ver Reglamento General de Estudiantes de Maestría RGEM). El profesor podrá evaluar el desempeño de los estudiantes en el curso aplicando una sola prueba que corresponda al 100% de la calificación del curso.

<http://secretariageneral.uniandes.edu.co/index.php/es/normatividad-institucional/20-normatividad-institucional/74-reglamento-general-de-estudiantes-de-maestria>

***FECHA DE RETIRO:***

El estudiante podrá retirar el curso, sin devolución, hasta un día hábil antes de la fecha del examen final estipulado por el Profesor. La Universidad no devolverá el dinero cancelado por concepto de matrículas de estos cursos de la Escuela de Verano.