

Doctoral Course – VGSF

MARKET MICROSTRUCTURE

Summer 2016

Professor Thomas P. Gehrig

thomas.gehrig@univie.ac.at

<http://homepage.univie.ac.at/thomas.gehrig/>

LV 390016 SE 2016S PhD-VGSF

Course Outline

Aims of the Course:

The aim of the course is to develop a deeper understanding of the “invisible hand” of the Walrasian auctioneer in decentralized market institutions. Market microstructure applies to the whole spectrum from well-organized liquid and automated financial markets all the way to illiquid over-the-counter markets such as real estate, labor markets for specialists, or even art markets. It discusses how the microstructure of trading does affect price discovery and price informativeness, price volatility and, hence, individual behavior, which again determines market participation and market liquidity.

The course introduced the basic measures of (il)liquidity and price informativeness used in empirical work and develops (and extends) the basic theoretical work horse models (Glosten/Milgrom, Kyle) to structure the analysis of their empirical regularities.

The main part of the course discusses the role of trading rules and transparency on individual behavior and its implication on price discovery. This allows a better understanding of the relative advantages of the many different real world market designs. This provides a basis for the discussion of topical phenomena such as high frequency trading, dark pools and cross-market trading, both from the perspective of individual strategy as well as from a societal welfare perspective. Can the invisible hand be trusted? Are there needs for corrective regulatory action, and if so, which?

The course will be followed by a special topics course in the following academic year based on state of the art research papers.

Suggested Structure of the Course:

1. Introduction
2. Measuring Liquidity

Required: Theory

3. Financial Markets Equilibrium
4. Price Determination and Liquidity in Dealer Markets: Bid Ask Spreads
5. Price Determination and Liquidity in Auction Markets: Limit Order Markets
6. Price Determination and Liquidity in Fragmented Markets: Networks and OTC
7. Determinants of Market Liquidity

Choice: Market Design: The Rules of the Game

8. Policy and Market Design
 - Transparency
 - Dark Pools
 - High Frequency Trading
 - Trading halts

Choice: Implications for Asset Pricing and Corporate Finance:

9. Liquidity and Asset Prices
10. Liquidity, Price Discovery and Corporate Policy

Suggested Background Literature:

Textbooks:

- Thierry Foucault, Marco Pagano, Ailsa Roell: *Market Liquidity: Theory, Evidence and Policy*, Oxford University Press, 2013.
- Joel Hasbrouck: *Empirical Market Microstructure*, Oxford University Press, 2007.
- Nikolaus Hautsch: *Econometrics of Financial High-Frequency Data*, Springer, 2011.
- Frank de Jong, Barbara Rindi: *The Microstructure of Markets*, Cambridge University Press, 2009.
- Richard Lyons: *The Microstructure Approach to Exchange Rates*, MIT Press, Cambridge 2001.
- Dan Spulber: *Market Microstructure*, Cambridge University Press, 1995.
- Maureen O'Hara: *Market Microstructure Theory*, Blackwell, 1995.

Articles:

- Viral Acharya, Lasse Pedersen (2005): Asset pricing with liquidity risk, *Journal of Financial Economics* 77, 375-410.
- Anat Admati, Paul Pfleiderer (1988): A theory of intraday patterns: Volume and price variability, *Review of Financial Studies* 1, 3-40.
- Anat Admati, Paul Pfleiderer (1991): Sunshine trading and financial markets equilibrium, *Review of Financial Studies* 3, 443-481.
- Franklin Allen, Douglas Gale (1994): Limited market participation and volatility of asset prices, *American Economic Review* 84, 933-955.
- Yakov Amihud (2002): Illiquidity and stock returns: Cross-section and time-series effects, *Journal of Financial Markets* 5, 31-56.
- Larry Ausubel (1990): Partially Revealing Equilibrium in a Competitive Equilibrium, *Journal of Economic Theory* 50(1), 93-126.
- Bruno Biais (1992): Price Formation and Equilibrium Liquidity in Fragmented and Centralized Markets, *Journal of Finance* 48, 157-185.
- Markus Brunnermeier, Lasse Pedersen (2009): Market liquidity and funding liquidity, *Review of Financial Studies* 22, 2201-2238.
- Harold Demsetz (1968): The Cost of Transacting, *Quarterly Journal of Economics* 82(1), 33-53.
- Jürgen Dornert (1993): Price Competition between Market Makers, *Review of Economic Studies* 60(3), 735-751.
- Thierry Foucault, Thomas Gehrig (2008): Stock price informativeness, cross-listings, and investment decisions, *Journal of Financial Economics* 88(1), 146-168.
- Thierry Foucault, Ohad Kadan, Eugen Kandal (2005): Limit order book as a market for liquidity, *Review of Financial Studies* 18, 1171-1217.
- Thierry Foucault, Albert Menkveld (2008): Competition for order flow and smart order routing systems, *Journal of Finance* 63, 119-158.
- Thomas Gehrig (1993): Intermediation in Search Markets, *Journal of Economics & Management Strategy* 2(1), 97-120.
- Thomas Gehrig, Matthew Jackson (1998): Bid-ask spreads with indirect competition among specialists, *Journal of Financial Markets* 1(1), 89-118.
- Richard Green, Burton Hollifield, Norman Schürhoff (2007): Financial Intermediation and the Cost of Trading in Opaque Markets, *Review of Financial Studies* 20, 274-305.
- Sanford Grossman, Joseph Stiglitz (1980): On the Impossibility of Informationally Efficient Markets, *American Economic Review* 70, 393-408.
- Joel Hasbrouck (1988): Trades, Quotes, Inventories and Information, *Journal of Financial Economics* 22(2), 229-252.
- Joel Hasbrouck (2009): Trading Costs and Returns for U.S. Equities: Estimating Effective Costs from Daily Data, *Journal of Finance* 64, 1445-1477.
- Martin Hellwig (1980): On the Aggregation of Information in Competitive Markets, *Journal of Economic Theory* 22, 477-498.
- Albert Kyle (1985): Continuous Auctions and Insider Trading, *Econometrica* 53, 1315-1335.

- Albert Kyle (1989): Informed Speculation with Imperfect Competition, *Review of Economic Studies* 56, 317-355.
- Ananth Madhavan (1992): Trading Mechanisms in Securities Markets, *Journal of Finance* 47, 607-641.
- Paul Milgrom, Larry Glosten (1985): Bid, Ask, and Transactions Prices in a Specialist Market with Heterogeneously Informed Traders, *Journal of Financial Economics* 13, 71-100.
- Paul Milgrom, Nancy Stokey (1982): Information, Trade and Common Knowledge, *Journal of Economic Theory* 26(1), 17-27.
- Ariel Rubinstein, Asher Wolinsky (1987): Middlemen, *Quarterly Journal of Economics*, 102, 581-593.
- Dale Stahl (1988): Bertrand Competition for Inputs and Walrasian Outcomes, *American Economic Review* 78,189-201.
- Hans Stoll (2006): Electronic Trading in Stock Markets, *Journal of Economic Perspectives* 20(1), 153-157.
- Marco Pagano, (1989): Trading volume and asset liquidity, *Quarterly Journal of Economics* 104, 255-274.
- Marco Pagano, Ailsa Roell (1992): Auction Markets and Dealership Markets: What is the Difference? *European Economic Review* 36, 613-623.
- Christine Parlour, Duane Seppi (2008): Limit order markets: A survey, in *Handbook of Financial Intermediation and Banking*, North Holland.
- Richard Roll (1984): A simple implicit measure of the bid-ask spread in an efficient market, *Journal of Finance* 39, 1127-1139.
- Matthew Spiegel, Avanidhar Subrahmanyam (1992): Informed speculation and hedging in noncompetitive securities markets, *Review of Financial Studies* 5, 307-329.
- Dimitri Vayanos, Tan Wang (2007): Search and endogenous concentration of liquidity in asset markets, *Journal of Economic Theory* 136, 66-104.
- Robert Verrecchia (1982): Information Acquisition in a Noisy Rational Expectations Economy, *Econometrica* 50, 1415-1430.
- Leon Walras (1874): *Elements d'Economie Politique Pure, ou Théorie de Richesse Sociale*, R. Richon and R. Durand-Ausiaz, Paris.

A more adapted list to the specific interests of the participants (in the second part) will be distributed during the course.

Organization:

The course takes place from 9:45-11:15 at Seminarraum 4 (first floor), Oskar-Morgenstern-Platz 1. Evaluation will be based on worked-out problems distributed and discussed in class.

For administrative questions, please, contact Sigrid Hopf at sigrid.hopf@univie.ac.at or Adrian Baron at adrian.baron@wu.ac.at .