



Course and Examination Fact Sheet: Autumn Semester 2019

10,280: Market Microstructure (PhD)

ECTS credits: 4

Overview examination/s

(binding regulations see below)

Decentral - examination paper written at home with presentation (individual) (100%)

Attached courses

Timetable -- Language -- Lecturer

[10,280,1.00 Market Microstructure \(PhD\)](#) -- Englisch -- [Rinaldo Angelo](#)

Course information

Course prerequisites

PEF or PiF compulsory courses.

Course content

Market microstructure is the study of trading mechanisms used for financial securities. Market Microstructure analyzes theoretically and empirically the impact of important trading frictions on the process of price formation in domestic and international financial markets (for equity, government and corporate bonds, currency, and real estate, among others). It also examines how the market and security designs affect market (in)efficiency and social welfare. The first part of the course will treat the main theoretical models in this research field. The second part will deal with the empirical analysis in market microstructure including the following issues: the link between market and funding liquidity, market microstructure and asset pricing, market microstructure and risk analysis, market microstructure and event-study analysis, algorithmic trading, and which characteristics contribute to market fragility or stability (market design).

Course structure

This course will give students the opportunity to learn how to conduct independent and original research on a current topic related directly or indirectly to market microstructure. The course has three main parts:

- First, a four-day block course. During four-hour lectures, the students will get introduced to market microstructure analysis and get the opportunity to learn some timely issues related to market microstructure presented by the teacher and some invited speakers. The tentative program includes guest lectures on the most recent advances on realized volatility, digital currencies, and more.
- Second, students will present their research ideas and preliminary research outline, and receive feedback during a tentative two-hour lecture.
- Finally, the students will write a research paper.

The teacher will propose some current "hot" topics in market microstructure that can represent the research questions for the term paper. But it is important that students work on a research idea that they find particularly interesting and motivating. Therefore, students are encouraged to propose a topic according to their own interest. The individual topic may also have a close connection to the student's Ph.D. thesis.

The research paper shall consist of less than 20 pages and can be written individually or coauthored by two students. More precise guidelines will be provided at the beginning of the course.

Detailed information about the course structure: The first part of the course will be organized into 4-hour lectures. The main topics are:



Introduction

Theoretical models

Empirical models

Liquidity

Asset Pricing

Market design

Course literature

The teacher's slides are the main teaching material. Suggested book:

Foucault, T., M. Pagano and A. Röell (2013), "Market Liquidity: Theory, Evidence, and Policy", (Oxford University Press).

Alternative books:

- Brunnermeier, M. (2001): "Asset Pricing Under Asymmetric Information, Bubbles, Crashes, Technical Analysis and Herding", (Oxford University Press).
- De Jong F. and B. Rindi (2009), "The Microstructure of Financial Markets", (Cambridge University Press).
- Hasbrouck, J. (2007): "Empirical Market Microstructure: The Institutions, Economics, and Econometrics of Security Trading", (Oxford University Press).
- O'Hara, Maureen (1995): "Market Microstructure Theory", (Cambridge, USA: Blackwell Publishers).
- Vives, X. (2008): "Information and Learning in Markets: The Impact of Market Microstructure", (Princeton University Press).

Main papers on market microstructure theory: Kyle, Albert S. (1985), Continuous Auctions and Insider Trading, *Econometrica* 53, 1315-1336. Roll R. (1984), A Simple Implicit Measure of Bid Ask Spread in an Efficient Market, *Journal of Finance* 39, 1127-1139. Stoll H. R. (1978), The Supply of Dealer Services in Securities Markets, *Journal of Finance* 33, 1133-1151.

Main papers on empirical market microstructure: Glosten L. and L. Harris (1988), Estimating the Components of the Bid-Ask Spread, *Journal of Financial Economics* 21, 123-142. Hasbrouck, J. (1991), The Summary Informativeness of Stock Trades: an Econometric Analysis, *Review of Financial Studies* 4, 571-595. Huang, R. D. and H. R. Stoll (1997), The Components of the Bid-Ask Spread: a General Approach, *Review of Financial Studies* 10, 995-1034. Madhavan, Ananth, Matthew P. Richardson, and Mark Roomans (1997), Why Do Security Prices Change? A Transaction-Level Analysis of NYSE, *Review of Financial Studies* 10, 1035-1064. Rinaldo, A. (2009): "Segmentation & Time-of-Day Patterns in Foreign Exchange Markets". *Journal of Banking & Finance* 33(12), 2199-2206. On liquidity: Abdi, F., Rinaldo, A. (2017): "A Simple Estimation of Bid-Ask Spreads from Daily Close, High, and Low Prices", *Review of Financial Studies*, 30(12), 4437-4480. Brunnermeier, M. K., and L. H. Pedersen, 2009, Market liquidity and fund liquidity, *Review of Financial Studies* 22, 2201-2238. Karnaukh, N., A. Rinaldo, P. Söderlind (2015): "Understanding FX Liquidity", *Review of Financial Studies*, 28(1), 3073-3108. Rinaldo, A. (2004), Order Aggressiveness in Limit Order Book Markets, *Journal of Financial Markets* (7).

On asset pricing and price discovery process: Amihud, Y., and H. Mendelson, (1986), Asset Pricing and Bid-Ask Spread, *Journal of Financial Economics* 17, 223-249. Acharya, V., and L. H. Pedersen, 2005, Asset pricing with liquidity risk, *Journal of Financial Economics* 77, 375-410. Cenedese, Rinaldo, Vasios (2018): OTC Premia, *Journal of Financial Economics* (forthcoming). Christiansen, C., A. Rinaldo, P. Söderlind (2011): "The Time-Varying Systematic Risk of Carry Trade Strategies". *Journal of Financial & Quantitative Analysis* 46(4), 1107-1125. Mancini, L., A. Rinaldo, J. Wrampelmeyer (2013): "Liquidity in the Foreign Exchange Market: Measurement, Commonality, and Risk Premiums", *Journal of Finance*, Volume 68 Issue 5, 1805-1841. Rinaldo, A., P., Söderlind (2010): "Safe Haven Currencies". *Review of Finance* 14(3), 385-407. Caporin, M., A. Rinaldo, P. Santucci de Magistris (2013): "On the Predictability of Stock Prices: a Case for High and Low Prices", *Journal of Banking & Finance*, 37(12), 5132-5146. On market design: Mancini, L., A. Rinaldo, J. Wrampelmeyer (2016): "The Euro Interbank Repo Market", *Review of Financial Studies* 29 (7): 1747-1779.

The exact list of papers will be provided at the beginning of the course.



Additional course information

Starting from June 2015, the University of St. Gallen gained access to the entire Trade & Quotes (WRDS / TAQ) database that includes transactions and quotes of the U.S. stocks from 1993 to 2017. These data can be used to conduct empirical research on market microstructure. The teacher will shortly inform the students about other "high-frequency" data.

Examination information

Examination sub part/s

1. Examination sub part (1/1)

Examination time and form

Decentral - examination paper written at home with presentation (individual) (100%)

Remark

--

Examination-aid rule

Term papers

- Term papers must be written without anyone else's help and in accordance with the known quotation standards, and they must contain a declaration of authorship.
- The documentation of sources (quotations, bibliography) has to be done throughout and consistently in accordance with the APA or MLA standards. The indications of the sources of information taken over verbatim or in paraphrase (quotations) must be integrated into the text in accordance with the precepts of the applicable quotation standard, while informative and bibliographical notes must be added as footnotes (recommendations and standards can be found, for example, in METZGER, C. (2017), Lern- und Arbeitsstrategien (12th ed., Cornelsen Schweiz).
- For any work written at the HSG, the indication of the page numbers both according to the MLA and the APA standard is never optional.
- Where there are no page numbers in sources, precise references must be provided in a different way: titles of chapters or sections, section numbers, acts, scenes, verses, etc.
- For papers in law, the legal standard is recommended (by way of example, cf. FORSTMOSER, P., OGOREK R. et SCHINDLER B. (2018, Juristisches Arbeiten: Eine Anleitung für Studierende (6. Auflage), Zürich: Schulthess, or the recommendations of the Law School).

Supplementary aids

--

Examination languages

Question language: English

Answer language: English

Examination content

In order to be graded, students should submit a research paper related to market microstructure or on another topic but applying some microstructure issues. The term paper should represent an original research proposal in some connection with the market microstructure literature. The **quality** and **originality** of the research paper will be rewarded. In the last lecture, students will have the opportunity to present their preliminary research idea. For the examination, the term paper and presentation will count 80% and 20%, respectively.

Examination relevant literature

The teacher's slides and pertinent literature.



Please note

Please note that this fact sheet alone is binding and has priority over any other information such as StudyNet (Canvas), personal databases or faculty members' websites and information provided in their lectures, etc.

Any possible references and links within the fact sheet to information provided by third parties are merely supplementary and informative in nature and are outside the University of St.Gallen's scope of responsibility and guarantee.

Documents and materials that have been submitted no later than the end of term time (CW51) are relevant to central examinations.

Binding nature of the fact sheet:

- Information about courses and examination time (central/decentral) and examination type starting from the beginning of the bidding on 22 August 2019
- Information about examinations (examination aid regulations, examination content, examination-relevant literature) for decentral examinations after the 4th semester week on 14 October 2019
- Information about examinations (examination aid regulations, examination content, examination-relevant literature) for central examinations as from the starting date for examination registration on 4 November 2019

Please consult the fact sheet again after these deadlines have expired.