



## **040019 KFK FM/FI Seminar: High Frequency Trading in Forex Markets**

**Seminar** within the specializations "**Financial Markets**" and "**Financial Intermediation**"

The seminar discusses the determinants of exchange rates with a particular emphasis of high-speed trading at high frequency. Why is high frequency trading also relevant for price discovery in foreign exchange markets? What is its role in real markets? What is the role of high frequency trading in foreign exchange markets, arbitrage or price discovery? How does this revolution affect trading behavior, pricing of assets, transactions costs, and market liquidity? Does HFT give rise to concerns about market failure such as flash crashes or even systemic risk? Are there reasons for regulatory concern?

### **Organization:**

The seminar is organized in cooperation with Thomson Reuters Austria. Mag. Peter Hainz and his team will present current market developments as well as data access.

Coordination meeting with **topic allocation**: March 7<sup>th</sup>, Börsengasse 11 (Suite Thomson Reuter), 15-16.30

### **Location:**

The seminar will take place at Thomson Reuters at Wiener Börse, Börsengasse 11, 1010 Wien (1.st floor).

### **Requirements:**

This is an advanced master-level seminar. It also serves as a potential basis for the preparation of a master thesis or other advanced work. Therefore, having passed successfully the course "Principles of Finance" is a pre-requirement. Prior knowledge of the course in "Market Microstructure" is strongly recommended. Knowledge of "Empirical Finance" or "Financial Econometrics" is helpful to digest the empirical analyses.

## Topics

1. The Structure of FX Markets
  - microstructure and geography of trading
  - role of technology (HFT and algorithmic trading)
  - statistical properties
2. Theories of exchange rate determination
  - purchasing power parity
  - covered interest arbitrage
  - portfolio approach
3. Price Discovery in FX Markets
  - macro news and exchange rates
  - order flow and predictability of exchange rates
  - front running
  - cross market trading
4. Arbitrage
  - algorithmic trading and arbitrage
  - cross-market arbitrage
5. Event Studies
  - policy announcements
  - Greek crisis
  - devaluation of the CHF
  - devaluation of the yuan

**Grading:**

Grading is based on three elements:

1. The worked out seminar paper (60 points). Each candidate has to submit a single-authored paper not exceeding 12 pages.

The seminar draft has to be *submitted one week prior to the presentation* in electronic form. This version is distributed to seminar participants in order to allow them preparation. After the presentation the paper can still be improved.

**Final submission** for all papers is **June 27, 2016**. Thereafter no corrections are possibly anymore.

2. Presentation of the seminar paper (20 points)

Presentations can be shared, but each candidate will be assessed on his/her own part.

3. Course participation (20 points)

Active preparation and active participation are required, which requires regular participation. You will be asked questions even if you are not presenting in order to generate discussions. If you are repeatedly denying answers, this will affect your grade. Likewise repeatedly missing sessions will not help to increase your score. You will not be able to score more than 5 points per meeting.

**Basic Reading:**

- Foucault, T., M. Pagano, A. Roell (2013): *Market Liquidity: Theory, Evidence and Policy*, Oxford University Press.
- Lyons, R. (2001): *The Microstructure Approach to Exchange Rates*, MIT-Press.

**Literature:**

- Biais, B., T. Foucault, and S. Moinas (2012): Equilibrium high-frequency trading, Working paper, Toulouse.
- Caporale, G., F. Spagnolo and N. Spagnolo (2016): Macro News and Exchange Rates in the BRICS, DIW Working Paper 1545.
- Chaboud A., B. Chiquoine, E. Hjalmarson, C. Vega (2014): Rise of the machine: Algorithmic trading in the foreign exchange market, *Journal of Finance* 65, 2045-2084.

- Chordia et al. (2013): High Frequency Trading; *Journal of Financial Markets*, 16, 637-645.
- Eichengreen, B., R. Lafarguette and A. Mehl (2016): Cables, Sharks, and Servers: Technology and the Geography of Foreign Exchange, NBER-Working Paper 21884, Boston.
- Engel, C. (2016): Exchange Rates, Interest Rates, and the Risk Premium, *American Economic Review*, 106(2), 436-474.
- Evans, M. and R. Lyons (2008): How Is Macro News Transmitted to Exchange Rates? *Journal of Financial Economics*, 88: 26-50.
- Foucault, T. and T. Gehrig (2008): "Stock Price Informativeness, Cross-Listings, and Investment Decisions", *Journal of Financial Economics* 88, 146-168.
- Foucault, T., J. Hombert and I. Rosu (2015): News trading and speed, forthcoming: *Journal of Finance*.
- Foucault, T., R. Kozhan, W. Tham (2015): Toxic Arbitrage, Working Paper.
- Gehrig, T. (1993): "An Information Based Explanation of the Domestic Bias in International Equity Investment", *The Scandinavian Journal of Economics*, 1/1993, 97-109.
- Greenwald, B. and J. Stein (1988): The Task Force Report: The Reasoning Behind the Recommendations, *Journal of Economic Perspectives* 2:3, 3-23.
- Hasbrouck, J. and G. Saar, (2013): Low Latency Trading; *Journal of Financial Markets*, 16, 646-679.
- Ito T., K. Yamada, M. Takayasu, H. Takayasu (2013): Free Lunch! Arbitrage opportunities in the foreign exchange market, NBER-Working Paper.
- Jones, C. (2013): What do we know about HFT?, Columbia Business School.
- King, M. and S. Whadwhani (1990): Transmission of Volatility between Stock Markets, *Review of Financial Studies* 3:1, 5-33.
- Lynch, A., B. Nikolic, Y. Xuemin, Y. Han (2014): Aggregate short selling, commonality, and stock market returns; *Journal of Financial Markets*, 17, 199-229.
- Menkveld, A. (2013): High-frequency trading and the new market maker; *Journal of Financial Markets*, 16, 712-740.
- Menkveld, A. and B. Youeshen (2013): Anatomy of the Flash Crash, mimeo.
- Leland, H. and M. Rubinstein (1988): Comments on the Stock Market Crash: Six Months After, *Journal of Economic Perspectives* 2:3, 45-50.
- Nimalendran, M. and S. Ray (2014): Informational linkages between dark and lit trading; *Journal of Financial Markets*, 17, 230-261.
- Rime, D. and A. Schrimpf: Die Struktur der globalen Devisenmärkte aus Sicht der Zentralbankerhebung von 2013, BIZ Quartalsbericht, Dezember 2013.