HIGH-FREQUENCY TRADING

UNIVERSITY OF ZURICH GRADUATE COURSE

COURSE OUTLINE

Dr. Ramo Gençay

OBJECTIVES:

This is an advanced course on high frequency finance with an emphasis on optimal trading strategies, estimation of variables of interest using transaction data, modeling of the limit-order book, and understanding market impact.

1. The Trading Environment:

   (a) Regulatory environment (SEC, 2010: part 1)
   (b) Market fragmentation (CA Cheuvreux, 2008)
   (c) High-frequency trading (SEC, 2010: part 2)

2. The Data:

   (a) Transaction data (Dacorogna et al. 2001: Ch. 2)
   (b) Variables of interest (Dacorogna et al. 2001: Ch. 3)
   (c) Estimation at high-frequencies (Bauwens and Hautsch, 2009)
   (d) Microstructure noise (Ait-Sahalia et al., 2009)

3. Optimal Trading:

   (a) Trading problems (Harris, 2003: Ch. 8, 10, 13-18)
   (b) Market impact modeling (Almgren et al., 2005)
   (c) Trading costs (Harris, 2003: Ch. 21)
   (d) Optimal trading (Almgren and Chriss, 2000)
   (e) Real-time trading (Dacorogna et al., 2003)

4. Additional Topics:

   (a) Market abuse (Kyle and Viswanathan, 2008)
   (b) Liquidity impact of HF trading (Hendershott et al., 2010)

SUGGESTED BOOKS:

There is no required text for this course. The course material will be based on lecture notes and suggested journal articles. The following is a list of suggested textbooks.

An Introduction to High-Frequency Finance, 2001, M. Dacorogna, R. Gençay, U. Müller, O. Pictet, and R. Olsen, Academic Press: San Diego.

Empirical Market Microstructure, 2007, J. Hasbrouck, Oxford University: New York.

Trading & Exchanges: Market Microstructure for Practitioners, 2003, L. Harris, Oxford: New York.

GRADING:

Grading will be based on assignments.