OBJECTIVES:

This is a course on financial instruments, financial markets and trading with an emphasis on topics such as optimal trading strategies for typical trading problems, mechanisms of how information is impounded in prices, mechanisms to improve the information aggregation process, avoidance of market failures, sequential trade models, inventory control and empirical study of dealer inventories, market impact, models of informed and strategic trading, and limit order markets.

The course will study the main theoretical and empirical models used in market microstructure. We will analyze how transaction costs, inventory risk and information asymmetry affect liquidity provision and asset prices.

There will be emphasis on understanding market participants and the trading environment, risks in high-frequency trading, high-frequency statistical techniques, issues surrounding limit order books and trading algorithms.

REquired Reading:

The Trading Industry, Chapter 3, Harris.
Orders and Order Properties, Chapter 4, Harris.
Market Structures, Chapter 5, Harris.
Order-driven markets, Chapter 6, Harris.
Brokers, Chapter 7, Harris.

Optional Reading:

(a) What is Market Microstructure about? (Hasbrouck: Chapter 1)
   i. Investigation of the economic forces affecting trades, quotes and prices.
(b) Trading mechanisms, (Hasbrouck: Chapter 2)
   i. U.S. equity market (Hasbrouck: Appendix)
   ii. Liquidity fragmentation, Lehalle and Burgot (2009).
(c) Sources for Short-run Price Deviation from Fundamentals? Competitive Liquidity Suppliers Models
   i. A simple implicit measure of effective bid-ask spread in an efficient market, Roll (1984)’s model (Hasbrouck: Chapter 3)
ii. Order data, quote data (Hasbrouck: Chapter 14)
iv. Asymmetric information, O’Hara’s sequential model (Hasbrouck: Chapter 5, O’Hara: Chapter 3.4)
v. Bid, ask and transaction prices in a specialist market with heterogeneously informed traders, Glosten and Milgrom (1985) (O’Hara: Chapter 3.3)
vi. PIN model (Hasbrouck: Chapter 6)
ix. Asymmetric information in the inter bank foreign exchange market, Bjønnes et al. (2008).

(d) Inventory Costs
i. Market microstructure, Garman (1976)’s model (O’Hara: Chapter 2.1)
ii. The supply of dealer services in securities markets, Stoll (1978)’s model (O’Hara: Chapter 2.2)
iii. Optimal dealer pricing under transactions and return uncertainty, Ho and Stoll (1981) model (O’Hara: Chapter 2.3)
iv. Empirical studies:
   A. The trades of market makers, Hasbrouck and Sofianos (1993).
   B. Dealers and their inventories, (Hasbrouck: Chapter 11).
   C. Does algorithmic trading improve liquidity, Hendershott et al. (2011).

(e) Transitory versus Permanent Component in Price Formation
i. VAR approach, Hasbrouck (1993).

Required Reading:

Why people trade, Chapter 8, Harris.
Informed Traders and Market Efficiency, Chapter 10, Harris.
Order Anticipators, Bluffers and Market Manipulation, Chapter 11-12, Harris.
Dealers, Bid/ask Spreads, Block Traders, Chapters 13, 14, 15, Harris.
Value Traders, Arbitrageurs, Buy-Side Traders, Chapters 16, 17 and 18, Harris

Optional Reading:

(a) Sources for Short-run Price Deviation from Fundamentals? Strategic Liquidity Suppliers Models
i. Continuous auction model, Kyle (1985), (O’Hara: Chapter 4)
ii. Liquidity and asset prices, Amihud et al. (2005).
iii. Optimal trade execution and price manipulation in order books with time-varying liquidity, Fruth et al. (2011).
v. Forecasting Prices from Level-I Quotes in the Presence of Hidden Liquidity, Avel-
laneda et al. (2011).
vi. Splitting orders in overlapping markets: A study of cross-listed stocks, Menkveld
(2008).
vii. Order splitting (Hasbrouck: Chapter 15)

(b) Market Design
i. Call versus Continuous
   A. Trading mechanisms and stock returns, Amihud and Mendelson (1987), Amihud
   et al. (1990).
   B. Information acceleration close to opening, Biais et al. (1999).
ii. Transparency
   A. Transparency helps, Boehmer et al. (2005).
iii. Tick Size
   A. Less tick size leads to more competitive behavior, Bessembinder (2003).
   B. The information content of the limit order book: evidence from NYSE specialist
   trading decisions, Harris and Panchapagesan (2005).
   D. Less tick size leads to less market depth, Goldstein and A. Kavajecz (2000),
   Jones and Lipson (2001).
iv. Limit Order Markets
   B. Competition between markets, Parlour and Seppi (2003).

**Required Reading:**

- Liquidity, Volatility, Chapters 19-20, Harris
- Internalization, Preferencing and Crossing, Insider Trading, Chapter 25 and Chapter 29,
  Harris

**Optional Reading):**

(a) Order Flow

(b) Selected Topics

i. Multiple Securities and Multiple Prices, Hasbrouck (2001), (Hasbrouck: Chapter 10)

ii. Realized Volatility: two-scale realized volatility estimator, Zhang et al. (2005)


Suggested Books:


Grading:

Grading will be based on participation and a written exam.

References


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