

# High-Frequency Traders and Single-Dealer Platforms

Fatemeh Aramian and Lars Nordén  
Stockholm Business School

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- MiFID II regulation promoted systematic internalizers (SIs) as qualified execution platforms
  - » Regulatory concerns due to the sharp growth in European equity market share
  - » Number of SIs (their market share) increased from 13 (2%) in 2017 to 73 (20%) in 2019
  - » European Securities and Markets Authority (ESMA): European equity market has become even more fragmented
- Recent increase in HFTs' bilateral trading activities off exchanges
  - » Emergence of SIs run by high-frequency trading firms, HFT SIs, in Europe in 2018

Research aim: Effects of trading on HFT SI platforms on

- market quality,
- HFTs' liquidity provision on exchanges,
- HFTs' inventories

Results on market quality:

- Trading activity on HFT SI platforms leads to lower exchange liquidity.
  - » Depth decreases
  - » Quoted bid-ask spread increases
  - » Effective spread remains virtually unchanged

Results on liquidity provision on exchanges:

- A reduction in HFT SIs' liquidity provision, proxied by their passive trading. Possible reasons for the reduction in liquidity supply are:
  - » to manage their inventory positions from their SI trades by taking liquidity and reducing liquidity supply on exchanges.
  - » to supply liquidity on their own SI platforms

Results on inventory management:

- Inventory management is improved.
- Intraday inventory crosses zero less often

- Pre-trade transparency:
  - » Only for liquid stocks and for orders up to the Standard Market Size (SMS)
  - » Publishing two-way quotes continuously during the continuous trading session of the relevant exchange
  - » No pre-trade transparency obligation for orders above the SMS
- Post-trade transparency:
  - » Trades should be reported as close to real time as technically possible
- Tick size obligation:
  - » Only for orders up to the minimum large-in-scale threshold
- Flexibility to decide who to trade with

# Empirical setting I

- Swedish stock market
  - » Sample: 45 large-cap stocks in the year 2018
- Data:
  - » Transaction Reporting System (TRS) obtained through Swedish Financial Supervisory Authority
    - » Identifying trades by distinct trading firms on all trading venues
    - » Trades executed by each individual SI platform
  - » Refinitiv Tick History (RTH): tick-by-tick quotes and trades
  - » Sample of transactions:
    - » We exclude SI transactions with non-addressable liquidity
    - » We exclude transactions outside the exchange trading hours

- Trading venues:
  - » Exchanges: Nasdaq Stockholm and MTFs (Bats Europe, Chi-X, Turquoise and Aquis)
  - » SI platforms
- HFT identification:
  - » HFTs are identified as trading firms that are members of the FIA EPTA, or firms that describe themselves as HFTs on their websites (Baron, Brogaard, Hagströmer & Kirilenko, 2019)

# Trading activity of SIs

The stock-day average and market share of SI platforms:

- Volume: in million SEK

SI platforms		
	Volume (MSEK)	Percentage (%)
HFT SIs	12.71	23.13
Non-HFT SIs	42.23	76.87



## Trading activity on HFT SI platforms:

- reduces the average depth at the best quotes by 14%
- increases the average quoted spread by 3%
- increases the average trading cost by only 1%

	Average	Average with HFT SIs	Difference
Depth (MSEK)	0.50	0.43	-14%
Quoted spread (bps)	3.01	3.09	3%
Effective spread (bps)	2.56	2.58	1%



# HFTs' liquidity provision on exchanges: results

## Liquidity supply measures:

- Passive volume: the SEK volume traded by the HFT firm through passive trading on exchanges
- Liquidity supply ratio: an HFT firm's fraction of SEK volume through passive trading on exchanges

	Average	Average with HFT SIs	Difference
Passive volume (MSEK)	20.65	13.09	-37%
Liquidity supply ratio	0.50	0.41	-18%

# HFTs' liquidity provision on exchanges: each trading venue

	Average	Average with HFT SIs	Difference
<b>Nasdaq</b>			
Passive volume (MSEK)	15.83	7.90	-50.10%
Liquidity supply ratio	0.50	0.37	-23.83%
<b>Chi-X</b>			
Passive volume (MSEK)	4.24	2.99	-29.48%
Liquidity supply ratio	0.46	0.39	-13.79%
<b>Bats Europe</b>			
Passive volume (MSEK)	3.21	1.49	-53.59%
Liquidity supply ratio	0.55	0.47	-12.71%



We analyze the impact of HFT SI volume on HFTs' inventories.

- Inventory measures:
  - » Inventory crosses zero: the number of times a firm's inventory position switches sign
  - » Max intraday inventory: the ratio of the maximum intraday absolute inventory (in SEK) of a firm to its total volume on that stock-day
- Results:
  - » HFT SI volume induces that inventory crosses zero less often.
    - » HFTs engage less in market making
    - » HFTs have a better control over the inventory cost by being able to hold their positions longer
  - » Larger dealer volume is related to lower max intraday inventory

- We find that promoting SIs led to:
  - » a higher liquidity fragmentation
  - » a reduction of transparent liquidity on exchanges
  - » a reduction of liquidity supply by HFT SIs on exchanges
- Does this mean HFT SIs/SIs are harmful to equity markets?
  - » They are sources of liquidity in the market
  - » The existence of SIs alongside other venues helps various types of traders to find a venue that matches their trading needs.
  - » They can promote competition across venues to attract order flow

However, there are regulatory issues:

- Pre-trade transparency: quotes seem to be indicative
  - » The depth is required to be at least 10% of the SMS.
- Regulatory actions might be needed to avoid possible cream-skimming by SIs/HFT SIs
  - » HFT SIs' ability to interact with selected counterparties resembles the use of payment for order flow (PFOF) by HFTs in the U.S.
- Bank SIs: making an agreement with a broker to route their orders to them in exchange of covering clearing and trading fees (another form of PFOF without any payment being involved)

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To what extent is the pre-trade transparency regime for SIs used?

