Discussion of

*Competition in high-speed markets and market quality: Effects of the SEC naked access ban*  
(Chakrabarty et al., 2014)

by

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INSEAD

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October 3, 2014
Summary

Research question: HFT *competition* and market quality

- SEC banned naked access in Nov. 2011 → reduced some HFT participation
- comparing market quality measures before and after
  - a comprehensive list of measures
  - nice robustness checks

Result

- better liquidity provision (dominating)
- lower price efficiency
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Discussion
Naked access ban

ban $\rightarrow$ ... $\rightarrow$ market quality $\uparrow$
Naked access ban

ban $\rightarrow$ ... (HFT competition?) ... $\rightarrow$ market quality $\uparrow$
Vague idea about “competition” — example:

“higher levels of competition are associated with higher trading costs”

Questions!

- What kind of the competition is it?
- How is the ban affecting this competition?
- How to empirically examine the competition?

“Competition” in the paper

- quoting activity
- quote-to-trade ratio

→ proxying HFT overall but too general
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My take on “competition”:

- Not all HFTs are created equal: Hagströmer and Nordén (2013); Menkveld and Zoican (2014)
- Breckenfelder (2013)
  - Competition among HFT liquidity providers: good
  - Competition among HFT liquidity takers: bad
  
  (→ net effect is negative)

Who are affected most by the ban?

- adverse selection ↓ and displayed liquidity ↑
- price efficiency ↓

seem consistent with

“the removal of traders relying on a speed advantage to exploit their short-lived information”
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ban $\rightarrow$ “predatory” HFT competition $\downarrow$ $\rightarrow$ market quality $\uparrow$

A more direct check using future data?
- counting high-frequency arbitrage opportunity between stock and future
- estimating correlation between stock and future
  (e.g. Budish, Cramton, and Shim, 2013; Huh, 2014; data availability?)

Important policy implication and reference
(c.f. Brogaard, Hendershott, and Riordan, 2014)
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Digging more into the results
Effect of reducing "predators"

(II)liquidity:
(Figure 4 of Holden and Subrahmanyam, 1992)
Digging more into the results
Sorting according to stock sizes

Panel A: Quoting and trading activity

<table>
<thead>
<tr>
<th></th>
<th>QUOTES</th>
<th>TRADES</th>
<th>QTR</th>
<th>QSP</th>
<th>DEPTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large</td>
<td>-0.323***</td>
<td>-0.242***</td>
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<td>-0.160***</td>
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<td>VOLAT &amp; TURN*</td>
<td>No</td>
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*Volatility and turnover regressor is omitted when $\Delta P \frac{S}{F}$ and $\Delta S \frac{P}{F}$ are used as dependent variables.

Does this have implications on HFT compositions in large, medium, and small stocks?
Digging more into the results
Sorting according to stock sizes

Table 4. Market activity, trading costs, and price efficiency (by firm size)

The table reports the estimated $\beta_1$ and $\beta_2$ coefficients from the following two models of market activity, trading costs and price efficiency:

$$
\begin{align*}
\text{QUOTES} & = \alpha + \gamma + \beta_1 \text{DEPTH} \\
\text{TRADES} & = \alpha + \gamma + \beta_2 \text{PRICE}
\end{align*}
$$

where all variables are as previously defined. The odd columns contain $\beta_1$ estimates, and the even columns contain $\beta_2$ estimates. The models are estimated for large, medium, and small stocks separately. Otherwise, the models are estimated as in the previous three tables. The asterisks ***, **, and * denote statistical significance at, respectively, 1%, 5%, and 10%.

Panel A: Quoting and trading activity

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Digging more into the results

Order life

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<tr>
<th>Cancellation Time Bucket</th>
<th>Pre</th>
<th>Post</th>
<th>Post-Pre</th>
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<tbody>
<tr>
<td>[1; 100) μs</td>
<td>0.032</td>
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<tr>
<td>[1; 2) s</td>
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<td>[3; 5) s</td>
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What are the ultra short-lived orders?
- Pinging (Xu, 2014)?
- Overshooting (Yueshen, 2014)?

→ consistent with lower adverse selection post ban
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Order life

Table 9: TV-ITCH order cancellation speeds

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⇒ consistent with lower adverse selection post ban
Who are not affected by the ban?
  • Only “small” HFTs?
  • The broker-dealers’ orders must also be integrity checked, no?
    → same magnitude of latency added?

Effective spread, price impact, and realized spread
  • 5 min, 1 min → still too long?
  • O’Hara (2014): 5 seconds, 15 seconds?

Volatility: High-minus-low
  • add variance ratio?
  • add realized variance?

Adverse-selection: PIN measure?

Diff-in-diff as the main result?
References


