

## Competing on Speed

Emiliano Pagnotta    Thomas Philippon

Discussion by Thierry Foucault; HEC, Paris and CEPR

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  4. Policy Relevant

## Industrial Organization and Finance

- **The industrial organization of financial markets raise many interesting and specific issues.**
- **Analyzing these issues is very relevant for policy making**
  1. Costs and benefits of market fragmentation/inter-market competition (RegNMS in the U.S. or MiFID)
  2. High frequency trading (“will the market fix the market?” (Burdish et al.(2017))
  3. Make/take fees
  4. Tick size in small caps
  5. Etc.
- + trading technology choices affect liquidity and therefore **asset prices.**



## Industrial Organization and Finance

- **Yet, very few models in which both the supply and demand of trading technologies are endogenous.**
  1. Foucault and Parlour (2004, RAND) (Vertical differentiation in trading technologies softens competition for listings).
  2. Foucault, Kadan and Kandel (2013, JoF) (Make/take fees are non neutral when prices are discrete).
  3. Colliard and Foucault (2012, RFS) (Change in trading fees have ambiguous effects on welfare in limit order markets)
  4. Chao, Yao, and Ye (2016) (non zero tick size → make take/fees are a way to vertically differentiate)

## Pagnotta and Phillipon (2016)

- A trading platform's **matching “speed”** is an important characteristic of its trading technology.
- **How do exchanges compete in matching speeds ? Do they provide too fast or too slow matching technologies from a social standpoint ?**
- **Important issue :**
  1. Dramatic increase in the speed of trading in recent years which was both the impetus for and a response to new trading strategies (algo and high frequency trading).
  2. “Latency” race among trading platforms and emergence of slow trading as an alternative offer (e.g., IEX).

## Are Trading Platforms too Fast or too Slow ?

- **Biais, Foucault, Moinas (2015, JFE) and Budish, Cramton, and Shim (2016, QJE) :**
  1. Investors' investment in speed is too high from a social standpoint
- **Pagnotta and Philippon (2016) :**
  1. Trading platforms will in general offer matching technologies that are too slow from a social standpoint (Proposition 5).
  2. Will the market fix the problem? No : Competition between platforms alleviates the problem but does not suppress it.
- **Why different conclusions and policy recommendations ?**

## What does speed mean ?

- **Two types of speeds in financial markets :**
  1. **“matching speed”** : Speed at which traders can find a counterparty.
  2. **“Information access speed”** : Speed at which traders can get access to information and trade on it : on news, quotes, trades etc (e.g., co-location).
- **Difficult to disentangle in practice** : People need to be matched quickly to benefit from quick access to information.

## “Not all speeds are the same”

- **Increase in matching speed :**

1. Faster realizations of gains from trade (e.g., portfolio rebalancing)  $\Rightarrow$  Increase in welfare (Pagnotta and Phillipon (2016), Biais, Foucault, Moinas (2015)).
2. A trader's decision to buy “matching speed” has **no externality** (or **if any positive**) on others.

- **Increase in information access speed**

1. Increase in adverse selection and therefore trading costs
2. A trader's decision to buy information access speed is a **negative externality** and lower all other traders' welfare (Budish (2016), Biais, Foucault, Moinas (2016)).

## Are Trading Platforms too Fast or too Slow ?

- **Too fast** **because** traders do not internalize the effect of their demand for speed of access to information on trading costs and welfare (Budish (2016), Biais, Foucault, Moinas (2015)).
- **Too slow** **because** trading platforms exert **market power-Pagnotta and Philippon (2016) (IO matters)** :
  1. They do not internalize all the gains from trade associated with providing a higher matching speed
  2. They have an incentive to differentiate their matching speeds to relax competition.
- **Solution** : Provide fast matching technologies without fast access to information...difficult (see Budish et al.(2016)'s criticism of the continuous LOB).

## Suggestions

- **Be clearer on the various types of speeds in financial markets.**
  1. The paper exclusively focuses on “matching speed” and this is likely to drive policy recommendations.
  2. Relative vs. absolute speed (see Baron et al.(2016)).
- **Better highlight** the new economic insights relative to standard models of vertical differentiation (e.g., Shake and Sutton (1982, 1983), Champsaur and Rochet (1989)) [interaction with asset prices is a very interesting and new aspect].
- **Discuss the case of a monopolist platform offering a menu of speeds.** Wouldn't this implement the socially optimal solution? (see Mussa and Rosen (1978)).
- Is the assumption that investors can only be member and trade in one platform restrictive?

## Suggestions

- **Develop more predictions about the effects of change in speeds. There have been several changes in recent years (e.g., see your Table A1) :**
  1. Co-location upgrades on the SSE (see Baron et al;(2016))
  2. EBS (December 2013)
  3. NYSE (see Hendershott and Moulton (2011)).
- **What should we observe around these changes according to the model?** For membership fees, for trading volume etc. On the affected and non affected exchanges etc.
- **How large are the welfare gains of increase in matching speeds?** The calibration exercise suggests they are potentially significant. Structural estimation? Another paper but would be a very significant contribution.