

# Discussion of "Fragmented Markets and Maker-Taker Pricing"

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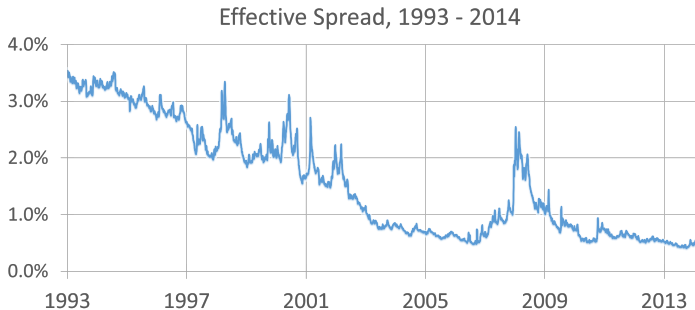
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# MOTIVATION

- ▶ **Introduction of Regulation NMS**
  - ▶ Goal: Regulators wanted to foster competition among trading venues
  - ▶ Key: Order Protection Rule (Trade Through Rule)
- ▶ **Decentralized / Fragmented Markets**
  - ▶ Multiple Exchanges
  - ▶ Other Trading Venues(ATS, ECN, Dark Pools)
- ▶ **Designated Market Makers to Competition of Order Flow**
  - ▶ Maker-Take Pricing Models

# STATE OF THE MARKET

- ▶ On surface, markets are better than ever
  - ▶ Quoted bid-ask spreads are near all-time low
  - ▶ Trading costs have fallen dramatically
  - ▶ Market depth has increased significantly
  - ▶ Speed has increased dramatically



# POTENTIAL PITFALLS EXIST

- ▶ Disappearance of the Designated Market Makers
  - ▶ Flash Crash
- ▶ Dark pools may degrade market liquidity
  - ▶ Dark Pools cover 38% of market (2017 July, BATS)
- ▶ Fragmented Markets → Competition for Order Flow: Conflicts of Interest
  - ▶ Maker-Take pricing model
  - ▶ Payment for order flow

# MAKER-TAKE PRICING MODEL

- ▶ **Concept**

- ▶ Rebate is paid to liquidity providers (Make)
- ▶ Fee is charged to traders removing liquidity (Take)

- ▶ **Issues**

- ▶ Brokers may choose to internalize orders or route orders to cheaper venues or dark pools to avoid paying access fees to make-or-take exchanges

# FOUCAULT, KADAN, AND KANDEL (2013, JF)

## ▶ Security

- ▶ Market Makers value of security:  $v_0$
- ▶ Market Takers value of security:  $v_0 + \Gamma$
- ▶ Gains from Trade:  $\Gamma$
- ▶ Trade price :  $a = v_0 + \Delta, v_0 < a = v_0 + \Delta < v_0 + \Gamma$

## ▶ Make-Take Fee

- ▶ Market maker fee :  $c_m$
- ▶ Market taker fee:  $c_t$
- ▶ Platform Profit:  $\bar{c} = c_m + c_t$

## ▶ Monitoring - cost of participating in a trade

- ▶ Market Maker  $i$  ( $i \in 1 \dots M$ ) inspects the market according to a Poisson process with parameter  $\mu_i$  with cost,

$$C_m = \frac{1}{2}\beta\mu_i^2T \quad (1)$$

- ▶ Market Taker  $j$  ( $j \in 1 \dots N$ ) inspects the market according to a Poisson process with parameter  $\tau_i$  with cost,

$$C_t = \frac{1}{2}\gamma\tau_i^2T \quad (2)$$

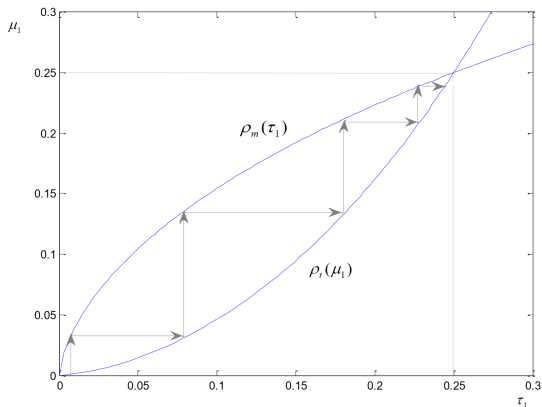
# FOUCAULT, KADAN, AND KANDEL (2013, JF)

## ► Solving for Equilibrium

- The Trading Platform chooses its fee structure:  $c_m, c_t$
- Market Makers/Takers choose simultaneously monitoring intensities  $\mu, \tau$

## ► Propositions

- P1/2) There exists two equilibria; One with no monitoring and no trade, and one with monitoring and trade



# FOUCAULT, KADAN, AND KANDEL (2013, JF)

- ▶ **Optimal Breakdown of fees**

- ▶ Trading Platform's problem

$$\max(c_m + c_t) * R(\bar{\mu}, \bar{\tau}) \quad (3)$$

- ▶ s.t.  $c_m + c_t = \bar{c}$ .

- ▶ **Solution:**

- ▶  $c_m^*, c_t^*$  such that

$$\frac{\partial R}{\partial c_m} = \frac{\partial R}{\partial c_t} \quad (4)$$

- ▶ Optimal fees are set so that the change of transaction rate to the fees are equal
- ▶ **Intuitive that  $c_m \neq c_t$ , and Make-Take spreads exist**



# MAKER-TAKE PRICING MODEL

## ▶ Empirical Literature

- ▶ Battalio, Corwin, and Jennings (2016 JF)
  - ▶ Findings: a negative relation between measures(fill rate, fill time, realized spread) of limit order execution quality and rebate/fee level
  - ▶ Problem: Proprietary Limit Order Data questionable
- ▶ Malinova and Park(2015 JF)
  - ▶ Change in trading fees in TSE → posted bid-ask spreads decline but transaction costs for liquidity demanders remain unaffected

Thank You!