

# Two Visions of Liquidity

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# Asset Market Liquidity

- Liquidity is hard to define, but obviously important.
- Broadly: how easy it is to execute an order?
  - Can you find a counterparty?
  - What is the execution cost or price impact?
- Kyle and Duffie each offer a body of work exploring causes and measurement of liquidity.
- My discussion: Compare/contrast these two visions of liquidity.  
Key policy/measurement question: How much each friction matters in each market?

# Price impact and asymmetric information (Kyle)

## Context:

- Kyle (1985): An informed insider submits orders over time to a market-maker who sets the bid-ask spread.  
Result: The insider trades slowly to camouflage his information.
- Kyle (1989): Oligopolists trade in a centralized asset markets.  
Result: Investors buy/sell less to conceal information and minimize price impact.
- Main measure of liquidity: price impact.
- Emphasis is on information transmission.

# Liquidity measurement and problems today (Kyle)

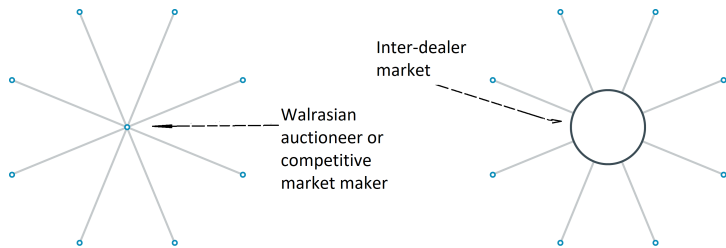
- This paper: Uses Kyle framework to provide an implementable measure of illiquidity that is proportional to both price impact and bid-ask spread.
- Key idea: replace hard to measure objects (information, non-executed trades) with a mix of observables and variables that do not change from market to market.
- Market invariants (e.g.: distribution of bet sizes) come from looking at each market at its own speed: business time = time it takes to unload a bet.
- Why is this important for policy? Large block orders that produce temporary price impact are destabilizing.
- Policy solution: Continuous scaled limit orders reduce the cost of trading and reduce gains to high frequency trading (Kyle-Lee '17).

- Context: Duffie, Garleanu and Pedersen (2005)
  - A decentralized market where investors need to meet a counterparty to trade.
  - Broker-dealers provide intermediation. However, you may need to find them and pay a bid-ask spread.
- Main measure of liquidity: time to trade, bid-ask spread.
- Emphasis is on how the structure of the market (probabilities of finding a dealer or other investors) affects liquidity.

# Liquidity problems today (Duffie '18)

- A liquidity bottleneck: the balance sheet of broker-dealers.
  - Market-making activities require holding asset inventories to serve costumers. Post-crisis regulation (leverage ratio) requires intermediaries to hold more capital against larger inventories. Making markets is more expensive.
  - What used to be an arbitrage (interest parity) is now an expensive trade. Prices are no longer aligned.
- Policy solution:
  - 1 Looser capital requirements for safe assets, tough ones for risky assets.
  - 2 Centralize platforms to prevent fragmentation.

# Comparing Theories: A Network Representation



Fully Centralized Market

Broker-Dealer Over-The-Counter Market

Is the main point that centralized markets are better described by Kyle and OTC markets by Duffie? No, it's not that simple.

# Most markets have centralized and decentralized segments



## Inter-Dealer Market

(Search is what prevents periphery from connecting directly.)

Does search/balance sheet matter for periphery and price impact at the core? No.



# How to compare?

- Are asymmetric information and market power pervasive at the inter-dealer market and balance sheet cost and search frictions pervasive at the periphery?
- No, both sources of illiquidity are present in every layer:
  - Dealers selectively share information with clients: DiMaggio, Franzoni, Kermani, Somnavilla (2017)
  - Core broker-dealers stopped arbitraging covered interest parity (Du, Tepper, Verdelhan, 2017).
- Where does this leave us?  
Liquid markets – in any form – require two things:
  - 1 Willingness to trade: Not too much asymmetric information.
  - 2 Ability to trade: Balance sheet room.

# Measurement: How Much of Each?

- Both frictions operate. Du et al and DiMaggio et al evidence is a smoking gun for each. But how much does each account for? In which markets? Important because policy remedies differ.
- Classic measures don't distinguish:
  - Bid ask spread could come from informed traders or constrained dealers.
  - Price impact could be info. But the inability of market maker to absorb much trade also amplifies price change.
- Not static. Both are changing over time
  - New Basel agreements will affect balance sheet constraints.
  - Big data changing information (Farboodi-Veldkamp '18)
    - New data to be observed tomorrow creates uncertainty/price impact for investors today.

# Conclusions: What should we do?

- To know what mix of policy is best today, we need an integrated theory to identify moments that distinguish unwillingness from inability to trade.
- Example: Lester, Shourideh, Venkateswaran, Zeitlin-Jones ('18) also Babus and Kondor (ecma '18)
  - Search frictions, market power and asymmetric information.
  - Use for measurement (in progress).
  - These frictions interact and can flip standard logic.  
Ex: Reducing search costs makes reservation values more similar.  
Harder to distinguish high- from low-value traders.  
Slower learning about trader types raises bid-ask spread.
- Main point: **Kyle and Duffie are both right.**  
But to make progress, we need to think about an environment where both authors' visions of liquidity are present.