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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)

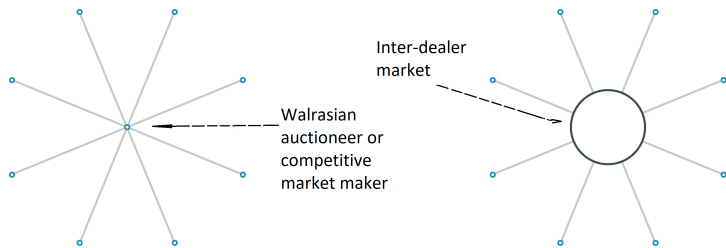
- This paper: Uses Kyle framework to provide an implementable measure of illiquidity that is proportional to both price impact and bid-ask spread.
- Key idea: replace hard to measure objects (information, non-executed trades) with a mix of observables and variables that do not change from market to market.
- 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.