Dealer Quid Pro Quo in the Municipal Bond Market

Casey Dougal[*], Daniel A. Rettl[+], Vasiliy Yakimenko[+]

* Florida State University
+ University of Georgia

July 2025

Motivation & Context

Municipal Bonds
OTC market; ~$12.5B traded daily; ~16% inter-dealer.

Dealer Network
30 core vs. 1,000+ peripheral dealers; core markups are double but execute faster (Li and Schürhoff, 2019).

Regulatory Lens (MSRB G-30)
“Fair & reasonable” markups, yet opaque trading can stack hidden costs on investors.

Our Paper in Brief

Research Question

Does reciprocal “favor trading" help liquidity or enable rent extraction?

Main Insight

Large networks: reciprocity boosts liquidity and competition, *lowering* costs.

Small, tight networks: reciprocity can enable collusion, *raising* markups.

Scenario 1: No Inter-Dealer Trade

Suppose a bond is trading at $100.

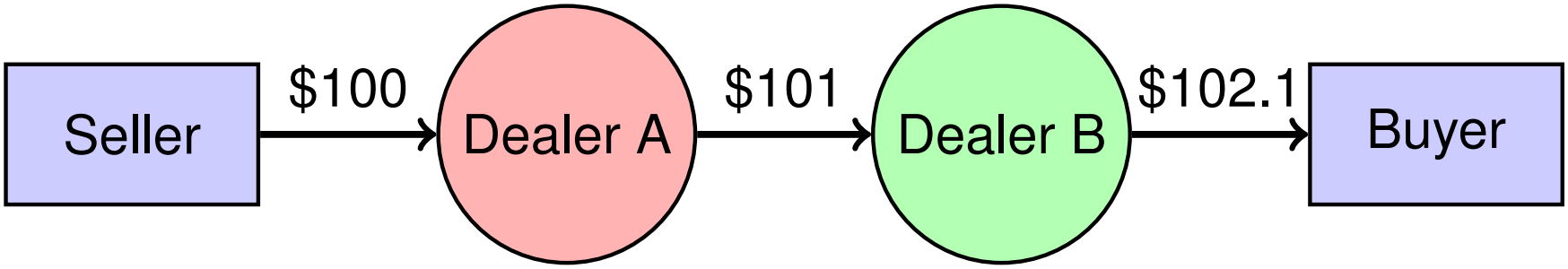
Dealer A purchases the bond for $100.

Dealer A resells it to a customer with a 1% markup.

The customer pays $101.

Dealer A makes $1 in profit.

Scenario 2: Inter-Dealer Trade



Dealer A buys the bond for $100.

Instead of selling directly to the customer, Dealer A sells it to Dealer B for $101.

Dealer B then sells the bond to the customer for $102.10.

Dealer A makes $1 (same as before).

Dealer B makes $1.10.

The customer now pays $1.10 more than in Scenario 1.

Why Would Dealer A Choose Scenario 2?

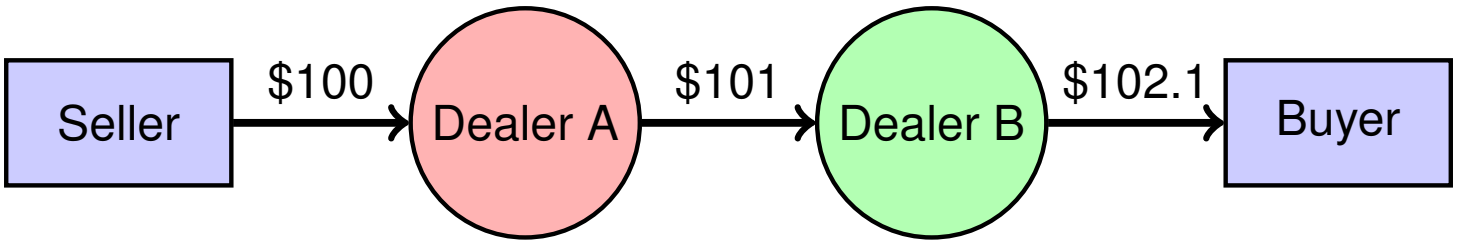
Dealer A benefits because Dealer B "owes" them a favor.

This could mean:

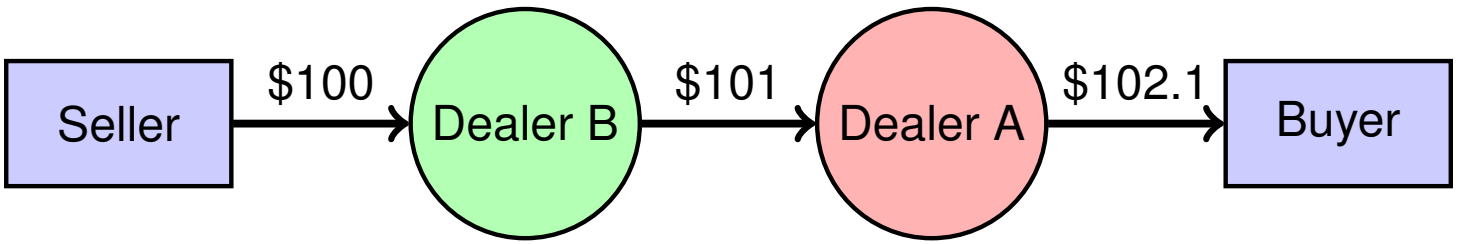
- Dealer B might give Dealer A a preferential deal on another bond.
- Dealer B may offer Dealer A liquidity when needed.

Scenario 2: Repaying The Favor

Trade 1 (Original Trade):



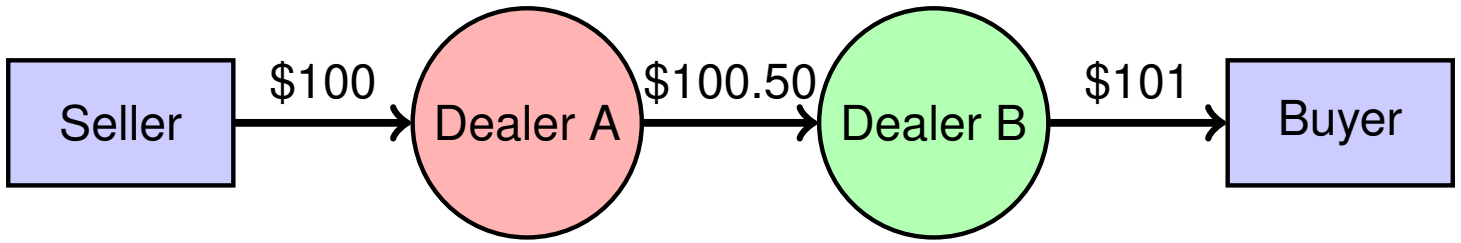
Trade 2 (Favor Repaid):



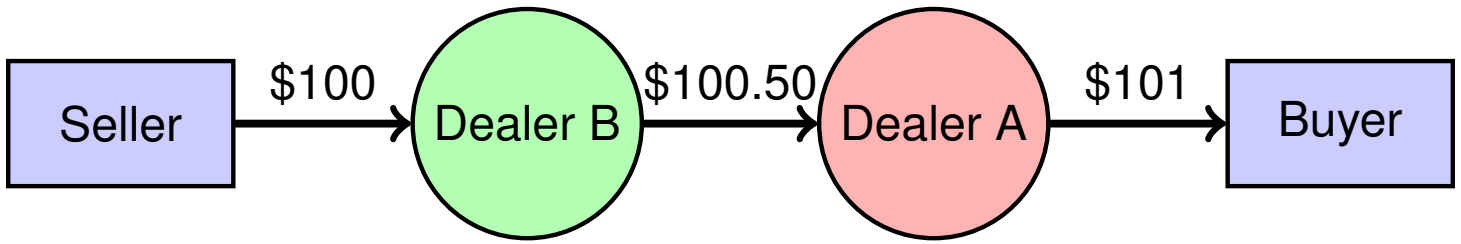
Dealer	Profit in Trade 1	Profit in Trade 2	Total Profit
Dealer A	$1.00	$1.10	$2.10
Dealer B	$1.10	$1.00	$2.10

Alternative Scenario 2: Repaying The Favor

Trade 1 (Original Trade):



Trade 2 (Favor Repaid):



Dealer	Profit in Trade 1	Profit in Trade 2	Total Profit
Dealer A	$0.50	$0.50	$1.00
Dealer B	$0.50	$0.50	$1.00

Hypotheses

Cost Effects

H1: Reciprocity reshapes costs—
Discount: better search and competition.
Premium: collusive rent extraction.

Mechanisms & Moderators

H2: Reciprocity lengthens transaction chains and increases quid-pro-quo trades.

H3: *Network size*—small networks inflate, large networks cap markups.

H4: *Dealer centrality*—central dealers cut, peripherals raise markups.

Data & Key Measures

Trades: MSRB academic dataset with anonymized dealer IDs (2014–2018) $\rightarrow$ 1.54 M round-trip transaction chains.

Dealer metrics (30-day rolling):

- Eigenvector centrality
- Node reciprocity: share of bidirectional links
- Local network size (unique counterparties)
- Inventory, Market share

Outcome: Chain markup $=$ final customer price $-$ initial customer price.

Table 1: Sample Statistics

- Unit of observation is transaction chain
- Average markup close to GHK (2023), 15-20 bps below LS (2019)

Variable	Mean	St. Dev.	25%	50%	75%	Corr.
Transaction Characteristics						
Markup (%)	1.02	2.00	0.17	0.68	1.94	0.04
Par volume (Thousands)	68.93	616.94	10.00	25.00	40.00	-0.03
Dealer Characteristics						
Dealer centrality	0.13	0.07	0.07	0.14	0.18	0.63
Dealer reciprocity	0.41	0.17	0.29	0.44	0.52	1.00
Dealer market share	0.02	0.02	0.01	0.02	0.03	0.33
Dealer network size	19.68	18.09	5.00	15.00	29.00	0.50
Dealer inventory	0.92	33.64	-1.47	0.00	1.54	-0.04

Dealer Types

Table 2, Panel A. Number of Dealers

		Reciprocity		
		Lowest	Medium	Highest
Centrality	Lowest	636	110	49
	Medium	25	34	21
	Highest	2	11	12

Table 2, Panel B. Number (Percent) of Transaction Chains

		Reciprocity		
		Lowest	Medium	Highest
Centrality	Lowest	408,043 (26.56%)	68,640 (4.47%)	35,506 (2.31%)
	Medium	93,485 (6.08%)	258,015 (16.79%)	160,710 (10.46%)
	Highest	10,658 (0.69%)	185,578 (12.08%)	315,916 (20.56%)

Transaction Chain Averages

Table 2, Panel C. Average Transaction Markup

		Reciprocity			
		Lowest	Medium	Highest	**H-L**
Centrality	Lowest	0.81	1.00	1.53	0.72***
	Medium	1.41	0.97	0.79	-0.62***
	Highest	1.99	1.13	1.19	-0.80***
	H-L	1.18***	0.13***	-0.34***	

Table 2, Panel D. Average Chain Length

		Reciprocity			
		Lowest	Medium	Highest	**H-L**
Centrality	Lowest	2.74	3.55	4.18	1.44***
	Medium	3.00	3.11	3.39	0.39***
	Highest	3.20	2.81	2.77	-0.43***
	H-L	0.46***	-0.74***	-1.41***	

Table 2, Panel E. Average Network Size

		Reciprocity			
		Lowest	Medium	Highest	**H-L**
Centrality	Lowest	6.46	8.86	1.34	-5.12***
	Medium	16.33	20.06	24.11	7.78***
	Highest	20.91	22.85	37.43	16.52***
	H-L	14.45***	13.99***	36.09***	

Transaction Chain Averages

Table 2, Panel E. Average Abnormal Transaction Markup

		Reciprocity			
		Lowest	Medium	Highest	**H-L**
Centrality	Lowest	-0.06	0.02	0.33	0.39***
	Medium	0.15	-0.06	-0.25	-0.40***
	Highest	0.29	0.03	0.15	-0.14***
	H-L	0.35***	0.01	-0.18***	

Table 6, Panel B. % involving complex bonds

		Reciprocity			
		Lowest	Medium	Highest	**H-L**
Centrality	Lowest	8.91	10.48	14.62	5.71***
	Medium	16.36	12.48	12.81	-3.55***
	Highest	21.53	15.11	13.50	-8.03***
	H-L	12.62***	4.63***	-1.12***	

Table 6, Panel D. % of coarse-price transactions

		Reciprocity			
		Lowest	Medium	Highest	**H-L**
Centrality	Lowest	7.15	5.41	11.14	3.99***
	Medium	4.94	7.12	4.07	-0.87***
	Highest	6.36	6.46	5.18	-1.18***
	H-L	-0.79***	1.05***	-5.96***	

Table 5: Reciprocity Predicts Favor Repayment

	(1)	(2)
Dep. Variable	Reversal 1 day	Reversal 1 day
Dealer centrality	-0.027***	
	(0.001)	
Dealer reciprocity	0.071***	
	(0.001)	
High reciprocity × Low centrality		0.556***
		(0.015)
Controls	Yes	Yes
Market share controls	Yes	Yes
State FE	Yes	Yes
Month–Year FE	Yes	Yes
Observations	739,411	739,411
Pseudo R^2	0.06	0.07

Table 7: Network Size and Transaction Costs

	(1)	(2)	(3)	(4)	(5)
Local network size p.	0-20	21-40	41-60	61-80	81-100
Dep. Variable	Markup	Markup	Markup	Markup	Markup
Dealer centrality	-0.092***	0.006	0.164***	0.081***	0.017
	(0.007)	(0.011)	(0.012)	(0.014)	(0.024)
Dealer reciprocity	0.149***	-0.076***	-0.244***	-0.196***	-0.029
	(0.006)	(0.009)	(0.010)	(0.012)	(0.034)
Controls	Yes	Yes	Yes	Yes	Yes
Market share controls	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes
Month-Year FE	Yes	Yes	Yes	Yes	Yes
Observations	306,095	328,172	293,010	304,420	298,634
Adjusted R^2	0.17	0.14	0.15	0.13	0.13

Table 8: Intra-Network Trading and Transaction Costs

- Classify dealers into local trading communities using Louvain Algorithm (Blondel et.al., 2008)

	(3)
Dealers	All
Dep. Variable	Markup
Same community	0.507***
	(0.020)
Same community × Community size	-0.125***
	(0.010)
Controls	Yes
Market share controls	Yes
State FE	Yes
Month–Year FE	Yes
Bond FE	Yes
Observations	691,297
Adjusted R^2	0.17

- Average community size of 3.56 dealers implies positive impact of intra-community trades on markups across a typical community.
- Feature importance as indicated by LightGBM (Ke et al., 2017) and Random Forest (Breiman, 2001) classifier models identify dealer reciprocity as key determinant of dealer communities

Concluding Remarks

- The effect of the dealer reciprocity on price discovery and efficiency is two-sided:
  - Most of the time dealer cooperation, grounded in the system of favors, reduces markups and passes on the savings to customers
  - Some of the time dealer collusion among peripheral dealers with small local networks inflates markups causing customers to pay more for bonds

- Need for further investigation into the role of small, local dealer networks on inflating transaction costs

Thank You!