

# Competition and Market Concentration in the Municipal Bond Market

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# The municipal bond market

- ▶ Size: \$4 trillion in notional value outstanding - near \$500 billion issues per year.
- ▶ Despite its obvious economic importance, it's far from efficient.
  - ▶ Credit risk premiums are disproportionately high.
  - ▶ The Liquidity is very low, and the liquidity premiums high.
  - ▶ Implicit tax rates are too high.
  - ▶ Market fragmentation and home bias.
  - ▶ Yields deviate from the law of one price.
  - ▶ Lack of pre-trade transparency.
- ▶ The financial backbone of the US' infrastructure.

## Public or Negotiated: which is better?

- ▶ Two main methods of sale: competitive/public or negotiated/private sale.
- ▶ The existing literature compares auctions to negotiated sales without taking externalities into account.
- ▶ Contribution: focus on externalities.
  - ▶ Tragedy of the commons: negotiated sales may be more convenient for individual issuers, but less favorable if we consider the effects of the collective actions.
- ▶ I study whether negotiated sales increase the concentration in the market for underwriting services for municipal bonds.

## Relevance: market power and the risk of collusion

- ▶ Market power: market concentration is usually correlated with market power.
- ▶ Risk of collusion: e.g. the City of Philadelphia antitrust lawsuit.
- ▶ Ongoing discussion:
  - ▶ In 2018, Louisiana allowed the negotiated sale of muni bonds.
  - ▶ In 2019, North Dakota increased the limit of negotiated sales.

# Findings

- ▶ Market concentration has increased substantially over time, but only negotiated sales have contributed to greater concentration.
- ▶ The proportion of competitive sales in the state has a huge effect on concentration.
  - ▶ Going from fully negotiated to fully competitive decreases the Herfindahl Index by 0.29.
  - ▶ The change is equivalent to moving from *highly concentrated* to *unconcentrated*.

# Final Sample

- ▶ Size: The sample contains 75,791 “deals” issued between 1990 and 2014 in 39 states.
- ▶ Issuers: *independent* school districts with taxing power.
- ▶ Type of obligations: long-term.
  - ▶ Sub-sample: new-money bonds backed by an unlimited and separate ad-valorem tax plus the FFCT of the school.
- ▶ Why this sample?
  - ▶ I want to compare apples to apples (Big-Macs).
  - ▶ 2004-2014: 32% of all issues and 17% of notional amount.

# Types of new-money school bonds

<b>General Obligations:</b>	<b>#</b>		
<b>Ultid Dadval FF Bd</b>	<b>17,117</b>	Abat Ultid Dadval FF Bd	5
Ultid Gadval FF Bd	7,940	GF Cp	1028
Ultid Dadval RV Bd	3,692	Ultid Dadval GF Cp	493
Ultid Dadval GF Bd	3,668	FF Cp	242
Ltd Gadval FF Bd	2,021	Ltd Dadval GF Cp	213
Staid Ultid Dadval FF Bd	1,492	Ltd Gadval FF Cp	77
Ltd Dadval FF Bd	1,135	Ultid Dadval FF Cp	71
FF Bd	445	Ultid Gadval FF Cp	14
Sales Ultid Dadval FF Bd	333	<b>Revenue Bonds:</b>	<b>#</b>
Ultid Cadval GF Bd	220	Ltd Sadval RV Bd	1,238
Ultid Dadval off FF Bd	169	Sales RV Bd	655
Sales Ultid Dadval GF Bd	74	Asmt RV Bd	439
Staid Ltd Dadval GF Bd	65	Ltd Cadval RV Bd	279
GF Bd	47	Ltd Gadval RV Bd	22
Ltd Dadval GF Bd	43	Fedaid RV Bd	10
Ltd Sadval FF Bd	63	AP Cp	2768
CF GF Bd	21	CF Cp	27

## State Herfindahl Index: competitive vs. negotiated samples

Period	Full Sample		New-money		Utd Dadval	
	Neg	Auc	Neg	Auc	Neg	Auc
1	0.22	0.12	0.22	0.14	0.31	0.14
2	0.22	0.11	0.24	0.12	0.28	0.12
3	0.26	0.13	0.28	0.13	0.30	0.13
4	0.28	0.12	0.32	0.12	0.31	0.11
5	0.32	0.12	0.35	0.15	0.39	0.13

- ▶ The difference in concentration between the competitive sample and the negotiated sample is huge.
- ▶ Concentration has only increased in the negotiated sample.



# Selection Bias - Bond legislation on the Method of Sale

- ▶ Issuers have a choice → subject to selection bias.
- ▶ Most state laws also provide for the method of sale of the bonds:
  - ▶ Competitive (*restricted*).
  - ▶ competitive or negotiated (*free*).
- ▶ There are 21,606 *restricted* deals in the sample.
- ▶ I compare concentration in the sample of restricted bonds and the sample of free bonds, regardless of the method of sales.
  - ▶ No choice, no selection bias.
- ▶ I was assisted by more than 115 bond lawyers.

## Robustness tests using state laws

Period	Full Sample		New-money		Utd Dadval	
	Free	Rest	Free	Rest	Free	Rest
1	0.15	0.13	0.15	0.14	0.15	0.12
2	0.17	0.12	0.21	0.14	0.22	0.13
3	0.21	0.13	0.22	0.12	0.26	0.13
4	0.23	0.13	0.28	0.13	0.22	0.13
5	0.24	0.17	0.23	0.16	0.26	0.13

- ▶ The difference in concentration between the free sample and the restricted sample is also huge.
  - ▶ As expected, the difference is smaller than before because many free issuer use competitive sales anyway.

## Robustness tests using exogenous state laws (2)

Restricted Auctions vs. Free Auctions						
	Full Sample		New-money		Ulld Dadval	
Period	Free	Rest	Free	Rest	Free	Rest
1	0.12	0.14	0.14	0.15	0.14	0.14
2	0.12	0.12	0.13	0.14	0.12	0.13
3	0.14	0.13	0.14	0.12	0.13	0.13
4	0.12	0.13	0.12	0.13	0.11	0.12
5	0.12	0.17	0.16	0.16	0.15	0.13

- ▶ Bonds in the restricted sample are not systematically different from bonds in the free sample.
  - ▶ Every period, concentration is the same for competitive sales in both samples.
- ▶ **Final Remark:** In the paper, I show overwhelming evidence that competitive sales reduce concentration by a large amount.