Gas, Guns, and Governments: Financial Costs of Anti-ESG Policies

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*The views stated herein are those of the authors and are not necessarily the views of the Federal Reserve Bank of Chicago or the Federal Reserve System.

Motivation

- Interest in environmental, social, and governance (ESG) policies in investment and consumption decisions has skyrocketed.
  - Investment inflows to ESG funds more than doubled from 2019 to 2021.
  - Most large US banks have committed to some ESG policies.
- Banks are central in intermediating credit to households, businesses, and governments:
  - Outsize importance for the adoption of ESG policies.
  - Fossil fuel companies already face increased uncertainty in credit markets as a result of climate policy (Ivanov, Kruttli, and Watugala 2021; Delis, de Greiff, and Ongena 2019).
- Governments dependent on fossil fuels firms or on firms in conflict with social factors may attempt to limit ESG adoption.
  - Former US VP, Mike Pence: "States, cities and Congress should follow suit by adopting measures to discourage the use of ESG principles."
  - What are the costs of such actions and why?

Texas Anti-ESG Laws

- Characterize and assess the impact of anti-ESG laws on affected markets.
- Explore a large regulatory change in the state of Texas:
  - Senate Bills 13 and 19 bar Texas municipalities from contracting with banks that limit funding to oil & gas or firearms companies.
  - Implemented in September 2021, the laws led to the abrupt exit of five of the largest underwriters in the state.
- Identify the effect of anti-ESG policies on market participants:
  - Exploit the differential exposure of municipalities to the exiting underwriters.
  - Municipalities with more or exclusive reliance likely to be most affected.

Issuers Face Higher Borrowing Costs

- Issuers previously reliant on the targeted banks are more likely to:
  - negotiate pricing instead of holding an auction,
  - receive worse pricing on bond offerings **($303-$532 million on $31.7 billion borrowing)**,
  - and face increased underpricing and altered placement in the secondary market.
- Main channels:
  - **Underwriter competition decreases.** In the competitive market, issuers reliant on the targeted banks face fewer underwriting bidders, higher bid variance, and higher winning bids (YTM).
  - **Placement more reliant on smaller investors.** Issuers no longer have access to the national distribution networks of the exiting banks and face higher underpricing.

Outline

Texas Senate Bills 13 and 19

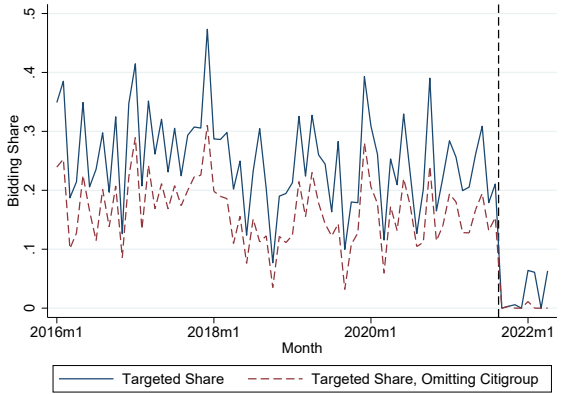
- Some Texas lawmakers see the rapid adoption of ESG policies as hurting key industries in the state:
  - Texas is one of the largest producers of oil and gas in the U.S.
  - "Boycott Texas oil, and Texas will boycott you, says Gov. Abbott with new law" (Adams-Heard 2021)
  - Texas Senate Bills 13 & 19: Bans banks with certain environmental policies or policies limiting business with firearms firms from participating in public finance markets in the state.
    - Implementation date: September 1, 2021.
- Texas has a history of setting legislative agendas that other states can follow:
  - 14 Other states working on similar rules.
  - Louisiana is also banning ESG-friendly banks from certain issues.

Outline

Municipal financing & secondary market data

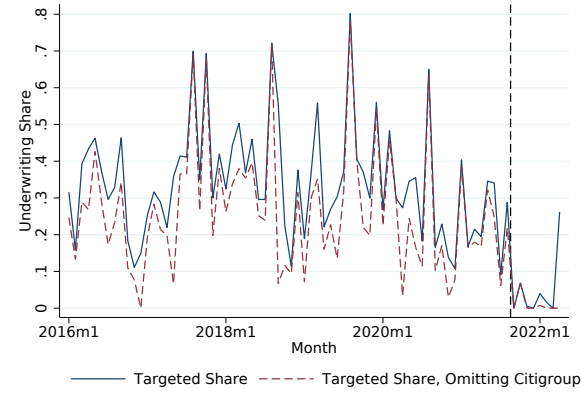
- Data on underwriter compliance with the Texas statutes comes from the Municipal Advisory Council of Texas.
- Identify all state and local government issues from Mergent:
  - Detail on the timing/specifics of public bond issues.
  - Sample period: 2007-present.
- Identify all state and local government auctions from the Bond Buyer:
  - Bidding-level data on all competitive offerings.
  - Sample period: 2016-present.
- MSRB secondary market data
  - Understand underpricing and dealer intermediation.
  - Sample period: 2016-present.

Exit of the targeted banks from Texas: **Bidding**



- The targeted banks: Citigroup, JP Morgan Chase, Goldman Sachs, Bank of America, Fidelity Capital Markets
- Underwriting Share

Exit of the targeted banks from Texas: **Underwriting**



- The targeted banks: Citigroup, JP Morgan Chase, Goldman Sachs, Bank of America, Fidelity Capital Markets
- Bidding Share

Targeted banks in Texas and elsewhere

- Targeted banks underwrite many of the largest issues around the US.
- Targeted banks used to underwrite the largest issues in TX.
- Large issuers used to rely on the targeted banks the most. Examples:
  - High reliance: TX (State), Dallas Fort Worth Airport, Pflugerville Schools, El Paso (City)
  - No reliance: Cameron Schools, the city of Celina

Outcomes of Interest

- Propensity to negotiate bond issue pricing:
  - Negotiated sales allow underwriters to better place the issue with investors when uncertainty is high (Sorensen 1979; Smith 1987).
  - Issue uncertainty is likely to be higher for affected issuers after the implementation of the laws $\longrightarrow$ affected issuers negotiate more.
- Offering yields:
  - Reduced underwriter competition (from the exit of the 5 banks) $\longrightarrow$ higher offering yields.
  - Reduced access to the national distribution networks of large banks $\longrightarrow$ higher offering yields.
- Underpricing:
  - The log-difference between the volume-weighted average customer purchase prices within thirty days of the offering and the offering price.
  - Reduced access to the national distribution networks of large banks $\longrightarrow$ higher underpricing.

Outline

Diff-in-diff specifications

- Compare issuance outcomes around the implementation of the Texas laws:
  - Continuous treatment based on the reliance on the targeted underwriters between 2007 and 2016.
  - Sample period: 2017-present. Treatment start at law implementation—September 1, 2021.
- Specification:

$$y_{j,i,t} = \lambda Targeted\ Share_i \times Implementation_t + \psi_i + \phi_t + \delta_m + \epsilon_{j,i,t} \quad (1)$$

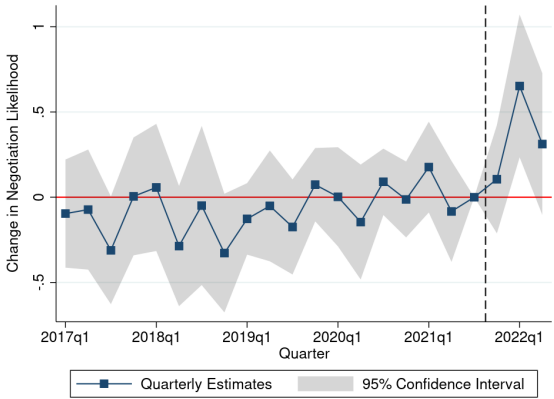
where t, j, and i denote offering date, distinct municipal bond offerings, and municipal issuers, respectively.

Negotiated Share

	Negotiated			
	(1)	(2)	(3)	(4)
Targeted Share × Post	0.081***			
	(0.023)			
Targeted Share 10% × Post		0.180***		
		(0.057)		
Targeted Share 20% × Post			0.159**	
			(0.065)	
Targeted Share 50% × Post				0.252***
				(0.091)
Observations	6,789	6,789	6,789	6,789
Issuer FE	Yes	Yes	Yes	Yes
Date FE	Yes	Yes	Yes	Yes
Maturity-Month FE	Yes	Yes	Yes	Yes
Offering Type FE	No	No	No	No

- A one s.d. increase in targeted bank reliance (0.24) is associated with 8 pp. higher probability of negotiating pricing.

Time Series Impact: Negotiation

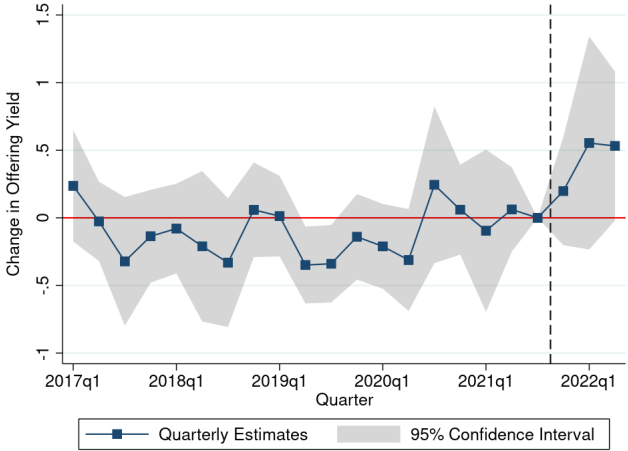


Offering Yield

	Offering Yield			
	(1)	(2)	(3)	(4)
Targeted Share × Post	0.097***			
	(0.034)			
Targeted Share 10% × Post		0.193***		
		(0.057)		
Targeted Share 20% × Post			0.227***	
			(0.071)	
Targeted Share 50% × Post				0.390***
				(0.139)
Observations	6,727	6,727	6,727	6,727
Issuer FE	Yes	Yes	Yes	Yes
Date FE	Yes	Yes	Yes	Yes
Maturity-Month FE	Yes	Yes	Yes	Yes
Offering Type FE	Yes	Yes	Yes	Yes

- A one s.d. increase in targeted bank reliance translates to 10bps higher yield.
- Effects increase to up to 39bps for the most reliant issuers.

Time Series Impact: Offering Yield



Interpreting Magnitude

- One s.d. increase in reliance $\implies$ 9.7 bp increase in yield.
- How much does this increase in yields cost Texas borrowers?
  - Weighted average share underwritten by targeted underwriters: 1.59 s.d.
  - Total borrowing from Sept. 2021 through April 2022: $31.7 billion
  - Weighted average duration of bonds issued: 6.2-10.9
  - Counterfactual from duration definition: additional funds raised if yields were lower

$$10.9 \times (1.59 \times 0.00097) \times 31.7 \text{ billion} = 0.532 \text{ billion}$$

- $289 billion bonds outstanding in Texas in 2017 Census.
  - If changes are persistent in equilibrium, raises annual financing costs by

$$(1.59 \times 0.00097) \times 289 \text{ billion} = 0.445 \text{ billion}$$

Triple Difference Specification

- Allows us to difference out the time-varying impact of unobservable borrower type:
  - Assumption: municipal issuers in Texas and other states select underwriters with ESG policies for similar unobservable reasons.
  - Example: Texas and non-Texas issuers matching with JP Morgan Chase because the bank specializes in large, competitive issues placed nationally.
- Specification:

$$\begin{aligned} y_{j,i,s,t} =& \lambda Targeted\ Share_i \times Texas \times Implementation_t \\ &+ \gamma Targeted\ Share_i \times Implementation_t \\ &+ \psi_i\ +\ \phi_{s,t}\ +\ \delta_m\ +\ \epsilon_{j,i,s,t} \end{aligned} \tag{2}$$

where t, j, i, s denote offering date, distinct municipal bond offerings, municipal issuers, and state, respectively.

Negotiated Share (Triple Diff)

	Negotiation					
	(1)	(2)	(3)	(4)	(5)	(6)
Targeted Share × Post × TX	0.077***	0.079***				
	(0.027)	(0.025)				
Targeted Share 20% × Post × TX			0.162**	0.153**		
			(0.067)	(0.064)		
Targeted Share 50% × Post × TX					0.147	0.164*
					(0.093)	(0.093)
Post × TX	0.004		-0.037		-0.016	
	(0.028)		(0.033)		(0.031)	
Observations	59,682	57,620	59,682	57,620	59,682	57,620
Issuer FE	Yes	No	Yes	No	Yes	No
GO x Issuer FE	No	Yes	No	Yes	No	Yes
Date FE	Yes	Yes	Yes	Yes	Yes	Yes
Maturity FE	Yes	No	Yes	No	Yes	No
Mat x Month FE	No	Yes	No	Yes	No	Yes
State x Month FE	No	Yes	No	Yes	No	Yes
Issuance x Month FE	No	Yes	No	Yes	No	Yes

- Triple diff estimates for negotiated share largely similar to Texas diff-in-diff results.

Offering Yield (Triple Diff)

	Yield					
	(1)	(2)	(3)	(4)	(5)	(6)
Targeted Share × Post × TX	0.076*	0.124***				
	(0.043)	(0.047)				
Targeted Share 20% × Post × TX			0.103	0.181**		
			(0.072)	(0.073)		
Targeted Share 50% × Post × TX					0.326**	0.441**
					(0.148)	(0.171)
Post × TX	0.058**		0.028		0.024	
	(0.026)		(0.027)		(0.025)	
Observations	57,943	55,950	57,943	55,950	57,943	55,950
Issuer FE	Yes	No	Yes	No	Yes	No
GO x Issuer FE	No	Yes	No	Yes	No	Yes
Date FE	Yes	Yes	Yes	Yes	Yes	Yes
Maturity FE	Yes	No	Yes	No	Yes	No
Mat x Month FE	No	Yes	No	Yes	No	Yes
State x Month FE	No	Yes	No	Yes	No	Yes
Issuance x Month FE	No	Yes	No	Yes	No	Yes
Offering Type FE	Yes	Yes	Yes	Yes	Yes	Yes

- Pricing for affected issuers increase by up to 44bps.

Extensive Margin and Heterogeneity

- Estimates so far show large shift toward negotiations, higher yields for affected borrowers
- Is there a quantity response that could be indicative of selection?
  - Test $\mathbb{1}$(issue), IHS(issuance), dollars of issuance at month-borrower level.
  - Negative estimates, no statistical significance Estimates
- Treatment heterogeneity.
  - Reliant issuers more likely to switch away from competitive to negotiated sales.
  - The effect of targeted reliance on offering yields similar across specifications.

Outline

The Texas Laws and Underwriter Competition

- Auction outcomes shed light on changes in competition resulting from underwriter exit.
- Estimate Equation 1 only for the subset of competitive sales for three different auction outcomes:
  - the winning bid (yield to maturity),
  - the number of participating bidders,
  - and the variance of the submitted bids.

Auction Outcomes

	Winning Bid	# Bidders	Bid Variance
	(1)	(2)	(3)
Targeted Share × Post	0.036***	-0.772***	0.122***
	(0.014)	(0.242)	(0.041)
Observations	2425	2425	2425
Issuer FE	Yes	Yes	Yes
Date FE	Yes	Yes	Yes
Maturity Month FE	Yes	Yes	Yes

- The winning bid and bid variance increase, while the number of bidders decline.
- Underwriter competition appears to decline after the implementation of the Texas laws.

Placement of Municipal Bond Offerings

- The Texas laws likely to affect the placement of bonds with investors:
  - The targeted underwriters have national distribution networks.
  - Issuers have less access to these networks after the laws' implementation.
- There are potential adverse consequences for issuers such as underpricing.
- Underpricing increases for the most affected issuers but the effects are small.

Simple Decomposition of Estimated 12.4bps Yield Increase:

- Mechanical yield impact of negotiations:
  - Most recent papers (Liu 2017; Cestau, Green, Hollifield, and Schürhoff 2019) find estimates of 22bps and 17bps more expensive. Does this explain results?
  - Negotiation increase = 7.9%, explains 1.5bps of impact, or $\approx$**12%**
- Mechanical yield impact of underwriter identity:
  - Estimate underwriter FE before Sept. 2021 to characterize mean average cost differences
  - New market shares and old underwriter FE $\implies$ mechanical 2.1bps increase, or $\approx$ **17%** of the yield increase
- **71%**, or 8.8bps **unexplained by observable changes** of offering and underwriter type

Outline

Conclusion

- Our paper illustrates how government regulation countering ESG policies affects public finance markets.
- Banks leave the market: affected governments incur higher borrowing costs and reduced access to external finance.
  - Increased interest payments from first 8 months of $303-$532 million.
- Economies around the world that attempt to undo ESG policies through the financial sector are likely to face adverse consequences as selected banks leave markets.

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Additional Slides

Contributions

- Relating to three broad literatures
  - ESG and the allocation of resources.
    - First empirical analysis of anti-ESG policies.
    - Selection of who exits over ESG is correlated with firm characteristics.
  - Banking competition.
    - We show importance of ESG-friendly bank exit for issue type and prices.
  - Intermediation in public finance markets.
    - Fights over ESG policies in the US likely to manifest in muni markets.
    - ESG-friendly banks underwrite the largest issues, absence is noticeable.
- Citations for prior work

Adding to the Literature

- Relating to three broad literatures
  - ESG and the allocation of resources.
    (Avramov, Cheng, Lioui, and Tarelli 2021; Gibson, Glossner, Krueger, Matos, and Steffen 2022; Hoepner, Sautner, Starks, and Zhou 2022; Krueger, Sautner, and Starks 2020; Basu, Vitanza, Wang, and Zhu 2022; Gibson, Glossner, Krueger, Matos, and Steffen 2022)
    - First empirical analysis of anti-ESG policies.
    - Selection of who exits over ESG is correlated with firm characteristics.
  - Banking competition.
    (Petersen and Rajan 1995; Gande, Puri, and Saunders 1999; Yanelle 1997; Boot and Thakor 2000; Corwin and Schultz 2005; Dick and Lehnert 2010; Allen, Carletti, and Marquez 2011; Liu and Ritter 2011; Cornaggia, Mao, Tian, and Wolfe 2015; Carletti and Leonello 2019)
    - We show importance of ESG-friendly bank exit for issue type and prices.
  - Intermediation in public finance markets.
    (Green, Hollifield, and Schürhoff 2007; Brancaccio, Li, and Schürhoff 2017; Cestau 2019, 2020; Garrett 2021; Garrett, Ordin, Roberts, and Suárez Serrato 2017)
    - Fights over ESG policies in the US likely to manifest in muni markets.
    - ESG-friendly banks underwrite the largest issues, absence is noticeable.

Back

IPW First Stage

	Targeted Share (50%)
	(1)
Average Issue Size (Millions)	0.032***
	(0.004)
Number of Issues	0.060***
	(0.013)
Share Negotiated	0.542
	(0.418)
Share Tax Exempt	-0.802*
	(0.473)
Share Refunding	-0.831*
	(0.451)
Average Maturity (Years)	-3.137**
	(1.239)
Observations	1,270

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Extensive Margin

A. Effects within Texas, Difference-in-Differences

	P(Issue)	IHS(Principal Issued)	Principal Issued
	(1)	(2)	(3)
Targeted Share × Post	-0.001	-0.024	-87.965
	(0.002)	(0.047)	(63.282)
Observations	102,720	102,720	102,720
Issuer FE	Yes	Yes	Yes
Month FE	Yes	Yes	Yes

Back

IPW Specifications

- Use IPW methods in the spirit of Hirano, Imbens, and Ridder (2003):
  - "Treated" issuers—those with over 50% reliance, while "control" issuers are those that have no reliance on the exiting banks between 2007 and 2016.
  - First stage equation (logistic model) of the likelihood of an issuer falling in the treatment or control groups. First Stage Estimates
  - Create inverse probability weights of treatment according to the equation:

$$weight_i = \frac{treat_i}{P(treat_i = 1)} + \frac{1 - treat_i}{P(treat_i = 0)},$$

    where $P(treat_i = 1)$ is the likelihood of treatment from the first stage.
  - Re-weight the treatment and control groups to ensure similarity pre-treatment.

Back

IPW Specifications

	Negotiated (1)	Yield (2)
Targeted Share 50% × Post	0.302***	0.264**
	(0.117)	(0.129)
Log(Issuance Amt)	0.025**	-0.073
	(0.011)	(0.063)
Observations	4,673	4,634
Issuer FE	Yes	Yes
Date FE	Yes	Yes
Maturity FE	Yes	Yes
Offering Type FE	No	Yes

Back

Heterogeneity by Relationship Type

- Estimates so far show large shift toward negotiations, higher yields for affected borrowers
- Recent difference-in-differences literature focuses on biases from heterogeneous effects.
  - Most effects increasing in continuous treatment when discretized.
  - Another potential source of treatment heterogeneity: reliance is not all of the same sort.
  - Relationships based on repeated negotiations may be different than relationships based on repeated auction wins.
  - Split continuous treatment into two:
    1. previous share of negotiated sales and
    2. previous share of competitive sales underwritten by exiting banks.
- Back

Relationship Measures

	Negotiated (1)	Yield (2)	Negotiated (3)	Yield (4)	Negotiated (5)	Yield (6)
Targeted Share × Post	0.0808***	0.0972***				
	(0.0225)	(0.0340)				
Targeted Share (NEG) × Post			0.0707**	0.0813***		
			(0.0299)	(0.0284)		
Targeted Share (COMP) × Post					0.1082***	0.0693**
					(0.0274)	(0.0294)
Observations	6,789	6,727	4,925	4,877	5,852	5,808
Issuer FE	Yes	Yes	Yes	Yes	Yes	Yes
Date FE	Yes	Yes	Yes	Yes	Yes	Yes
Maturity FE	Yes	Yes	Yes	Yes	Yes	Yes
Offering Type FE	No	Yes	No	Yes	No	Yes

- Reliant issuers more likely to switch away from competitive to negotiated sales.
- The effect of targeted reliance on offering yields similar across specifications.

Offering Yield, Robustness

	Offering Yield			
	(1)	(2)	(3)	(4)
Targeted Share × Post	0.114***			
	(0.044)			
Targeted Share 10% × Post		0.199**		
		(0.080)		
Targeted Share 20% × Post			0.214**	
			(0.093)	
Targeted Share 50% × Post				0.363**
				(0.167)
Observations	5,985	5,985	5,985	5,985
GO x Issuer FE	Yes	Yes	Yes	Yes
Date FE	Yes	Yes	Yes	Yes
Mat (years) x Month FE	Yes	Yes	Yes	Yes
Issuance Amt. x Month FE	Yes	Yes	Yes	Yes
Offering Type FE	Yes	Yes	Yes	Yes

- A one s.d. increase in targeted bank reliance translates to 11bps higher yield.
- Back

Robustness, Triple Difference

	Negotiated			Yield		
	(1)	(2)	(3)	(4)	(5)	(6)
Targeted Share × Post × TX	0.077***	0.077***	0.076***	0.076*	0.067*	0.107**
	(0.027)	(0.026)	(0.025)	(0.043)	(0.037)	(0.043)
Share Taxable		0.017***	0.009		0.623***	0.642***
		(0.006)	(0.006)		(0.013)	(0.013)
Share Senior		-0.062***	0.004		-0.233***	-0.372***
		(0.008)	(0.012)		(0.019)	(0.038)
Share Bank-Qualified		0.012*	0.005		-0.042***	-0.033***
		(0.006)	(0.006)		(0.008)	(0.008)
Share Revenue		0.045***	0.036**		0.162***	0.178***
		(0.013)	(0.015)		(0.028)	(0.032)
Share Refunding		0.092***	0.086***		-0.067***	-0.065***
		(0.009)	(0.010)		(0.008)	(0.008)
Share Insured		0.040***	0.040***		-0.095***	-0.113***
		(0.011)	(0.012)		(0.021)	(0.023)
Observations	59,682	59,682	57,620	57,943	57,943	55,950
Issuer FE	Yes	Yes	Yes	Yes	Yes	Yes
GO x Issuer FE	No	No	Yes	No	No	Yes
Date FE	Yes	Yes	Yes	Yes	Yes	Yes
Maturity FE	Yes	Yes	No	Yes	Yes	No
Additional Controls	No	Yes	Yes	No	Yes	Yes
Mat x Month FE	No	No	Yes	No	No	Yes
State x Month FE	No	No	Yes	No	No	Yes
Issuance x Month FE	No	No	Yes	No	No	Yes
Offering Type FE	No	No	No	No	Yes	Yes

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Robustness, Triple Difference, No State Guarantees

	Negotiated		Yield	
	(1)	(2)	(3)	(4)
Drop Guaranteed	N	Y	N	Y
Targeted Share × Post × TX	0.079***	0.073***	0.124***	0.151***
	(0.025)	(0.028)	(0.047)	(0.054)
Observations	57620	48139	55950	46493
GO x Issuer FE	Yes	Yes	Yes	Yes
Date FE	Yes	Yes	Yes	Yes
Mat x Month FE	Yes	Yes	Yes	Yes
State x Month FE	Yes	Yes	Yes	Yes
Issuance x Month FE	Yes	Yes	Yes	Yes

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Robustness, Triple Difference, Issuer Definition

	Negotiated		Yield	
	(1)	(2)	(3)	(4)
Targeted Share × Post × TX	0.065**	0.063**	0.108**	0.147***
	(0.029)	(0.029)	(0.049)	(0.054)
Observations	58,558	56,542	56,829	54,894
Issuer FE	Yes	No	Yes	No
GO x Issuer FE	No	Yes	No	Yes
Date FE	Yes	Yes	Yes	Yes
Maturity FE	Yes	No	Yes	No
Additional Controls	No	Yes	No	Yes
Mat x Month FE	No	Yes	No	Yes
State x Month FE	No	Yes	No	Yes
Issuance x Month FE	No	Yes	No	Yes

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Robustness, Triple Difference, No Tax Preference

	Negotiated		Yield	
	(1)	(2)	(3)	(4)
Low local clientele	N	Y	N	Y
Targeted Share × Post × TX	0.079***	0.100***	0.124***	0.110*
	(0.025)	(0.029)	(0.047)	(0.059)
Observations	57,620	20,058	55,950	19,542
GO x Issuer FE	Yes	Yes	Yes	Yes
Date FE	Yes	Yes	Yes	Yes
Mat x Month FE	Yes	Yes	Yes	Yes
State x Month FE	Yes	Yes	Yes	Yes
Issuance x Month FE	Yes	Yes	Yes	Yes

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Underpricing of Municipal Bonds

	Underpricing					
	(1)	(2)	(3)	(4)	(5)	(6)
Targeted Share × Post	0.0002	-0.0001	-0.0001			
	(0.0002)	(0.0004)	(0.0003)			
Targeted Share 50% × Post				0.0014**	0.0014	0.0016
				(0.0007)	(0.0011)	(0.0010)
Log(Issuance Amt)	0.0003**			0.0003**		
	(0.0001)			(0.0001)		
Log(Av. Trade Size)	-0.0010***	-0.0011***		-0.0010***	-0.0011***	
	(0.0001)	(0.0001)		(0.0001)	(0.0001)	
Observations	6,057	5,309	5,309	6,057	5,309	5,309
Issuer FE	Yes	No	No	Yes	No	No
GO x Issuer FE	No	Yes	Yes	No	Yes	Yes
Date FE	Yes	Yes	Yes	Yes	Yes	Yes
Maturity FE	Yes	Yes	Yes	Yes	Yes	Yes
Offering Type FE	Yes	Yes	Yes	Yes	Yes	Yes
Mat x Month FE	No	Yes	Yes	No	Yes	Yes
Log(Issuance) x Month FE	No	Yes	Yes	No	Yes	Yes
Log(Av. Trade Size) x Month FE	No	No	Yes	No	No	Yes

- Underpricing increases for the most affected issuers.
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