Debt by Democracy: Bond Referendum Requirements and Municipal Borrowing*

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Abstract

Local governments rely on the U.S. municipal bond market to finance critical infrastructure, yet the role of citizens—the ultimate beneficiaries of these funds—in shaping local public debt remains underexplored. This paper examines bond referendum requirements—laws that mandate voter approval before municipalities issue bonds—as a key institutional mechanism linking democratic participation to municipal borrowing. We assemble a novel dataset of state-level referendum laws and document substantial cross-state variation in these requirements. Cities subject to referendum rules provide more bond-related disclosures on their websites and receive greater media coverage, improving the information available to both voters and investors. These transparency gains are associated with more successful bond elections, lower secondary-market trading costs, and higher post-issuance liquidity. However, consistent with local governments' incentives to retain control over borrowing, we find that referendum constraints push cities toward more costly exempt bond types, such as revenue and limited-tax bonds, resulting in yield spreads roughly 25–30 basis points higher. Overall, our findings highlight the dual effects of voter approval laws: they enhance transparency and liquidity in local debt markets while increasing borrowing costs through their influence on debt structure.

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1 Introduction

Local governments rely on the $4 trillion U.S. municipal bond market as a critical source of infrastructure funding (Municipal Securities Rulemaking Board, 2025). Although a large literature examines how bond investors and underwriters influence municipalities' information environments and borrowing costs, far less is known about the role of local citizens—the ultimate beneficiaries of municipal spending—in this market. In this paper, we focus on a key institutional feature behind citizen engagement in the debt issuance process: bond referendum requirements, which mandate that local governments obtain voter approval before issuing bonds. We study how bond referendum requirements shape municipal bond markets by addressing three research questions: (i) How do bond referendum requirements vary across the United States? (ii) Do these requirements affect the bond-related information environment available to voters and investors? and (iii) Do these requirements alter municipalities' choice of bonds and borrowing costs?

Across these questions, we seek to understand how bond referendum requirements shape public debt by altering municipalities' incentives. For bonds that must receive voter approval, a referendum creates an incentive for municipalities to engage and persuade citizens. Whether this incentive influences the bond-related information environment is particularly salient amid the well-documented opacity of the municipal bond market. In this illiquid, over-the-counter market, broker-dealers exert substantial pricing power (e.g., Harris and Piwowar, 2006; Green et al., 2007; Cuny, 2018); disclosure regulations are minimal and difficult to enforce (e.g., Cuny, 2016); and empirical evidence shows that investors react only weakly to formal financial filings (Gillette et al., 2020; Cuny et al., 2025). In contrast to the limited and indirect influence of regulators or investors (Maffett et al., 2024), local voters directly determine a municipality's access to public debt markets when a referendum is required, potentially creating a powerful source of variation in disclosure incentives. At the same time, because voter rejection is costly, the referendum requirement may lead municipalities to favor exempt bonds that bypass voter approval—such as revenue or limited-tax bonds—even if these bonds carry higher financing costs. Studying referendum requirements thus offers an opportunity to understand how democratic participation shapes disclosure practices, debt structure, and the cost of public borrowing.

To study our research questions, we first identify the institutional variation in bond referendum requirements across the United States. Many of these laws emerged historically in response to municipal fiscal crises: for example, in the aftermath of the Panic of 1837, when investments in railroads and canals failed, or during the Great Depression, when declining land values sharply reduced local tax revenues (Eddy, 1983; Kiewiet and Szakaly, 1996). Such historical contingencies produce substantial cross-state and within-state variation in whether cities must obtain voter approval before issuing bonds. We compile a novel, comprehensive dataset of state-level bond referendum laws for cities, covering limited-tax and unlimited-tax general obligation (GO) bonds as well as revenue bonds. GO bonds, backed by the full faith and credit of the issuing city, are typically repaid through general tax revenues.[1] By contrast, revenue bonds are repaid from the income generated by the projects they finance. As shown in Figure 1, 28 states require all cities to hold referendums for GO bonds, and six of these states also require referendums for revenue bonds. Fourteen states have GO bond referendum requirements that vary within-state depending on the city or project purpose, while seven states do not require referendums for any type of bond.

These historical state-level differences in referendum requirements create meaningful variation in the incentives facing municipalities. Cities that must obtain voter approval are likely to provide more extensive and accessible bond-related information, both to inform voters and to increase the likelihood of referendum success. This information can take the form of website disclosures, official reports, or media coverage, thus having potentially important implications for the environment in which both voters and investors make decisions.

To assess how referendum requirements shape the information available to voters, we first examine bond-related disclosures on cities' websites—a primary channel for communicating with the public. We compare cities in the 28 states with comprehensive UTGO bond referendum requirements to those in the seven states without any such requirements.[2] To strengthen identification, we restrict our sample to cities located near the borders of adjacent states that differ in their referen-

[1] Unlimited-tax GO bonds (UTGO) allow cities to raise property taxes without limit to meet debt obligations, while limited-tax GO bonds (LTGO) constrain how much cities can raise property taxes (Municipal Research and Services Center, 2025).

[2] We focus on GO rather than revenue bond referendum requirements because GO bonds have direct implications for property taxpayers, making referendum requirements more common. We exclude states with within-state variation in GO bond referendum laws, as it is difficult to identify which cities or bonds are subject to the requirement.

dum rules. This approach mitigates concerns that unobserved geographic factors drive differences in disclosure (Holmes, 1998; Gao et al., 2019), while also keeping our data-intensive analyses tractable. Using the Wayback Machine, we collect historical snapshots of these cities' websites from 2015 to 2020. Consistent with our prediction, cities in vote-requiring states provide substantially more bond-related information: they include more homepage links referencing bonds, debt, or fiscal issues, and the text of their web pages discusses these topics more frequently.

We then extend our analysis to media coverage, another key mechanism through which bond-related information reaches the public. Newspapers can amplify the dissemination of bond campaign materials and provide independent reporting that informs voters. Using news coverage data from RavenPack from 2000 to 2020, we compare the volume of bond-related articles in states with and without referendum requirements. Our results show that cities in vote-requiring states receive significantly more coverage, even after controlling for local economic conditions, project purpose, and time trends. Limiting the analysis to our sample of border cities yields similarly robust results, reinforcing the role of referendum rules in shaping both the quantity and visibility of municipal bond information.

To test whether bond-related media coverage actually reflects bond campaign activity, we examine the case of Texas, a state with comprehensive data on municipal bond elections. Specifically, we test whether media coverage intensifies when UTGO bond proposals appear on the ballot. Consistent with our expectations, we find that bond-related news coverage increases sharply during election months, and coverage intensity is positively associated with both voter approval and voter agreement. These results reinforce our interpretation that bond campaigns drive local media attention and that such coverage serves as an important informational channel for voters.

Next, we examine whether the information generated during referendum campaigns also benefits municipal bond investors. Prior research shows that richer information environments can reduce trading costs and improve secondary-market liquidity by mitigating information asymmetry between dealers and investors (Cuny, 2018; Chalmers et al., 2021). The information released during bond campaigns—such as project-level details and capital planning forecasts—aligns with best-practice recommendations from municipal credit analysts, who emphasize forward-looking disclosures about capital needs and planned uses of proceeds (National Federation of Municipal Analysts, 2017).

Our anecdotal review suggests that this type of information seldom appears in official statements, suggesting that it could provide incremental value to investors. Yet, in practice, even formal financial disclosures rarely elicit meaningful trading responses in municipal markets (Cuny et al., 2025). Given investors' limited sensitivity to standard financial information, it is unclear whether they would seek out or respond to campaign materials intended for voters. Accordingly, whether referendum-related disclosures meaningfully affect investor behavior remains an open question.

To assess whether campaign-related disclosures are useful to investors, we use trading data from the Municipal Securities Rulemaking Board (MSRB) to test whether cities subject to UTGO referendum requirements exhibit higher bond liquidity—reflected in the markups (markdowns) that dealers charge bond buyers (sellers) and in secondary-market trading activity. Our results point to meaningful liquidity improvements following referendums: buyers pay roughly 7.2% lower markups and sellers receive markdowns about 10.9% lower than sample means in the year after bond issuance. Additionally, UTGO bonds subject to referendum requirements are significantly more likely to trade in the secondary market and exhibit higher trading volume after issuance. All results hold after controlling for bond characteristics, economic conditions, bond purposes, and time trends, and we also observe these liquidity improvements in our state-border sample. Together, the evidence suggests that voter-driven information flows extend beyond the electoral context to reduce informational frictions in secondary market trading.

Finally, we examine how referendum requirements influence municipal financing choices. Although bond campaigns promote transparency, they also impose procedural and political costs, reducing officials' control over borrowing decisions. To preserve discretion, local governments may shift toward bond types that bypass voter approval, such as revenue or limited-tax general obligation (LTGO) bonds. We test this mechanism by comparing the public debt composition of states with and without GO bond referendum requirements.[3] Our findings are consistent with this tradeoff: cities facing referendum requirements issue revenue bonds at approximately three times the rate of those without, and when only UTGO bonds require voter approval, these cities issue one-third as much UTGO debt and three times as much LTGO debt. Overall, these results indicate that voter

[3] We exclude states requiring referendums for both GO and revenue bonds, as well as those with within-state variation in GO referendum laws (e.g., Illinois), where the determinants of these rules are correlated with broader fiscal powers.

approval rules enhance transparency but also reshape debt composition as municipalities seek to maintain autonomy over their financing choices.

Given that exempt bond types generally entail higher borrowing costs, a natural question is whether this shift in financing choices translates into greater aggregate debt costs. Limited-tax and revenue bonds generally carry higher yields than UTGO bonds because they are secured by narrower revenue streams and entail greater repayment risk (Beglin, 2024; Municipal Research and Services Center, 2025). Consequently, cities that substitute toward these alternatives are likely to face higher overall borrowing costs. Consistent with this prediction, we find that cities subject to referendum requirements exhibit average yield spreads approximately 25 to 30 basis points higher than those in states without such requirements, after controlling for local economic conditions and other state-level debt policies. In our border-city sample, the presence of a GO bond referendum requirement is associated with yield spreads roughly 17 basis points higher. Taken together, these results suggest that voter approval laws, while improving transparency, are associated with higher financing costs as municipalities shift toward more expensive debt instruments.

This paper contributes to a growing literature on bond referendums that has largely taken referendum requirements as given and focused instead on the determinants and outcomes of voter approval. In the context of California school districts, Cellini et al. (2010) show that bond-financed capital spending increases home values without improving test scores, while Boyson and Liu (2023) document test score gains and heterogeneity in voter responses depending on ballot language. Examining cities that require bond referendums, Rugh and Trounstine (2011) find that more diverse jurisdictions propose fewer bond referendums but experience higher passage rates. Related work examines how referendum constraints shape financing strategies: Moszoro and Spiller (2019) find that mayors facing greater reelection pressure are more likely to issue revenue bonds. We extend this literature by documenting institutional variation in the bond referendum requirement itself and examining its implications for cities' financial behavior. Our evidence shows that referendum requirements have economically meaningful effects on municipal information environments, secondary-market liquidity, and borrowing costs—enhancing transparency for voted-on bonds while shifting issuance toward costlier exempt bond types.

We also contribute to the literature on municipal disclosure and information frictions in public debt markets. Prior studies highlight the limitations of investor-facing disclosure, documenting that municipal financial filings are often infrequent, delayed, and unstructured (e.g., Cuny, 2016, 2018; Farrell et al., 2023; Maffett et al., 2024). By contrast, voter-facing disclosure remains largely unexplored, despite being explicitly recognized by the Governmental Accounting Standards Board (GASB) as a core function of municipal reporting.[4] We extend this literature by examining municipal websites and local media as alternative disclosure channels that convey timely, voter-oriented information about bond proposals. Studying these channels is particularly relevant given the persistent opacity of the municipal bond market (e.g., Harris and Piwowar, 2006; Green et al., 2007; Schultz, 2012) and recent evidence of muted investor responses to conventional filings (Gillette et al., 2020; Cuny et al., 2025). By linking voter approval requirements to both disclosure behavior and debt market outcomes, we provide evidence on how political participation shapes the flow of information and the pricing of public debt.

2 Conceptual underpinnings

Across the United States, municipal bonds are a major source of financing for local governments' long-term infrastructure projects (Government Finance Officers Association, 2023). As infrastructure spending by federal and state governments has stagnated or declined, municipalities have placed more importance on their ability to raise debt (Government Finance Officers Association, 2023; Pew Charitable Trusts, 2017). In cities, villages, and townships (which we collectively refer to as "cities"), it is up to the governing body to first approve a resolution to issue a bond. Then, paths diverge due to idiosyncrasies in state laws: in some cities, voter approval is required before certain bonds can be issued, while in other cities, officials can progress without the additional hurdle. This institutional fact implies that, if a city falls under a bond referendum regime, it is required to engage citizens more in the bond financing decision. In the process, local information environments may become more transparent, which may have consequences for municipal bond markets.

When cities hold bond referendums, they engage in campaigns to persuade citizens to vote for

[4]The GASB identifies the citizenry, legislative and oversight bodies, and investors and creditors as the primary users of municipal disclosure. It emphasizes that municipal reporting is grounded in public accountability and "the belief that the taxpayer has a right to know" (Governmental Accounting Standards Board, 1987).

the bond. Anecdotal evidence suggests that voter approval is not guaranteed: for instance, when city leaders of Sun Valley, Idaho campaigned for a $17.5 million transportation-related bond in 2017, the bond passed by less than one percentage point.[5] Data from UTGO bond elections in Washington also indicate that voter approval is uncertain. When cities in Washington put UTGO bonds on the ballot, 48% of bond proposals fail, and failure rates hover around 50%-55% for a broad swath of projects, such as public buildings, transportation, parks & recreation, and water & sewer.[6] Amid this backdrop of approval uncertainty, we expect that bond campaigns are likely to provide clear information about the project's benefits, execution, and funding sources, especially as they face increased public scrutiny during the election process. For example, Sun Valley, Idaho used town halls and city council meetings to persuade citizens that the bond would fund necessary construction and that the city had diligently considered the project.[7] Frequent newspaper coverage also kept residents informed about the bond campaign. Thus, we expect that cities facing bond referendum requirements will provide more disclosure and receive greater news coverage of the bond compared with cities without such requirements.

If bond referendum requirements increase bond-related disclosure and media coverage, it is possible that information asymmetry may decrease in municipal bond markets. These markets are notoriously opaque: unlike equity or corporate bond issuances, official statements accompanying municipal bonds follow no common structure, and subsequent financial filings are difficult to enforce, resulting in infrequent, untimely, and unstructured disclosures (e.g., Baber and Gore, 2008; Baber et al., 2013; Cuny, 2016, 2018). Ongoing evidence shows little improvement in municipal financial filings after attempts at reform (Maffett et al., 2024) and suggests "the municipal-bond market in some ways remains stuck in the last century" (Gillers, 2022). When cities produce fresh, investor-relevant disclosure through alternative channels as part of bond campaigns, municipal bond markets may experience lower information asymmetry. As an illustration, when the Woodlands Township, Texas held a bond referendum in 2009, the city told voters the exact uses of bond proceeds and five-year capital budget forecasts for city departments. Both pieces of information are considered a

[5]See Appendix B for more details on all our anecdotes.

[6]These statistics come from the Municipal Research and Services Center, which provides proposition-level election outcomes for Washington cities' UTGO bond proposals from 2011 to 2023.

[7]As detailed in Appendix B, the city communicated the property tax implications of the bond, detailed planning for construction through timelines and maps, and that the bond was likely to receive a high credit rating.

"best practice" to disclose by municipal credit analysts, implying they would be investor-relevant.[8]

However, recent work finds that conventional forms of municipal financial disclosure trigger muted trading responses (Gillette et al., 2020; Cuny et al., 2025). In addition, cities target bond-related information towards voters rather than investors, meaning that investors may not become aware of this information. In the Woodlands Township example, that information was shared on the city's website, but was not included in the bond's official statement. Thus, it is ex ante unclear whether bond referendum requirements would be associated with lower information asymmetry and increased liquidity in the secondary bond market.

3 Bond referendum requirements

Early bond referendum requirements were enacted after periods of municipal fiscal distress. In the 1830s, states and cities issued millions of dollars in bonds to fund rapidly expanding infrastructure, such as railroads and canals (Kiewiet and Szakaly, 1996). When the Panic of 1837 struck, these projects faltered, and a number of states and territories defaulted, including Arkansas, Florida, Indiana, Louisiana, and Michigan. In response, certain states enacted referendum requirements for debt at the state or local level (Kiewiet and Szakaly, 1996). A similar pattern occurred during the Great Depression. By the mid-1920s, local government debt had increased such that around 50% of U.S. public debt was owed by local governments (Janas, 2025). During the Depression, almost 2,000 cities and counties defaulted on their principal or interest payments (Joffe, 2013). Florida had the most defaults of any state, and in 1930, voters ratified a constitutional amendment that required local governments to obtain voter approval before issuing bonds (Eddy, 1983). As the historical record illustrates, when states chose to enact a bond referendum requirement, their goal was to avoid excessive local government debt and give property taxpayers a say in future taxation.

To study the implications of cities' bond referendum requirements, we first document the differences across states. Using states' constitutions, statutes, treasury websites, and municipal league websites as sources, we compile a novel summary of state-by-state referendum requirements for

[8] The National Federation of Municipal Analysts recommends best practices for municipal disclosure when raising GO debt, such as "a summary of the principal purposes for which the proceeds are to be used, being as explicit as possible about the projects to be financed" (National Federation of Municipal Analysts, 2017, p. 5).

cities' general obligation and revenue bonds.[9] Our primary takeaway from this effort is that the institutional environment is rich and cities' bond referendum regimes vary widely, both across and within states. In this section, we first describe broad variation across states, centering on GO bonds, which are more relevant for residents' property taxes and public services. Then, we discuss a few examples that demonstrate the rich institutional nuances that can occur within states.

States broadly fall into five groups, as illustrated in Figure 1, with details and key sources provided in Figure 2. These groups are states where (i) cities do not have referendum requirements for any bonds (seven white states); (ii) cities have referendum requirements for GO bonds but not for revenue bonds (14 dark green states); (iii) cities have referendum requirements for unlimited tax GO bonds but not for limited tax GO or revenue bonds (three dark green striped states); (iv) cities have referendum requirements for GO bonds and some requirements for revenue bonds (10 light green states); and (v) there is within-state variation in the GO bond referendum requirement (14 dotted states).

In the first group, seven states do not require a referendum for either type of bond. Massachusetts, for example, allows cities to issue bonds without referendums so long as city officials do not receive a petition from a certain number of registered voters (Massachusetts Legislature, 2025). We refer to these states as our "benchmark" or "control" states. In the second group, 14 states require cities to hold a referendum for all GO bonds but not for revenue bonds. As an example, the Texas Government Code states that a "municipality may not issue bonds that are to be paid from ad valorem taxes unless the issuance is first approved by the qualified voters" (Texas Legislature, 2023), where "ad valorem taxes" are property taxes, the basis for GO debt service. In the third group, three states require cities to hold referendums for unlimited tax GO (UTGO) bonds but not for limited tax GO (LTGO) or revenue bonds. In one, Washington requires cities to receive 60% voter approval for UTGO bonds, but not for LTGO bonds, which the state considers "non-voted debt" (Municipal Research and Services Center, 2025). In the fourth group, 10 states require cities to have referendums for GO bonds and either always or sometimes require referendums for revenue bonds. For instance, Idaho requires GO bonds to pass by a two-thirds majority and revenue bonds to pass

[9] To the best of our knowledge, a comprehensive guide to these nuances in state laws has not been compiled and made widely available since 1993 (Advisory Commission on Intergovernmental Relations, 1993).

by a simple or two-thirds majority, depending on the revenue bond's purpose (Idaho Legislature, 2024). In the fifth group, 14 states have no or mixed referendum requirements for revenue bonds, but the GO bond referendum requirement varies within the state.[10] As these examples illustrate, state laws tend to vary based on whether bonds are unlimited tax GO, limited tax GO, or revenue. These three categories of bonds comprise over 80% of the types of bonds that cities issue.

We discuss a few additional examples to highlight how mandatory bond referendums can depend on idiosyncratic institutional details. In Illinois, only cities with home rule (i.e., that have broad powers unless barred by the state) can issue GO debt without a referendum (Snyder et al., 2016). Because home rule is strongly correlated with population, this law allows the largest cities to issue GO debt without voter approval.[11] In Kansas, cities' GO bond referendums depend on the project purpose. For example, bond proposals for parks & recreation must receive voter approval, but bonds for street repair can be issued without a vote unless citizens petition for a referendum (Kansas Legislature, 2023). In Missouri, where all cities are required to hold GO bond referendums, the threshold for voter approval is higher when turnout is expected to be lower. Specifically, bonds need four-sevenths Yes votes to pass if the referendum coincides with a general municipal election or a primary or general election; otherwise, the approval threshold is a more stringent two-thirds (Missouri Legislature, 2025). This rule means that in 2025, where there are no predicted primary or general elections, the threshold is two-thirds on any day except April 8th, 2025, when Missouri holds general municipal elections. In sum, there is rich variation in the institutional setting of bond referendum requirements.

4 Information environments

We begin by examining whether bond referendum requirements enrich the local information environment. When cities hold a bond referendum, bond campaigns are important because voter approval is uncertain. For instance, when Dunwoody, Georgia sought voter approval for a $60 mil-

[10] The total across these groups is 49 states because we exclude Hawai'i, which does not have independent city governments.

[11] While a situation like Illinois may appear to be an ideal setting to exploit within-state variation, it would be difficult for a researcher to control for the fact that home rule confers a number of additional other powers related to municipal finance, beyond the difference in bond referendums.

lion parks & recreation bond in 2023, the bond failed by seven percentage points. Bond campaigns can include information about bond projects and financing on city websites and through town halls. As a topic of public interest, these campaigns may attract media attention, further increasing transparency around the bond. We examine these two critical aspects of the information environment: the amount of bond-related disclosure that cities provide on their websites, and the amount of bond-related media coverage that cities receive. We predict that bond referendum requirements are positively associated with website disclosure and media coverage.

To test this prediction, we compare cities in the 28 states with comprehensive UTGO bond referendum requirements (i.e., all green-shaded states in Figure 1) to the seven states without any referendum requirements (i.e., white-shaded states). We focus on the GO bond referendum because GO bonds fund the widest range of public services and have the largest potential tax consequences for residents (Municipal Research and Services Center, 2025). We exclude states with within-state variation in GO bond referendum laws where it is difficult to identify which cities or bonds are subject to the referendum requirement.

4.1 Website disclosure

We first examine city website disclosure about bond projects and city finances. Leading up to a bond election, cities may use their websites to provide more disclosure than is typically available for bonds issued without a referendum. When the Woodlands Township in Texas sought to raise $30 million for its Fire and Parks & Recreation Departments in 2009, the city published a town hall presentation detailing how the bond proceeds would be spent as well as five-year capital budget forecasts for both departments, as described in Appendix B. Motivated by this and similar anecdotes in Appendix B, we examine whether bond referendum requirements are associated with the amount of bond-related information disclosed by cities on their websites.

4.1.1 Data and sample

We obtain historical records of city websites from the Wayback Machine, an archive of websites maintained by the Internet Archive. Given the resources required to collect this data due to Wayback Machine API rate limits, we focus on a sample of cities close to the borders of adjacent states with variation in the UTGO bond referendum requirement (i.e., where green and white-shaded states border each other).[12] While this sample is small, the geographic proximity means that if we observe differences in website disclosure depending on the bond referendum requirement, it is less likely that these differences are due to unobserved geographic factors (Holmes, 1998; Gao et al., 2019).

We identify issuers from fifteen state-pairs: Maine/New Hampshire, Vermont/New Hampshire, Vermont/Massachusetts, Michigan/Wisconsin, West Virginia/Kentucky, Ohio/Kentucky, North Carolina/Tennessee, Georgia/Tennessee, Missouri/Kentucky, Missouri/Tennessee, Arkansas/Tennessee, Arkansas/Mississippi, Alabama/Mississippi, Alabama/Tennessee, and Louisiana/Mississippi. The first state in each pair requires cities to obtain voter approval before issuing UTGO bonds, while the second state does not. Following the methodology of Boulland et al. (2025), we scrape annual snapshots of each city website from 2015-2020 when available, yielding a sample of 1,870 website-years for 335 cities. After removing incomplete web snapshots (i.e., no sub-URLs available for scraping), we are left with 1,374 unique website-years.[13]

For each snapshot, we pull the URL names and full text from up to 50 sub-URLs that a user can navigate to from the website homepage. In determining which URLs to process, we prioritize URLs that mention at least one of the following terms: "finance", "financial", "bond", "proposition", "debt", "credit", "fiscal", or "capital". For example, if a city's website has 100 URLs that a user could navigate to from the homepage, but only 30 that contain at least one of these phrases, we will process all 30 of the URLs containing these phrases and an additional 20 randomly selected URLs that a user could navigate to from the homepage.

To measure the amount of bond-related information disclosed on city websites, we construct two variables. *Bond or Debt URL Count* is the count of sub-URLs that mention "debt" or "bond" across the 50 sub-URLs scraped. These URLs include web pages dedicated to specific upcoming bond issuances, providing updates on capital projects from prior debt issuances, schedules of existing debt service payments, and reports on credit ratings. Appendix C.1 provides an example of a webpage dedicated to a specific bond issuance for Blowing Rock, North Carolina. The page links to project spending updates, an informational pamphlet about the issuance, a detailed list of the projects

[12] We include cities located within 100 kilometers of the border between these states. We require the city to have at least one bond issuance from 2000-2020.

[13] Our final sample size includes 1,429 website years as some cities sit on the state-border of multiple state-border pairs.

financed, and slides from a city council presentation on the issuance. In addition to counting bond-related URLs, we construct *Bond or Debt Count* as the count of mentions of the words "debt" or "bond" in website text across all 50 sub-URLs scraped from the website. Table 1 presents summary statistics at the city-year level: on average, a city's website has 5.16 mentions of "debt" or "bond," and 0.41 bond- or debt-related sub-URLs.

In addition to bond-specific information, we also examine disclosure of general financial information on city websites. Cities often disseminate annual financial reports, budgets, credit ratings reports, and other financial documents through their websites. We exploit the fact that these reports are often identified by the fiscal year they cover. Appendix C.2 provides an example from the "financial information" page of Easton, Massachusetts, which links to ten years of annual budgets identified by "Fiscal Year YYYY". We exploit this feature and proxy for financial information disclosed by searching for mentions of "fiscal" or "FY" in sub-URLs and website text. Table 1 reports that the mean value of *Fiscal URL Count* is 0.74, and the mean value of *Fiscal Count* is 14.72.

4.1.2 Research design and results

To examine how cities' website disclosures vary with their bond referendum requirements, we first report descriptive evidence on differences in website disclosure across states with and without referendum requirements. In Panel A of Table 2, we report mean values of the cumulative count of any type of bond issuance (*Num Issuances*), *Bond or Debt URL Count*, *Bond or Debt Count*, *Fiscal URL Count* and *Fiscal Count* for cities in states with and without referendum requirements. On average, cities in vote-requiring states have fewer cumulative debt issuances. Despite this, we generally see more bond and financial disclosure on their websites. Relative to cities without referendum requirements, cities in vote-requiring states mention the words "bond" or "debt" 3.07 more times, an increase of 77%, and mention the word "fiscal" 6.00 more times, an increase of 48%. Cities in vote-requiring states have more than double the number of sub-URLs mentioning the words "bond" or "debt" and have over three times as many sub-URLs mentioning the word "fiscal."

To test these associations in a regression framework, we estimate the following Poisson regression at the city-year level:

$$\begin{aligned}
Website\ Disclosure_{it} = \alpha + \beta_1 Vote_s + \beta_2 Num\ Issuances_i \\
+ \beta_3 County\ Economics_{c,t-1} + \beta_4 State\ GO\ Votes_s + \theta_t + \gamma_g + \epsilon_i
\end{aligned}$$

for city i in county c in state s in year t.

Website Disclosure is one of our four disclosure measures defined above. *Vote* is an indicator equal to one if a state requires cities to hold referendums to issue UTGO bonds. θ_t is a year fixed effect to control for macroeconomic trends in each year, and γ_g is a state-border fixed effect to compare cities along the border between each pair of states. In this state-border design, our identifying assumption is that, due to their geographic proximity, neighboring cities will share similar characteristics aside from the GO bond referendum requirement, allowing us to more easily attribute differences in outcomes to variation in the referendum requirement. Standard errors are clustered by county.

We control for a number of factors that may influence a city's website disclosure behavior. One is *Num Issuances*, the city's cumulative number of bond issuances from 2000 until year t, because bond-related website disclosures tend to be sticky over time (i.e., once a city posts bond-related information on its website, the city typically does not remove the information). We also include lagged county-year measures of local economic conditions, including GDP, personal income, population, and employment. Because states and local governments jointly provide local infrastructure, prior evidence indicates that local governments take on more debt when states are required to hold bond referendums for state-issued GO debt (Kiewiet and Szakaly, 1996). We include *State GO Vote* to control for this phenomenon.

Table 2 presents the results. As predicted, cities in vote-requiring states have significantly more bond-related information accessible from their website homepages. In columns 1 and 2, where the dependent variables are *Bond or Debt URL Count* and *Bond or Debt Count*, the coefficients on *Vote* are positive and statistically significant at the 1% and 5% level, respectively. In column 1, the coefficient of 1.39 translates to 0.81 more bond or debt URLs when a bond referendum is required.[14] In column 2, the coefficient of 0.662 translates to 3.86 more mentions of "bond" or "debt" on city

[14] $(e^{1.39} - 1) \times 100 = 301.5\%$. Compared to the mean value of *Bond or Debt URL Count* in non-vote-requiring states, $301.5\% \times 0.27 = 0.81$ more bond or debt URLs.

websites.[15] This result indicates that in the presence of bond referendum requirements, cities dedicate more web pages to bond- or debt-related content and mention these topics more often. In columns 3 and 4, where the dependent variables are *Fiscal URL Count* and *Fiscal Count*, the coefficient on *Vote* is 3.88 and 0.908 and statistically significant at the 1% and 5% level. Thus, in addition to having more bond- or debt-related words, cities with bond referendum requirements also provide more financial information on their websites. Overall, these results indicate that bond referendum requirements prompt cities to share bond-related information on their websites.

4.2 Media coverage

When cities disclose about bonds during bond campaigns, newspapers may provide coverage of the bond process. In addition, when voters are asked to scrutinize bond proposals, voters may demand more media coverage to help facilitate their decision-making (Hayes and Lawless, 2015). Therefore, we predict that when cities have bond referendum requirements, news outlets provide more bond-related media coverage ahead of a bond issuance.

4.2.1 Data and sample

To examine this prediction, we focus on cities' issuance of unlimited tax GO bonds and exploit variation in the UTGO bond referendum requirement.[16] Due to broad data availability for media coverage, we expand from the state-border sample to all cities located in green or white-shaded states in Figure 1. We compare bond-related media coverage for all cities in vote-requiring states (green-shaded) to coverage for all cities in non-vote-requiring states (white-shaded).

We obtain data on municipal bonds from Mergent for the sample period of 2000-2020. In the dataset, we identify unique city issuers using textual similarity measures because different issuer names in Mergent can reflect the same issuer. We classify bonds as being unlimited tax general obligation, limited tax general obligation, or revenue based on Mergent's security code variable and keywords in the Mergent bond description.[17] Our sample of UTGO bonds from Mergent has 8,427

[15] $(e^{0.662} - 1) \times 100 = 93.9\%$. Compared to the mean value of *Bond or Debt Count* in non-vote-requiring states, 93.9% $\times$ 4.01 = 3.86 more mentions of "bond" or "debt."

[16] We do not include limited tax general obligation (LTGO) bonds in this analysis, as not all green shaded states in Figure 1) require a referendum for LTGO bonds.

[17] We exclude bonds used to refinance existing debt because refinancing does not change a city's existing debt levels,

UTGO bond issuances by 2,303 cities.

We then merge issuance data with cities' media coverage from RavenPack Global Macro. We match bond issuers in Mergent to entities in RavenPack based on the issuer's county FIPS (Federal Information Processing Standard) code and issuer name. Ravenpack's coverage of smaller local outlets varies throughout our sample period. To ensure the existence of Ravenpack coverage of outlets in a city's geographic area, we only include issues from cities that receive any general media coverage from at least one source in the 12 months prior to the bond issuance. This restriction yields a sample of 2,426 UTGO bond issues from 900 cities. To improve our identification, we additionally run this analysis on a sample of 750 UTGO bond issues from 212 cities in our state-border sample.

To identify bond-related media articles written about these cities, we filter to articles with a relevance score greater than or equal to 90. We then identify bond- or debt-related coverage with a textual search of article headlines for keywords related to bond-related discussions.[18] We validate that this approach captures media coverage of bonds by plotting average monthly counts of articles across cities with and without referendum requirements in the year before and after a UTGO bond issuance. If our method effectively measures media coverage of bond issuances, then we would expect to observe spikes in coverage around the issuance in event-time. As shown in Figure 3, there is indeed a pronounced increase in news articles mentioning these key terms around the issuance month for both vote-requiring and non-vote-requiring cities. Interestingly, this increase is significantly sharper in vote-requiring cities, consistent with our hypothesis that bond campaigns may prompt more bond-related media coverage.

To formally test for differences in media coverage, we aggregate the number of bond-related articles written over the twelve months prior to the bond issuance. This window captures differences in information attributable to running a bond campaign. [19] Specifically, *Total Articles - 12mo* is the number of bond-related articles written about an issuer in the 12 months prior to and including the bond issuance, winsorized at 1% and 99% to account for outliers. Table 1 reports summary

leading these bonds to be excluded from referendum requirements.

[18] These keywords include: bond, general obligation, tax-exempt, taxable, property tax, issuance, offering, yield, debt, underwriter, underwriting, credit rating, refunding, callable, coupon.

[19] We determine this window by investigating data from the Texas Bond Review Board, which releases information on bond election dates. In Texas, the median (mean) time lag between bond election dates and issuance dates is six months (nine months).

statistics for the 2,426 UTGO issues in our sample. 39% of issues are from cities in states with UTGO bond referendum requirements. The average issue is covered by 3.18 media articles in the year before issuance, and on average, issuers receive general media coverage from 26.5 media outlets. The average issuance size is around \$6 million.

4.2.2 Research design and results

To test whether cities with UTGO referendum requirements receive more bond-related media coverage, we first report descriptive evidence on differences in the amount of bond-related media coverage at the issuance level in states with and without referendum requirements in Panel A of Table 3. For cities in states with no referendum requirements, UTGO bond issues receive an average of 2.29 bond-related media articles over the year prior to issuance. For cities in states with referendum requirements, the number of articles more than doubles to 4.59. The difference is significant at the 1% level.

Next, we estimate the following Poisson regression at the bond issuance level:

$$\begin{aligned} \textit{Total Articles - 12mo}_{bim} = \alpha + \beta_1 \textit{Vote}_s + \beta_2 \textit{I(Bond Issuance - 12mo)}_{i,m} + \beta_3 \textit{Num Sources}_{i,m} + \beta_4 \textit{Amount}_b \\ + \beta_5 \textit{County Economics}_{c,m} + \beta_6 \textit{State Debt Policies}_s + \mu_m + \delta_p + \epsilon_{bim} \end{aligned}$$

for bond issuance b issued by city i in county c in state s in year-month m. *Vote* is an indicator equal to one if a state requires cities to hold referendums to issue UTGO bonds. μ_m is a year-month fixed effect to control for common trends in media activity within a month, and δ_p is a fixed effect for the issuance's purpose to allow for the possibility that different bond project purposes may garner varying levels of media attention. We cluster standard errors by county.

We control for the following variables. *I(Bond Issuance - 12 mo)* is an indicator variable that equals one if the city issues a different bond in the prior 12 months before the focal issuance; this indicator helps to control for cities having different levels of issuance activity. We also control for the dollar amount of the bond issuance because local media may be more likely to cover larger bonds. *Num Sources* measures the number of news outlets that write articles about a city in the 12 months before issuance to control for differences in cities' base levels of media coverage. We also control for lagged county-year measures of local economic conditions and three state-level policies around municipal debt. We continue to control for *State GO Vote*, as in the preceding analysis. Prior research finds evidence that when states can proactively intervene in financially-distressed municipalities, issuers have lower borrowing costs (Gao et al., 2019). Accordingly, we include an indicator variable for *Proactive State* to control for the influence of state-level monitoring on city disclosure. In addition, states vary in whether they allow cities to issue LTGO bonds. This difference in financing options available may also influence how cities disclose about bonds on their websites; *LTGO Allowed* is an indicator variable equal to one for cities in states that allow LTGO bonds.[20]

Columns 1-2 of Table 3 present the results for our full sample. When controlling for prior issuance, the media environment, and the size of the bond issuance, we find that cities with bond referendum requirements receive more bond-related news coverage than cities without such requirements. The coefficient on *Vote* is positive and statistically significant at the 1% level. The result persists in column 2 when controlling for county economic conditions and states' debt policies. In terms of economic magnitude, the coefficient of 0.874 translates to 3.20 more articles when a bond referendum is required.[21] These results indicate that news outlets provide more bond-related coverage in states with bond referendum requirements than in states without such requirements.

In columns 3-4 of Table 3, to strengthen our identification, we restrict our analysis to the state-border cities and include state-border fixed effects to compare within a pair of adjacent states. Similar to the full sample, the coefficients on *Vote* are positive and statistically significant at the 10% level. These results suggest that when cities hold bond referendums, newspapers provide more bond-related coverage to disseminate city disclosure and meet the heightened information demands of voters during bond campaigns.

4.3 Implications for voters

Next, we investigate whether the heightened media coverage during bond referendums influences bond election outcomes. Because comprehensive bond election data are not widely available across

[20]When focusing only on the border-state sample, as in the website analyses, we do not include *Proactive State* and *LTGO Allowed* because there is not enough variation within the state pairs.

[21]$(e^{0.874} - 1) \times 100 = 139.7\%$. Compared to the mean value of *Total Articles - 12mo* in non-vote-requiring states, $139.7\% \times 2.29 = 3.20$ more articles.

the country, we focus on Texas, which provides systematic data on bond referendums and outcomes. As shown in Figure 1, Texas requires a bond referendum for both unlimited and limited tax general obligation bonds. Using Texas data, we explore whether cities experience more bond-related news articles when bond proposals are on the ballot.

We obtain bond election data from the Texas Bond Review Board from January 2010-2021. We merge this data with media coverage from RavenPack, yielding a sample of 483 bond elections for 110 Texas cities. We first test whether bond-related media coverage increases around bond elections. We construct a city-month panel from 2010-2022 for the 110 cities and define *I(Bond Coverage)*, an indicator equal to one if the city was covered in at least one bond-related media article during the month. Panel A of Table 4 presents descriptive statistics. In 6% of city-month observations, cities receive at least one bond-related media article. We run the following OLS regression at the city-month level:

$$
\begin{aligned}
\mathit{I(Bond\ Coverage)}_{c,m} = \alpha + \beta_1 \mathit{Election}_{c,m} + \beta_2 \mathit{Bond\ Issuance}_{c,m} + \\
\beta_3 \mathit{County\ Economics}_{c,y-1} + \mu_c + \delta_m + \epsilon_{bim}
\end{aligned}
$$

for city c in month m. $\mathit{Election}_{c,m}$ is equal to one if city c is undergoing a general obligation bond referendum in month m or month $m + 1$, and $BondIssuance_{c,m}$ is equal to one if city c is undergoing a bond issuance of any type in month m or month $m + 1$. We include city fixed effects, meaning that variation in *Election* comes from changes within a city over time, and we include year-month fixed effects to control for time trends. We also control for county economic conditions.

Panel B of 4 presents the results. Only fixed effects are included in column 1, and column 2 introduces control variables. In both columns, the coefficient on *Election* is equal to 0.037 and significant at the 1% level. In the month of and month prior to a bond election, cities are 3.7% more likely to receive bond-related media coverage, an increase of 61.7% relative to the sample mean. This time series evidence supports our inferences from Table 3 that the increase in media coverage in states with referendum requirements is driven by information needs related to bond elections.

Next, we examine how this bond-related media coverage during elections is related to election outcomes. For this analysis, we focus on the election level. We examine *I(Failed)*, an indicator equal to one if the bond election fails, and *Margin*, calculated as the absolute value of votes for minus votes against, scaled by the total votes cast. *Margin* captures the level of agreement among voters for both passed and failed elections. We examine how these outcomes vary with $I(BondCoverage)_{[-1,0]}$, an indicator equal to one if the city received bond-related media coverage in the month of or month prior to the election. Panel A of Table 4 presents summary statistics. 12% of the 483 elections fail to receive approval, and the average *Margin* is 34%. 27% of elections receive some amount of bond-related media coverage in the month prior to or month of the bond election.

Panel B of Table 4 presents the results of these election-level regression analyses. Columns 1 and 2 examine *I(Failed)*. Only controlling for year and bond purpose fixed effects, column 1 shows that elections that receive bond coverage are significantly less likely to fail than elections that do not receive coverage. In column 2, we control for *Amount*, the size of the bond proposed, *Num Sources*, the number of media outlets writing general news about the city over the prior year, and county economic conditions, and the result persists. Columns 3 and 4 examine *Margin* and show that bonds receiving media coverage pass *or* fail by higher margins than bonds without coverage. The coefficient in column 4 implies an increase in the vote margin equivalent to 17.6% of the mean value. This increase in vote margin implies increased agreement among voters when elections receive media attention, suggesting that voters find the bond-related media coverage useful.

Taken together, the results in Table 4 suggest that not only does media coverage increase around bond elections, it is also associated with important election outcomes.

4.4 Implications for investors

Our results on cities' websites and the media support the hypothesis that bond referendum requirements enhance the local information environment. Next, we investigate whether the information disseminated during referendums reduces information asymmetry in the municipal bond market. We measure information asymmetry through liquidity in the secondary market. In the over-the-counter municipal bond market, where pre-trade pricing is only available by request and last-trade pricing was only recently made available, municipal bond dealers have an information advantage over investors. Dealers charge a markup over (or markdown under) the value of a municipal bond that is greater than the cost of intermediation because of their market power (Green et al., 2007; Cuny, 2018). Prior literature has found that improvements to municipal bond investors' information environments has effects on the markups charged by dealers. For example, Chalmers et al. (2021) find that requirements for real-time transaction reporting reduced markups paid by all investor types, and Cuny (2018) find that the introduction of EMMA reduced the premium small investors pay in markups over large investors.

It is ex-ante unclear whether the additional information prompted by the bond referendum will lower the bargaining power of dealers in the secondary market. Disclosure of bond-related information on city websites and related media coverage are targeted at voters, not investors. While anecdotal evidence in Appendix B and our analysis of city websites in Table 2 suggest that cities provide value-relevant information in these disclosures, it is unclear whether this will improve the information environment of investors over and above what is provided by issuers on EMMA. Additionally, recent work finds that many forms of municipal financial disclosure rarely trigger a trading response (Cuny et al., 2025).

4.4.1 Data and sample

We continue to focus on unlimited tax general obligation bonds and compare bonds issued by cities in states with GO referendum requirements (green-shaded states in Figure 1) to bonds issued by states with no referendum requirements (white-shaded states). This yields a sample of 68,125 bonds issued between 2000-2020. We then obtain secondary market transaction-level data from 2005-2023 from MSRB for this full sample of bonds. To isolate secondary market transactions, we limit the sample to trades that occur more than 30 days after the offering date and more than 30 days before the maturity date (Gillette et al., 2020). We follow Cuny (2018) and compute the markup (markdown) on customer transactions as:

$$Markup_{b,t}\ (Markdown_{b,t}) = Trade\,Sign_{b,t} \times 10{,}000 \times \ln\left(\frac{Customer\,Price_{b,t}}{Avg\,Interdealer\,Price_{b,t}}\right) \tag{4.1}$$

where *Trade Sign* is a buy/sell indicator equal to 1 if the trade is a customer purchase and -1 if the trade is a customer sale. *Customer Price* is the purchase (sale) price of bond b on date t if at least one inter-dealer trade occurs on the same day, and *Avg Interdealer Price* is the average price of all inter-dealer transactions in bond b on date t. The markup (markdown) is the basis point difference between the inter-dealer price and the price at which customers purchase (or sell) the same security on the same day.

We require bonds have at least one secondary market trade to be included in the analysis, and we only examine trades occurring after the first 30 days that a bond has been issued because [XYZ]. This yields a sample of 379,565 trades for 32,494 bonds. Panel A of Table 6 reports trade-level summary statistics for these bonds.

4.4.2 Research design and results

To analyze whether referendum requirements are associated with information asymmetry and trading costs in the secondary market, we regress trade-level *Markup* or *Markdown* on the *Vote* indicator. We test markups on customer purchases separately from markdowns on customer sales, given information likely plays a larger role for buyers than sellers when negotiating with brokers (Cuny, 2018). We control for the daily level of the 10 year treasury rate to control for rate changes; the size of the trade; the logged par-value of all transactions in bond b on date t; the number of years the bond has been outstanding; the time to maturity; and an indicator equal to one for bonds spending more than one day in inventory (Sirri, 2014). In addition, we control for bond characteristics, such as maturity or whether the bond is callable, rated or insured. Lastly, we control for county-level economic conditions and state debt policies.

In Table 6 Panels B and C, we present the results for trades occurring during the one, three, and five years after issuance. We measure trades over multiple horizons because while bond-related disclosure is likely relevant soon after issuance, on average, secondary market trades occur 4.3 years after issuance. Thus, we study trading activity over multiple horizons. In Panel B, we use the full sample of UTGO bonds in green- and white-shaded states. Across the time spans, we consistently find that when the *Vote* is required, bond buyers experience lower markups and bond sellers experience lower markdowns, indicating lower information asymmetry between bond investors and dealers. In column 1, the coefficient on *Vote* is -8.625 and is statistically significant at the 1%

level, implying a 7.6% decrease in markups over the mean value (113.6, untabulated) in the first year after a bond is issued. In column 2, where we examine customer sales in the first year after issuance, we also find a significant negative association between *Vote* and *Markdown*, implying that bond sellers receive a 10.9% lower *Markdown* relative to the mean value (31.53, untabulated). In columns 3-6, we continue to find a significant negative association between *Vote* and *Markup* or *Markdown* as we widen the measurement window to three or five years after issuance. Finally, in columns 7-8, where all secondary market trades are included, we continue to find a negative association between *Vote* and the *Markup* or *Markdown*, although this last coefficient is not statistically significant.

In Panel C, we conduct the same analysis for the state-border sample of bonds. In columns 1-6, when examining restricted time spans after bond issuance, the coefficients of interest tend to be negative, although not statistically significant. However, limiting to these restricted windows may ask too much of the state-border estimation in this analysis. For example, when limiting to trades in the first year after issuance, only seven of our fifteen state-border pairs have bonds in the sample with variation in *Vote*. By contrast, when we expand to all secondary market trades in columns 7 and 8, allowing us to exploit more variation within state-border pairs, we find a negative, statistically significant association between *Vote* and both *Markup* and *Markdown*. The coefficient in column 7 implies that bond buyers experience a 4.4% decrease in markups over the mean value (68.73, untabulated), and the coefficient in column 8 implies that bond sellers experience a 10.3% decrease in markdowns over the mean value (37.0, untabulated). Taken together, our results in Panels B and C suggest that voter-driven information environments may play a part in reducing informational frictions for bond investors.

5 Debt choice and borrowing costs

Despite our evidence that UTGO bond referendum requirements enhance transparency for both voters and investors around UTGO bonds, cities may prefer to issue bonds that allow them to maintain autonomy over the issuance process. Our analyses of city website disclosure and anecdotal evidence suggest referendums require effort on behalf of the city to inform voters about the election. In addition, putting a bond proposal on the ballot adds an administrative cost and lengthens the time before a project can be implemented, during which project costs can increase. Therefore, when faced with a referendum requirement on a type of bond, the city may prefer to use other bonds that lack the requirement. By issuing bonds that do not require voter approval, the city can retain control over the issuance process and ensure funding for preferred projects (Moszoro and Spiller, 2019). In this section, we explore whether cities gravitate towards different types of debt due to bond referendum requirements.

5.1 Data and sample

To assess whether cities choose different types of bonds depending on referendum regimes, we compare states with only GO bond referendum requirements and no revenue bond referendum requirement (dark green) to states without any bond referendum requirements (white). We exclude states with both GO and revenue bond referendum requirements because we want to isolate debt choice due to variation in only one referendum requirement. We also exclude states with in-state variation in GO bond referendum requirements, where it is difficult to identify which cities or bonds received referendums. Thus, our comparison focuses on the 25 dark green, dark green-striped, and white-shaded states in Figure 1. In our resulting sample, there are 2,803 cities that issue 155,830 UTGO, LTGO, and revenue bonds in aggregate.

First, we descriptively examine the frequency of types of bonds across referendum regimes. If cities prefer to use bonds that do not require referendums, then we expect to observe a higher frequency of such bonds when cities face referendum requirements. Figure 4 illustrates the composition of bond types across the three regimes in our sample: (i) our benchmark group of states where cities have no referendum requirements for bonds in Panel A; (ii) states where a city's GO bond faces a referendum requirement in Panel B; and (iii) states where cities have referendum requirements for only one choice of GO bond, an unlimited tax GO bond, in Panel C. Consistent with UTGO bonds being an attractive tool to fund projects in states with no referendum requirements, Panel A shows that in benchmark states, cities' bonds are comprised of 66% UTGO, 18% LTGO and 16% revenue.

When we compare Panel A to Panels B and C, two striking patterns emerge. First, in Panel B, when cities have to obtain voter approval for any GO bond, the proportion of revenue bonds is more than three times larger at 52% compared to the benchmark case. At the same time, the proportion of UTGO bonds is 31%, half of the benchmark case, suggesting that these cities may substitute towards revenue bonds. Second, in Panel C, when cities only need voter approval for unlimited tax GO bonds but have the option of pursuing limited tax GO bonds, we observe a noticeably smaller proportion of UTGO bonds (23%) and a larger proportion of LTGO bonds (54%), compared to Panel A. This pattern suggests that when cities face an additional hurdle for UTGO bonds, they may substitute towards LTGO bonds, which can support the same types of projects as UTGO bonds. Together, both comparisons suggest that cities may avoid bond referendums by shifting towards types of bonds over which they have more control.

5.2 Research design and results

While Figure 4 provides descriptive evidence of substitution between bond types, we investigate whether this result persists after controlling for factors that may be correlated with a city's choice of debt. To do so, we compare aggregate borrowing across cities in states with different referendum requirement regimes. At the issuer level, we compute the total amount of money raised through UTGO, LTGO, and revenue bonds from 2000-2020. Then we define *Pct Debt Type* as the percentage of UTGO, LTGO, or revenue debt out of the total amount raised by the issuer.

In OLS regressions, we study *Pct Debt Type* across the same groups as in Figure 4. First, we compare the benchmark states (i.e., without any referendum requirements) to states where cities have to hold referendums for any GO bond; the independent variable is *GO Vote Required*, an indicator variable that equals one for the latter states. Then, we compare the benchmark states to states where cities only need voter approval for UTGO bonds (*Only UTGO Vote Required*).[22]

Specifically, we conduct the following regressions at the issuer level (i.e., city level):

$$Pct\ Debt\ Type_i = \alpha + \beta_1 Vote\ Requirement_s + \beta_2 County\ Economics_c + \beta_3 State\ Debt\ Policies_s + \epsilon_i$$

for city i in county c and state s. *Pct Debt Type* is one of *Pct UTGO*, *Pct LTGO*, and *Pct Revenue*. As defined above, *GO Vote Required* is an indicator equal to one for cities in states that impose referendum requirements on any GO bond the city could issue; *Only UTGO Vote Required* is an

[22]By definition, the states where *Only UTGO Vote Required* equals one are mutually exclusive with the states where *GO Vote Required* equals one.

indicator variable equal to one for cities in states that impose referendum requirements only on UTGO bonds. In this specification, all county economic conditions are measured at the beginning of our sample period.

Panel A of Table 7 illustrates the descriptive statistics for our main sample. In 37% of cities, any GO bond issued has a referendum requirement, and in 23% of cities, only UTGO bonds have a referendum requirement. On average, across cities with and without referendum requirements, *Pct UTGO* is 48%, *Pct LTGO* is 23%, and *Pct Revenue* is 27%. 59% of cities are in states where state-wide referendums are required for state-issued GO debt, 33% of cities are in a *Proactive State*, and 60% of cities are in states that allow LTGO bonds.

First, we compare cities' debt choices between control states and states where *GO Vote Required* equals one (Panel B of Figure 4). If cities with these referendum requirements prefer to use debt that does not require voter approval, then we expect to observe a lower use of GO bonds and a higher use of revenue bonds than in control states. In Table 7 Panel A, we find evidence consistent with this shift. In columns 1-3, the dependent variable is *Pct UTGO*. Column 1 indicates that, before including any controls, *Pct UTGO* is lower by 36.3% for cities in states with *GO Vote Required* compared to states without mandatory bond referendums ($\beta = -0.363$, p-value < 0.01). In column 2, after controlling for county-level local economic conditions, the negative association between *GO Vote Required* and *Pct UTGO* persists with a similar magnitude ($\beta = -0.331$, p-value < 0.01). In column 3, after adding controls for state laws related to municipal debt, *Pct UTGO* is lower by 23.6% for cities where any GO bond would be subject to a vote ($\beta = -0.236$, p-value < 0.01). Beyond UTGO debt, cities with *GO Vote Required* also issue 9.9% less LTGO debt than cities without referendum requirements ($\beta = -0.099$, p-value < 0.01). The lower use of GO debt comes at the gain of revenue debt: in column 5, cities with *GO Vote Required* issue more debt through revenue bonds by 34.1% ($\beta = -0.341$, p-value < 0.01).

Next, we compare debt choices between benchmark states and states that only require referendums for UTGO bonds (*Only UTGO Vote Required*). Table 7 Panel B presents the results from estimating Equation 1 for this comparison group. The magnitude of this difference varies between 46.4%, when we do not include any controls, to 38.5%, when we include the full set of controls (p-value < 0.01). In columns 4-5, we find evidence that when cities only face referendum requirements for UTGO bonds, cities substitute towards LTGO and revenue bonds. Cities issue 7.9% more LTGO debt than cities in control states (p-value < 0.10) and 28.3% more revenue debt (p-value < 0.01), with the full suite of control variables. Through this comparison of states with different bond referendum regimes, the results indicate that cities substitute towards types of bonds where they have more discretion over the issuance process.

Compared to UTGO bonds, LTGO and revenue bonds can have weaker credit ratings and higher yields because cities have more restrictions on how to fund the debt service for these bonds (Municipal Research and Services Center, 2025; Beglin, 2024). Consequently, when substituting towards LTGO or revenue debt, cities may add more expensive debt to their portfolios. Although this substitution can help cities maintain control, one potential trade-off is that cities may incur higher costs of debt financing.

We assess this implication by examining whether bond referendum requirements are positively associated with cities' aggregate borrowing costs. We measure aggregate borrowing costs through issuer-level yield spreads. For each bond, we compute the offering yield spread as the difference between the offering yield and the yield of a coupon-equivalent risk free bond (Gao et al., 2020).[23] We then calculate a city's *Weighted Average Yield Spread* across all bonds issued by the city over our sample period, where the average yield spreads are weighted by the dollar amounts of the bonds.

To test whether aggregate borrowing costs are higher when cities face different referendum requirements, we estimate the above equation and use *Weighted Average Yield Spread* as the dependent variable. Table 8 reports the results. In Panel A, we compare control states with states where cities would need a referendum for any GO bond. The results indicate that in these cities, aggregate borrowing costs are higher, as predicted by the observed substitution towards revenue bonds. For cities with *GO Vote Required*, weighted average yield spreads are higher by between 30-41 basis points, relative to cities in states without bond referendum requirements. This difference is equivalent to between 18.5%-25.0% of the mean value of *Weighted Average Yield Spread*. In Panel B, we compare control states with states that only require cities to obtain referendums for UTGO bonds.

[23] We calculate the price of the coupon-equivalent risk-free bond by calculating the present value of each bond's coupon payments and face value using the US Treasury yield curve, based on the zero-coupon yield curve estimated by Gürkaynak et al. (2007). We then calculate the risk-free yield-to-maturity using this price, the coupon payments, and the face value payment. The yield spread is the difference between the municipal bond yield and the risk-free yield-to-maturity.

Consistent with the observed preference for LTGO and revenue bonds, the weighted average yield spreads are higher by between 25-27 basis points for cities with *Only UTGO Vote Required*, relative to cities in states without bond referendum requirements.

Although our design controls for local economic conditions and key institutional factors, one potential concern is that unobserved characteristics could explain the differences in bonds and yield spreads across states with and without vote requirements. To strengthen our identification, we compare cities in our state-border sample, focusing on pairs of with no revenue vote requirement (dark green states only). Using this sample of ssuers, we test whether vote-requiring cities have different proportions of UTGO debt or different aggregate yield spreads than cities without vote requirements. Due to the smaller sample size, we define *Vote* to equal one if either *GO Vote Required* or *Only UTGO Vote Required* equals one in a state. We include border-pair fixed effects to compare outcomes between the cities in each pair of states.

Table 9 presents the results: in the narrower sample, vote-requiring cities have less UTGO debt and higher aggregate yield spreads than cities without vote requirements. This substitution pattern is consistent with the full sample results. Taken together, our findings provide evidence that cities shift their debt issuance toward more costly bonds to avoid referendum requirements, maintaining more autonomy over project financing at the expense of higher borrowing costs.

6 Conclusion

This paper studies the role of voter approval requirements in municipal bond issuance and documents their effects on cities' information environments, financing decisions and borrowing costs. We collect a novel record of state laws governing whether cities are required to obtain voter approval before issuing general obligation or revenue bonds. Referendum requirements are more common for GO bonds, which directly affect property taxes and fund the majority of cities' infrastructure projects, and vary substantially both across and within states. Exploiting this institutional variation, we find that referendum requirements have significant ramifications for municipal borrowing by shaping the information environments of voters and bond investors and by influencing cities' financing choices.

Because cities communicate with voters when proposing bond projects for referendums, we examine whether referendum requirements affect the supply of bond-related information aimed at voters. We measure the volume of bond-related information by gathering bond-related disclosure on city websites and by measuring media coverage of cities' bond issuances. We find significantly more bond-related information disclosed on city websites and covered by media outlets in jurisdictions that require voter approval. We then examine whether this voter-targeted information translates into lower information asymmetry among bond market participants. Consistent with improved transparency, when cities face UTGO bond referendum requirements, secondary market trades of UTGO bonds exhibit significantly lower dealer markups. Overall, our findings suggest that voter-driven improvements in the information environment also benefit investors.

Despite this enhanced transparency for voters and investors, cities prefer to issue bonds that are exempt from the referendum, indicating that voter approval is a substantial hurdle. In the presence of GO bond referendums, cities rely more heavily on revenue bonds and reduce their use of unlimited tax or limited tax GO bonds, compared to cities in states without bond referendum requirements. Similarly, when cities only have referendum requirements for UTGO bonds, cities issue less UTGO debt, favoring LTGO or revenue bonds. These shifts suggest that referendum requirements change the composition of municipal debt. Consistent with LTGO and revenue bonds typically carrying higher yields than UTGO bonds, we find that this substitution increases aggregate borrowing costs at the city level.

Overall, our study sheds light on a key source of institutional variation in voter involvement in the municipal bond market and its nuanced implications for public finance. Our findings underscore the importance of bond approval regimes in shaping municipal capital markets and highlight the dual role of voters as both drivers of municipal disclosure and fiscal constraints.

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Figures and tables

Figure 1: City bond referendum requirements by state

This figure maps the distribution of city bond referendum laws across the 49 states with independent city governments. Green-shaded states require cities to hold referendums for GO bonds but not for revenue bonds; within these states, green-striped states' referendum requirements exclude limited tax GO bonds. White-shaded states do not require cities to hold referendums for GO or revenue bonds. In gray-shaded states, cities are required to hold referendums for GO bonds, and revenue bond requirements are mixed. In dotted states, mandatory GO bond referendums vary within-state.

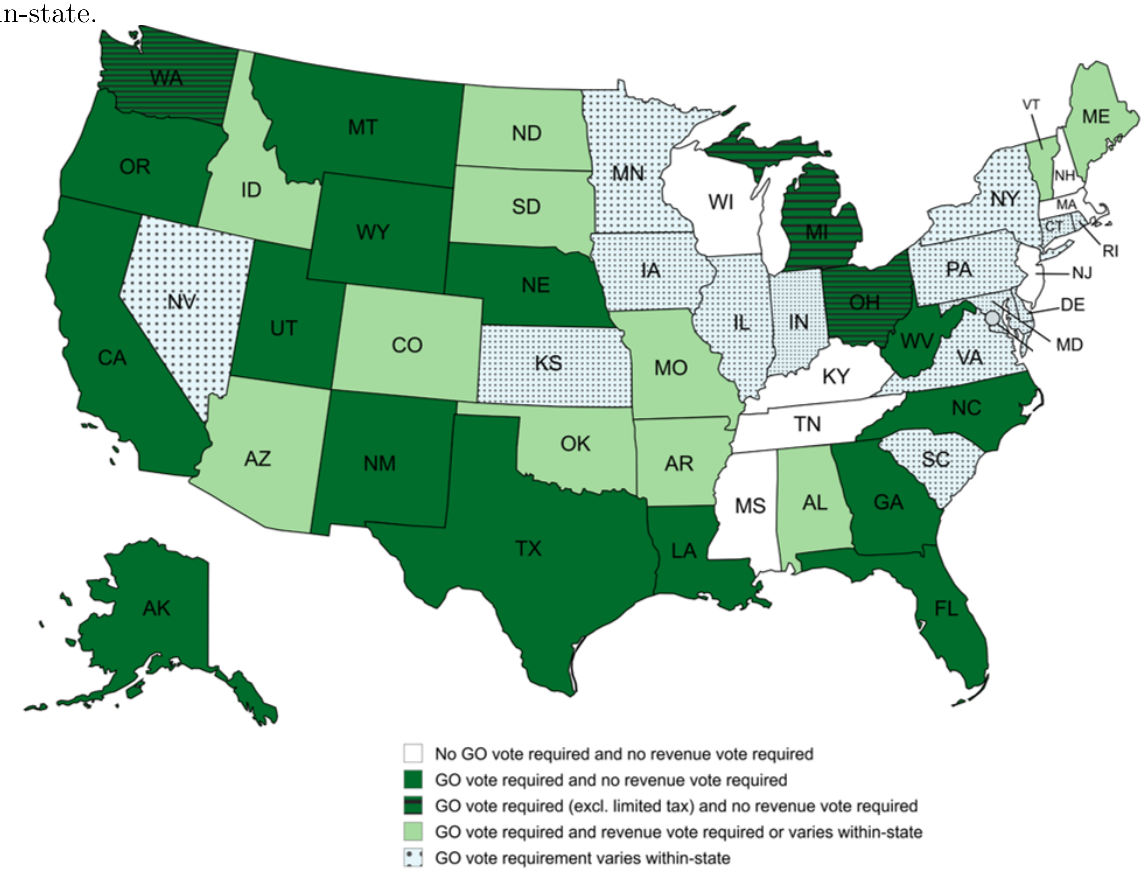


Figure 2: Detailed city bond referendum requirements by state

State	GO	Revenue	Sources	State	GO	Revenue	Sources
AL	Majority	Depends	AL Const, Article XII, S222, S222.01 AL League of Municipalities (2024)	MT	Majority	None	MT Code § 7-7-4221 (2023)
AK	Majority	None	AK Stat § 29.47.190 (2023) AK Stat § 29.47.250 (2023)	NE	Majority	None	NE Rev Stat § 18-506.01 (2023)
AZ	Majority	Depends	AZ Rev Stat § 35-452 (2023) AZ Rev Stat § 9-523 (2023) AZ Rev Stat § 9-441.03 (2023)	NV	Depends	None	NV Rev Stat § 350.020 (2023)
AR	Majority	Majority	AR Const, Amendment 62 AR Code § 14-72-606 (2023)	NH	None	None	NH Rev Stat § 33:3 (2023)
CA	2/3	None	CA Govt Code § 43608 (2023) CA Govt Code § 43614 (2023) CA Govt Code § 54380 (2023)	NJ	None	None	NJ Rev Stat § 40A:2-17 (2023)
CO	Majority	Majority	CO Rev Stat § 31-15-302 (2023)	NM	Majority	None	NM Const, Article IX NM Stat § 3-30-06 (2023)
CT	Depends	Depends	CT Gen Stat § 7-369. (2023)	NY	Depends	Depends	NY Loc Fin L § 34.00 (2023)
DE	Depends	None	DL Code (2023)	NC	Majority	None	NC Const, Article 5, Section 4
FL	Majority	None	FL Const, Article XII, Section 12 FL Stat § 100.201 (2023) FL Revenue Bond Act of 1953	ND	60%	Majority	ND Century Code § 21-03-04 2 ND Century Code § 21-03-07
GA	Majority	None	GA Code § 36-82-1 (2023) GA Code § 36-82-3 (2023) GA Code § 36-82-63 (2023)	OH	Majority for UTGO	None	OH Revised Code § 5705.51 (2023)
HI	N/A	N/A	N/A	OK	60%	Depends	11 OK Stat § 22-128 (2023) 11 OK Stat § 22-155 (2023)
ID	2/3	Depends	ID Const Art VIII § 3	OR	Majority	None	OR State Treasury OR Const, Article XI, Section 11b
IL	Depends	None	65 ILCS 5/8-4-1 (2023) IL Municipal Bond Reform Act 65 ILCS 5/8-5-16 (2023)	PA	Depends	Depends	PA Cons Stat Title 53 ch 81 (2023)
IN	Depends	None	IN Code § 36-4-6-19 (2023) IN Code § 6-6-1.1-20-3.5 (2023) IN Code § 5-1.4-4-5 (2023)	RI	Depends	Depends	RI Gen L § 45-12-2.1 (2024) RI Gen L § 45-12-20 (2024)
IA	Depends	None	IA Code § 384.25 (2023) IA Code § 384.26 (2023)	SC	Depends	None	SC Const, Article X, Section 14
KS	Depends	Depends	KS Stat § 10-120 (2023) KS Stat § 10-1212 (2023)	SD	60%	60%	SD Codified L § 6-8B-2 (2023)
KY	None	None	KY Rev Stat Ch 66 (2024) KY League of Cities (2019) KY Rev Stat § 96.640 (2024)	TN	None	None	TN Code § 9-21-108 (2023)
LA	Majority	None	LA Const, Article VI, Section 33 LA Rev Stat § 39:521 (2023) LA Rev Stat § 39:524 (2023)	TX	Majority	None	TX Govt Code § 1251.001 (2023)
ME	Majority	Depends	ME Rev Stat 30-A § 5772 (2023) ME Rev Stat 30-A § 5404 (2023)	UT	Majority	None	UT Code § 11-14-201 (2023)
MD	Depends	Depends	MD Local Gov Code § 19-304 (2023) MD Local Gov Code § 19-302 (2023)	VT	Majority	Majority	24 V.S.A. § 1755
MA	None	None	MA Gen L ch 44 § 8a (2023)	VA	Depends	None	VA Const, Article VII, Section 10
MI	Majority for UTGO	None	Michigan Municipal League	WA	60% for UTGO	None	WA Rev Code § 84.52.056 (2023) WA Rev Code § 35.41.050 (2023)
MN	Depends	None	League of Minnesota Cities	WV	Majority	None	WV Code § 8-18-16 (2023) WV Code § 8-13C-14 (2023)
MS	None	None	MS Code § 21-33-301 (2023)	WI	None	None	WI Stat § 67.05 (2023)
MO	2/3 or 4/7	Yes, threshold depends	MO Rev Stat § 95.115 (2024) MO Rev Stat § 95.130 (2024) MO Rev Stat § 250.070 (2024) MO Const, Article VI, Section 26(b)	WY	Majority	None	WY Stat § 22-21-103 (2023)

Figure 3: Bond article counts relative to GO debt issuance

This figure plots the number of news articles about cities in event-time around the month of an unlimited tax GO bond issuance. We include news articles about cities where the article headlines mention bond or debt-related keywords.

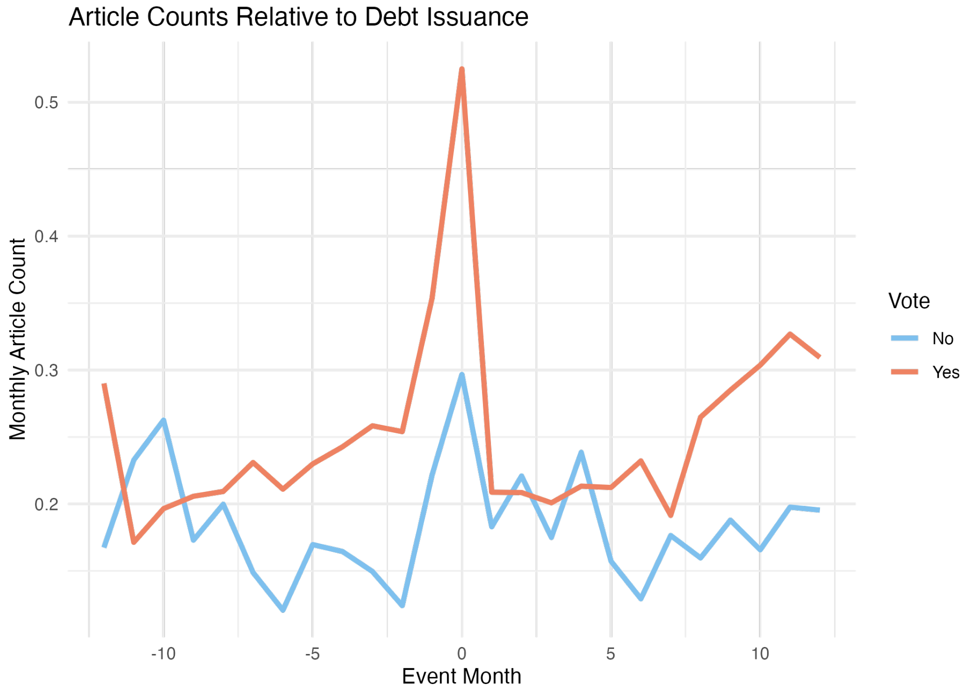


Figure 4: Composition of bonds by mandatory referendum regime

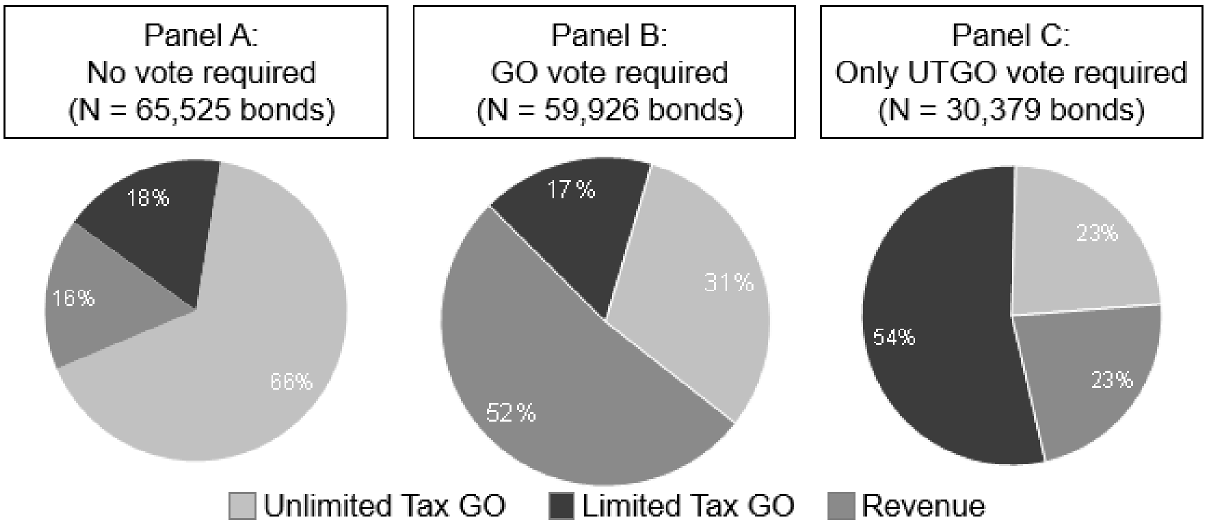


Table 1: Descriptive statistics

This table presents descriptive statistics for the main variables used in our analysis. All variables are defined in *Appendix A*.

	Mean	Std	Min	p1	Median	p99	Max	N
Website disclosure (issuer-year level, state-border sample)								
Vote	0.37	0.48	0	0	0	1	1	1,429
Bond or Debt URL Count	0.41	2.91	0	0	0	7.44	50	1,429
Bond or Debt Count	5.16	19.81	0	0	0	86.48	364	1,429
Fiscal URL Count	0.74	4.03	0	0	0	22	49	1,429
Fiscal Count	14.72	47.78	0	0	0	248	605	1,429
Num Issuances	4.61	5.44	0	0	3	26	43	1,429
Media coverage (issuance level, full sample)								
Vote	0.39	0.49	0	0	0	1	1	2,426
Total Articles - 12mo	3.18	9.92	0	0	0	68.25	81.74	2,426
Bond Issuance - 12mo	0.24	0.43	0	0	0	1	1	2,426
Num Sources	26.50	110.15	1	1	6	480.75	2,134	2,426
Amount	15.60	1.15	10.60	13.07	15.54	18.85	19.93	2,426
County ln(GDP)	16.41	1.52	11.40	12.81	16.49	19.23	20.41	2,426
County ln(Pop)	12.43	1.31	8.05	9.10	12.50	15.18	16.12	2,426
County ln(Pers. Inc)	16.22	1.42	11.53	12.76	16.24	18.93	20.33	2,426
County ln(Emp)	11.94	1.39	7.43	8.56	12.01	14.67	15.64	2,426
State GO Vote	0.43	0.49	0	0	0	1	1	2,426
Proactive State	0.23	0.42	0	0	0	1	1	2,426
State LTGO Allowed	0.30	0.46	0	0	0	1	1	2,426

Table 2: GO bond referendums and city website disclosure along state borders

This table examines whether a GO bond referendum requirement is associated with bond-related disclosure on city websites. Observations are at the city-year level. Dependent variables are counts of words "bond" or "debt" and "fiscal" in URLs and website text. **Panel A** reports tests of differences in mean values across states with and without referendum requirements. **Panel B** reports regression analyses. All specifications include fixed effects for the year and state-border pair. t-statistics are reported in parentheses, and standard errors are clustered at the county level.*, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels. All variables are defined in *Appendix A*.

Panel A: Mean Values by Vote Requirement

Variable	$Vote = 0$	$Vote = 1$	Difference (t-stat)
Num Issuances	5.13	3.74	-1.39*** (-4.88)
Bond or Debt URL Count	0.27	0.64	0.36** (1.97)
Bond or Debt Count	4.01	7.09	3.07** (2.38)
Fiscal URL Count	0.37	1.37	1.00*** (3.80)
Fiscal Count	12.47	18.47	6.00** (2.14)

Panel B: Regression Analysis

	Bond or Debt URL Count (1)	Bond or Debt Count (2)	Fiscal URL Count (3)	Fiscal Count (4)
Vote	1.39***	0.662**	3.76***	0.575*
	(2.82)	(2.47)	(4.05)	(1.69)
Num Issuances	-0.138	0.168	0.111	0.826***
	(-0.36)	(0.85)	(0.31)	(5.09)
County ln(GDP)	1.12	1.24	3.10**	-0.765
	(0.76)	(1.48)	(1.99)	(-0.66)
County ln(Pop)	1.60	-0.621	3.83	1.24
	(1.01)	(-0.54)	(1.30)	(0.73)
County ln(Pers. Inc)	-2.70	0.365	-2.45	-0.651
	(-1.19)	(0.35)	(-1.25)	(-0.60)
County ln(Emp)	0.284	-0.807	-4.47	0.356
	(0.16)	(-0.61)	(-1.43)	(0.20)
State GO Vote	0.220	1.36***	-2.59*	1.66***
	(0.26)	(3.39)	(-1.72)	(3.09)
N	1,359	1,418	1,263	1,429
Pseudo R^2	0.234	0.266	0.258	0.328
State-Border FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Cluster	County	County	County	County

Table 3: GO bond referendums and bond-related media coverage

This table examines whether a GO bond referendum requirement is associated with bond-related media coverage of an issuance. **Panel A** reports mean values of *Total Articles - 12mo* in states with and without referendum requirements. **Panel B** reports regression analyses. Columns 1-2 examine the full sample, and columns 3-4 examine the state-border sample. All columns examine the count of articles written in the 12 months prior to and including bond issuance. All specifications include fixed effects for the month of issuance and the purpose of the issuance's proceeds. If an issuance is made for multiple purposes, the purpose from the largest bond in the issuance is used. In columns 3 and 4, state-border fixed effects are included. t-statistics are reported in parentheses, and standard errors are clustered at the county level.*, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels. All variables are defined in *Appendix A*.

Panel A: Mean Values by Vote Requirement

Variable	$Vote = 0$	$Vote = 1$	Difference (t-stat)
Total Articles - 12mo	2.29	4.59	2.30*** (5.18)

Panel B: Regression Analysis

	Dependent Variable: *Total Articles - 12mo*			
	Full Sample		*State-Border Sample*	
	(1)	(2)	(3)	(4)
Vote	0.598***	0.874***	0.407*	0.495*
	(3.97)	(5.77)	(1.66)	(1.80)
Bond Issuance - 12mo	0.504***	0.491***	0.287**	0.134
	(3.83)	(4.24)	(1.97)	(1.02)
Num Sources	0.002***	0.002***	0.028***	0.027***
	(9.37)	(6.36)	(4.53)	(4.99)
Amount	0.497***	0.433***	0.206	0.137
	(8.65)	(11.20)	(1.44)	(1.07)
County ln(GDP)		0.845		-1.94
		(1.43)		(-1.41)
County ln(Pop)		-0.446		0.386
		(-1.40)		(0.50)
County ln(Pers. Inc)		0.027		-0.106
		(0.07)		(-0.12)
County ln(Emp)		-0.281		2.20
		(-0.48)		(1.49)
State GO Vote		-0.409**		-0.777**
		(-2.50)		(-2.07)
Proactive State		0.134		
		(1.02)		
State LTGO Allowed		-0.582***		
		(-3.91)		
N	2,250	2,250	564	564
Pseudo R^2	0.583	0.615	0.527	0.545
Year-Month FE	Yes	Yes	Yes	Yes
Purpose FE	Yes	Yes	Yes	Yes
State-Border FE			Yes	Yes
Cluster	County	County	County	County

Table 4: Texas GO bond referendums and media coverage

This table examines time series changes in bond-related media coverage around elections and the association between bond-related media coverage and election outcomes for a sample of 483 city bond elections in Texas. **Panel A** reports descriptive statistics at the city-month level and election-level. **Panel B** reports regressions at the city-month level. City and year-month fixed effects are included. **Panel C** reports regressions at the election-level. Year and bond purpose fixed effects are included. t-statistics are reported in parentheses, and standard errors are clustered by county. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels. All variables are defined in *Appendix A*.

Panel A: Summary Statistics

	Mean	Std	Min	p1	Median	p99	Max	N
City-Month Level Summary Stats:								
I(Bond Coverage)	0.06	0.24	0	0	0	1	1	19,032
Election	0.02	0.15	0	0	0	1	1	19,032
Issuance	0.04	0.19	0	0	0	1	1	19,032
Election-Level Summary Stats:								
Failed	0.12	0.32	0	0	0	1	1	483
Margin	0.34	0.22	0	0.004	0.32	1	1	483
I(Bond Coverage)$_{[-1,0]}$	0.27	0.44	0	0	0	1	1	483

Panel B: Elections and media coverage

	I(Bond Coverage)	
	(1)	(2)
Election	0.037**	0.037**
	(2.46)	(2.49)
Bond Issuance		0.063***
		(4.25)
County ln(GDP)		-0.031
		(-0.83)
County ln(Pop)		0.316*
		(1.81)
County ln(Pers. Inc)		-0.063
		(-0.95)
County ln(Emp)		-0.122
		(-1.05)
N	19,032	19,032
Adjusted R^2	0.255	0.258
City FE	Yes	Yes
Year-Month FE	Yes	Yes
Cluster	City+YM	City+YM

Panel C: Media coverage and election outcomes

	I(Failed)		Margin	
	(1)	(2)	(3)	(4)
I(Bond Coverage)$_{[-1,0]}$	-0.148***	-0.147***	0.084**	0.060*
	(-4.04)	(-3.47)	(2.19)	(1.81)
Amount		0.019		0.0006
		(1.32)		(0.07)
Num Sources		-0.003		0.003
		(-0.22)		(0.21)
County ln(GDP)		-0.259**		0.039
		(-2.29)		(0.49)
County ln(Pop)		-0.425***		-0.009
		(-3.13)		(-0.09)
County ln(Pers. Inc)		0.116		0.156*
		(0.95)		(1.78)
County ln(Emp)		0.510***		-0.166*
		(3.01)		(-1.72)
N	483	483	483	483
Adjusted R^2	0.124	0.189	0.208	0.235
Year FE	Yes	Yes	Yes	Yes
Purpose FE	Yes	Yes	Yes	Yes
Cluster	County	County	County	County

Table 5: GO bond referendums and liquidity

This table examines how UTGO bond referendum requirements are associated with markups and markdowns on customer purchases and sales in the secondary market. **Panel A** reports summary statistics for trade-level variables. **Panel B** reports regression results for trade-level markups and markdowns overall for the full sample of bonds. **Panel C** reports regression results for trade-level markups and markdowns overall for the state-border sample of bonds. In both panels, we report results for trades from 30 days to one year, three years, and give years after issuance, and for trades at any time 30 days after issuance. All specifications include year and bond purpose fixed effects. Specifications in Panel C include state-border fixed effects. t-statistics are reported in parentheses, and standard errors are two-way clustered at the bond and year. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels. All variables are defined in *Appendix A*.

Panel A: Trade-Level Summary Statistics

	Mean	Std	Min	p1	Median	p99	Max	N
Markup	61.440	71.890	0	0	26.650	280.880	284.720	379,565
ln(Trade size)	10.340	1.090	4.610	8.520	10.130	13.480	17.110	379,565
ln(Volume)	10.940	1.410	5.300	8.520	10.820	15.200	17.910	379,565
Age	4.330	3.010	0.080	0.100	4.040	11.780	22.990	379,565
Time to maturity	9.740	6.440	0.160	0.340	8.860	27.460	39.050	379,565
Over 1 day in inventory	0.720	0.450	0	0	1	1	1	379,565

Panel B: Full Sample: Bond referendums and markups

	One Year		*Three Years*		*Five Years*		*Full Sample*	
	Markup	Markdown	Markup	Markdown	Markup	Markdown	Markup	Markdown
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Vote	-8.625***	-3.447*	-7.309***	-2.035*	-6.331***	-1.953**	-4.828***	-0.831
	(-3.65)	(-1.97)	(-4.71)	(-1.86)	(-5.20)	(-2.39)	(-4.29)	(-1.17)
Treasury yield	-1.176	2.432	1.937	-1.310	1.837*	-1.400	2.259*	-0.962
	(-0.41)	(0.67)	(1.39)	(-0.70)	(1.75)	(-1.02)	(2.00)	(-0.88)
ln(Trade size)	-12.590***	-0.192	-11.370***	-3.532*	-10.917***	-5.644**	-11.585***	-8.308***
	(-9.84)	(-0.12)	(-9.87)	(-1.81)	(-9.42)	(-2.84)	(-10.32)	(-5.09)
ln(Volume)	3.824***	-1.976	4.390***	0.945	4.867***	2.530	6.115***	4.071**
	(3.41)	(-1.35)	(4.51)	(0.48)	(5.55)	(1.35)	(7.59)	(2.87)
Age	-18.502***	20.262***	-7.098***	6.184***	-6.202***	3.043***	-6.231***	0.398
	(-6.68)	(8.79)	(-6.70)	(9.53)	(-8.84)	(6.36)	(-10.98)	(1.54)
Time to maturity	3.778***	1.269***	3.558***	1.488***	3.252***	1.460***	2.547***	1.308***
	(9.61)	(4.05)	(10.66)	(6.23)	(11.06)	(6.95)	(9.34)	(8.64)
Over 1 day in inventory	6.095***	-0.868	3.131***	-1.754*	1.999**	-1.116	0.928	0.118
	(7.37)	(-1.07)	(4.05)	(-1.83)	(2.42)	(-1.56)	(1.33)	(0.20)
Amount	0.532	0.031	-0.100	-0.075	-0.464	-0.479	-0.790	-1.009***
	(0.61)	(0.05)	(-0.15)	(-0.18)	(-0.84)	(-1.54)	(-1.70)	(-4.05)
Maturity	13.960***	1.642	18.088***	2.348	22.362***	3.101*	31.742***	5.753***
	(4.18)	(1.03)	(5.57)	(1.34)	(7.35)	(1.81)	(10.19)	(3.23)
Rated	0.269	0.289	-1.446	0.595	-1.036	1.365	1.758	2.273**
	(0.09)	(0.23)	(-0.75)	(0.54)	(-0.78)	(1.63)	(1.48)	(2.74)
Sinkable	-13.647**	-0.587	-8.656*	-1.108	-5.555*	0.379	-2.364	0.287
	(-2.85)	(-0.22)	(-2.02)	(-0.52)	(-1.82)	(0.18)	(-1.13)	(0.18)
Insured	-0.207	1.106	1.247	0.850	2.709*	2.047	5.127***	3.325**
	(-0.06)	(0.46)	(0.62)	(0.62)	(1.96)	(1.63)	(2.95)	(2.37)
Callable	29.090***	2.589	20.016***	4.220***	14.756***	4.835***	8.935***	4.602***
	(10.35)	(1.20)	(9.91)	(3.96)	(7.98)	(5.18)	(6.08)	(6.85)
N	50,093	11,798	104,597	40,413	156,802	71,689	245,665	133,890
Adjusted R^2	0.319	0.107	0.331	0.117	0.337	0.126	0.343	0.123
County Demo Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Purpose FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Bond+Year	Bond+Year	Bond+Year	Bond+Year	Bond+Year	Bond+Year	Bond+Year	Bond+Year

Panel C: State-Border Sample: Bond referendums and markups

	One Year		*Three Years*		*Five Years*		*Full Sample*	
	Markup	Markdown	Markup	Markdown	Markup	Markdown	Markup	Markdown
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Vote	-1.814	-1.496	1.335	-2.761	-1.157	-2.915	-3.000**	-3.861**
	(-0.38)	(-0.36)	(0.45)	(-0.99)	(-0.62)	(-1.45)	(-2.37)	(-2.16)
Treasury yield	6.882	-1.632	6.582	-2.501	4.966	-1.212	5.858**	0.117
	(0.99)	(-0.20)	(1.62)	(-0.57)	(1.71)	(-0.52)	(2.75)	(0.06)
ln(Trade size)	-14.916***	3.657	-13.347***	-0.885	-10.852***	-1.919	-11.896***	-4.486**
	(-9.02)	(1.25)	(-8.61)	(-0.34)	(-7.61)	(-0.83)	(-8.01)	(-2.20)
ln(Volume)	6.473***	-5.913**	5.609***	-1.229	4.201**	-0.444	5.960***	0.984
	(4.47)	(-2.22)	(4.02)	(-0.46)	(2.85)	(-0.19)	(4.32)	(0.49)
Age	-10.986**	18.418***	-6.510***	6.547***	-6.295***	2.948***	-6.333***	0.141
	(-2.29)	(3.54)	(-5.18)	(5.97)	(-6.72)	(3.74)	(-8.36)	(0.28)
Time to maturity	5.064***	0.987	4.317***	1.477***	3.730***	1.612***	2.633***	1.247***
	(5.68)	(1.66)	(7.17)	(3.07)	(6.72)	(4.38)	(6.69)	(4.29)
Over 1 day in inventory	8.421***	-0.749	5.837***	-1.454	2.608*	-1.407	2.145	-0.329
	(3.80)	(-0.37)	(4.07)	(-1.14)	(1.87)	(-1.27)	(1.53)	(-0.48)
Amount	0.256	1.183	1.213	0.627	-0.975*	-0.332	-2.816***	-1.880***
	(0.14)	(0.66)	(1.43)	(0.64)	(-1.81)	(-0.58)	(-4.42)	(-3.63)
Maturity	3.841	2.624	10.051*	1.790	17.657***	2.627	29.885***	7.424**
	(0.59)	(0.64)	(1.99)	(0.45)	(3.64)	(0.81)	(7.50)	(2.11)
Rated	-1.929	-2.653	-3.995	-0.127	-3.134	2.106	-0.094	2.312*
	(-0.42)	(-0.60)	(-1.48)	(-0.05)	(-1.39)	(1.01)	(-0.06)	(1.76)
Sinkable	-7.082	7.536	-3.025	4.386	-2.062	3.091	-0.035	0.825
	(-1.44)	(1.26)	(-0.64)	(1.46)	(-0.47)	(1.28)	(-0.01)	(0.45)
Insured	3.614	-0.803	3.856	0.674	3.387	0.465	4.427*	0.301
	(0.82)	(-0.17)	(1.30)	(0.22)	(1.51)	(0.20)	(1.89)	(0.14)
Callable	29.097***	7.530*	18.307***	5.731**	12.684***	4.611**	8.853***	4.150**
	(6.30)	(1.83)	(5.61)	(2.51)	(4.80)	(2.39)	(4.86)	(2.84)
N	10,518	2,766	20,951	8,971	31,602	15,615	48,943	27,869
Adjusted R^2	0.330	0.151	0.344	0.140	0.344	0.147	0.343	0.123
County Demo Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Purpose FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State-Border FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Bond+Year	Bond+Year	Bond+Year	Bond+Year	Bond+Year	Bond+Year	Bond+Year	Bond+Year

Table 6: GO bond referendums and secondary market trading

This table examines the relation between UTGO bond referendum requirements and secondary market activity—specifically, the likelihood of secondary market trading and the total par value traded—over periods beginning 30 days after issuance and extending to one, three, and five years post-issuance, as well as cumulatively after 30 days. Only bonds issued after 2005 are included to ensure available trade data for each time horizon. Panel A examines the full sample, and Panel B examines the state-border sample. All specifications include year and bond purpose fixed effects. Specifications in Panel B also include state-border fixed effects. t-statistics are reported in parentheses, and standard errors are clustered by bond issuance. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels. All variables are defined in *Appendix A*.

Panel A: Full Sample: Bond referendums and secondary market trading

	One Year		*Three Years*		*Five Years*		*Full Sample*	
	I(Trade)	Par Val. Vol.	I(Trade)	Par Val. Vol.	I(Trade)	Par Val. Vol.	I(Trade)	Par Val. Vol.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Vote	0.007	0.070	0.033***	0.373***	0.042***	0.472***	0.049***	0.558***
	(0.78)	(0.65)	(3.61)	(3.32)	(4.64)	(4.29)	(6.06)	(5.67)
Amount	0.120***	1.672***	0.138***	2.103***	0.118***	1.981***	0.091***	1.770***
	(30.05)	(32.71)	(36.03)	(44.81)	(30.78)	(43.33)	(26.69)	(44.20)
Maturity	0.045***	0.552***	0.091***	1.121***	0.163***	2.063***	0.229***	2.978***
	(7.31)	(7.50)	(14.79)	(15.11)	(27.31)	(28.40)	(40.24)	(42.82)
Callable	-0.016*	-0.067	-0.103***	-1.083***	-0.171***	-1.962***	-0.157***	-1.774***
	(-1.76)	(-0.60)	(-11.23)	(-9.65)	(-19.97)	(-18.47)	(-20.98)	(-18.93)
Sinkable	-0.093***	-1.010***	-0.132***	-1.487***	-0.134***	-1.530***	-0.163***	-1.919***
	(-6.74)	(-5.76)	(-8.63)	(-7.64)	(-8.94)	(-7.93)	(-11.41)	(-10.36)
Insured	0.004	0.046	0.002	0.070	-0.006	0.000	-0.020*	-0.152
	(0.31)	(0.33)	(0.19)	(0.47)	(-0.48)	(0.00)	(-1.92)	(-1.19)
Rated	0.016	0.208*	0.019*	0.258**	0.004	0.064	-0.009	-0.098
	(1.53)	(1.65)	(1.80)	(2.04)	(0.42)	(0.54)	(-1.03)	(-0.95)
N	29,586	29,586	29,586	29,586	29,586	29,586	29,586	29,586
Adjusted R^2	0.104	0.128	0.131	0.177	0.133	0.191	0.159	0.238
County Demo Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Purpose FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Issue

Panel B: State-Border Sample: Bond referendums and secondary market trading

	One Year		*Three Years*		*Five Years*		*Full Sample*	
	I(Trade)	Par Val. Vol.	I(Trade)	Par Val. Vol.	I(Trade)	Par Val. Vol.	I(Trade)	Par Val. Vol.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Vote	0.022	0.241	0.036	0.411	0.064**	0.781**	0.059**	0.812**
	(0.80)	(0.74)	(1.23)	(1.17)	(2.14)	(2.17)	(2.29)	(2.55)
Amount	0.120***	1.580***	0.160***	2.237***	0.134***	2.061***	0.114***	1.948***
	(11.75)	(12.67)	(16.75)	(19.32)	(14.11)	(18.02)	(12.90)	(19.12)
Maturity	0.067***	0.801***	0.105***	1.280***	0.178***	2.229***	0.240***	3.081***
	(5.55)	(5.56)	(8.18)	(8.29)	(14.04)	(14.45)	(20.01)	(20.80)
Callable	-0.021	-0.139	-0.109***	-1.144***	-0.198***	-2.287***	-0.169***	-1.910***
	(-1.11)	(-0.60)	(-5.52)	(-4.75)	(-10.39)	(-9.68)	(-9.66)	(-8.65)
Sinkable	-0.100***	-1.155***	-0.158***	-1.886***	-0.160***	-1.926***	-0.172***	-2.097***
	(-2.94)	(-2.77)	(-4.62)	(-4.50)	(-4.59)	(-4.36)	(-5.03)	(-4.77)
Insured	0.039	0.487	0.043	0.573	0.009	0.186	0.002	0.129
	(1.38)	(1.44)	(1.26)	(1.44)	(0.26)	(0.48)	(0.06)	(0.39)
Rated	0.028	0.380	0.029	0.400	0.003	0.076	-0.013	-0.094
	(1.18)	(1.31)	(1.26)	(1.43)	(0.15)	(0.28)	(-0.71)	(-0.42)
N	8,961	8,961	8,961	8,961	8,961	8,961	8,961	8,961
Adjusted R^2	0.084	0.098	0.124	0.151	0.136	0.172	0.149	0.201
County Demo Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Purpose FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State-Border FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Issue

Table 7: GO bond referendum requirements and debt choice

This table examines whether a GO bond referendum requirement is associated with cities' choice of bond type. **Panel A** reports issuer-level summary statistics. **Panel B** compares control states to states where any issued GO bond must be approved through referendum. **Panel C** compares control states to states where only unlimited tax GO bonds have a referendum requirement. In both panels, columns 1-3 examine the percent of issued debt that is UTGO, column 4 examines the percent of issued debt that is LTGO, and column 5 examines the percent of issued debt that is through revenue bonds. t-statistics are reported in parentheses, and standard errors are clustered at the county level.*, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels. All variables are defined in *Appendix A*.

Panel A: Issuer-Level Summary Statistics

	Mean	Std	Min	p1	Median	p99	Max	N
GO Vote Required	0.37	0.48	0.00	0.00	0.00	1.00	1.00	2,803
Only UTGO Vote Required	0.23	0.42	0.00	0.00	0.00	1.00	1.00	2,803
Pct UTGO	0.48	0.45	0.00	0.00	0.43	1.00	1.00	2,803
Pct LTGO	0.23	0.38	0.00	0.00	0.00	1.00	1.00	2,803
Pct Revenue	0.27	0.40	0.00	0.00	0.00	1.00	1.00	2,803
Weighted Average Yield Spread	1.60	0.62	-0.87	0.43	1.52	3.97	7.43	2,776

Panel B: GO Vote Required

	Pct UTGO			Pct LTGO	Pct Revenue
	(1)	(2)	(3)	(4)	(5)
GO Vote Required	-0.378***	-0.349***	-0.248***	-0.108***	0.362***
	(-10.68)	(-11.22)	(-6.64)	(-5.95)	(10.98)
County ln(GDP)		0.123	-0.099	0.074*	0.031
		(1.53)	(-1.52)	(1.69)	(0.50)
County ln(Pop)		-0.407***	-0.426***	0.097**	0.324***
		(-4.18)	(-6.17)	(2.03)	(5.69)
County ln(Pers. Inc)		0.255***	0.210***	0.025	-0.216***
		(2.76)	(2.92)	(0.50)	(-3.62)
County ln(Emp)		-0.042	0.252***	-0.160***	-0.112
		(-0.38)	(2.93)	(-2.65)	(-1.35)
State GO Vote			-0.042	0.021	0.009
			(-1.13)	(1.03)	(0.27)
Proactive State			0.366***	-0.110***	-0.241***
			(8.29)	(-4.56)	(-5.87)
LTGO Allowed			-0.047	0.277***	-0.230***
			(-1.50)	(12.78)	(-9.09)
N	2,104	2,104	2,104	2,104	2,104
Adj. R^2	0.180	0.223	0.292	0.268	0.266
Cluster	County	County	County	County	County

Panel C: Only UTGO Vote Required

	Pct UTGO			Pct LTGO	Pct Revenue
	(1)	(2)	(3)	(4)	(5)
Only UTGO Vote Required	-0.464***	-0.439***	-0.385***	0.079*	0.283***
	(-13.09)	(-12.75)	(-7.53)	(1.75)	(9.46)
County ln(GDP)		0.314**	-0.020	-0.017	0.015
		(2.32)	(-0.24)	(-0.28)	(0.21)
County ln(Pop)		-0.076	-0.155**	0.103*	0.073
		(-0.58)	(-2.08)	(1.78)	(1.43)
County ln(Pers. Inc)		0.100	0.142**	-0.060	-0.100**
		(0.79)	(2.13)	(-1.12)	(-2.00)
County ln(Emp)		-0.372**	0.031	-0.004	-0.001
		(-2.52)	(0.30)	(-0.06)	(-0.01)
Proactive State			0.170***	0.065***	-0.221***
			(7.71)	(2.87)	(-9.78)
LTGO Allowed			-0.225***	0.431***	-0.189***
			(-4.85)	(11.25)	(-8.02)
State GO Vote			0.065**	-0.081***	0.030
			(2.46)	(-3.78)	(1.35)
N	1,758	1,758	1,758	1,758	1,758
Adj. R^2	0.265	0.281	0.362	0.421	0.141
Cluster	County	County	County	County	County

Table 8: GO bond referendum requirements and aggregate cost of debt

This table examines whether a GO bond referendum requirement is associated with cities' aggregate cost of debt. The sample in **Panel A** compares control states to states where any issued GO bond must be approved through referendum. **Panel B** compares control states to states where only unlimited tax GO bonds have a referendum requirement. The dependent variable is a city's weighted average yield spread across general obligation and revenue bonds. t-statistics are reported in parentheses, and standard errors are clustered at the county level.*, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels. All variables are defined in *Appendix A*.

Panel A: GO Vote Required

	Weighted Average Yield Spread		
	(1)	(2)	(3)
GO Vote Required	0.371***	0.360***	0.300***
	(10.58)	(9.91)	(6.96)
County ln(GDP)		0.007	0.076
		(0.06)	(0.58)
County ln(Pop)		0.298**	0.256**
		(2.44)	(2.21)
County ln(Pers. Inc)		-0.035	0.055
		(-0.29)	(0.47)
County ln(Emp)		-0.267*	-0.384**
		(-1.85)	(-2.37)
State GO Vote			0.149***
			(3.04)
Proactive State			-0.350***
			(-5.65)
LTGO Allowed			-0.148***
			(-3.84)
N	2,093	2,093	2,093
Adj. R^2	0.084	0.092	0.112
Cluster	County	County	County

Panel B: Only UTGO Vote Required

	Weighted Average Yield Spread		
	(1)	(2)	(3)
Only UTGO Vote Required	0.271***	0.250***	0.255***
	(9.50)	(9.07)	(5.60)
County ln(GDP)		0.094	0.037
		(0.87)	(0.30)
County ln(Pop)		0.247***	0.214**
		(2.61)	(2.40)
County ln(Pers. Inc)		-0.252***	-0.249***
		(-2.88)	(-2.99)
County ln(Emp)		-0.134	-0.042
		(-1.01)	(-0.27)
Proactive State			-0.108***
			(-3.60)
LTGO Allowed			0.011
			(0.29)
State GO Vote			0.138***
			(3.70)
N	1,739	1,739	1,739
Adj. R^2	0.066	0.103	0.115
Cluster	County	County	County

Table 9: GO referendum requirements, debt choice, and aggregate yields along state borders

This table examines whether a GO bond referendum requirement is associated with city debt choice and aggregate cost of debt within the sample of issuers close to the borders of adjacent states. Column 1 examines the percent of issued debt that is UTGO, and column 2 examines the city's weighted average yield spread. State-border fixed effects are included. t-statistics are reported in parentheses, and standard errors are clustered at the county level.*, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels. All variables are defined in *Appendix A*.

	Pct UTGO	Weighted Average Yield Spread
	(1)	(2)
Vote	-0.301***	0.170**
	(-4.66)	(2.22)
County ln(GDP)	-0.039	0.862***
	(-0.22)	(3.12)
County ln(Pop)	0.110	-0.274
	(0.50)	(-0.89)
County ln(Pers. Inc)	-0.220	0.270
	(-1.00)	(0.87)
County ln(Emp)	0.145	-1.02***
	(0.66)	(-2.68)
State GO Vote	0.050	0.072
	(0.61)	(0.75)
N	570	566
Adjusted R^2	0.177	0.205
State-Border FE	Yes	Yes
Cluster	County	County

Appendix A: Variable definitions

Variable	Source	Description
State-level variables:		
Vote	State constitutions, statutes	An indicator equal to one if a state requires cities to hold referendums in order to issue unlimited tax GO bonds and zero otherwise
Proactive State	Gao et al. (2019)	An indicator equal to one if a state has statutes allowing them to provide assistance to a municipality and intervene in its finances in the event of local financial distress, as identified in Table 1 of Gao et al. (2019)
Limited Tax GO Allowed	Fidelity	An indicator equal to one if cities are allowed to issued limited tax GO bonds and zero otherwise
State GO Vote	Pew Trusts	An indicator equal to one if state-level GO debt requires voter approval
County-year-level variables:		
County ln(GDP)	Bureau of Economic Analysis	The log-adjusted county GDP
County ln(Pers Inc)	BEA	The log-adjusted county personal income
County ln(Pop)	BEA	The log-adjusted county population
County ln(Emp)	BEA	The log-adjusted county employment
Website-year-level variables:		
Bond or Debt URL Count	Wayback Machine	The count of sub-URLs that contain the the word "bond" or "debt" in the sub-URLs processed
Bond or Debt Count	Wayback Machine	The count of mentions of the words "bond" or "debt" in the scraped website text
Fiscal URL Count	Wayback Machine	The count of sub-URLs that contain the the word "fiscal" or "fy" in the sub-URLs processed
Fiscal Count	Wayback Machine	The count of mentions of the words "fiscal" or "fy" in the scraped website text
Num of Issuances	Mergent	The cumulative number of GO bond issuances by a city until year t; log-adjusted in regression analyses
Issuance-level variables:		
Total Articles - 12mo	RavenPack	The count of bond-related articles written about the city in the [-12, 0] month window relative to issuance, winsorized at 1% and 99%
I(Bond Issuance - 12mo)	Mergent	An indicator equal to one if a city issued a different bond in the 12 months prior to the bond issuance
Num Sources	RavenPack	The count of media outlets that write at least one article about the city in the 12 months prior to issuance
Amount	Mergent	The log-adjusted size of the total issuance
Bond-level variables:		
Maturity	Mergent	The maturity of the bond in months
Amount	Mergent	The log adjusted size of the bond

Callable	Mergent	An indicator equal to one if the bond is callable and zero otherwise
Sinkable	Mergent	An indicator equal to one if the bond is sinkable and zero otherwise
Insured	Mergent	An indicator equal to one if the bond is insured and zero otherwise
Rated	Mergent	An indicator equal to one if the bond is rated and zero otherwise
I(Trade)	MSRB	An indicator equal to one if the bond has at least one customer trade between 30 days after issuance and 1, 3, 5, or any number of years after issuance
Par Val. Vol.	MSRB	The log-adjusted total par value of the bond traded in customer transactions between 30 days after issuance and 1, 3, 5, or any number of years after issuance
Trade-level variables:		
Markup (Markdown)	MSRB	Calculated for each trade as $Markup_{b,t}$ $(Markdown_{b,t})$ $=$ $TradeSign_{b,t}$ $\times$ 10,000 $\times$ $\left(\frac{CustomerPrice_{b,t}}{AvgInterdealerPrice_{b,t}}\right)$ and winsorized at 1% and 99%
Treasury yield	U.S. Treasury Yield Curve	The daily level of the 10 year treasury rate
ln(Trade size)	MSRB	Log-adjusted trade size
ln(Volume)	MSRB	Log-adjusted par value of all transactions in bond b on date t
Age	MSRB and Mergent	Age of bond b on date t in years
Time to maturity	MSRB and Mergent	Time to maturity in years of bond b on date t
Over 1 day in inventory	MSRB	An indicator equal to one if a purchase (sale) does not follow (precede) a sale (purchase) within one day of the trade date
Issuer-level variables:		
GO Vote Required	State constitutions, statutes	An indicator equal to one if a state requires cities to hold referendums in order to issue any type of GO bonds and zero otherwise
Only UTGO Vote Required	State constitutions, statutes	An indicator equal to one if a state requires cities to hold referendums in order to issue unlimited tax GO bonds and zero otherwise
Pct UTGO	Mergent	Total dollar amount of unlimited tax general obligation bonds issued over the sample period, divided by the total dollar amount of all bonds issued over the sample period
Pct LTGO	Mergent	Total dollar amount of limited tax general obligation bonds issued over the sample period, divided by the total dollar amount of all bonds issued over the sample period
Pct Revenue	Mergent	Total dollar amount of revenue bonds issued over the sample period, divided by the total dollar amount of all bonds issued over the sample period

Weighted Average Yield Spread	Mergent	Amount weighted average yield spread across all bonds issued over the sample period, where bond yield spreads are calculated as the bond offering yield less the yield on the coupon-equivalent risk-free bond, following Gao et al. (2020), trimmed at 1% and 99%

Appendix B: Campaigns for bond referendums

This section describes cities' campaign efforts and news coverage for three anecdotes of GO bond referendums: a Woodlands, Texas bond that passed comfortably; a Sun Valley, Idaho bond that barely passed; and a Dunwoody, Georgia bond that failed.

B.1 Woodlands, Texas 2009 bond referendum

On November 3, 2009, the Woodlands Township, Texas held a general obligation bond referendum. The referendum included three propositions: (1) $17,335,000 for fire safety infrastructure and equipment, (2) $12,380,000 for parks and recreation, and (3) $20,225,000 for refinancing existing debt. Each proposition needed a simple majority to pass, and they passed with 75%, 67%, and 74% of the vote, respectively, per the bond issuance's official statement.

Leading up to the referendum, the township posted bond-related information on its website, including (i) slides from a town hall, (ii) internal documents of the township's Board of Directors, and (iii) five-year capital budget forecasts for the Fire Department and the Parks & Recreation Department. These campaign materials were intended to persuade citizens to approve the bond, but they also contained information that was not in the official statement, which became available to investors in March 2010.[24] For example, the five-year capital budget forecasts or details on where the bond proceeds would be spent were only posted on the township's website. Figure B1 shows extracts from the city's town hall presentation and capital budgets.

Figure B1: City campaign materials from Woodlands Township bond referendum

Special Bond and Tax Election

The Woodlands Township has called a November 3, 2009 Bond Election to provide funding for a five-year capital plan that contains three separate propositions:

I. Construction of three fire stations and the purchase of firefighting equipment: $17.335 million bonding authorization.

II. Construction of parks and pathways, purchase of related equipment and renovation projects at existing parks and pools: $12.380 million bonding authorization.

III. Permanent, tax-exempt bond refinancing of assumed debt: $20.225 million bonding authorization.

Proposition II

Construction of parks and pathways, purchase of related equipment and renovation projects at existing parks and pools: $12.380 million bonding authorization.

What does this include? The following community-wide projects are proposed to be funded in the five-year capital plan by GO Bonds and annual budget appropriations:

- Replacement, renovation, and major repairs to existing parks, pathways, pools and equipment – $7.1 million
- Completion of new parks and pathway systems – $12.7 million
- Estimated bond issuance costs – $.38 million
- Total – $20.18 million

Amount to be funded from the annual budget – $7.8 million

Amount to be funded by bonds – $12.38 million

THE WOODLANDS TOWNSHIP
CAPITAL BUDGET
FOR THE FIVE YEARS 2010 - 2014
(In Whole Dollars)

	2010 Budget	2011 Budget	2012 Budget	2013 Budget	2014 Budget
PARKS & RECREATION					
PARKS					
New Park Improvements	$ 1,631,323	$ 835,000	$ 2,387,500	$ 550,000	$ 462,500
Park Improvements/Renovations	122,000	971,000	619,000	589,000	1,019,000
Lake/Pond Improvements	-	100,000	104,000	94,000	60,000
Athletic Facilities Improvements	74,600	339,400	137,600	70,800	47,400
Aquatic Facilities Improvements	105,000	161,000	187,000	161,000	179,000
Signs/Stone Walls Improvements	-	-	15,000	15,000	15,000
Total	$ 1,932,923	$ 2,406,400	$ 3,450,100	$ 1,479,800	$ 1,782,900
PATHWAYS					
New Pathways	$ 2,508,500	$ 1,911,000	$ 1,784,000	$ 748,000	$ 148,000
Pathway Improvements/Renovations	134,000	166,000	150,000	150,000	150,000
Total	$ 2,642,500	$ 2,077,000	$ 1,934,000	$ 898,000	$ 298,000

[24]The official statement can be accessed here: https://emma.msrb.org/EA383120-EA294195-EA689794.pdf

As a net result of the township's promotion of the bond proposal and local residents' demand for news about the event, the *Houston Chronicle* reported consistently around the bond referendum. For example, as shown in Figure B2, reporters wrote about the referendum occurring, the fire safety infrastructure needs addressed by the bond proceeds, and the election result.

Figure B2: News coverage of Woodlands Township bond referendum

HOUSTON CHRONICLE

On Nov. 3, residents of The Woodlands will face three bond referendums totaling nearly $50 million to build three new fire

THE WOODLANDS TOWNSHIP Residents ...
September 10, 2009 *Houston Chronicle (TX)*
Word Count: 566

The Woodlands will accelerate the construction of a new fire station in Indian Springs to address long response times to

Woodlands speeds construction of station I...
September 17, 2009 *Houston Chronicle (TX)*
Word Count: 669

Early voting continues until Oct. 30 on three bond referendums to fund about $50 million in debt for The Woodlands

ELECTION 2009 Township bond voting will...
October 29, 2009 *Houston Chronicle (TX)*
Word Count: 389

Early voting continues until Oct. 30 on three bond referendums to fund about $50 million in debt for The Woodlands

ELECTION 2009 Township bond voting con...
October 22, 2009 *Houston Chronicle (TX)*
Word Count: 404

WANT TO BE AN A&O TROOPER?Recruits must be experienced riders, savvy to the rules and regulations of high quality

MOUNTED PATROLS MAKE A DIFFEREN...
November 12, 2009 *Houston Chronicle (TX)*
Word Count: 657

Residents of The Woodlands Township approved three bond proposals totaling about $50 million to build fire stations, new

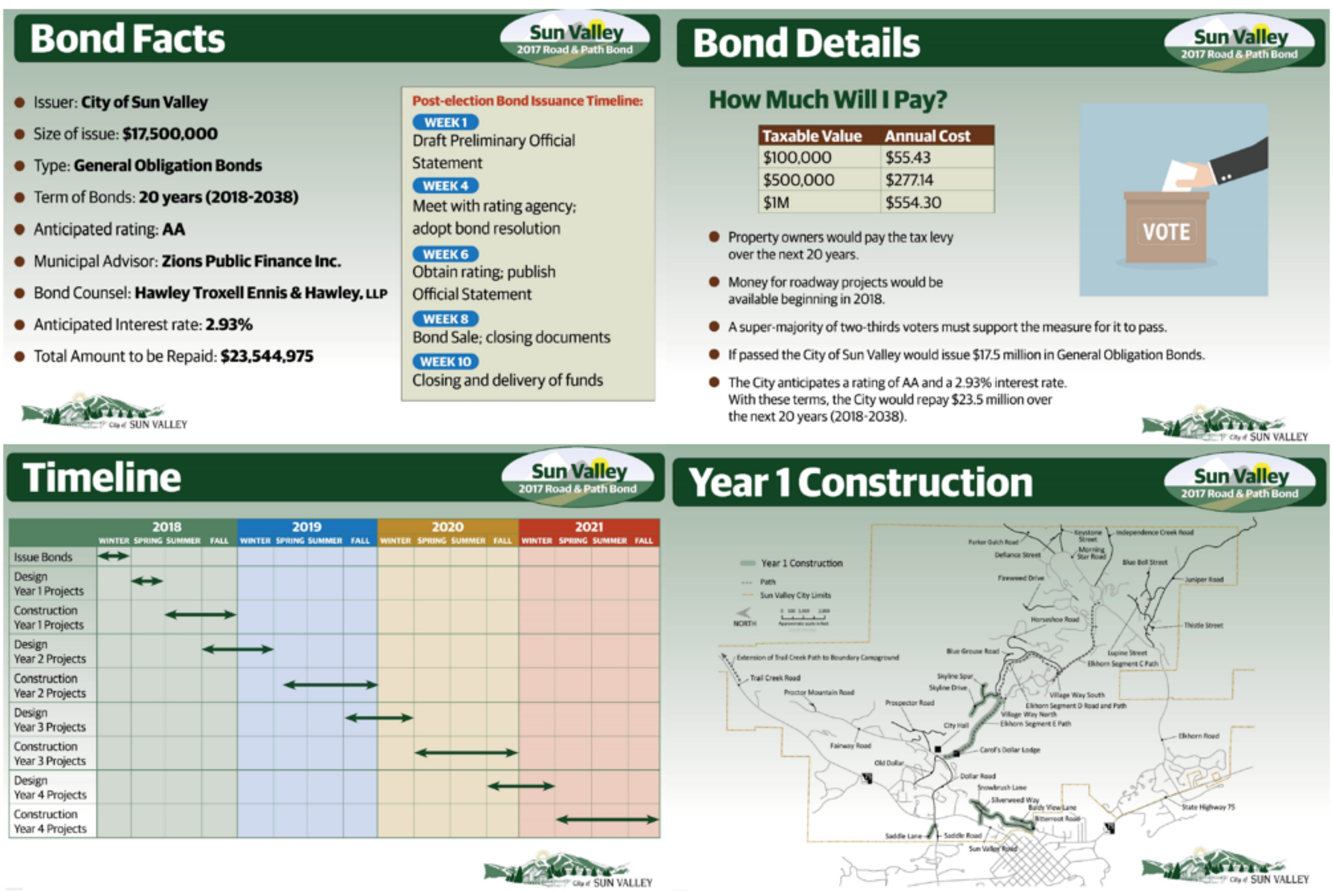
Voters say yes, and 'away we go' Chairwom...
November 12, 2009 *Houston Chronicle (TX)*
Word Count: 685

B.2 Sun Valley, Idaho 2017 bond referendum

On November 7, 2017, the city of Sun Valley, ID held a general obligation bond referendum to raise $17,500,000 in bonds for transportation-related infrastructure. The referendum needed a 2/3 majority to pass and received 67.1% Yes votes, allowing the bond to barely pass, per the issuance's official statement.

Leading up to the referendum, the city posted bond-related information on its website, including (i) slides from a town hall, (ii) city council meeting minutes and internal emails, and (iii) general reminders about the referendum. These materials were intended to persuade citizens to approve the bond, but they also contained information that was not in the official statement, which became available in February 2018.[25] This extra information included details about project timing, project implementation (e.g., the engineering firm selected to plan road repairs), and property tax implications for different levels of home values. Figure B3 shows extracts from the city's town hall presentation held in October 2017, one month before the bond election, as well as a portion of city council meeting minutes from November 2, 2017 where contractor costs were discussed.

Figure B3: City campaign materials from Sun Valley bond referendum



11. CH2MHill Task Order No. 350794.16.BR

Betsy Roberts, CH2M Hill, City Engineer, spoke. She stated this was just an extension of the design work that we put together for Bitterroot Road from last year. She discussed the changes and the additional new areas of work as outlined in the Task Order.

Conard had questions about the costs and asked for clarification to be sure we aren't being double-charged, to which Roberts mentioned what we would be paying for and went over the potential costs.

Mayor Hendricks mentioned that this is a task order that will be impacted by the votes on Tuesday. He would like us to go ahead with this and if the bond measure doesn't pass, we will table and discuss it in December. We should call it a contingency approval.

The *Idaho Mountain Express* provided continuous coverage around the bond referendum and issuance. Reporters covered city council meetings, publicized the bond-related town hall, and wrote stories about the election outcome, the bond's eventual credit rating, and progress on the road repair projects after the bond was issued. Figure B4 shows an example set of headlines written by the *Idaho Mountain Express* around the bond election and issuance.

Figure B4: News coverage of Sun Valley bond election

SUN VALLEY

Sun Valley debates road bond measure

Peter Jensen Aug 9, 2017

The Sun Valley City Council and Mayor Peter Hendricks last Thursday discussed the prospect of sending a ballot measure to voters this fall…

Sun Valley moves forward with November roads bond measure

Peter Jensen Aug 11, 2017

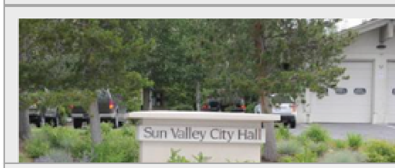
The Sun Valley City Council is moving ahead with a bond measure to pay for roads projects that will be before voters on Nov. 7.

SUN VALLEY

Learn about Sun Valley roads bond Wednesday

Express staff Oct 19, 2017

The city of Sun Valley will host an open house Wednesday about its $17.5 million bond measure to fund roads projects.



SUN VALLEY

Sun Valley voters will decide $17.5 million roads bond

Peter Jensen Oct 27, 2017

Voters in the city of Sun Valley last approved a bond measure funding roads projects in 1995.

Sun Valley scores well with bond rating

Moody's gives city 3rd-highest rating

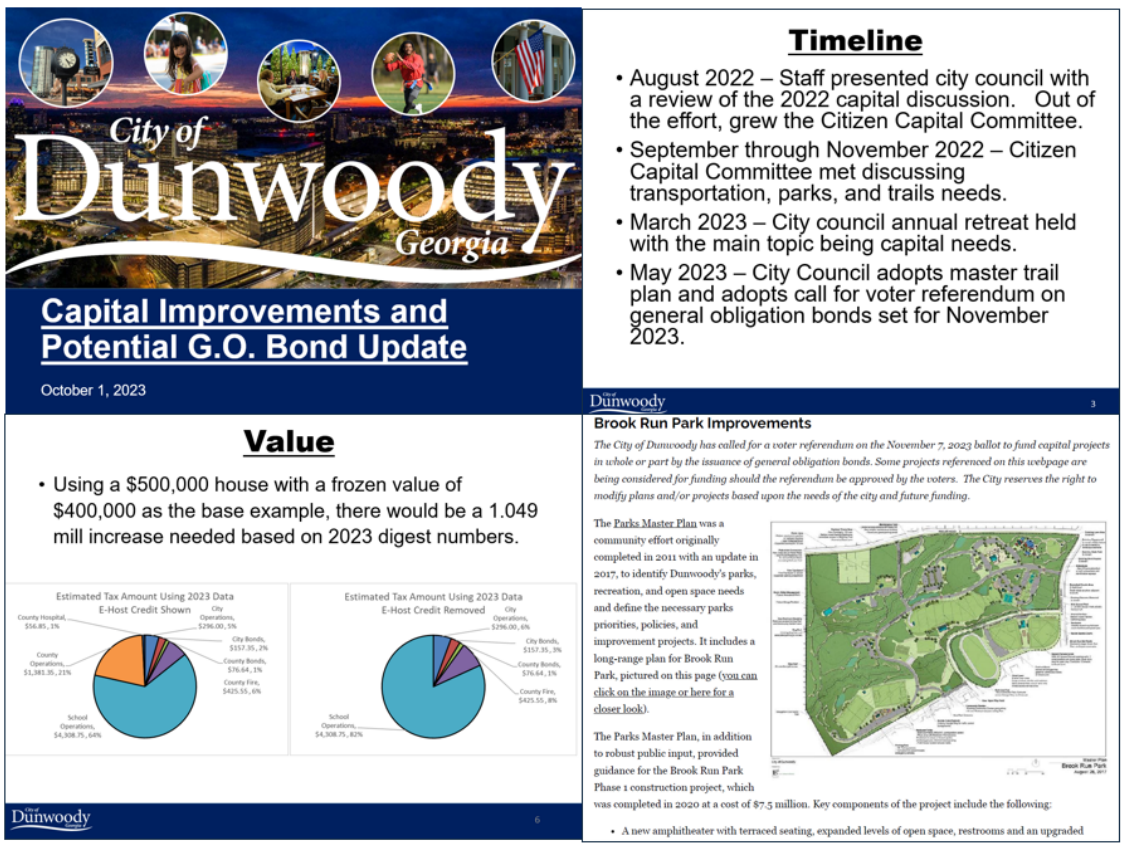
Peter Jensen Feb 16, 2018 0

B.3 Dunwoody, Georgia 2023 bond referendum

On November 7, 2023, the city of Dunwoody, Georgia held a general obligation bond referendum to raise $60,000,000 in bonds for infrastructure related to parks & recreation. The referendum needed a simple majority to pass, but citizens denied the bond, voting 57% against the proposal (City of Dunwoody, 2023).

In the two months leading up to the referendum, the city ran a public campaign. In an effort to persuade voters, the city hosted town halls and posted bond-related information on its website, including (i) slides on the proposal and timeline, (ii) a list of frequently asked questions, and (iii) documents with planned phases of park projects. The city argued that while property taxes would increase, only a small percentage of a home's tax bill would go towards debt-service. Figure B5 shows extracts from the city's materials.

Figure B5: City campaign materials from Dunwoody bond referendum



Although the city's campaign was supported by some local resident groups, the bond proposal proved controversial. Pro-bond groups argued that the city had long gone without substantial improvements, and the bond represented a "great chance to advance our commons" (Cobbs, 2023). However, opponents argued that the increased debt and parks renovations would not benefit the majority of residents; opponents also drew a link to police department funding, arguing that the bond should fail because "we are running the city at a deficit and we are underfunding our police department" (Cobbs, 2023). Due to the bond's significance and controversy, local media continually covered the referendum process; see Figure B6 for excerpts from news articles.

Figure B6: News coverage of Dunwoody bond referendum

Supporters and opponents of Dunwoody's parks bond referendum take to the streets

by **Cathy Cobbs**
September 18, 2023 | 12:56 pm

The "**Vote No on Dunwoody Bonds**" committee is comprised of five members, led by Tom Simon, a longtime resident of Stephen's Walk who has been specifically opposed to the location of a proposed multiuse trail on Tilly Mill Road.

However, the "Vote No" website arguments expand its opposition beyond the trail locations. It claims that passage of the bond referendum will result in streets becoming unsafe and congested during times of construction. It also says that the city's police department is in greater need of financial support.

"We are running the city at a deficit and we are underfunding our police department," Simon said. "Why would we have a bond that will raise our taxes 50% when we have so many other needs?"

Dunwoody officials refute claims parks bond would defund police

by **Cathy Cobbs**
October 13, 2023 | 5:09 pm

On November 7, 2023, the bond fell short by 7%, reaching only 43% Yes votes. As a result, some of the planned projects would be postponed or dropped entirely (Sumlin, 2023). In a post-mortem city council meeting, prominent local residents blamed the failure on the city not providing enough information about the bond: a former city councilman argued that "the bond referendum failed because communication was 'terrible' and there was no specificity about the projects" (Sumlin, 2023). These sentiments suggest that in addition to the opposition campaign, insufficient disclosure played a role in the election outcome.

Appendix C: Website URL Examples

This section provides anecdotal evidence that the website URLs in our sample reflect substantive information about a city's bonds.

C.1 Bond URL from Blowing Rock, North Carolina

The following snapshot was scraped from the 2017 historical pull of www.townofblowingrocknc.gov/government/2014-community-investment-bonds.

Figure C1: Blowing Rock, NC 2014 Community Bonds URL

C.2 Fiscal Count from Easton, Massachusetts

The following URL was scraped from the 2017 historical pull of https://www.easton.ma.us/easton_residents/financial_information/.

Figure C2: Easton, MA 2014 Financial Information URL