Political Hazards and the Choice of Contracting: The Case of Municipal Bonds*

Marian W. Moszoro[†a] and Pablo T. Spiller[‡b]

[a]George Mason University
[b]University of California, Berkeley and NBER

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Abstract

We study the impact of political contestability on the choice of rule-based contracts through the municipal bond market. We provide evidence that when the probability of losing office is high, mayors are more likely to issue revenue bonds over general obligation bonds, and to choose competitive bidding over negotiated sales. This effect is stronger for elected mayors than for city managers, and as elections approach. We utilize two referenda—one failed and one succeeded—regarding the required supermajority to issue general obligation bonds in California to assess the causal relationship between political hazards and the choice of security type.

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† Corresponding author, ✉ 3434 Washington Blvd, Arlington, VA 22201. Email: mmoszoro@gmu.edu.

‡ ✉ S545 Bldg #1900 Berkeley, CA 94720. Email: spiller@haas.berkeley.edu.

1 Introduction

Cities, counties, and states issue municipal bonds to raise money for public projects, including new construction for education, water and sewage, and transportation.[1] Securing funds for these projects could benefit politicians who are up for reelection. While municipal bonds are a small part of overall state funding, these securities comprise a third of spending on capital projects and a substantial fraction of the overall American securities market. In 2017, the municipal bond market accounted for $4 trillion, roughly 10 percent of the American public debt. The choice between different types of bond instruments should be made efficiently, but the political incentives at play draw that efficiency into question.

Recent cases of spectacular defaults—in Detroit[2] and Puerto Rico,[3] for example—have put municipal bonds in the spotlight. Large capital projects like sports stadiums are commonly funded by bonds and are favored for their political popularity based on estimated economic development impact. In Albuquerque, for example, revenue bonds are being used to finance sports fields, a new bus system, a library, and a visitor center. Mayor Richard Berry argues that these capital projects are necessary to stimulate the economy, a statement that plays well in elections.[4]

In principle, municipal finance ought to be providing funding at the lowest cost to the public, commensurate to the risks transferred to the lenders. Choosing some riskier characteristics within bonds may cause higher interest rates or come with higher fees. As long as choices among characteristics are based on economic factors, officials and citizens have little cause for concern. Officials (mayors, city managers, and governors) who are in imminent risk of losing reelection, however, may consider the public, not just the market, perception of bonds and choose bond characteristics that may be more palatable politically, even if they

[1] See: National Association of State Budget Officers, "State Expenditure Report 2014-2016," accessed April 3, 2017, https://higherlogicdownload.s3.amazonaws.com/NASBO/9d2d2db1-c943-4f1b-b750-0fca152d64c2/UploadedImages/SER%20Archive/State%20Expenditure%20Report%20(Fiscal%202014-2016)%20-%20S.pdf.

[2] See: "Detroit Leads 2013 U.S. Bond Defaults: Moody's," *Reuters' Business News*, May 7, 2014, accessed June 28, 2017, http://www.reuters.com/article/us-usa-municipals-defaults-idUSBREA4603920140507.

[3] See: Dawn Giel, "Puerto Rico Starts $70 Billion Bankruptcy Proceeding, Biggest Ever for Municipal Bond Market," *CNBC*, May 3, 2017, accessed June 28, 2017, http://www.cnbc.com/2017/05/03/puerto-rico-officially-triggers-bankruptcy-protection-proceedings-.html.

[4] See: Dan McKay, "Revenue Bonds Allow ABQ Leaders to Bypass Voters," *Albuquerque Journal*, January 2, 2017, accessed April 7, 2017, https://www.abqjournal.com/919263/revenue-bonds-find-favor-in-abq.html.

may imply a higher cost to the public. The result is that more expensive and procedural bonds may be chosen to improve reelection.

At the risk of oversimplification, municipal bonds can be categorized in two main types: general obligation (GO) bonds and revenue bonds.[5] These two types of bonds have different contractual characteristics. GO pledge to general tax and ancillary municipal revenues and their proceeds can be used to a large extend at the discretion of the elected official. GO bond issues must be approved in referenda and, in most jurisdictions, are subject to legislated debt limits (Rugh and Trounstine 2011). In addition, in some places other limitations to GO debt apply, e.g., statutory limits on the debt to property value ratio and on property taxes.

In contrast, revenue bond proceeds are earmarked for specific purposes and are backed by specific revenue streams, normally from the investment project they finance. In addition, revenue bond issues do not require approval in referenda (Rugh and Trounstine 2011) and are excluded from debt ceiling calculations. Due to their restricted collateral, however, revenue bonds are more expensive (must pay higher interest rate) than comparable in size GO bonds for the same issuer (Edwards 2008). Therefore, tradeoffs emerge between disbursement discretion, financial cost, and political oversight (see table 1 for a typology of the main classes of municipal bonds). For example, by selecting revenue bond financing and accepting higher cost of these bonds, a politician can avoid the public scrutiny associated with what may become a contested referendum. This was, for example, the case in Rhode Island in November 2015, when Governor Gina Raimondo proposed to finance road improvements with revenue bonds. According to Rhode Island Department of Transportation (RIDOT), choosing a revenue bond was more costly—with a projected 5 percent interest rate for the toll-backed revenue bond, compared to an average rate of 2.4 percent on a GO bond the state had proposed earlier that year.[6] From the Raimondo administration's perspective, there were multiple benefits to the revenue bond: the governor could argue taxpayer money would never be used to pay the bond and—unlike with a GO bond—no referendum was required to approve the borrowing. Furthermore, RIDOT Deputy Director Peter Garino said revenue bonds provide "a safeguard to prevent future governors or lawmakers from redirecting toll

[5] In corporate finance, these instruments correspond to corporate debt and project finance debt. We further develop the institutional setting of municipal bonds in section 2.2 and Appendix B.

[6] Cf. http://www.ri.gov/press/view/25386, accessed March 10, 2016.

revenue to other types of spending."[7]

Likewise, in October 2016 in North Augusta, SC, third parties critical of Project Jackson—a mixed-use development featuring a minor league baseball stadium, restaurants, retail and multi-family residential units—were questioning why the financing model of the development was not placed on a referendum for a public vote. Most notably, the city was using revenue bonds instead of GO bonds as the chief funding mechanism. Some commentators mentioned that commissioners were concerned with the increased public scrutiny associated with the referendum required by GO bonds.[8] Similar stories are common to local politics.

Table 1: This table provides a typology of the main classes of municipal bonds.

Bond type	**Backing**	**Spending**	**Subject to debt limits**	**Referendum required**
General Obligation	General taxes	Discretionary	Yes	Yes
Revenue	Invested project revenue or *ad hoc* specific source	Earmarked	No	No

In terms of sales methods, municipal bonds can be placed via competitive bidding or negotiated sales. The sales method of municipal bonds does not make it to the local front news, but is also subject to administrative discretion. Under negotiated sales, an underwriter (or syndicate of underwriters) is selected to purchase the municipal bonds and the terms are tailored to meet her demands. On the other hand, competitive sales are analogous to open auctions, i.e., the bond is simply awarded to the bidder offering the lowest interest cost, but are more costly in the informational disclosure and administrative processing (see table 2 for a typology of underwriting mechanisms of municipal bonds).

We analyze municipal bonds as a type of long-term public (debt) contract entered into by an elected official. We propose a combined treatment of municipal finance and political

[7] See: Ted Nesi, "Here's Why RIDOT Says a Truck-Toll Bond Would Save RI US$612M—Transportation Agency Explains Rationale for Borrowing US$600M to Repair Bridges," *WPRI 12 Eyewitness News*, November 2, 2015, accessed March 10, 2016, http://wpri.com/2015/11/02/heres-why-ridot-officials-say-a-truck-toll-bond-would-save-ri-612m/.

[8] See: Michael Smith, "Project Jackson Bonds Have Higher Interest Rate," *Aiken Standard*, October 17, 2016, accessed December 11, 2016, http://www.aikenstandard.com/news/project-jackson/project-jackson-bonds-have-higher-interest-rate/article_396b949c-94c6-11e6-a418-c3e8dbc4b021.html.

Table 2: This table provides a typology of underwriting mechanisms of municipal bonds.

Type of underwriting	**Number of underwriters**	**Terms**	**Information disclosure**
Competitive bid	1+	Determined when bid is submitted, chosen by issuer	All bidders must have information before constructing an offer
Negotiated	1 (or syndicate)	Negotiated before sale date of bond	Information disclosed only between negotiating parties

governance. We argue that revenue bonds and competitive sales are more rule-based than GO bonds and negotiated sales, correspondingly. The relative cost differences may look *prima facie* modest. If 10 percent of the bonds are *misallocated*, however, a 1 percent difference in paid interest and fees would account for $4 billion additional annual costs to taxpayers.[9]

While financial needs and risk allocation are the main factors influencing the choice of municipal bond type (Kidwell and Koc 1982; Ingram, Brooks, and Copeland 1983), we offer a complementary explanation, and supporting empirical evidence, pointing to electoral considerations in choosing financial instruments. We draw on Moszoro and Spiller (2012) on political risks and contractual choices, and advance several reasons why elected officials may select revenue bonds and competitive sales when elections are tight and politicians face the risk of being overthrown.

First, by choosing rule-based methods—revenue bonds and competitive sales—city officials signal "probity" (i.e., transparency and trustworthiness to deliver a project) and limit concerns about the discretionary use of public monies for their own benefit (Benson and Baden 1985).

Second, earmarked proceeds limit the discretion of a successful political challenger in the event that the incumbent loses the next election. For example, consider a city where the incumbent's constituents care about roads while the challenger's constituents care about

[9] In the case of North Augusta's Project Jackson, the interest differential was more than 200 basis points. See: Michael Smith, "Project Jackson Bonds Have Higher Interest Rate," *Aiken Standard*, October 17, 2016, accessed December 11, 2016, http://www.aikenstandard.com/news/project-jackson/project-jackson-bonds-have-higher-interest-rate/article_396b949c-94c6-11e6-a418-c3e8dbc4b021.html.

schools. If the debt capacity is limited and the incumbent's winning margin is close (so the mayor's seat is more contestable), she will issue revenue bonds to lower the challenger's discretion to use these funds for, say, schools *ex post*, analogously to a selective debt overhang effect (Myers 1977).

Third, unsecured GO bonds and competitive sales require more information disclosure to lenders on municipal financials than secured and negotiated debt (Myers and Majluf 1984), which a public agent in a politically contested position may be less willing to provide.

Fourth, by choosing revenue bonds, politicians dodge compromising referenda that may backfire politically.[10]

This article proceeds as follows. In section 2, we discuss the conceptual framework of political risks and contractual choices, and the U.S. municipal bond market as the institutional setup of our analysis. Next, in section 3 we describe a model of contractual choices and introduce our empirical hypotheses regarding the link between political competition and the choice of stringent municipal financing instruments and procedures. In section 4, we describe the municipal bond market data and the empirical strategy. In section 5, we provide the results of our estimations and exploit an exogenous shock to public officials' exposure to political risk in California to show the causal relationship between political competition and the security type choice. In section 6, we discuss the limitations of our data and the robustness of our results. Finally, in section 7 we provide concluding remarks.

2 Conceptual Framework

2.1 Relevant Literature and Proposed Contribution

This study relates to two streams of research on contracts. One common view is that competitive auctions for standard goods and services give firms strong incentives to be efficient and reveal their private costs relative to negotiations (Bulow and Klemperer 1996). Because open auctions are a transparent sale procedure, they are considered less vulnerable to both corruption and favoritism, and are often used to award large contracts in public pro-

[10] In theory, similarly to a financial option holder who seeks higher volatility (Black and Scholes 1973), a contested politician may take the risk of a narrow referendum vote hoping for the upside: winning the referendum and getting political momentum. In practice, however, it is seldom the case of politicians calling for referenda (or "motion of confidence" in the case of European parliaments) when they are politically weak.

curement. Recent work suggests, however, that the advantage of auctions over negotiations in procurement may be more nuanced. When dealing with complex projects, buyers may have difficulties specifying all possible contingencies, which may give rise to costly *ex post* adaptations (Bajari and Tadelis 2001). Thus simple projects should have detailed designs and be procured using competitive bidding; complex projects, on the other hand, are better managed by investing less in project design with discretionary contracts to facilitate easier negotiations.

Another substantial body of research on government officials' contractual discretions has focused on public accountability of officials. Contracting "rigidities" here are formal processes put in place to insure against governmental opportunism. "Red tape" regulations are designed to reduce public employees' ability to take actions that are potentially at odds with the general public's interest (Kurland and Egan 1999). In other words, such regulations are bureaucratic instruments that restrict public officials' discretion (Prendergast 2003).

The aforementioned strands of literature explore the determinants of contract design (e.g., fixed-price versus cost-plus; competitive bidding versus negotiated sales) on the basis of economic efficiency considerations. There has been less focus, however, on how political factors influence elected officials and features of public policy in general and public contracts in particular.

Spiller (2010) and Moszoro and Spiller (2012) have recently proposed a complementary rationale for unique features of public contracts in competitive political markets. They argue that the choice of contract by a public official is also likely to be influenced by the political hazards she faces, such as challengers for her office.

In Moszoro and Spiller (2012), there are four players involved in a public contract: the incumbent political agent, the private contractor who provides the public good or service, the potential political opponents, and the voting public. The public is implicated in any transaction between the politician and the private contractor because contracts use public monies and affect social welfare. A political challenger can be involved for similar reasons, as well as an intrinsic motivation to be elected to office. When competing for office, an opponent can mobilize the public to scrutinize an incumbent public official's decisions. Such scrutiny has the potential to reveal (real or apparent) corruption, favoritism, or other improprieties

in public contracting. This public auditing of politicians is a challenge to what Williamson (1999) calls the "probity" of the public official. Public auditing induced by political challengers may discredit the official in power, and at the very least, can lead her to incur expenses to defend her actions. In the extreme, she may lose her office.

Thus, the "political contestability" framework of Moszoro and Spiller (2012) leads to the prediction that in political environments where elections are heavily contested, politicians will make procurement decisions to deter successful political challengers to their office. Using this recently developed theoretical framework, we contribute to the literature on features of public contracts and finance by empirically examining how political competition affects the type of municipal bonds and sales methods used for financing public projects.

2.2 Institutional Setting: U.S. Municipal Finance

The choice between general obligation bonds and revenue bonds is analogous to corporate versus project financing (Kensinger and Martin 1988; Esty 2004; Yescombe 2013). In corporate finance, projects are funded from a pool of resources and debt is serviced from corporate cash flows. When a corporation undertakes an investment project, cash flows from existing activities to fund this project. The firm has the option to roll over the project's capital into newer ventures within the company without submitting decisions to the discipline of the capital market. Lenders have recourse to the assets of the corporation. Conversely, in project finance, debt is served only from the cash flows generated by the financed asset, typically through a special purpose vehicle (SPV), and the lenders have no (or limited) recourse to the shareholders. Consequently, corporate financing is a more flexible and cheaper form of financing.

In principle, the nature of the project to be financed should determine the type of debt to be utilized. Revenue bonds are typically used in revenue-generating projects. By contrast, GO bonds used for projects that do not generate revenue directly, such as roads, government office buildings, and schools. In practice, however, GO debt can be, and often is, used for revenue-generating projects because of its cost advantages (i.e., lower transaction costs) over revenue bonds (Vogt 2004). Revenue bonds are not more costly in the Modigliani-Miller sense (Modigliani and Miller 1958), because bondholders price in different risks. For the taxpayers, however, a revenue bond can be more expensive if capital markets are imperfect and the

politician is "insuring" her own political capital.

Revenue bonds often require additional components not found in GO debt instruments, such as rigorous revenue forecasts, project sensitivity tests, and various forms of risk analysis, as well as covenants and indentures to protect investors (Howell-Moroney and Hall 2011). These elements add significant costs to municipalities that are already resource-constrained.

Arguably, revenue bonds are less challengeable than GO bonds:

(a) For the challenger, the cost to challenge a revenue bond is higher than a GO bond, as GO bond referenda are paid by the public and facilitate scrutiny

(b) The purpose of revenue bonds' proceeds and their neutral tax implications are known from the onset

Similarly, competitive sales are less challengeable than negotiated sales:

(a) The process for competitive bidding is structured but transparent: the issuer prepares an official statement (which includes the design of the issue and maturity schedules, the research to select the timing of the sale, and the acquisition of a credit agency rating), publishes a notice of the sale, and awards the underwriting to the group representing the lowest interest cost to the issuer

(b) Negotiated sales are handled directly by the underwriters to determine the structure, price, and maturities of the offering. The interest cost is determined by the terms of the agreement between the underwriter and the issuer (Simonsen and Robbins 1996)

In sum, revenue bonds and competitive bidding limit public officials' discretion on the procurement, use, and service of public funds relative to GO debt and negotiated sales. Thus, we propose that revenue bonds and competitive bidding can be conceptualized as *rigid features* of debt contracting chosen to lower potential politically motivated challenges.

3 Contractual Rigidity Applied to Municipal Debt

3.1 Model Description

Moszoro and Spiller (2012) suggest that the lack of flexibility in public procurement is a deliberate contractual choice that reflects an elected official's political risk adaptation to limit hazards from opportunistic political opponents. We now present some heuristics—adapted for our context—to motivate our empirical test.

Public officials' choices regarding bond features will be influenced by the need to prevent public suspicion of favoritism that may be associated with flexible/discretionary choices. Rigidity thus serves to insulate public officials from allegations of impropriety in politically contested jurisdictions.

In the Moszoro-Spiller model, elected officials minimize the composite of bond issuance costs and expected political costs. As described in section 2.2, GO bonds represent low-rigidity (politically risky) instruments, and revenue bonds are high-rigidity (politically safe) instruments. Likewise, placing bonds through competitive bids requires more fixed rules in comparison to negotiated sales. The likelihood of a challenge decreases in the rigidity of the bond features: i.e., revenue bonds and competitive sales are less likely to be challenged by political opponents than GO bonds and negotiated sales. On the other hand, revenue bonds bear higher interest rates than GO bonds and competitive bids bear higher transaction costs than negotiated sales. Thus, the cost of issuing bonds rise with bond rigidity because the politician has to spend effort and money in going through the hoops, but she benefits because the process faces less scrutiny.

Moreover, the ability to challenge public officials will depend on the political environment. "Centralized party power limits the upward mobility of political mavericks, and thus the potential for internal third party opportunists" (Spiller 2013, p. 239). Challenges of public contracts require *political contestability* of elected officials or a fragmentation of the market for politicians: i.e., there must be a certain level of competition between opposing parties.

Moszoro and Spiller (2012) show that, in equilibrium, political opponents strategically challenge a contract (and perhaps more directly, the incumbent official) only if the expected gains are bigger than the challenging costs, which include campaigning to raise public awareness and lobbying. When the public official follows more rules, it is less likely to be challenged of wrongdoing. Reduced flexibility by earmarked financing and rigid bond terms limits the likelihood of opportunistic challenges. In other words, bond rigidity determines the trade-off between the cost of bond issuing and mayoral political risks.

3.2 Hypotheses: Bond Features under Political Contestability

We argue that whether municipal projects are financed by revenue bonds or GO bonds, and whether bonds are issued through competitive bidding or negotiated sales depend not only on the characteristics of the assets to be financed, but also on the political hazards of the incumbent public agent.

Moszoro and Spiller's (2012) model suggests that elected officials will respond to greater political risk with higher contractual rigidity to lower the likelihood of successful challenges. Forming contracts with more rule-based terms signals to constituents transparency and integrity. We have thus empirically testable hypotheses on how the design of municipal bond issues depends on the political environment. In cities where public officials face a high level of political contestability (i.e., where candidates face viable competitors who can mobilize public scrutiny of their decisions or, alternatively), revenue bonds and competitive bidding will be chosen more often than in politically non-contestable municipalities. When political opposition is weak, the incumbent will not insulate herself from political challenges through contractual rigidities.

Thus, we test the following hypotheses:

Hypothesis 1 *Elected officials are more likely to issue revenue bonds in politically contested municipalities.*

Hypothesis 2 *Elected officials are more likely to issue bonds through competitive bidding in politically contested municipalities.*

Furthermore, if political risk affects elected officials' contract choices, then the time at which the bonds are issued is implicated. In particular, officials may engage in strategic timing, choosing more restrictive bond features to signal transparency and integrity closer to an election (i.e., in years 3 and 4 of a typical four-year political cycle).

Hypothesis 3 *Elected officials are more likely to issue revenue bonds and use competitive sales closer to the next elections, i.e., later in a mayoral term.*

We proxy political contestability—i.e., the political competitiveness of the jurisdiction and likelihood of the incumbent public agent to lose office—by outcomes of city general elections for mayor.

4 Data and Empirical Methodology

4.1 Data Description

To carry out this study, we construct a national dataset with information on municipal debt issuances, mayoral elections, as well as economic and demographic characteristics for U.S. cities and towns. In this section, we describe the dataset used in our empirical analysis.

We are interested in analyzing how political risk affects public officials' contracting using characteristics of municipal bonds as a measure of contractual rigidity. To this end, we first create a comprehensive database of municipal bond information using information on public bonds from Bloomberg Financial LP. We gather data for all municipal issues between 1980 and 2002. Each city-issuance observation contains several pieces of information, including the specific issuer,[11] the date of issue, the coupon type (fixed, zero coupon, etc.), the size of the project for which the bond is issued, the commercial grade of the bond, the industry in which the project requiring financing is being undertaken, and most importantly for our purposes, the bond type (i.e., GO or revenue bond) and the sale method for the security (i.e., whether the issuance was competitively bid or negotiated).

The mayoral election data used in this paper comes from the sample of cities described in Ferreira and Gyourko (2009). The city-level information is based on a survey of all cities in the United States with more than 25,000 inhabitants as of the year 2000. Information was requested on the date of all mayoral elections since 1950, the name of the elected mayor and the runner-up candidate, vote totals for each candidate (and aggregate vote totals), partisan affiliation, the type of election (i.e., partisan or non-partisan), as well as other information related to specific political events such as runoff elections or special elections. We start with data for more than 5,500 elections held in 575 cities. Importantly, Ferreira and Gyourko (2009) suggest that the data are representative of cities nationwide across many observable dimensions (although the municipalities in the sample are larger than the average municipality).

We are able to collect data on 38,904 different municipal debt offerings made by US

[11] Less than 25 percent of the bond issues in our dataset come from cities and counties; the remaining are issued by special agencies: e.g., school districts, financing and housing authorities, city corporations, development commissions, etc. These affiliated municipal agencies enjoy limited autonomy as their managers are appointed by elected politicians to whom they report. We aggregated bonds to their elected supervisor.

municipalities between 1980 and 2002. Not all of the debt-issuing cities over this period are contained in the sample for which we have election data. Using a computerized fuzzy match, which links records that are less than perfect correspondences, we were able to match the bonds sold for 416 of the 575 cities for which we have political data. In total, we are able to match 6,505 of the bond issues for which we have data to election and controls data.

As other studies point out (Gao and Qi 2013; Pollan 2014; National Association of Bond Lawyers 2014), there are confounding factors that may affect a mayor's choice of flexible or rigid funding choices. We thus control for several local-level attributes. Using data from the U.S. Census Bureau, we account for the size of a municipality using population and population density. Additionally, we control for a city's overall economic conditions using both real income per capita and the unemployment rate from the U.S. Bureau of Economic Analysis. We were able to obtain this information standardized at the county level, which is highly correlated to city-level traits, and hence would serve our purposes well for this empirical exercise. Finally, we control for a city's financial stability and the riskiness of projects undertaken using bond-ratings data from Moody's and Standard & Poor's (S&P).[12] We converted the bond ratings into cardinal codes as in Anderson, Mansi, and Reeb (2003). The ratings conversion codes are in table 3. We then averaged the conversion numbers for each municipality, year, and type of bond. Since not all bonds are rated (1,663 missing values), we engineered a two-step protocol to fill missing values. First, if there were credit

[12] For example, Moody's reviews the following factors in its credit rating process (Moody's 2007):

1. Economic Strength (40 percent):
   (a) Size and growth of the tax base of the municipality
   (b) Socioeconomic and demographic profile of the municipality
   (c) Industry makeup of the municipality: sector concentrations, stability of those sectors
   (d) Populations trends, poverty levels, income
   (e) Unemployment rate
2. Financial Strength (30 percent):
   (a) Financial stability of industries within the municipality throughout the business cycle
   (b) Liquidity of municipal assets
   (c) Sensitivity of municipal revenue sources to changes in the economy, property taxes and reductions in state and federal funding
3. Management and Governance (20 percent):
   (a) Debt management and budgeting practices of municipality
   (b) Multi-year planning of municipalities
4. Debt Profile (10 perecent):
   (a) Net existing debt amounts
   (b) Debt as a percentage of revenue
   (c) Municipal pension plan funding ratio

ratings available in the same municipality in that year, we applied the mean credit rating of that year for the missing rating. Second, if there was no credit rating available for a particular year (or years), we interpolated the missing values by year. The procedure allowed to add 1,050 synthetic credit ratings.[13]

After collecting all the data, we link the municipal bond data to city election outcomes.

4.2 Empirical Strategy

Our goal is to understand whether a public official's exposure to political risk affects the type of debt instruments and method of sale that she uses. First, we present correlational results with rich political, financial, and demographic covariates. We then exploit an exogenous shock to public officials' exposure to political risk in California to test for causality between political risk and bond type. The exogenous shock consists in an unanticipated legislative change. California voters approved in November 2000 a reduction in the threshold required for the approval of GO referenda. By analyzing, via a difference-in-differences method, public officials' tendency to use revenue versus GO obligations before and after this exogenous change, we can test for the causal effect of political competitiveness on bond type selection.

On average, municipalities issue bonds several times during a mayor's tenure. Therefore, we adopt two strategies to analyze the correlation between political contestability and bond type. We use bond-level data and linear and non-linear probability models to measure if political contestability, PC, is predictive of type of individual bond types. We regress a dummy variable (revenue bond = 1) on various measures of political risk and control variables. Next, we aggregate bond data by both year and election cycles. Both of these approaches allow us to assign all bonds within a mayor's term to that mayor.

The basic linear probability specification for the first strategy is as follow:

$$Revenue\ Bond_{i,m,t} = \alpha_0 + \beta_1 PC_{m,t} + \gamma X_{i,m,t} + \varepsilon_{i,m,t} \tag{1}$$

where i is the bond issue index, t is the year of issue, and m is the municipality of issue, $PC_{m,t}$ is our political contestability measure that describes the extent to which the mayor presiding over the municipal bond issue is subjected to the risk of opportunistic challengers, $X_{i,m,t}$ is a

[13] Ratings are requested strategically and may thus be overestimated by a simple interpolation. Regressions without synthetic credit ratings yield similar results.

vector of control variables that include bond ratings, deal size, population, population density, real income per capita, unemployment rate, and year, state, and industry fixed effects, and $\varepsilon_{i,m,t}$ is the error term. The regressions for the sale method follow the same specification, with a dummy variable equal to one for bonds placed through competitive bidding.

To estimate the coefficient on $PC_{m,t}$ we use two main sets of political risk measures: the closeness of individual mayoral races as well as the degree to which the political party in control of the mayor's seat changes over time (i.e., the frequency of "partisan swings").

We define *margin* as the difference in a mayoral election between vote shares obtained by the winning party candidate and the runner-up:

$$Margin_{m,t} = W_{m,t} - RU_{m,t} \tag{2}$$

where $W_{m,t}$ and $RU_{m,t}$ are the winning and runner-up parties' vote share in municipality m in the last electoral race before time t. A large margin of victory indicates a less competitive political market. In our framework, if a mayor is elected by a slim vote margin (and hence faces a highly competitive political market and credible political challenges), she will enjoy less flexibility in issuing unconstrained municipal debt. To prevent future political challenges, she will engage in more rigid contracts to signal probity to voters. In the context of municipal finance, we expect that in cities with large victory margins, mayors will be less likely to issue revenue bonds and use competitive bids.

We create two variants of *margin*. We use *margin quintiles* to correct for the abnormal distribution of *margin*. Margin quintiles correspond to the "ranking" of political contestability.[14] The first quintile means a narrow margin of winning in the previous electoral race; the fifth quintile means a wide margin of winning in the previous electoral race. Municipalities ranked in the first quintile are, therefore, more politically contestable and are, thus, under the maintained hypothesis, more likely to issue revenue bonds and resort to competitive bidding.

In the second variant—*large margin*—λ is an *a priori* threshold for a given level of "high" political contestability:

$$Large\ margin_{m,t} = \begin{cases} 1 & \text{if} \quad |W_{m,t} - RU_{m,t}| > \lambda \\ 0 & \text{if} \quad \text{else} \end{cases} \tag{3}$$

[14] Our *margin quintiles* vary in range, with their width increasing in the upper quintiles. We also run the regressions using fixed 20 percentage points margin bins instead of quintiles and obtained similar results.

A 10 percentage point or greater lead in presidential or congress election races—where voter participation is relatively high and constituencies more stable—is considered a safe winning margin (which corresponds to a larger than five percentage point voter flip needed to change the election outcome). Municipal election races, on the other hand, are characterized by lower voter participation, and thus are subject to more vote outcome volatility. Also, most states require a qualified majority of two-thirds approval in municipal referenda for issuing GO bonds. To account for these factors, a 20-percentage point polling lead is considered a safe winning margin for local races in the U.S. We use $\lambda = 20$ percentage points. Thus, public officials who won the electoral races by 20 percent or more (i.e., *large margin* = 1) are in a less politically contestable environment, and thus, under the maintained assumptions, should be less likely to issue revenue bonds and resort to competitive bidding.

Our third measure of the political contestability faced by elected officials is the degree to which the mayor's seat changes party hands over time, adopted from Moszoro, Spiller, and Stolorz (2016). We denote this risk measure *partisan swings* defined as:

$$Partisan\ Swings_{m,t} = \sum_{t=-2}^{0} Party\ Change_{m,t} \tag{4}$$

where *party change* is a dummy variable equaling one if a mayor's seat changes party hands in municipality m at time t. I.e., *partisan swings* captures the number of party changes in the previous three electoral races. The more partisan swings took place during the previous three electoral races, the higher the political risk faced by public officials, and hence, more likely to issue revenue bonds and resort to competitive bidding.

These three basic proxies of political risk faced by a mayor are used in equation (1) for *PC*. The coefficient of interest is then β_1. We also control for several factors that may also explain the choice of GO or revenue bonds. We account for project complexity using the size of the deal and industry (transportation, housing, schools, etc.) fixed effects. We control for economic conditions using per capita income and size by city population. We also control for municipality and time fixed effects to account for unobserved fixed regional effects or time-specific effects. Finally, we control for the riskiness of projects and city finance health by including the city's average bond rating.[15]

[15] There is no data available on debt ceilings or municipal indebtedness to tax revenue. The city's credit

In addition to our bond-level regressions, we aggregate the bond data to the city-year and political cycle levels, and perform similar estimations to the above. We then re-test hypothesis (1) by estimating OLS regressions of the share of revenue bonds of total bond issues (both by year and political cycle) on our measures of political contestability:

$$\left[\frac{RB}{GO+RB}\right]_{m,t} = \alpha_0 + \beta_1 PC_{m,t} + \gamma X_{i,m,t} + \varepsilon_{m,t} \tag{5}$$

where m is the municipality index. The coefficient of interest β_1 indicates the significance of political risk to city officials when choosing the proportion of overall debt that will be issued as the more rigid form of debt. PC_m are the same political contestability instrumental variables in municipality i, as described above. RB is the total value of all revenue bonds issued in city m, while GO is the total value of all general obligation bonds issued. We use the same set of controls, except that bond-level attributes now are a deal-weighted average.

5 Results

5.1 Descriptive Statistics

Before moving to the main analysis, we discuss some basic features of the city-level data, which is summarized in table 4. Panel A suggests that we are able to analyze a broad range of municipalities. In our dataset, there are 416 cities across 45 states in our dataset, with a range of demographic and economic characteristics. The cities range from very urban (around 32,000 residents per square mile) to quite rural (10 residents per square mile). There is also variation in size—the average county population (which we use as a proxy for city population) is 1.5 million, but the range of the population distribution is over 9.5 million. The cities vary in economic conditions as well. Average unemployment over the sample ranges between 2 and 13 percent over our sample period. Some cities are wealthier than others, as judged by median per capita income. The average municipal median income is US$ 9,043.

There is also heterogeneity within the city-level election data (see table 4, panel B). There is a relatively even distribution of elections in which Democratic candidates win (39 percent) and Republicans win (32 percent). The average margin of victory for a winning mayoral candidate is 39 percent. This large margin, however, can be attributed to the fact

rating, however, should capture these constraints (Rubinfeld 1973).

that several elections in our dataset are uncontested (one candidate who wins by default). When these uncontested elections are excluded, the average margin decreases substantially to 20 percent. Importantly, however, taking victory margin as a measure of competitiveness, the political races vary substantially between very competitive (suggesting high political contestability) and noncompetitive (not contestable environments for political challengers).

General obligation bonds and revenue bonds account for 27.55 percent and 52.19 percent, respectively, of our observations (see table 4, panel C). Other types of bonds issued by municipalities are: Certificate of Participation (3.84 percent of observations), GO Limited Bonds (2.11 percent), Notes (0.02 percent), and Special Assessment (3.07 percent), Special Tax (2.60 percent), and Tax Allocation (3.62 percent) bonds.

Because GO and revenue bonds are by far the main types of bonds in our sample, we collapse these categories into a dichotomous "GO or revenue bond" categorization. On average, municipal bonds are issued for deals worth approximately US$ 86 million. According to the summary statistics, public bonds are issued for a variety of projects. In our sample, bonds are issued most commonly to finance education projects (i.e., building schools, universities, etc.). Interestingly, the majority of the bonds in our sample are issued via a sale mechanism. Only 17 percent are issued via a competitive bid process (bonds are awarded to the bidder offering the lowest interest cost). The average bond rating across two indices is between AA and A+ according to S&P (Aa3 and A1 for Moody's). Bond ratings are concentrated at the higher end of the ratings scale.

5.2 Security Type: GO versus Revenue Bonds

We start by estimating equation (1) using a linear probability model, and a logit and ordered logit model for robustness. Table 5 provides estimates from the sparse baseline specification, separately using the three different measures of political contestability and few city control variables. We control only for the size of the municipal offering (log-transformed deal size) and the riskiness of the city's finances (the average bond rating). All regressions were estimated using heteroskedasticity-robust standard errors.

The results provide evidence that political risk influences a city's selection of bond type. The main variable of interest is PC_m, which is some variant of either *margin* or *swings* as defined in equations (2) through (4). As shown in model 1 of table 5, the margin of victory in

a mayoral election is negatively correlated to the likelihood of issuing debt as a revenue bond rather than a GO bond. The negative sign on the coefficient is as expected, since an increase in the margin of victory suggests a less competitive political market. This less competitive institutional environment raises the likelihood that a public official will issue the more flexible form of debt contract. The coefficient is economically and statistically significant, suggesting that an increase in the margin of victory by one quintile lowers the probability of issuing a bond as revenue-backed debt by 2.7 percent.

The sign on the *large margin* is negative and significant. The larger magnitude is as expected, since our theoretical framework suggests that if a mayor's margin of victory is large (in our case, a difference in winner and runner-up vote shares larger than 20 percent), the likelihood of issuing a revenue bond should be relatively low. The coefficient on *large margin* is indeed negative and larger than the coefficient on *margin*; large margins of victory are associated with 8.4 percent decrease in the probability of issuing revenue bonds.

The results in model 3, in which our measure of political contestability is the number of partisan swings in the previous three elections, further suggest that political risk is a factor in public debt type issuance. One change of a mayoral political party in recent election cycles increases the likelihood of issuing revenue-backed debt over general obligation debt by 18.2 percent, showing that public officials' tendency to select revenue bonds increases the more contestable the political market is. We also conducted the same regressions using logistic specifications (models 4–6) to validate our linear probability models; the results are qualitatively similar. As discussed in section 1 and described in Appendix B, there is a rich variety of bonds that goes from discretionary GO unlimited bonds through GO limited bonds, special tax and assessment, tax allocation, and certificate of participation to restrictive revenue bonds.[16] In models 7–9, we use ordered logistic specifications where the dependent variable is the "rigidity rank." The results are consistent with our results from the linear probability models and validate our aggregation of bond types into two categories—GO bonds and revenue bonds—which we use for further analysis.[17]

Figure 1 plots the predicted probability of issuing a municipal bond as a revenue bond

[16] We only have one municipal note in our dataset, which we disregard.

[17] A replication of tests using rigidity rank as a dependent in OLS and ordered logistic regressions variable is available in online Appendix D.

versus a general obligation bond, computed as the marginal effects of a change in the quintile of margin of victory vote (left graph; higher ranking quintiles mean smaller margins of victory) and number of partisan swings in the past three electoral races (right graph).

Figure 1: This figure presents the predicted probability of issuing a municipal bond as a revenue bond versus a general obligation bond, computed as the marginal effects of a change in the quintile of margin of victory vote (left graph) and number of partisan swings in the past three electoral races (right graph). The vertical bars represent the 95 percent confidence intervals of the point estimates for quintile of victory margin and partisan swings, respectively. Lower margin of victory quintile and more partisan swings in the past elections mean more politically contestable environment (from left to right).

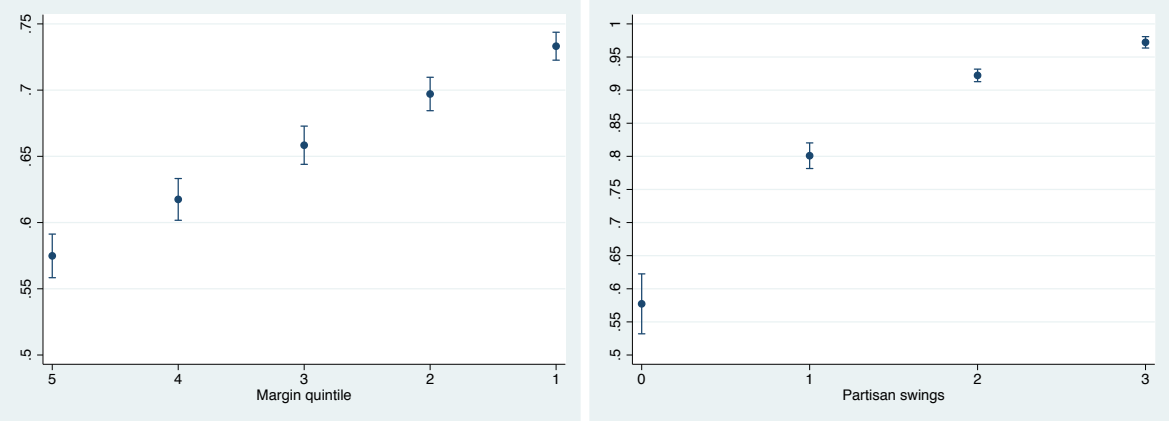


Table 5 provides further evidence as to how political factors may affect public officials' contracting decisions. In particular, when testing hypothesis 3 it appears that the year within a mayor's political cycle may be meaningfully correlated with the likelihood of issuing a revenue bond. In particular, holding other factors constant, the issuance of debt as a revenue bond is most likely in the third and fourth years of an election cycle, ranging between 5.2 and 9.4 percent. One possible explanation for this is that in the early years of a mayor's term she feels less of a need to insulate herself from allegations of impropriety. Thus, issuing more flexible debt is less risky at the beginning of a mayor's term. In the third year, however, as a mayor is beginning to prepare for a potential reelection campaign, she issues the more rigid form of municipal debt to maintain the appearance of probity. The same can be said for the fourth year, although perhaps by this point, a mayor's image is crystallized in the minds of voters.

In sum, our baseline estimates suggest that political contestability is a meaningful determinant of whether a municipal bond is issued as a revenue bond. The results are consistent

with the hypothesis that in cities with a high degree of political competition, as approximated by low margins and more shifts in political power over time, one is less likely to observe the issuance of more flexible GO bonds.

In table 6, we adopt city-specific and bond-specific controls in the spirit of Gao and Qi (2013). We also include state and year-fixed effects to control for either time-invariant state conditions and laws, or nationwide shocks that may affect the selection of bond features.

We again begin with margin-of-election win as our measure of political contestability. An increase in the winning margin by one quintile (i.e., lowering in the rank by one quintile) is associated with a 4.2 percent decrease in the likelihood of issuing a revenue bond. The point estimate for *large margin* is significant: a victory above 20 percentage points in the mayoral race is correlated with a 8.4 percent decrease in likelihood of an issuance being a revenue bond. The estimate in model 3 using *partisan swings* as the independent variable of interest is also qualitatively similar: on average, one additional partisan swing in past electoral races is correlated with a 18.2 percent increase in the likelihood of issuing revenue bonds. The results are consistent with the hypothesis that in districts where the party in power is historically susceptible to change (suggestive of more evenly distributed political power and more political competition), mayors are more likely to issue revenue bonds over GO bonds to lower the chances of opportunistic challenges.

In models 4–6, we include industry fixed effects. The point estimates on the effects of political competition on the probability of issuing revenue bonds decrease by approximately one third, but remain statistically significant at 1 percent level.

Finally, to address potential concerns about within-group correlation, in models 7–9 we adjust the standard errors by allowing for correlation in the error term by state. With clustered standard errors at the state level, the results remain similar to those without this correction.

In table 7, we run the regressions of models 1–3 from table 6 in subgroups by the ruling political party at the moment of debt issuance. Interestingly, the relationship is not symmetrical; politicians affiliated with opposing parties do not react symmetrically when facing similar political hazards. Independent officials seem to be the most responsive to political hazards, while Democrats are more sensitive to political hazards than Republicans.

We now discuss the results when aggregating bonds by year and election cycle. The results are similar. Table 8 shows the correlation between political contestability as measured by election victory margin and the percentage of municipal bonds issued as revenue bonds within a year (panel A) and mayor's term, i.e., her political cycle (panel B). The signs on the coefficients of interest are as expected—as the margin of victory in a mayoral election increases the proportion of revenue bonds decreases. The *margin* and *large margin* variables are of the expected sign, statistically significant, and economically meaningful. An increase in one quintile in the winning margin decreases by 3.9 to 4.2 percent, and a *large margin* of win increases by 8.3 to 10 percent the share of revenue bonds in the portfolio of debt issuance. *Partisan swings* are of the right sign, but not significant at the year and election cycle aggregation.

5.3 Sale Method: Negotiated versus Competitive

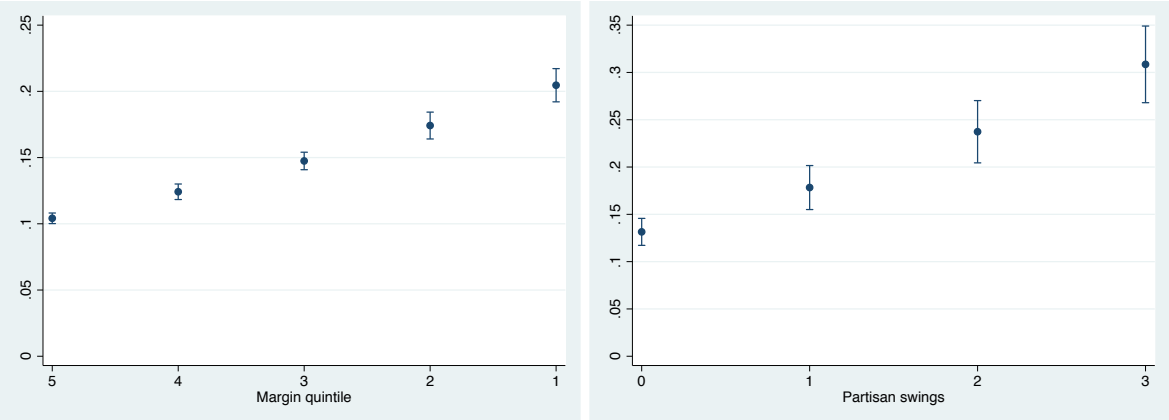
Using the same data as before, we test whether mayors in areas with less political scrutiny choose the negotiated sale procedures to issue public debt. Confirmatory evidence would further support the notion that political considerations may supplement economic efficiency considerations as an explanation for features of public contracts. As in our first set of regression, we estimate linear probability regressions with the sale method as the dependent variable (with a dummy variable equal to one if the method is competitive sale). Since some states require issuers to use a competitive process for all bond sales and to increase the common support, we excluded from our sample states that have no competitive bids or negotiated sales, and used state fixed effects across all specifications.

The results from this set of regressions are consistent with our predictions. Table 9 presents estimates from a linear probability regression of the competitive sale dummy variable on political contestability as measured by the margin of victory, large winning margin, and partisan swings. The coefficients on the political risk measure are of the expected sign, statistically significant, and economically meaningful. The point estimates suggest that an increase in the winning candidate's margin of victory of one quintile is correlated with a 3.2 percent decrease in the probability of debt being issued in a competitive bid (model 1). The *large margin* variable is larger in magnitude: contested municipalities are 7.9 percent more likely to issue bonds through competitive sales (model 2).

We see similar results using the number of party swings to measure political risk (model 3). The point estimate on *partisan swings* suggests that one additional political party change in the last three cycles increases the likelihood of using a competitive sale procedure by 7.1 percent.

Figure 2 plots the predicted probability of issuing a municipal bond through competitive bids versus negotiated sales, computed as the marginal effects of a change in the quintile of margin of victory vote (left graph; higher ranking quintiles mean smaller margins of victory) and number of partisan swings in the past three electoral races (right graph).

Figure 2: This figure the predicted probability of issuing a municipal bond through competitive bids versus negotiated sales, computed as the marginal effects of a change in the quintile of margin of victory vote (left graph) and number of partisan swings in the past three electoral races (right graph). The vertical bars represent the 95 percent confidence intervals of the point estimates for quintile of victory margin and partisan swings, respectively. Lower margin of victory quintile and more partisan swings in the past elections mean more politically contestable environment (from left to right).



The addition of industry fixed effects (models 4–6) lower the magnitude of the estimates, which remain statistically significant at the 1 percent level. When clustering at the city level (models 7–9), the margin quintile estimator falls in significance, which maybe due to unbalanced size of clusters (i.e., our dataset has many cities with only one or two bond issues) and a limited number of elections per city.

Similarly to previous results on the choice of revenue bonds, table 9 also provides further supportive evidence of hypothesis 3: holding other factors constant, the issuance of debt through competitive bidding is most likely in the third and fourth years of an election cycle.

5.4 Elected Mayors versus Appointed City Managers

There is variation across cities in the form of governance, with the two most common forms being Council-Manager and Mayor-Council (Levin and Tadelis 2010).[18] In a Council-Manager government, a professional city manager—who is appointed by the city council—is responsible for administration. While the city council is generally prohibited from interfering with the city manager's administration, the manager serves at the council's discretion. The position of "mayor" in these cities is largely ceremonial. In some cases, the executive is the council itself under commission with the various tasks divided up among council members.

In contrast, a Mayor-Council government consists of an elected mayor who serves as the city's chief executive officer. These cities may also appoint a city manager, but the mayor maintains authority over city operations. Given the differences between these two forms of local governance, measures of political risk should not be a factor in bond type in cities where mayors do not have the administrative authority to issue municipal securities.

Prior work has shown that the form of city executive governance affects spending decisions (Coate and Knight 2011; Vlaicu and Whalley 2016). Our empirical test relies on the assumption that mayors are politically accountable for the type and form of debt issued. If mayors are not politically accountable for issuing bonds, then our political risk variables should not be predictive of bond type and method of sale. Thus, following Levin and Tadelis (2010) and Coate and Knight (2011), we explore whether our results are robust to differentiation between mayor-run and manager-run cities.

We matched the type of executive for all cities in our sample.[19] The Welch's t-test of means of share of revenue bonds issued by elected mayors and appointed managers shows that the two groups are different in terms of bond type issuing. We then run our basic

[18] For a detailed account of the forms of municipal government, see: National League of Cities, http://www.nlc.org/build-skills-and-networks/resources/cities-101/city-structures/forms-of-municipal-government (accessed April 14, 2016).

[19] The form of government data comes from multiple sources: International City/County Management Association, *Municipal Form of Government 2001* (ICMA 2001); Illinois City/County Management Association, *Municipalities with Managerial Form of Government* (https://www.ilcma.org/wp-content/uploads/2015/06/Council-Manager-Form-of-Govt_Municipalities_201212131435347391.pdf, accessed April 30, 2016); MRSC Local Government Success, *Washington City and Town Profiles* (http://mrsc.org/Home/Research-Tools/Washington-City-and-Town-Profiles.aspx, accessed April 30, 2016); and multiple official city websites.

specification separately for Mayor-Council and Council-Manager cities.[20] The results in table 10 show that elected mayors not only issue more revenue bonds (see constant on models 1–3 compared to models 4–6), but also are more sensitive to political contestability than appointed city managers: The coefficients of *margin quintile* and *large margin* for appointed managers are not statistically significant (models 1 and 2) and the coefficient of *partisan swings* for appointed managers is smaller than for elected mayors.

The control variables also unearth interesting insights: Whereas for the choice of bond type city managers are more concerned about *financial* variables—like credit ratings and deal size—than elected mayors, elected mayors seem to consider *social* variables—like population and unemployment rate. When credit ratings are low and deal size high, appointed managers tend to use revenue bonds. When population and unemployment rate are high, elected mayors tend to use more revenue bonds. The Potthoff (1974) analysis shows that the differences of corresponding coefficients (model 1 to model 4, model 2 to model 5, and model 3 to model 6) of these variables are statistically different from zero.[21]

5.5 Investment Decisions and Financing Sources

Municipal investments (e.g., infrastructure upgrade) involve a multi-level decision process. The first node is the decision whether to proceed with or defer the capital outlay. The next node, conditional on investing, is the choice of source of financing, which include cash reserves, federal grants, and debt. Conditional on deciding to finance the investment through debt, a municipality can borrow directly from a bank or issue securities—GO or revenue bonds.

Each of these decisions—investment, financing, and form of financing—could potentially be influenced by the political environment faced by politicians. Moreover, there is evidence of placement of direct bank loans by municipalities (Nguyen, Volla, and Wong 2017). Bank loans are not subject to referenda, the terms are negotiated, and the proceeds are not earmarked for any particular project. It is possible, therefore, that our previous results capture only that the marginal project will tend to be funded with revenue debt, so the apparent tilt

[20] We grouped municipalities with "Commission" form of government (79 observations) along with "Council-Mayor," and disregarded municipalities with "Town Meeting" and "Representative Town Meeting" form of government (89 and none observations in our sample, correspondingly).

[21] The results from the Potthoff analysis of comparing regression coefficients from independent samples are available in the online Appendix C.

toward revenue bonds in more politically competitive settings reflects moving further out on the investment margin rather than a narrow concern driven by debt form itself.

We merge our dataset with standardized annual financial data from 150 large cities across the US provided by the Lincoln Institute of Land Policy's Fiscally Standardized Cities database.[22] We matched municipal financial data for 69 cities in 34 states from 1981 to 2002 corresponding to 3,538 bond issues. For this subset, we also have accurate demographics and financial data at the city level.

First, we explore the extent to which capital outlays and financing are influenced by political variables. In table 11, we regress the ratios of general capital outlay and utility capital outlay to total municipal revenue as proxies of investment decisions and the ratios of cash and security holdings (excluding employee retire trust fund holdings), federal and state aid, and long-term debt to total municipal revenue as proxies of financing sources on political contestability variables. We find that political contestability is weakly or not associated with investment decisions or financing sources. In line with Alesina and Tabellini (1990), more partisan swings in past electoral races are associated with higher debt (see model 15): an additional change in the ruling party in the past three electoral races is associated with an increase by 11.4 percent in the long-term debt to total municipal revenue ratio, i.e., by one-third of the standard deviation.

Second, by the conditional independence assumption including investment decision and financing source variables makes the coefficients of political contestability unbiased estimators of their effect on the choice of type of bond. In table 12, we regress the choice of type of bond conditional on investment decisions and alternative financing sources. Political contestability remains strongly associated with the choice of revenue bonds.

Altogether, these results suggest that the tilt toward revenue bonds in more politically competitive settings does not reflect moving further out on the investment margin but rather a concern driven by debt form itself.

[22] See: Lincoln Institute of Land Policy. Fiscally Standardized Cities database. http://www.lincolninst.edu/subcenters/fiscally-standardized-cities/, accessed on February 27, 2018.

5.6 Scrutiny: A Natural Experiment

We harness two subsequent referenda—one failed and one successful—regarding changes in the required supermajority to issue GO bonds in California, and a double difference-in-differences approach to show the causal relationship between political scrutiny and the choice of type of security.

California's Proposition 13, passed in June 1978, required a supermajority of two-thirds (2/3) of the votes casted to pass GO bonds. Proposition 26 was a state constitutional amendment which appeared on the March 7, 2000, California primary election ballot. Its main effect was to amend Proposition 13 by lowering the supermajority vote required to approve local school bonds from two-thirds to a simple majority of the votes cast. The initiative was defeated by 51.3 to 48.7 percent of the total votes cast.

Proposition 39 was a *milder* version of Proposition 26. It aimed at lowering the required supermajority vote necessary to approve local school bonds from two-thirds (2/3) to fifty-five percent (55 percent) of the votes cast.Proposition 39 passed with the "Yes" vote representing 53.4 percent of the total votes cast on the November 7, 2000, California general election ballot, eight months after Proposition 26 was put to the vote.[23]

Losing a local referendum is a considerable setback for a mayor. Passing either Proposition 26 or Proposition 39 would have made the incumbent mayors less likely to lose in local GO referenda, and thus should increase the prospects of issuing GO bonds. The narrow ballot results hints that *ex-ante* predictions were hazardous, and thus a suitable random event for causal inference. Moreover, instead of two groups being treated at different times, we have one event of interest (Proposition 39) and one counter-factual or placebo event (Proposition 26), which constitutes a perfect setup for causal inference. We expect the probability of issuing a GO bond to remain the same after Proposition 26 failed, and to increase after Proposition 39 was passed.

We divide the subsample of California municipalities in three eight-month periods to match the time between the ballots on Proposition 26 and Proposition 39:

[23] For a detailed description of Proposition 26 and Proposition 39 ballots, see: National Conference of State Legislatures, "Ballot Measures Database," accessed October 3, 2017, http://www.ncsl.org/research/elections-and-campaigns/ballot-measures-database.aspx.

(a) From July 7, 1999 (eight months before the ballot on Proposition 26) to March 6, 2000;

(b) From March 8, 2000 to November 6, 2000 (eight months between the ballots on Proposition 26 and Proposition 39); and

(c) From November 8, 2000 to July 7, 2001 (eight months after the Proposition 39 ballot).

Figure 3 depicts the timeline of the California's Proposition 26 ballot and Proposition 39 ballot eight month later, the three eight-time periods that conform our double pre- and post-treatment, and summary statistics of bond issues by type in these periods. The number and type of bonds, and the number of issuing municipalities is relatively well balanced across the analyzed periods (see summary statistics presented in figure 3).

Figure 3: This figure presents the timeline of California's Proposition 26 and Proposition 39 ballots, the three eight-month periods, and summary statistics of bond issues by type in these periods.

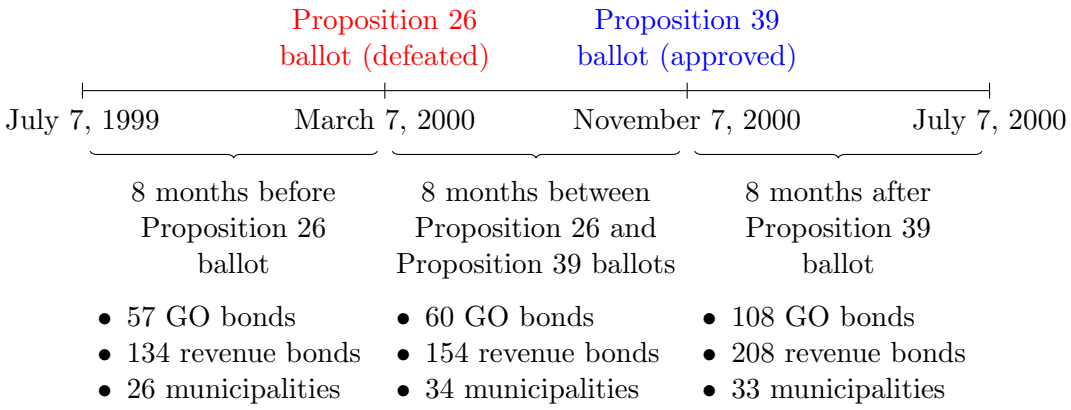


Table 13 present the results from the double linear probability difference-in-differences regressions. We want to compare the effect of an exogenous change in the political risk associated with municipalities with low political contestability (i.e., high winning margin quintile, large winning margin, and few partisan swings) and municipalities with high political contestability (i.e., low winning margin quintile, large winning margin dummy equal to zero, and many partisan swings in past elections). We expect that lowering the required vote approval for GO bonds should lower the likelihood of issuing a revenue bond in favor of GO bonds *more profoundly* for politically contestable municipalities than for municipalities whose politicians are not at risk of losing office. Put differently, the approval of Proposition 39 should not significantly affect public officials' prospects in non-contested municipalities as it relates to issuing GO bonds, but should decrease public officials' political risk of issuing

GO bonds in contestable municipalities.

Models 1–3 compare the eight-month period between Proposition 26 and Proposition 39 ballots (i.e, from March 8, 2000 to November 6, 2000) to the eight-month period before the Proposition 26 ballot (i.e., from July 7, 1999 to March 6, 2000); models 4–6 compare the eight-month period after the Proposition 39 ballot (i.e., from November 8, 2000 to July 7, 2001) to the eight-month period between the ballots.

The political contestability variables (i.e., margin quintiles, large margin dummy, and number of partisan swings in past electoral races) capture the effect of the risk of losing office on the probability of issuing a security as a revenue bond. The variables post-Proposition 26 and post-Proposition 39 capture the effect of the referenda outcome on the probability of issuing a security as a revenue bond. The coefficients of interest are the interaction terms of political contestability variables, and post-Proposition 26 and post-Proposition 39 treatment, which capture how the outcome of the referenda affected the probability of issuing a security as a revenue bond *differentially* depending on political risks of losing office. Lowering the political risk associated with bond referenda should induce issuing more GO bonds (less revenue bonds) in politically contestable municipalities (i.e., municipalities where the winning margin quintile is low and the large margin dummy equals zero, and which had many partisan swings in previous electoral races). In other words, the coefficients associated with the interaction terms of political contestability variables and post-Proposition 39 treatment in table 13 should be of the *opposite sign* of the coefficients associated with political contestability's stand-alone variables.

The defeat of Proposition 26 seems, as expected, not to have had an effect on the probability of issuing revenue bonds: the coefficients associated with the political contestability variables after Proposition 26 (interaction coefficients in models 1–3) are economically negligible and statistically not different from zero.

On the other hand, the coefficients associated with the political contestability variables after the approval of Proposition 39 (interaction coefficients in models 4–6) show that public officials in politically more contestable municipalities decreased the ratio of revenue bonds after the required vote approval for GO bonds was lowered from two-thirds to 55 percent. After Proposition 39 passed, a reduction in the margin of winning by one quintile is associated

with an increase of 30 percent in the probability of issuing a GO bond as compared to before Proposition 39; winning the past elections by less than 20 percent is associated with an increase of 22 percent in the probability of issuing a GO bond as compared to before Proposition 39; and having one more partisan swing in the past elections is associated with an increase of 33 percent in the probability of issuing a GO bond, again, as compared to before Proposition 39. In other words, the approval of Proposition 39 lowered the risk of a defeat in a referendum and, as expected, increased the probability of issuing a GO bond particularly in politically contestable municipalities.

6 Limitations and Prospective Research

Our research has several limitations. First, our time series run from 1980 to 2002, with a maximum of five elections and three partisan swings in this period, which limits the within-city variation.

Second, because the demographics and financial data on municipalities are not standardized, we have to rely on county-level data. When we control for demographics and financial data for a subset of large cities (see section 5.5), our results are stronger.

Third, changes of mayoral political party can be interpreted as political risk (as we suggest) or as relative *newness* to the job. For example, maybe investors favor revenue bonds over GO bonds for new mayors simply because trust takes time to build. I.e., instead of a supply-side explanation of security types, it would have a story of demand for types of securities. It is hard to disentangle the two stories: On the one hand, our finding that revenue bonds are more likely later in the cycle (see tables 6 and 9) favors the alternative demand-side explanation. On the other hand, the fact that our results are consistent at the year and electoral cycle aggregate (see table 8) supports our supply-side story.

Fourth and most notably, the majority of the presented regressions are correlations between political contestability and either the probability of issuing a revenue bond or using competitive bidding as a sale method. In section 5.6, we exploited two narrow ballots that changed the required supermajority to issue GO bonds in California as exogenous shocks to political risks to test for causality between political risks on the choice of revenue bonds. Unfortunately, we are unable to exploit similar legislative changes for other states with our

data.

7 Concluding Remarks

In this paper, we test whether political contestability is a determinant of the type of bond and method of sale issued by municipalities. The empirical research of municipal financing consists of a long chain of tenuous inferences fraught with technical complexities in every link: beginning with diverse needs; compounded by heterogeneous and sophisticated financial instruments; compounded by uninformed taxpayers; compounded by scarce nationwide data; compounded by the lack of exogenous shocks, good instruments, or discontinuities in political accountability to draw causal inferences. The result of this lengthy cascade of complexities is a reduced form of estimations about the aggregate welfare impacts of discretionary action of public agents to political hazards.

Using several types of specifications and measures of political risk, we find empirical evidence that is consistent with the hypothesis that mayors in politically contested municipalities issue more rigid revenue bond and use less discretionary competitive bidding. In both the baseline regressions and the regressions using city-level control variables, the point estimates on the closeness of mayoral races and degree that the mayor's seat changes party hands are of the expected sign and significant. Narrowing victory margins by one quintile increases the probability of debt being issued as a revenue bond by 4.2 percent, contested municipalities where the winning margin in the last elections was lower than 20 percent are 8.4 percent more likely to issue revenue bonds, and an additional partisan swing in the last three cycles increases the likelihood of using a revenue bond by 8.2 percent.

Likewise, narrowing of victory margins by one quintile increases the probability of issuing bonds through competitive bids by 2.5 percent, contested municipalities where the winning margin in the last elections was lower than 20 percent are 6.8 percent more likely to issue bonds through competitive sales, and an additional partisan swing in the last three cycles increases the likelihood of using a competitive sale procedure by 6.1 percent.

We find also evidence that revenue bonds and competitive bidding are more likely to be used during the later years of mayoral terms, and elected mayors are more prone to use revenue bonds than are appointed city managers.

The corollary is that the choice of revenue bonds and competitive bidding in politically contestable municipalities, when otherwise a GO bond or negotiated sales would be economically feasible, represents a welfare transfer from taxpayers to lenders, as lenders receive an interest premium over interest rate appropriate to the credit risk of the borrowing municipality. In other words, politicians at risk of losing office *buy* political insurance (i.e., choose financial instruments less hazardous to politicians but not having the backing of all forms of city finance and, thus, more risky of default to the lenders) and externalize the additional cost to the public at large. Taxpayers' unawareness of "small" misallocations makes them susceptible to overcharges.

Table 3: This table provides bond rating conversion codes for Moody's and S&P ratings used in the analysis.

Conversion number	**Moody's ratings**	**S&P ratings**
23	Aaa+	AAA+
22	Aaa	AAA
21	Aa1	AA+
20	Aa2	AA
19	Aa3	AA–
18	A1	A+
17	A2	A
16	A3	A–
15	Baa1	BBB+
14	Baa2	BBB
13	Baa3	BBB–
12	Ba1	BB+
11	Ba2	BB
10	Ba3	BB–
9	B1	B+
8	B2	B
7	B3	B–
6	Caa1	CCC+
5	Caa2	CCC
4	Caa3	CCC–
3	Ca	CC
2	C	C
1	D	D

Table 4: This table presents summary statistics of city traits, political variables, and municipal bonds.

Variable	Mean	Std. Dev.	Min.	Max.	N
Panel A: City Traits					
County Population (thousands ppl.)	1454.49	2105.22	18.11	9663.08	1173
Median Real Per Capita Income ($)	23380.68	9043.66	3474.1	63205.38	1181
Unemployment Rate	5.48	1.66	2.3	12.8	1105
Population Density	1925.51	4084.15	10.31	32082.28	1173
Panel B: Political Variables					
Democrat (mean=%)	0.4	0.49	0	1	819
Republican (mean=%)	0.32	0.47	0	1	819
Victory margin (%)	38.61	31.54	0.01	100	792
Partisan swings	0.2	0.45	0	3	819
Panel C: Municipal Bonds					
Revenue Bonds (mean=%)	0.65	0.48	0	1	6505
Bond Total Size ($ millions)	86.19	165.26	0.05	985	6491
Bond Face Value ($ millions)	9.87	28.71	0.01	650	5776
Moodys Rating	17.95	2.92	2	22	3941
S&P Rating	18.61	2.36	1	22	3604
Competitive Bidding Mech.	0.17	0.37	0	1	6505
Industry-Trans. (mean=%)	0.03	0.17	0	1	6505
Industry-Housing (mean=%)	0.12	0.33	0	1	6505
Industry-Education (mean=%)	0.21	0.41	0	1	6505
Industry-Economic Dev.(mean=%)	0.05	0.22	0	1	6505
Industry-Public Utility (mean=%)	0.1	0.29	0	1	6505
Fixed Coupon Bond (mean=%)	0.63	0.48	0	1	6505
Zero Coupon Bond (mean=%)	0.24	0.43	0	1	6505
Adj. Coupon Bond (mean=%)	0.12	0.32	0	1	6505
Maturity Length (yrs)	22.17	6.8	1	100	6505

Table 5: This table presents results from linear probability, logit, and ordered logit regressions of the choice of bond structure on political contestability. The dependent variable in models 1–6 is a dummy equal to zero when the issue is a GO limited or unlimited bond, and equal to 1 when the issue is a tax allocation, certificate of allocation, or revenue bond. The dependent variable in models 7–9 is an ordinal rank from discretionary GO unlimited bond, through GO limited bonds, special tax and assessment, tax allocation, and certificate of participation to restrictive revenue bonds. Political contestability measures are given by election margins of victory quintiles, a dummy equal to 1 when the winning margin was large (above 20 percentage points), and the number of political party swings in mayoral control. Controls include a city's average bond ratings, the natural logarithm of deal size, and the year within a mayor's term. The sample period is 1980-2002. In logistic regressions, we report marginal effects. In ordered logistic regressions, we report coefficients in terms of ordered log-odds. Heteroskedasticity-robust t-statistics are reported in parenthesis; * denotes significance at 10%, ** significance at 5%, and *** significance at 1%.

Election Outcome and Choice of Revenue Bonds

(Dependent Variable: Revenue Bonds Dummy and Bond Rigidity Rank)

	OLS			Logit			Ordered Logit		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Margin Quintiles	-0.0275***			-0.0272***			-0.112***		
	(-6.18)			(-6.30)			(-6.12)		
Large Margin		-0.0842***			-0.0837***			-0.339***	
		(-6.69)			(-6.83)			(-6.67)	
Partisan Swings			0.144***			0.153***			0.589***
			(13.56)			(12.83)			(12.04)
Avg. Rating	-0.0285***	-0.0295***	-0.0318***	-0.0325***	-0.0338***	-0.0364***	-0.0527***	-0.0577***	-0.0694***
	(-16.66)	(-17.28)	(-18.50)	(-14.34)	(-14.86)	(-16.01)	(-6.16)	(-6.71)	(-7.96)
Deal Size	0.0341***	0.0352***	0.0268***	0.0340***	0.0351***	0.0256***	0.183***	0.185***	0.157***
	(8.70)	(9.03)	(6.87)	(8.80)	(9.12)	(6.68)	(10.20)	(10.38)	(8.77)
2nd year in office	-0.0121	-0.0182	-0.0188	-0.0111	-0.0172	-0.0185	-0.0407	-0.0632	-0.0554
	(-0.76)	(-1.16)	(-1.22)	(-0.72)	(-1.13)	(-1.24)	(-0.64)	(-1.00)	(-0.88)
3rd year in office	0.0441**	0.0391**	0.0460***	0.0454**	0.0406**	0.0445**	0.239***	0.223***	0.264***
	(2.46)	(2.21)	(2.60)	(2.49)	(2.26)	(2.49)	(3.08)	(2.91)	(3.39)
4th year in office	0.0757***	0.0761***	0.0743***	0.0772***	0.0777***	0.0768***	0.180**	0.186***	0.181**
	(4.09)	(4.13)	(4.16)	(4.00)	(4.05)	(4.11)	(2.53)	(2.61)	(2.55)
Observations	5546	5613	5613	5546	5613	5613	5807	5881	5881
Adjusted R^2	0.050	0.053	0.074						
Pseudo R^2				0.043	0.045	0.064	0.015	0.016	0.024

Table 6: This table presents results from linear probability regressions of the choice of bond structure (revenue bond=1) on political contestability. Political contestability measures are given by election margins of victory quintiles, a dummy equal to 1 when the winning margin was large (above 20 percentage points), and the number of political party swings in mayoral control. Controls include average bond ratings, the natural logarithm of deal size, population, population density, median real income per capita in thousand US$, unemployment rate, and the year within a mayor's term. Regressions also include state-year and industry fixed effects. The sample period is 1980-2002. Standard errors are clustered at the state level. Heteroskedasticity-robust t-statistics are reported in parenthesis; * denotes significance at 10%, ** significance at 5%, and *** significance at 1%.

Election Outcome and Choice of Revenue Bonds with State-year and Industry Controls, and Clustered Standard Errors

(Dependent Variable: Revenue Bonds Dummy)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Margin Quintiles	-0.0422***			-0.0135***			-0.0422***		
	(-7.40)			(-4.27)			(-7.23)		
Large Margin		-0.0842***			-0.0273***			-0.0842***	
		(-5.16)			(-3.11)			(-5.73)	
Partisan Swings			0.182***			0.0679***			0.182***
			(9.85)			(7.25)			(9.34)
Avg. Rating	-0.0362***	-0.0375***	-0.0378***	-0.00846***	-0.00893***	-0.00949***	-0.0362***	-0.0375***	-0.0378***
	(-14.81)	(-15.36)	(-15.58)	(-6.32)	(-6.71)	(-7.08)	(-4.19)	(-4.13)	(-3.98)
Deal Size	0.0104**	0.0132***	0.00781*	-0.000254	0.000582	-0.00148	0.0104	0.0132	0.00781
	(2.35)	(2.99)	(1.80)	(-0.09)	(0.22)	(-0.55)	(0.32)	(0.39)	(0.25)
Population	0.0285**	0.0177	-0.00626	0.00974*	0.00643	-0.00208	0.0285*	0.0177	-0.00626
	(2.55)	(1.59)	(-0.56)	(1.84)	(1.26)	(-0.40)	(1.86)	(0.92)	(-0.42)
Density	0.0299**	0.0367***	0.0446***	0.0237***	0.0243***	0.0270***	0.0299**	0.0367**	0.0446**
	(2.50)	(3.07)	(3.71)	(3.94)	(4.13)	(4.58)	(2.25)	(2.26)	(2.35)
Income per Capita	0.00150	-0.000242	-0.000439	-0.0000580	-0.000339	-0.000363	0.00150	-0.000242	-0.000439
	(0.87)	(-0.14)	(-0.27)	(-0.07)	(-0.44)	(-0.49)	(1.33)	(-0.12)	(-0.20)
Unemployment Rate	0.0103***	0.00770**	0.00815**	0.00786***	0.00792***	0.00739***	0.0103*	0.00770	0.00815
	(2.70)	(2.00)	(2.21)	(3.52)	(3.62)	(3.49)	(1.73)	(1.05)	(0.97)
State-year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	No	No	No	Yes	Yes	Yes	No	No	No
Observations	4943	5009	5009	4943	5009	5009	4943	5009	5009
Adjusted R^2	0.383	0.373	0.389	0.815	0.815	0.817	0.383	0.373	0.389
Clustered at state	No	No	No	No	No	No	Yes	Yes	Yes

Table 7: This table presents results from linear probability regressions of the choice of bond structure (revenue bond=1) on political contestability in subgroups by political parties. Political contestability measures are given by election margins of victory quintiles, a dummy equal to 1 when the winning margin was large (above 20 percentage points), and the number of political party swings in mayoral control. Controls include average bond ratings, the natural logarithm of deal size, population, population density, median real income per capita in thousand US$, unemployment rate, and the year within a mayor's term. The sample period is 1980-2002. Heteroskedasticity-robust t-statistics are reported in parenthesis; * denotes significance at 10%, ** significance at 5%, and *** significance at 1%.

Election Outcome and Choice of Revenue Bonds in Subgroups by Political Parties

(Dependent Variable: Revenue Bonds Dummy)

	Democrat			Republican			Other		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Margin Quintiles	-0.0228***			-0.00928			-0.0613***		
	(-3.28)			(-0.94)			(-5.62)		
Large Margin		-0.109***			-0.00946			-0.159***	
		(-5.36)			(-0.32)			(-4.64)	
Partisan Swings			0.0842***			0.0783***			0.482***
			(4.25)			(2.76)			(9.71)
Avg. Rating	-0.0245***	-0.0255***	-0.0241***	-0.0300***	-0.0285***	-0.0292***	-0.0557***	-0.0626***	-0.0551***
	(-8.31)	(-8.74)	(-8.34)	(-8.21)	(-7.63)	(-7.77)	(-9.57)	(-11.07)	(-9.89)
Deal Size	0.0230***	0.0235***	0.0234***	-0.0432***	-0.0430***	-0.0462***	0.0848***	0.0861***	0.0784***
	(4.02)	(4.15)	(4.12)	(-6.38)	(-6.33)	(-6.86)	(7.13)	(7.10)	(6.88)
Population	0.0840***	0.0777***	0.0686***	0.0328	0.0281	0.0200	0.0347*	0.00846	0.0117
	(5.43)	(5.20)	(4.41)	(1.54)	(1.35)	(0.98)	(1.69)	(0.40)	(0.56)
Density	-0.0562***	-0.0488***	-0.0513***	0.101***	0.105***	0.102***	-0.0802***	-0.0603**	-0.0741***
	(-3.92)	(-3.44)	(-3.59)	(4.48)	(4.78)	(4.71)	(-3.59)	(-2.52)	(-3.10)
Income per Capita	-0.0126***	-0.0131***	-0.0123***	-0.00337	-0.00463*	-0.00372	0.0230***	0.0170***	0.0170***
	(-6.37)	(-6.92)	(-6.37)	(-1.33)	(-1.84)	(-1.47)	(6.68)	(4.73)	(4.72)
Unemployment Rate	-0.00508	-0.00515	0.00325	-0.00544	-0.0202	-0.0230	0.0729	0.117*	0.0426
	(-0.24)	(-0.24)	(0.15)	(-0.15)	(-0.55)	(-0.62)	(1.27)	(1.91)	(0.70)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2081	2101	2101	1880	1904	1904	982	1004	1004
Adjusted R^2	0.436	0.443	0.439	0.345	0.347	0.352	0.400	0.362	0.375

Table 8: This table presents results from OLS regressions of the percentage of revenue bonds in a given year (Panel A) and over a mayor's term (Panel B) on political contestability. Political contestability measures are given by election margins of victory quintiles, a dummy equal to 1 when the winning margin was large (above 20 percentage points), and the number of political party swings in mayoral control. Controls include average bond ratings, the natural logarithm of deal size, population, population density, median real income per capita in thousand US$, unemployment rate, and the year within a mayor's term. Regressions also include year and state fixed effects. The sample period is 1980-2002. Heteroskedasticity-robust t-statistics are reported in parenthesis; * denotes significance at 10%, ** significance at 5%, and *** significance at 1%.

Panel A: Revenue Bonds by Year
(Dependent Variable: Percentage of Revenue Bonds)

	(1)	(2)	(3)
Margin Quintiles	-0.0387***		
	(-3.33)		
Large Margin		-0.0834**	
		(-2.54)	
Partisan Swings			0.0421
			(1.24)
Avg. Rating	-0.0231***	-0.0258***	-0.0257***
	(-4.37)	(-4.83)	(-4.81)
Deal Size	0.00601	0.00903	0.00945
	(0.77)	(1.17)	(1.21)
Population	0.0307	0.0229	0.0191
	(1.31)	(0.98)	(0.81)
Density	0.00296	0.00670	0.00714
	(0.14)	(0.32)	(0.34)
Income per Capita	0.00113	-0.00108	-0.00148
	(0.36)	(-0.34)	(-0.47)
Unemployment Rate	0.0340	0.0352	0.0322
	(1.19)	(1.26)	(1.13)
Years in Office	0.0116	0.0120	0.0127
	(0.74)	(0.77)	(0.81)
Year fixed effects	Yes	Yes	Yes
State fixed effects	Yes	Yes	Yes
Observations	730	748	748
Adjusted R^2	0.265	0.255	0.250

Panel B: Revenue Bonds by Election Cycle
(Dependent Variable: Percentage of Revenue Bonds)

	(1)	(2)	(3)
Margin Quintiles	-0.0415***		
	(-3.08)		
Large Margin		-0.100***	
		(-2.66)	
Partisan Swings			0.0467
			(1.07)
Avg. Rating	-0.0214***	-0.0247***	-0.0245***
	(-3.14)	(-3.61)	(-3.60)
Deal Size	0.0169*	0.0190**	0.0192**
	(1.81)	(2.05)	(2.05)
Population	0.0198	0.00964	0.00666
	(0.70)	(0.35)	(0.24)
Density	0.0109	0.0179	0.0188
	(0.43)	(0.71)	(0.73)
Income per Capita	0.000381	-0.00203	-0.00260
	(0.11)	(-0.58)	(-0.75)
Unemployment Rate	0.0223	0.0162	0.0144
	(0.67)	(0.50)	(0.44)
Terms in Office	0.00353	0.0200	0.0137
	(0.10)	(0.59)	(0.40)
Year fixed effects	Yes	Yes	Yes
State fixed effects	Yes	Yes	Yes
Observations	531	549	549
Adjusted R^2	0.272	0.258	0.249

Table 9: This table presents results from linear probability regressions of the method of sale of municipal bonds (competitive bidding=1) on political contestability. Political contestability measures are given by election margins of victory quintiles, a dummy equal to 1 when the winning margin was large (above 20 percentage points), and the number of political party swings in mayoral control. For comparability, we excluded from our sample states that have no competitive bids or negotiated sales. Controls include average bond ratings, the natural logarithm of deal size, population, population density, median real income per capita in thousand US$, unemployment rate, the year within a mayor's term, and year, state, and industry fixed effects. The sample period is 1980-2002. Heteroskedasticity-robust t-statistics are reported in parenthesis; * denotes significance at 10%, ** significance at 5%, and *** significance at 1%.

Election Outcome Margins and Method of Sale

(Dependent Variable: Competitive Sales Dummy)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Margin Quintiles	-0.0322***			-0.0212***			-0.0322*		
	(-5.48)			(-3.72)			(-1.80)		
Large Margin		-0.0786***			-0.0540***			-0.0786***	
		(-5.02)			(-3.56)			(-3.30)	
Partisan Swings			0.0714***			0.0537***			0.0714***
			(5.13)			(4.02)			(5.75)
Avg. Rating	0.00642*	0.00718**	0.00662**	0.00689**	0.00751**	0.00660**	0.00642	0.00718	0.00662
	(1.90)	(2.16)	(1.97)	(2.10)	(2.33)	(2.03)	(1.10)	(1.29)	(1.20)
Deal Size	-0.0351***	-0.0352***	-0.0381***	-0.0416***	-0.0411***	-0.0438***	-0.0351***	-0.0352***	-0.0381***
	(-7.03)	(-7.01)	(-7.55)	(-7.60)	(-7.57)	(-8.00)	(-3.33)	(-3.26)	(-3.57)
Population	0.0321***	0.0291***	0.0196*	0.0176*	0.0153	0.00937	0.0321*	0.0291*	0.0196
	(3.06)	(2.82)	(1.89)	(1.78)	(1.57)	(0.96)	(1.92)	(2.01)	(1.34)
Density	-0.0167	-0.0165	-0.0133	-0.00484	-0.00394	-0.00250	-0.0167	-0.0165	-0.0133
	(-1.58)	(-1.61)	(-1.30)	(-0.48)	(-0.40)	(-0.25)	(-1.16)	(-1.16)	(-0.93)
Income per Capita	0.00952***	0.00901***	0.00910***	0.00845***	0.00801***	0.00814***	0.00952***	0.00901***	0.00910***
	(6.25)	(6.10)	(6.21)	(6.08)	(5.93)	(6.09)	(6.01)	(5.79)	(5.80)
Unemployment Rate	-0.0218	-0.0262	-0.0371**	-0.0102	-0.0132	-0.0204	-0.0218	-0.0262	-0.0371
	(-1.14)	(-1.40)	(-2.02)	(-0.55)	(-0.71)	(-1.12)	(-0.54)	(-0.69)	(-0.99)
2nd year in office	0.0325*	0.0323*	0.0274	0.0336**	0.0358**	0.0335**	0.0325	0.0323	0.0274
	(1.89)	(1.90)	(1.62)	(2.02)	(2.18)	(2.05)	(1.45)	(1.44)	(1.23)
3rd year in office	0.0900***	0.103***	0.0941***	0.0760***	0.0868***	0.0801***	0.0900**	0.103**	0.0941**
	(4.08)	(4.67)	(4.30)	(3.64)	(4.17)	(3.89)	(2.25)	(2.52)	(2.36)
4th year in office	0.0576**	0.0700***	0.0626***	0.0501**	0.0598***	0.0560**	0.0576*	0.0700**	0.0626*
	(2.54)	(3.08)	(2.75)	(2.26)	(2.71)	(2.53)	(1.80)	(2.09)	(1.91)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	No	No	No	Yes	Yes	Yes	No	No	No
Observations	3595	3654	3654	3595	3654	3654	3595	3654	3654
Adjusted R^2	0.202	0.201	0.201	0.263	0.264	0.265	0.202	0.201	0.201
Clustered at municipality	No	No	No	No	No	No	Yes	Yes	Yes

Table 10: This table presents results from linear probability regressions of the choice of bond structure (revenue bond=1) on political contestability by type of city executive: Mayor-Council (models 1–3) and Council-Manager (models 4–6). Political contestability measures are given by election margins of victory quintiles, a dummy equal to 1 when the winning margin was large (above 20 percentage points), and the number of political party swings in mayoral control. Controls include average bond ratings, the natural logarithm of deal size, population, population density, median real income per capita in thousand US$, and unemployment rate. The sample period is 1980-2002. Heteroskedasticity-robust t-statistics are reported in parenthesis; * denotes significance at 10%, ** significance at 5%, and *** significance at 1%.

Election Outcome and Choice of Revenue Bonds in Subgroups by Type of City Executive

(Dependent Variable: Revenue Bonds Dummy)

	Elected Mayors			Appointed Managers		
	(1)	(2)	(3)	(4)	(5)	(6)
Margin Quintiles	-0.0338***			-0.00945		
	(-4.83)			(-1.37)		
Large Margin		-0.107***			-0.0311	
		(-5.52)			(-1.63)	
Partisan Swings			0.109***			0.0858***
			(6.69)			(4.79)
Avg. Rating	-0.0142***	-0.0148***	-0.0150***	-0.0382***	-0.0401***	-0.0417***
	(-7.38)	(-7.68)	(-7.91)	(-12.45)	(-13.33)	(-13.87)
Deal Size	-0.0164***	-0.0170***	-0.0178***	0.0807***	0.0833***	0.0729***
	(-2.76)	(-2.87)	(-3.03)	(11.95)	(12.34)	(10.48)
Population	0.0467***	0.0567***	0.0319***	0.0196*	0.0104	0.0122
	(5.39)	(6.41)	(3.57)	(1.94)	(1.05)	(1.24)
Density	-0.0346***	-0.0373***	-0.0268***	0.0342***	0.0394***	0.0427***
	(-6.64)	(-7.05)	(-5.18)	(3.27)	(3.83)	(4.16)
Income per Capita	-0.00797***	-0.00889***	-0.00898***	-0.0102***	-0.0109***	-0.0106***
	(-5.21)	(-5.80)	(-5.87)	(-7.55)	(-8.23)	(-7.95)
Unemployment Rate	0.0193**	0.0164**	-0.000536	-0.0105	-0.0135*	-0.0116
	(2.32)	(2.01)	(-0.06)	(-1.28)	(-1.65)	(-1.42)
Constant	1.091***	0.982***	1.255***	-0.201	-0.0954	0.000885
	(7.47)	(6.95)	(8.50)	(-1.27)	(-0.62)	(0.01)
Observations	2404	2411	2411	2464	2523	2523
Adjusted R^2	0.052	0.054	0.060	0.120	0.125	0.132

Table 11: This table presents results from linear probability regressions of the investment decisions and financing sources on political contestability for a subset of large cities. Political contestability measures are given by election margins of victory quintiles, a dummy equal to 1 when the winning margin was large (above 20 percentage points), and the number of political party swings in mayoral control. The dependent variables for investment decisions are the ratios of general capital outlay and utility capital outlay to total municipal revenue; the dependent variables for financing sources are the ratios of cash and security holdings (excluding employee retire trust fund holdings), federal and state aid, and long-term debt to total municipal revenue. Controls include average bond ratings, the natural logarithms of deal size and city population, population density, median real income per capita in thousand US$, and unemployment rate. The sample period is 1980-2002. Heteroskedasticity-robust t-statistics are reported in parenthesis; * denotes significance at 10%, ** significance at 5%, and *** significance at 1%.

Election Outcome, Investment Decisions, and Financing Sources

	Investment		Financing		
Dependent variable:	General Capital Outlay	Utility Capital Outlay	Cash Holdings	Federal & State Aid	Long-Term Debt
	(1)	(2)	(3)	(4)	(5)
Margin Quintiles	-0.00228**	-0.00201***	-0.00236	-0.00487***	-0.00203
	(-2.52)	(-5.16)	(-0.90)	(-4.73)	(-0.36)
Observations	2861	2861	2861	2861	2861
Adjusted R^2	0.503	0.469	0.854	0.818	0.731
	(6)	(7)	(8)	(9)	(10)
Large Margin	-0.00790***	-0.00268**	0.00859	-0.00953***	0.00579
	(-3.53)	(-2.35)	(1.23)	(-3.21)	(0.43)
Observations	2878	2878	2878	2878	2878
Adjusted R^2	0.503	0.453	0.854	0.814	0.726
	(11)	(12)	(13)	(14)	(15)
Partisan Swings	-0.00684***	0.00665***	0.0512***	-0.00848***	0.114***
	(-3.62)	(7.28)	(9.06)	(-4.75)	(11.16)
Observations	2878	2878	2878	2878	2878
Adjusted R^2	0.504	0.468	0.860	0.815	0.745
Controls	Yes	Yes	Yes	Yes	Yes
State fixed effects	Yes	Yes	Yes	Yes	Yes

Table 12: This table presents results from linear probability regressions of the choice of bond structure (revenue bond=1) on political contestability conditional on investment decisions (models 1–3) and financing sources (models 4–6) for a subset of large cities. Political contestability measures are given by election margins of victory quintiles, a dummy equal to 1 when the winning margin was large (above 20 percentage points), and the number of political party swings in mayoral control. The proxies for investment decisions are the ratios of general capital outlay and utility capital outlay to total municipal revenue; The proxies for financing sources are the ratios of cash and security holdings (excluding employee retire trust fund holdings), federal and state aid, and long-term debt to total municipal revenue. Controls include average bond ratings, the natural logarithms of deal size and city population, population density, median real income per capita in thousand US$, and unemployment rate. The sample period is 1980-2002. Heteroskedasticity-robust t-statistics are reported in parenthesis; * denotes significance at 10%, ** significance at 5%, and *** significance at 1%.

Election Outcome and Choice of Revenue Bonds Conditional on Investment Decisions and Financing Sources

(Dependent Variable: Revenue Bonds Dummy)

	Investment			Financing		
	(1)	(2)	(3)	(4)	(5)	(6)
Margin Quintiles	-0.0142*			-0.0195**		
	(-1.85)			(-2.54)		
Large Margin		-0.0802***			-0.0903***	
		(-3.90)			(-4.41)	
Partisan Swings			0.142***			0.134***
			(7.90)			(7.24)
General Capital Outlay	-0.327	-0.378	-0.0966			
	(-1.42)	(-1.64)	(-0.42)			
Utility Capital Outlay	2.069***	2.065***	1.509***			
	(6.20)	(6.39)	(4.39)			
Cash Holdings				0.103*	0.114**	0.0509
				(1.84)	(2.03)	(0.92)
Federal & State Aid				-0.633***	-0.677***	-0.494***
				(-3.45)	(-3.77)	(-2.82)
Long-term Debt				0.179***	0.172***	0.107**
				(4.04)	(4.00)	(2.47)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
State fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2765	2779	2779	2765	2779	2779
Adjusted R^2	0.168	0.173	0.190	0.174	0.179	0.191

Table 13: This table presents results from linear probability difference-in-differences regressions. The control group are municipalities with low political contestability and the treatment group are politically contestable municipalities. Models 1–3 compare the eight-month period between Proposition and Proposition 39 ballots (i.e, from March 8, 2000 to November 6, 2000) to the eight-month period before the Proposition 26 ballot (i.e., from July 7, 1999 to March 6, 2000); models 4–6 compare the eight-month period after the Proposition 39 ballot (i.e., from November 8, 2000 to July 7, 2001) to the eight-month period between the ballots. Political contestability measures are given by election margins of victory quintiles, a dummy equal to 1 when the winning margin was large (above 20 percentage points), and the number of political party swings in mayoral control. Not reported controls include average bond ratings, the natural logarithm of deal size, population, population density, median real income per capita in thousand US$, and unemployment rate, and municipality industry fixed effects. The sample period is July 7, 1999-July 7, 2001. Heteroskedasticity-robust t-statistics are reported in parenthesis; * denotes significance at 10%, ** significance at 5%, and *** significance at 1%.

California Propositions 26 & 39

(Dependent Variable: Revenue Bonds Dummy)

	CA Proposition 26			CA Proposition 39		
	(1)	(2)	(3)	(4)	(5)	(6)
Margin Quintiles	-0.00337			-0.189***		
	(-0.08)			(-4.23)		
Margin Quintiles × Post-Proposition 26 (fail)	-0.0379					
	(-0.45)					
Margin Quintiles × Post-Proposition 39 (pass)				0.299***		
				(5.13)		
Large Margin		0.308***			-0.0166	
		(3.02)			(-0.20)	
Large Margin × Post-Proposition 26 (fail)		-0.113				
		(-1.11)				
Large Margin × Post-Proposition 39 (pass)					0.220*	
					(1.75)	
Partisan Swings			0.246*			0.474***
			(1.79)			(4.76)
Partisan Swings × Post-Proposition 26 (fail)			-0.00798			
			(-0.09)			
Partisan Swings × Post-Proposition 39 (pass)						-0.325***
						(-3.03)
Post-Proposition 26 (fail)	0.0510	0.0168	-0.0408			
	(0.25)	(0.29)	(-0.58)			
Post-Proposition 39 (pass)				-0.836***	-0.126**	0.00515
				(-6.03)	(-2.02)	(0.09)
Municipality fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	379	382	382	512	512	512
Adjusted R^2	0.624	0.652	0.640	0.454	0.409	0.447

Appendix A Construction of Dataset

We merged two datasets: municipal bonds issued from 1981 to 2002 and election outcomes in mayor cities from 1980 to 2004. The bond dataset have more municipal-year observations than the elections dataset. We thus adopted a two-way strategy. First, we applied all the election-year data (which constitutes the data used to create the political risk measures) in all years between elections. We then separately aggregated bond data by election cycles.

Specifically, we treated the data as follows:

1. In the bond database, we aggregated bonds by type and municipality-year of issuance
2. In the elections database we:
   (a) Generated a dummy variable $election\_year\_dummy = 1$ for all records
   (b) Generated $last\_election\_year = year$
   (c) Generated non-election subsequent years in $year$, and repeated all other variables—$last\_election\_year$ and last election outcomes—until the next election year observation
   (d) Generated a variable $timing_t = year_t - last\_election\_year_t$ to check for opportunistic electoral cycle timing (timing fixed effects)
   (e) Generated a variable $tenure\_years_t = \arg\max j | mayor\_name_t = mayor\_name_{t-j} \wedge j = \{1, 2, \ldots, 20\}$ for the same mayor in office (by name) to check for risk propensity and learning by mayors (tenure_year fixed effects)
   (f) Generated a variable $tenure\_cycles_t = \mathbb{Z}\left[tenure\_years_t/4\right]$ for the same mayor in office (by name) to check for risk propensity and learning by mayors (tenure_cycles fixed effects)
3. We merged the two datasets matched by municipality and year:
   (a) For year regressions, we collapsed the merged dataset summing bond issues by municipality, type of bond, and year of issuance
   (b) For political cycle regressions, we collapsed the merged dataset summing bond issues by municipality, type of bond, and $last\_election\_year$

Appendix B Types of Bonds

There are several types of municipal securities. The most common ones are described below.

Municipal Notes are short-term obligations, generally maturing in one year or less. The most common types include: (1) bond anticipation notes (BANs), (2) grant anticipation notes (GANs), (3) revenue anticipation notes (RANs), (4) tax anticipation notes (TANs), (5) tax and revenue anticipation notes (TRANs), (6) project notes, and (7) construction loan notes.

Unlimited General Obligation Bonds commit the full faith and credit of the issuing local government to repay debt obligations from any available revenue stream.

Limited-Tax General Obligation Bonds require a local government to levy a property tax sufficient to meet its debt service obligations but only up to a statutory limit. Generally, local governments can choose to use a portion of the property tax they already levy or increase their property tax by an amount equal to its debt service payments.

Bonds Backed by Special Taxes and Assessments are often due on the same dates as property taxes, to compensate for their levied, but still unpaid, share.

Tax Allocation Bonds are issued to pay the cost of land and building acquisition and their redevelopment, and are repaid by the incremental increase in tax revenues produced by the increase in the assessed value of the area after redevelopment.

Certificates of Participation (COPs) are a form of lease revenue bond that permits the investor to participate in a stream of lease payments, installment payments, or loan payments relating to the acquisition or construction of specific equipment, land, or facilities. In theory, the certificate holder could foreclose on the equipment or facility financed in the event of default, but so far no investor has ended up owning a piece of a schoolhouse or a storm drainage system.

Revenue Bonds are supported by dedicated project fees or other explicitly allocated sources of revenue. Revenue-backed bonds finance projects such as port authorities, toll roads and bridges, and parking garages.

Appendix B.1 Data Treatment

Because some of these bond types are closely related to either GO or revenue bonds, we lumped them into one of these two categories. In the construction of the main bond dataset, we ignored notes, bonds backed by special taxes and assessments, and then aggregated:

(a) General obligation unlimited and limited-tax bonds into **GO bonds**

(b) Tax allocation bonds, COPs, and revenue bonds into **revenue bonds**

For robustness, we ranked financing instruments from discretionary to rigid in the following order:

1. General obligation unlimited bonds
2. General obligation limited-tax bonds
3. Special tax and assessment bonds
4. Tax allocation bonds
5. Certificates of participation
6. Revenue bonds

Online Appendix D presents the results of regressions using the rigidity rank of municipal bonds as the dependent variable.

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Appendix C Potthoff Analysis [Not For Publication]

Table C.1: This table presents results from Potthoff (1974) analysis of comparing the regression coefficients from independent samples—elected mayors versus appointed managers—reported in table 10. Political contestability measures are given by election margins of victory quintiles, a dummy equal to 1 when the winning margin was large (above 20 percentage points), and the number of political party swings in mayoral control. Controls include average bond ratings, the natural logarithm of deal size, population, population density, median real income per capita in thousand US$, and unemployment rate. The sample period is 1980-2002. Heteroskedasticity-robust t-statistics are reported in parenthesis; * denotes significance at 10%, ** significance at 5%, and *** significance at 1%.

Potthoff Analysis
(Dependent Variable: Revenue Bonds Dummy)

	(1)	(2)	(3)
Margin Quintiles	-0.00945		
	(-1.37)		
Large Margin		-0.0311	
		(-1.63)	
Partisan Swings			0.0858***
			(4.79)
Avg. Rating	-0.0382***	-0.0401***	-0.0417***
	(-12.45)	(-13.33)	(-13.87)
Deal Size	0.0807***	0.0833***	0.0729***
	(11.95)	(12.34)	(10.48)
Population	0.0196*	0.0104	0.0122
	(1.94)	(1.05)	(1.24)
Density	0.0342***	0.0394***	0.0427***
	(3.27)	(3.83)	(4.16)
Income per Capita	-0.0102***	-0.0109***	-0.0106***
	(-7.55)	(-8.23)	(-7.95)
Unemployment Rate	-0.0105	-0.0135*	-0.0116
	(-1.28)	(-1.65)	(-1.42)
Elected Mayor	1.292***	1.077***	1.254***
	(6.00)	(5.16)	(5.90)
Avg. Rating × Elected Mayor	0.0240***	0.0253***	0.0267***
	(6.64)	(7.10)	(7.51)
Deal Size × Elected Mayor	-0.0971***	-0.100***	-0.0906***
	(-10.79)	(-11.17)	(-9.96)
Population × Elected Mayor	0.0272**	0.0463***	0.0197
	(2.04)	(3.49)	(1.49)
Density × Elected Mayor	-0.0688***	-0.0768***	-0.0696***
	(-5.89)	(-6.63)	(-6.05)
Income per Capita × Elected Mayor	0.00226	0.00197	0.00158
	(1.11)	(0.98)	(0.78)
Unemployment Rate × Elected Mayor	0.0298**	0.0299***	0.0110
	(2.54)	(2.59)	(0.95)
Margin Quintiles × Elected Mayor	-0.0243**		
	(-2.47)		
Large Margin × Elected Mayor		-0.0761***	
		(-2.80)	
Partisan Swings × Elected Mayor			0.0232
			(0.96)
Constant	-0.201	-0.0954	0.000885
	(-1.27)	(-0.62)	(0.01)
Observations	4868	4934	4934
Adjusted R^2	0.118	0.123	0.129

D Regressions Using Rigidity Rank [Not For Publication]

In this Appendix, we rerun the regressions from tables 6, 7, 10, and 13 using the rank of financing instruments from discretionary to rigid as the dependent variable. The rank was constructed as follows:

1. General obligation unlimited bonds
2. General obligation limited-tax bonds
3. Special tax and assessment bonds
4. Tax allocation bonds
5. Certificates of participation
6. Revenue bonds

Tables D.1–D.4 present the results from OLS regressions of municipal financing instruments (from GO unlimited bond=1 to revenue bond=6) on political contestability. Tables D.5–D.8 present the results from ordered logistic regressions of municipal financing instruments (from GO unlimited bond=1 to revenue bond=6) on political contestability. Some of the ordered logistic regressions have fewer controls than their ranked OLS counterpart when convergence was not possible. The results are consistent with the results from the linear probability models and validate our aggregation of bond types into GO bonds and revenue bonds.

Table D.1: This table presents results from OLS regressions of municipal financing instruments (from GO unlimited bond=1 to revenue bond=6) on political contestability. Political contestability measures are given by election margins of victory quintiles, a dummy equal to 1 when the winning margin was large (above 20 percentage points), and the number of political party swings in mayoral control. Controls include average bond ratings, the natural logarithm of deal size, population, population density, median real income per capita in thousand US$, unemployment rate, and the year within a mayor's term. Regressions also include state-year and industry fixed effects. The sample period is 1980-2002. Standard errors are clustered at the state level. Heteroskedasticity-robust t-statistics are reported in parenthesis; * denotes significance at 10%, ** significance at 5%, and *** significance at 1%.

Election Outcome and Choice of Revenue Bonds with State-year and Industry Controls, and Clustered Standard Errors

(Dependent Variable: Municipal Bond Rigidity Rank)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Margin Quintiles	-0.160***			-0.0186			-0.160***		
	(-6.58)			(-1.22)			(-7.98)		
Large Margin		-0.314***			0.0110			-0.314***	
		(-4.48)			(0.25)			(-3.92)	
Partisan Swings			0.671***			0.269***			0.671***
			(8.70)			(6.04)			(4.64)
Avg. Rating	-0.119***	-0.125***	-0.127***	-0.0292***	-0.0297***	-0.0326***	-0.119***	-0.125***	-0.127***
	(-10.60)	(-11.09)	(-11.31)	(-4.28)	(-4.34)	(-4.75)	(-4.77)	(-4.64)	(-4.95)
Deal Size	0.0744***	0.0842***	0.0654***	0.0728***	0.0736***	0.0668***	0.0744	0.0842	0.0654
	(3.70)	(4.20)	(3.29)	(5.60)	(5.69)	(5.13)	(0.43)	(0.48)	(0.39)
Population	0.0418	-0.00836	-0.0922*	0.0445*	0.0263	-0.00890	0.0418	-0.00836	-0.0922
	(0.88)	(-0.18)	(-1.92)	(1.67)	(1.01)	(-0.34)	(0.78)	(-0.12)	(-1.62)
Density	0.239***	0.274***	0.294***	0.0897***	0.0945***	0.106***	0.239***	0.274***	0.294***
	(4.65)	(5.32)	(5.62)	(2.94)	(3.15)	(3.49)	(4.22)	(4.04)	(3.86)
Income per Capita	-0.00194	-0.0100	-0.0104	0.00336	0.00136	0.00180	-0.00194	-0.0100	-0.0104
	(-0.27)	(-1.36)	(-1.46)	(0.84)	(0.35)	(0.47)	(-0.31)	(-1.24)	(-1.32)
Unemployment Rate	0.0208	0.00807	0.0110	0.0717***	0.0698***	0.0681***	0.0208	0.00807	0.0110
	(1.29)	(0.49)	(0.70)	(6.01)	(5.91)	(5.89)	(1.04)	(0.33)	(0.41)
State-year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	No	No	No	Yes	Yes	Yes	No	No	No
Observations	5204	5277	5277	5204	5277	5277	5204	5277	5277
Adjusted R^2	0.391	0.382	0.393	0.781	0.782	0.784	0.391	0.382	0.393
Clustered at state	No	No	No	No	No	No	Yes	Yes	Yes

Table D.2: This table presents results from OLS regressions of municipal financing instruments (from GO unlimited bond=1 to revenue bond=6) on political contestability in subgroups by political parties. Political contestability measures are given by election margins of victory quintiles, a dummy equal to 1 when the winning margin was large (above 20 percentage points), and the number of political party swings in mayoral control. Controls include average bond ratings, the natural logarithm of deal size, population, population density, median real income per capita in thousand US$, unemployment rate, and the year within a mayor's term. The sample period is 1980-2002. Heteroskedasticity-robust t-statistics are reported in parenthesis; * denotes significance at 10%, ** significance at 5%, and *** significance at 1%.

Election Outcome and Choice of Revenue Bonds in Subgroups by Political Parties

(Dependent Variable: Municipal Bond Rigidity Rank)

	Democrat			Republican			Other		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Margin Quintiles	-0.109***			0.0112			-0.199***		
	(-3.35)			(0.26)			(-4.56)		
Large Margin		-0.512***			0.124			-0.497***	
		(-5.34)			(1.01)			(-3.69)	
Partisan Swings			0.275***			0.155			2.085***
			(2.84)			(1.32)			(10.70)
Avg. Rating	-0.109***	-0.114***	-0.108***	-0.110***	-0.105***	-0.104***	-0.166***	-0.199***	-0.170***
	(-7.88)	(-8.28)	(-7.85)	(-6.19)	(-5.84)	(-5.80)	(-7.37)	(-8.77)	(-7.81)
Deal Size	0.153***	0.156***	0.156***	-0.173***	-0.174***	-0.180***	0.370***	0.369***	0.365***
	(5.92)	(6.08)	(6.06)	(-5.40)	(-5.41)	(-5.56)	(7.60)	(7.42)	(7.71)
Population	0.368***	0.339***	0.318***	0.0967	0.0704	0.0627	0.0812	-0.0278	-0.0175
	(4.97)	(4.77)	(4.24)	(1.09)	(0.82)	(0.73)	(1.04)	(-0.33)	(-0.22)
Density	-0.234***	-0.201***	-0.221***	0.483***	0.499***	0.489***	-0.196**	-0.120	-0.204**
	(-3.44)	(-2.99)	(-3.25)	(5.14)	(5.43)	(5.33)	(-2.12)	(-1.19)	(-1.98)
Income per Capita	-0.0582***	-0.0606***	-0.0575***	-0.0283***	-0.0337***	-0.0312***	0.0902***	0.0675***	0.0649***
	(-6.52)	(-7.10)	(-6.54)	(-2.67)	(-3.18)	(-2.92)	(6.32)	(4.40)	(4.23)
Unemployment Rate	0.0169	0.0183	0.0475	-0.0339	-0.0849	-0.0861	0.321	0.553**	0.331
	(0.17)	(0.19)	(0.48)	(-0.19)	(-0.48)	(-0.49)	(1.28)	(2.09)	(1.29)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2178	2205	2205	1937	1961	1961	1089	1111	1111
Adjusted R^2	0.403	0.411	0.405	0.334	0.336	0.336	0.425	0.383	0.409

Table D.3: This table presents results from OLS regressions of municipal financing instruments (from GO unlimited bond=1 to revenue bond=6) on political contestability by type of city executive: Mayor-Council (models 1–3) and Council-Manager (models 4–6). Political contestability measures are given by election margins of victory quintiles, a dummy equal to 1 when the winning margin was large (above 20 percentage points), and the number of political party swings in mayoral control. Controls include average bond ratings, the natural logarithm of deal size, population, population density, median real income per capita in thousand US$, and unemployment rate. The sample period is 1980-2002. Heteroskedasticity-robust t-statistics are reported in parenthesis; * denotes significance at 10%, ** significance at 5%, and *** significance at 1%.

Election Outcome and Choice of Revenue Bonds in Subgroups by Type of City Executive

(Dependent Variable: Municipal Bond Rigidity Rank)

	Elected Mayors			Appointed Managers		
	(1)	(2)	(3)	(4)	(5)	(6)
Margin Quintiles	-0.108***			-0.0243		
	(-3.18)			(-0.82)		
Large Margin		-0.386***			-0.100	
		(-4.08)			(-1.25)	
Partisan Swings			0.371***			0.447***
			(4.62)			(5.77)
Avg. Rating	-0.0553***	-0.0583***	-0.0590***	-0.106***	-0.115***	-0.124***
	(-5.54)	(-5.82)	(-5.92)	(-7.02)	(-7.81)	(-8.41)
Deal Size	-0.0739**	-0.0767***	-0.0786***	0.383***	0.392***	0.345***
	(-2.55)	(-2.66)	(-2.74)	(13.02)	(13.38)	(11.59)
Population	0.0232	0.0602	-0.0298	-0.0738*	-0.115***	-0.106**
	(0.54)	(1.38)	(-0.67)	(-1.69)	(-2.68)	(-2.50)
Density	-0.0538**	-0.0679**	-0.0290	0.272***	0.295***	0.309***
	(-2.05)	(-2.54)	(-1.12)	(5.98)	(6.60)	(6.93)
Income per Capita	-0.0358***	-0.0392***	-0.0394***	-0.0571***	-0.0600***	-0.0583***
	(-4.78)	(-5.19)	(-5.23)	(-9.72)	(-10.50)	(-10.10)
Unemployment Rate	0.0826**	0.0742*	0.0164	-0.0675*	-0.0805**	-0.0747**
	(2.01)	(1.83)	(0.40)	(-1.95)	(-2.35)	(-2.20)
Constant	7.661***	7.342***	8.299***	0.352	0.925	1.379*
	(10.57)	(10.48)	(11.27)	(0.48)	(1.30)	(1.95)
Observations	2438	2445	2445	2691	2757	2757
Adjusted R^2	0.031	0.034	0.036	0.102	0.107	0.118

Table D.4: This table presents results from OLS difference-in-differences regressions of municipal financing instruments (from GO unlimited bond=1 to revenue bond=6). The control group are municipalities with low political contestability and the treatment group are politically contestable municipalities. Models 1–3 compare the eight-month period between Proposition and Proposition 39 ballots (i.e, from March 8, 2000 to November 6, 2000) to the eight-month period before the Proposition 26 ballot (i.e., from July 7, 1999 to March 6, 2000); models 4–6 compare the eight-month period after the Proposition 39 ballot (i.e., from November 8, 2000 to July 7, 2001) to the eight-month period between the ballots. Political contestability measures are given by election margins of victory quintiles, a dummy equal to 1 when the winning margin was large (above 20 percentage points), and the number of political party swings in mayoral control. Not reported controls include average bond ratings, the natural logarithm of deal size, population, population density, median real income per capita in thousand US$, and unemployment rate, and municipality industry fixed effects. The sample period is July 7, 1999-July 7, 2001. Heteroskedasticity-robust t-statistics are reported in parenthesis; * denotes significance at 10%, ** significance at 5%, and *** significance at 1%.

California Propositions 26 & 39

(Dependent Variable: Municipal Bond Rigidity Rank)

	CA Proposition 26			CA Proposition 39		
	(1)	(2)	(3)	(4)	(5)	(6)
Margin Quintiles	0.153			-0.401**		
	(0.94)			(-2.38)		
Margin Quintiles × Post-Proposition 26 (fail)	-0.378					
	(-1.33)					
Margin Quintiles × Post-Proposition 39 (pass)				0.679***		
				(3.14)		
Large Margin		0.699			0.0561	
		(1.39)			(0.17)	
Large Margin × Post-Proposition 26 (fail)		-0.335				
		(-0.76)				
Large Margin × Post-Proposition 39 (pass)					0.467	
					(0.90)	
Partisan Swings			1.080*			1.145***
			(1.81)			(2.77)
Partisan Swings × Post-Proposition 26 (fail)			-0.185			
			(-0.46)			
Partisan Swings × Post-Proposition 39 (pass)						-0.935**
						(-2.11)
Post-Proposition 26 (fail)	1.226*	0.429*	0.341			
	(1.71)	(1.71)	(1.10)			
Post-Proposition 39 (pass)				-1.912***	-0.341*	-0.0536
				(-3.88)	(-1.73)	(-0.25)
Municipality fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	420	426	426	563	563	563
Adjusted R^2	0.586	0.583	0.592	0.415	0.400	0.411

Table D.5: This table presents results from ordered logistic regressions of municipal financing instruments (from GO unlimited bond=1 to revenue bond=6) on political contestability. Political contestability measures are given by election margins of victory quintiles, a dummy equal to 1 when the winning margin was large (above 20 percentage points), and the number of political party swings in mayoral control. Controls include average bond ratings, the natural logarithm of deal size, population, population density, median real income per capita in thousand US$, unemployment rate, and the year within a mayor's term. Regressions also include state-year and industry fixed effects. The sample period is 1980-2002. Standard errors are clustered at the state level. Heteroskedasticity-robust t-statistics are reported in parenthesis; * denotes significance at 10%, ** significance at 5%, and *** significance at 1%.

Election Outcome and Choice of Revenue Bonds with State-year and Industry Controls, and Clustered Standard Errors

(Dependent Variable: Municipal Bond Rigidity Rank)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Margin Quintiles	-0.0888***			0.0696**			-0.0888**		
	(-3.66)			(2.51)			(-2.20)		
Large Margin		-0.175***			0.428***			-0.175**	
		(-2.62)			(5.15)			(-2.35)	
Partisan Swings			0.635***			0.454***			0.635***
			(9.86)			(5.76)			(4.08)
Avg. Rating	-0.126***	-0.134***	-0.139***	-0.0962***	-0.0976***	-0.106***	-0.126***	-0.134***	-0.139***
	(-9.27)	(-9.84)	(-10.26)	(-5.05)	(-5.11)	(-5.49)	(-4.19)	(-4.28)	(-4.45)
Deal Size	0.130***	0.135***	0.117***	0.186***	0.171***	0.162***	0.130	0.135	0.117
	(5.62)	(5.96)	(5.06)	(4.79)	(4.45)	(4.24)	(0.68)	(0.71)	(0.62)
Population	0.141***	0.0948**	0.00449	0.273***	0.238***	0.165***	0.141**	0.0948	0.00449
	(3.14)	(2.13)	(0.10)	(5.83)	(5.08)	(3.46)	(2.10)	(1.59)	(0.08)
Density	0.184***	0.218***	0.239***	0.0215	0.0307	0.0501	0.184***	0.218***	0.239***
	(3.98)	(4.68)	(4.84)	(0.44)	(0.63)	(1.01)	(2.73)	(3.05)	(3.61)
Income per Capita	-0.0101	-0.0194***	-0.0177**	0.0144*	0.00919	0.00995	-0.0101	-0.0194	-0.0177
	(-1.39)	(-2.59)	(-2.37)	(1.89)	(1.23)	(1.29)	(-0.81)	(-1.35)	(-1.48)
Unemployment Rate	0.461***	0.428***	0.368***	0.394***	0.389***	0.362***	0.461***	0.428***	0.368**
	(4.73)	(4.49)	(3.89)	(2.74)	(2.75)	(2.59)	(2.93)	(2.77)	(2.27)
State fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	No	No	No	Yes	Yes	Yes	No	No	No
Observations	5204	5277	5277	5204	5277	5277	5204	5277	5277
Pseudo R^2	0.164	0.160	0.167	0.509	0.509	0.509	0.164	0.160	0.167
Clustered at state	No	No	No	No	No	No	Yes	Yes	Yes

Table D.6: This table presents results from ordered logistic regressions of municipal financing instruments (from GO unlimited bond=1 to revenue bond=6) on political contestability in subgroups by political parties. Political contestability measures are given by election margins of victory quintiles, a dummy equal to 1 when the winning margin was large (above 20 percentage points), and the number of political party swings in mayoral control. Controls include average bond ratings, the natural logarithm of deal size, population, population density, median real income per capita in thousand US$, unemployment rate, and the year within a mayor's term. The sample period is 1980-2002. Heteroskedasticity-robust t-statistics are reported in parenthesis; * denotes significance at 10%, ** significance at 5%, and *** significance at 1%.

Election Outcome and Choice of Revenue Bonds in Subgroups by Political Parties

(Dependent Variable: Municipal Bond Rigidity Rank)

	Democrat			Republican			Other		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Margin Quintiles	-0.0747*			0.104**			-0.215***		
	(-1.79)			(2.54)			(-4.44)		
Large Margin		-0.410***			0.313***			-0.595***	
		(-3.42)			(2.74)			(-4.24)	
Partisan Swings			0.151			-0.0739			2.006***
			(1.57)			(-0.77)			(8.50)
Avg. Rating	-0.128***	-0.135***	-0.130***	-0.0902***	-0.0953***	-0.0880***	-0.198***	-0.221***	-0.193***
	(-5.67)	(-5.87)	(-5.69)	(-4.19)	(-4.33)	(-4.09)	(-6.76)	(-7.55)	(-7.00)
Deal Size	0.207***	0.210***	0.214***	-0.192***	-0.197***	-0.192***	0.412***	0.406***	0.398***
	(6.12)	(6.17)	(6.37)	(-4.47)	(-4.57)	(-4.40)	(6.91)	(6.73)	(6.80)
Population	0.436***	0.400***	0.376***	-0.0238	-0.0246	-0.00643	-0.128	-0.194**	-0.195**
	(5.21)	(4.77)	(4.02)	(-0.31)	(-0.33)	(-0.08)	(-1.54)	(-2.37)	(-2.36)
Density	-0.172**	-0.131	-0.152*	0.716***	0.704***	0.702***	0.246***	0.246***	0.203**
	(-2.22)	(-1.61)	(-1.93)	(8.91)	(8.87)	(8.85)	(2.61)	(2.64)	(2.08)
Income per Capita	-0.0400***	-0.0430***	-0.0416***	-0.0704***	-0.0764***	-0.0777***	-0.00668	-0.0150	-0.0241*
	(-5.00)	(-5.38)	(-5.28)	(-5.15)	(-5.30)	(-5.23)	(-0.48)	(-1.13)	(-1.75)
Unemployment Rate	-0.0296	-0.0115	-0.0576	-0.281***	-0.257***	-0.254***	0.589***	0.563***	0.463***
	(-0.57)	(-0.22)	(-1.12)	(-4.17)	(-3.86)	(-3.63)	(7.02)	(6.86)	(6.13)
State fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2178	2205	2205	1937	1961	1961	1089	1111	1111
Pseudo R^2	0.212	0.216	0.214	0.166	0.169	0.168	0.136	0.125	0.137

Table D.7: This table presents results from ordered logistic regressions of municipal financing instruments (from GO unlimited bond=1 to revenue bond=6) on political contestability by type of city executive: Mayor-Council (models 1–3) and Council-Manager (models 4–6). Political contestability measures are given by election margins of victory quintiles, a dummy equal to 1 when the winning margin was large (above 20 percentage points), and the number of political party swings in mayoral control. Controls include average bond ratings, the natural logarithm of deal size, population, population density, median real income per capita in thousand US$, and unemployment rate. The sample period is 1980-2002. Heteroskedasticity-robust t-statistics are reported in parenthesis; * denotes significance at 10%, ** significance at 5%, and *** significance at 1%.

Election Outcome and Choice of Revenue Bonds in Subgroups by Type of City Executive

(Dependent Variable: Municipal Bond Rigidity Rank)

	Elected Mayors			Appointed Managers		
	(1)	(2)	(3)	(4)	(5)	(6)
Margin Quintiles	-0.0773**			-0.0159		
	(-2.36)			(-0.59)		
Large Margin		-0.306***			-0.0669	
		(-3.34)			(-0.91)	
Partisan Swings			0.263***			0.451***
			(3.18)			(5.75)
Avg. Rating	-0.0446***	-0.0476***	-0.0472***	-0.0935***	-0.102***	-0.110***
	(-3.70)	(-3.93)	(-3.86)	(-6.22)	(-6.95)	(-7.49)
Deal Size	-0.0781**	-0.0813***	-0.0796***	0.370***	0.376***	0.338***
	(-2.54)	(-2.64)	(-2.62)	(12.16)	(12.44)	(11.20)
Population	-0.146***	-0.118***	-0.190***	-0.0973**	-0.140***	-0.133***
	(-3.37)	(-2.72)	(-4.09)	(-2.36)	(-3.47)	(-3.32)
Density	0.0386	0.0258	0.0562**	0.264***	0.288***	0.297***
	(1.37)	(0.89)	(2.06)	(6.29)	(6.98)	(7.15)
Income per Capita	-0.0325***	-0.0351***	-0.0344***	-0.0555***	-0.0591***	-0.0575***
	(-4.39)	(-4.69)	(-4.76)	(-9.03)	(-9.80)	(-9.32)
Unemployment Rate	0.0883**	0.0837*	0.0398	-0.0670**	-0.0821**	-0.0812**
	(2.02)	(1.93)	(0.92)	(-2.04)	(-2.51)	(-2.50)
Observations	2438	2445	2445	2691	2757	2757
Pseudo R^2	0.019	0.020	0.020	0.038	0.041	0.045

Table D.8: This table presents results from ordered logistic difference-in-differences regressions of municipal financing instruments (from GO unlimited bond=1 to revenue bond=6). The control group are municipalities with low political contestability and the treatment group are politically contestable municipalities. Models 1–3 compare the eight-month period between Proposition and Proposition 39 ballots (i.e, from March 8, 2000 to November 6, 2000) to the eight-month period before the Proposition 26 ballot (i.e., from July 7, 1999 to March 6, 2000); models 4–6 compare the eight-month period after the Proposition 39 ballot (i.e., from November 8, 2000 to July 7, 2001) to the eight-month period between the ballots. Political contestability measures are given by election margins of victory quintiles, a dummy equal to 1 when the winning margin was large (above 20 percentage points), and the number of political party swings in mayoral control. Not reported controls include average bond ratings, the natural logarithm of deal size, population, median real income per capita in thousand US$, and unemployment rate, and municipality industry fixed effects. The sample period is July 7, 1999-July 7, 2001. Heteroskedasticity-robust t-statistics are reported in parenthesis; * denotes significance at 10%, ** significance at 5%, and *** significance at 1%.

California Propositions 26 & 39

(Dependent Variable: Municipal Bond Rigidity Rank)

	CA Proposition 26			CA Proposition 39		
	(1)	(2)	(3)	(4)	(5)	(6)
securitytype2						
Margin Quintiles	0.124			-0.286		
	(0.27)			(-1.23)		
Margin Quintiles × Post-Proposition 26 (fail)	-1.025*					
	(-1.89)					
Margin Quintiles × Post-Proposition 39 (pass)				0.767***		
				(2.75)		
Large Margin		0.246			0.748	
		(0.36)			(1.57)	
Large Margin × Post-Proposition 26 (fail)		-0.920				
		(-1.28)				
Large Margin × Post-Proposition 39 (pass)					0.162	
					(0.23)	
Partisan Swings			1.507*			0.959***
			(1.88)			(2.59)
Partisan Swings × Post-Proposition 26 (fail)			-0.134			
			(-0.19)			
Partisan Swings × Post-Proposition 39 (pass)						-1.006**
						(-2.03)
Post-Proposition 26 (fail)	3.921**	1.621***	1.141**			
	(2.46)	(3.14)	(2.04)			
Post-Proposition 39 (pass)				-2.492***	-0.649**	-0.291
				(-4.02)	(-2.37)	(-0.95)
Municipality fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	420	426	426	563	563	563
Pseudo R^2	0.326	0.305	0.313	0.197	0.193	0.194