Voluntary disclosure incentives: Evidence from the municipal bond market

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A R T I C L E   I N F O

A B S T R A C T

I investigate the trade-off between capital market incentives, reputational concerns, and administrative costs in the public disclosure decisions of municipal bond issuers. After Ambac's bankruptcy, issuers of insured debt increase disclosure relative to issuers of uninsured debt. After local per capita income declines or expenditures increase, issuers, particularly those with strong electoral incentives and weak voter oversight, reduce disclosure. After the implementation of an online filing repository, issuers with few dissemination channels increase disclosure relative to other issuers. Overall, my findings support a positive relationship between voluntary disclosure, risk, and low-cost dissemination, to the extent reputational capital is not threatened.

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1. Introduction

Limited regulatory oversight and weak public financial disclosure in the municipal bond market provide a novel context for studying the conflicting roles of market and political forces in driving disclosure decisions. From a market perspective, low borrowing costs minimize resources consumed by interest payments and maximize resources that can be devoted to political priorities. Therefore, municipal officials are incented to use disclosure to reduce the cost of capital, to the extent the benefit exceeds the cost of publishing and disseminating the information. From a political perspective, municipal officials operate under a democratic system in which voters rely on the limited information available to them to make electoral decisions. Therefore, reputational damage from disclosing negative information to voters may inhibit disclosure.

To better understand the trade-off between minimizing the cost of capital through transparency, minimizing expected reputational costs by suppressing negative information, and minimizing administrative costs, I identify several events that alter the cost-benefit tradeoff. Because these events affect only a subset of municipal bond issues, unaffected issues create a natural control group.

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First, I identify a ubiquitous, externally imposed escalation of credit risk: the abatement of municipal bond insurance. Municipal bond insurance was historically prevalent in the municipal bond market because it reduces the cost of capital for issuers. During the financial crisis, municipal bond insurers suffered large losses related to subprime mortgage exposure, leading to credit downgrades for all of the bond insurers. By 2010, most insurers ceased writing new policies, several were forced to cease paying claims, and a few, including Ambac, sought bankruptcy protection. Despite the fact that exposure to municipal bonds did not precipitate the financial distress of the municipal bond insurers, the cost of capital for issuers of insured debt increased.

After controlling for unobservable issue-level heterogeneity, group-specific time trends, time fixed effects, new issuance, changes in credit quality, and changes in county-level demographics, I document that issuers of insured bonds respond to the diminution of bond insurance with increased disclosure, on average. Specifically, issuers of insured debt are 7 percent more likely to file financial statements and 60 percent more likely to file a budget after Ambac's bankruptcy than issuers of uninsured debt. This disclosure increase is particularly pronounced for issues insured by Ambac and issuers of insured debt that issue new bonds over the ensuing two-year period, suggesting these disclosures are motivated by a desire to reduce the cost of capital. By contrast, the countervailing reputational incentive to suppress negative information is particularly acute for issuers that were inordinately exposed to the nationwide drop in house prices that precipitated the distress of the bond insurers. I find that issuers of insured bonds located in counties that experience extreme house price depreciation are less likely than other issuers to increase disclosure following Ambac's bankruptcy, demonstrating the relative strength of reputational incentives.

Next, I examine the relationship between disclosure and heightened credit risk that stems endogenously from disclosing negative information. Because voters cannot directly observe the performance of county officials, they evaluate officials across a variety of indirect economic, fiscal, and social outcomes. I focus on two such outcomes that overlap with the dimensions on which the rating agencies evaluate credit risk. From an economic perspective, voters penalize incumbents for personal welfare loss, such as income abatement (Lewis-Beck and Stegmaier, 2000). From a fiscal perspective, voters penalize incumbents for wealth transfers in the form of increased governmental spending (Peltzman, 1990). These negative outcomes jointly heighten the cost of capital and decrease the probability of political success for incumbent officials.

I find that issuers that either suffer a decline in local per capita income or increase spending reduce the quantity and quality of public disclosure. Issuers in counties that experience a negative change in per capita income file 7 percent fewer financial statements and are 33 percent less likely to separately file a budget in the following year than issuers that do not experience a negative change in per capita income. Issuers that increase spending are 4 percent less likely to file financial statements, file 11 percent fewer financial statements and are 22 percent less likely to file a budget in the following year than issuers that do not increase spending. These reductions suggest that, on balance, the desire to capture personal political success tends to outweigh the capital market-based motive to provide transparency. Moreover, issuers with relatively strong ex-ante electoral incentives are particularly likely to suppress negative information. By contrast, issuers that are subject to relatively strong voter oversight are less likely to suppress negative information.

Finally, I examine the relationship between dissemination costs and disclosure. I capitalize on the introduction of a free, electronic, centralized repository for municipal disclosures (similar to the SEC's EDGAR system for corporate disclosures). The online system allows issuers to communicate information immediately and inexpensively to all stakeholders at once. I provide evidence that the ability to reach a broad audience at lower cost online is associated with enhanced disclosure. Issuers with few alternate dissemination channels are 9 percent more likely to disclose and file 28 percent more financial statements after the inception of the repository than large, general purpose issuers that are more likely to have web sites. By contrast, issuers of pre-refunded bonds file 20 percent fewer financial statements in the repository than issuers of bonds that are required to provide continuing disclosures.

Overall, this paper seeks to develop a richer understanding of municipal disclosure incentives, but it also contributes broadly to the disclosure choice literature. My findings demonstrate that the relationship between risk and disclosure depends on the nature of the risk. I provide novel evidence that to the extent reputational capital is not threatened, increased risk is associated with increased disclosure. This suggests that even in the municipal bond market, in which capital is relatively cheap, issuers believe there are benefits to transparency. However, municipal officials have powerful personal incentives to preserve reputational capital. When present, these short-term political incentives tend to outweigh the perceived capital market benefits of transparency.

The rest of the paper is organized as follows: Section 2 develops hypotheses. Section 3 describes the data, empirical proxies, and research design used to estimate the relation between disclosure incentives and disclosure outcomes. I present results demonstrating relationships between disclosure, cost of capital, reputational capital, and the cost of dissemination in Section 4. I offer concluding remarks in Section 5.

2. Disclosure incentives

As of 2015, state and local governments owe investors over \$3.7 trillion, spanning 50 thousand different issuers and 1.5 million individual municipal bonds. These bonds finance general governmental operations and myriad projects, ranging from sewage to hospitals. Repayment sources are also diverse, ranging from property taxes to usage fees. Despite the

economic importance of the municipal bond market, municipal disclosure is weak relative to corporate disclosure. For example, the rate of failure to file financial disclosures in 2009 was nearly 40 percent (Schmitt, 2011).

Weak municipal disclosure persists because of a weak ex-ante commitment to disclosure. Issuers of municipal securities are exempt from the majority of federal securities laws, including the registration and reporting requirements of the Securities Act of 1933 and the Exchange Act of 1934. At the time of issuance, issuers must agree to provide annual financial disclosures to designated information repositories within a specified period (usually six to nine months). However, breach of a continuing disclosure covenant does not constitute a technical default and issuers are not subject to direct regulatory enforcement of their disclosure obligations. The lack of regulatory consequences for failure to file annual financial statements makes disclosure effectively voluntary for many issuers, inducing a great amount of heterogeneity in both the quantity and quality of available information.

Most of the extant municipal disclosure research explores variation in the quality of disclosure. These studies document a relationship between reporting quality and a specific aspect of the capital market, political, or regulatory environment. From a capital market standpoint, disclosure quality is positively related to debt levels (Austin and Robbins, 1986) and governance (Baber et al., 2013) and negatively related to bond insurance (Gore et al., 2004). From a political standpoint, reporting quality is positively related to the council-manager form of government (Evans and Patton, 1983) and negatively related to electoral incentives (Kido et al., 2012). Finally, from a regulatory standpoint, reporting quality is positively related to state GAAP disclosure regulation (Gore, 2004).

I extend this literature in three important ways. First, I investigate the decision to provide financial statements to the public. In the aforementioned studies, measurement of reporting quality is conditional upon the existence of financial statements. However, not all issuers provide financial statements to the public. For example, Baber et al. (2013) lose 30 percent of their sample due to lack of financial statement availability. Second, I extend prior cross-sectional analyses that document an association between the level of risk and the level of disclosure (Gore et al., 2004; Botosan and Plumlee, 2002) by examining the relationship between changes in different types of risk and changes in disclosure. Third, rather than focus on disclosure incentives provided by one stakeholder in particular, I study the tension between capital market incentives and political disincentives. To measure the relative strength of conflicting incentives, I examine the disclosure response to several changes in the municipal environment.

2.1. Municipal bond insurance

Bond insurers accept an up-front fee, and in return agree to make principal and interest payments in the event of issuer default. The value of bond insurance to municipal bond issuers is the strong credit rating of the insurer, which reduces the cost of borrowing for the issuer. Prior to 2008, all of the "big four" municipal bond insurers (Ambac, MBIA, FGIC, and FSA) carried AAA ratings and over fifty percent of new issues were insured. Investors in insured debt had little incentive to perform robust financial analysis on the underlying credit because they experienced loss only in the event of joint issuer and insurer default. However, the likelihood of insurer default increased during the financial crisis of 2007–2009 because the insurers wrote insurance on structured finance securities tied to the housing market, for which they were unable to pay claims. All of the big four insurers' credit ratings were downgraded below AAA in 2008 and continued to decline, many to speculative-grade, in 2009 and 2010. By the time Ambac sought Chapter 11 bankruptcy protection in 2010, less than nine percent of new issues were insured. I refer to the diminution of bond insurance as the "Ambac bankruptcy" in this paper because Ambac's November 2010 bankruptcy filing was a high-profile event that punctuated the severity of the industry's distress.

The diminution of bond insurance had two related but distinct implications for municipal bond issuers. First, the risk of insurer default increased the cost of capital on existing insured debt. Yields on insured bonds, particularly those insured by troubled insurers, rose above yields on equivalent uninsured debt after the financial crisis (Bergstresser et al., 2013), in part due to uncertainty about the credit quality of underlying issuers. Therefore, issuers of bonds insured by Ambac in particular may choose to use disclosure as an alternate mechanism to reduce their cost of capital. The second implication of the diminution of bond insurance is increased cost of capital for future issuances. Because insurance capacity and its perceived benefit to issuers were dramatically lower following the financial crisis, issuers of insured debt that subsequently issue new debt are particularly likely to substitute additional transparency for the future loss of insurance.

I measure issuers of insured bonds' disclosure response to the diminution of bond insurance *relative* to the response of issuers of uninsured bonds. Therefore, the ability to cleanly draw inferences relies on the assumption that issuers of insured bonds were not asymmetrically affected by the economic conditions that led to the insolvency of the municipal bond insurers. While this is likely a fair assumption, depressed home values across the country led to defaults on sub-prime mortgages. Some issuers (irrespective of insurance) were more exposed to house price depreciation than others. Therefore, some issuers of insured bonds were simultaneously exposed to economic risk from depressed home values and credit risk from the depressed value of bond insurance. For these issuers, disclosure can reveal negative local economic outcomes and therefore poses a threat to the reputational capital of county officials. Issuers of insured bonds that experience extreme local house price depreciation are less likely to increase disclosure than issuers of insured bonds whose local economy did not suffer.

2.2. Negative outcomes

Counties are governed by a board of elected officials (hereafter, a "commission") that is presided over by a senior official who is generally responsible for preparing the budget.[1] I refer to county commissioners and senior officials, collectively, as county "officials." County officials have a fiduciary relationship with investors and a political relationship with the electorate. Both stakeholders (creditors and voters) have a vested interest in the economic and fiscal strength of the county.

Despite the fact that county officials cannot directly control the local economy, economic changes are important to creditors and voters. Moody's and Standard & Poor's heavily weight the local economy in their municipal rating criteria and explicitly consider per capita income in their rating methodologies. Standard & Poor's attributes the use of per capita income to "the data availability of these statistics at the local level and their correlation with overall economic activity and local government revenues" (Standard & Poor's, 2012). Moreover, the political economy literature suggests that voters incorporate indirect outcomes, such as personal welfare changes, into their assessment of politicians. Votes for incumbent presidents, senators, governors, and congressmen increase in per capita income and job growth (Peltzman, 1990; Lewis-Beck and Stegmaier, 2000).[2] Therefore, a decline in per capita income at the county level simultaneously raises the cost of capital and lowers the reputational capital of county officials.

Governmental spending is also important to creditors and voters. The two major credit rating agencies evaluate local governmental control over expenditures because expenditure controls lessen the likelihood of fiscal distress. Furthermore, voters penalize spending increases around election years at the federal and state level (Peltzman, 1992). Irrespective of how the spending is financed, voters respond negatively to shifting resources from the private sector to the public sector of the economy. Therefore, creditors and voters are apt to respond negatively to spending increases, raising the cost of capital and lowering the reputational capital of county officials.

I examine whether and how disclosure changes in response to these negative economic and fiscal outcomes. On one hand, disclosure may increase because the cost of capital increases. Disclosure decisions motivated by cost of capital considerations are likely to be made by issuers with greater financing needs. Therefore, issuers that subsequently issue new debt are more likely to respond to cost of capital incentives than those that issue debt infrequently.

On the other hand, disclosure may decline because self-interested politicians seek to maximize their own utility. One way to maximize utility (increase the probability of re-election) is to temporarily suppress information that may be reputationally damaging. The rationale is similar to corporate managers who delay discretionary bad news disclosures in the hope that they may never have to release the bad news if the situation improves before the required information release (Kothari et al., 2009). Because disclosure is effectively voluntary and required information releases only occur at the time of bond issuance, municipal investors are not able to easily distinguish issuers with negative information from issuers with no information (Dye, 1985). Moreover, timely data from external sources at the county level is relatively sparse. For example, county level economic data from the Bureau of Economic Analysis (BEA) is released with a 16-month delay. Therefore, municipal officials can temporarily withhold damaging information and hope that stakeholders will focus on favorable information in the interim (Verrecchia, 1983).

While the direction of the disclosure response to negative outcomes is ultimately an empirical question, several anecdotes suggest public municipal disclosure decreases in the face of fiscal and economic distress. The City of Harrisburg, Pennsylvania, filed for bankruptcy protection in October of 2011, having failed to formally file annual financial statements in any of the three preceding years. In addition, estimated disclosure-compliance rates fell from 67 percent before the financial crisis to 60 percent during the financial crisis (Schmitt, 2011).

The incentive to suppress negative information is heterogeneous across issuers. General purpose issuers file comprehensive annual financial reports (CAFRs), which often disclose information about county demographics, property values, principal employers, and principal taxpayers. These statements are particularly likely to inform residents, voters, and creditors about the economic condition of the county. Non-general purpose issuers file fund-specific statements that also often include economic information. For example, school districts file statements that may include information about student test scores, funding for needy families, spending on school lunches for underprivileged children, and spending on capital improvement projects that address overcrowding. While school district disclosures are implicitly informative about the state of the local economy, general purpose statements are explicitly informative. Therefore, the incentive to suppress negative economic information by withholding disclosure is most pronounced for general purpose issuers.

Similar to the notion that some issuers are apt to provide more economic information than others, not all fiscal information is created equal. Peltzman (1992) finds that while voters respond negatively to all types of government spending increases, state voters respond particularly negatively to welfare spending increases. At the local level, low-income housing bonds are closely related to welfare. Therefore, housing issuers are more likely than other types of issuers to withhold information about politically unpopular spending increases.

Electoral incentives also play an important role in determining the magnitude of reputational disclosure costs. Specifically, I expect the propensity to suppress negative information to be relatively high in counties in which incumbent officials

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[1] The senior official's title varies depending on the form of government. Common titles include commissioner, chief appointed official, county executive, and presiding officer.

[2] Evidence linking the local economy to local elections in the United States is limited because of data availability. This lack of available data on county-level elections also hampers my ability to directly test the relationship between the economy, electoral incentives, and disclosure.

tend to run for re-election and in counties in which the term served by the senior official is short because he must stand for re-election (or re-appointment) more often.

By contrast, governance mechanisms may constrain the ability of politicians to manipulate the information environment. I consider three broad forms of governance. First, I consider voter oversight. Voters serve an oversight role when incumbent officials tend to be replaced or competition between political parties is strong (Baber et al., 2013). Second, I consider structural mechanisms that monitor senior officials. Senior officials are monitored when the controller responsible for preparing and disseminating financial information is independently elected or the county is governed by a council-manager form of government (Evans and Patton, 1983). Finally, I consider structural mechanisms that constrain county commissioners. Commissioners are constrained by the imposition of term limits and the ability of citizens to petition for elected officials to be removed from office. I expect the propensity to disclose negative information to increase when any of these governance mechanisms are in place.

2.3. Dissemination channel

A self-regulatory organization, the Municipal Securities Rulemaking Board (MSRB), has regulatory authority over municipal securities professionals. However, the MSRB does not have direct control over municipal securities issuers. Primary market disclosure (in the form of offering documents called "official statements") is now robust because the MSRB requires underwriters to obtain such documents to offer the securities to investors.

On July 1, 2009, the MSRB established an online continuing disclosure service via the Electronic Municipal Market Access (EMMA) system. The stated objective of the web site is to provide information "free of charge… presented in a manner specifically tailored for retail, non-professional investors who may not be experts in financial or investing matters." Before July 1, 2009, financial statements were available through four fee-based information repositories (including Bloomberg) geared toward market professionals. EMMA now serves as the sole official repository for issuers' continuing disclosure documents, which are available to the public at no charge.

The implementation of the EMMA web site is unique because it represents a sharp change in the ease of disseminating information. Moreover, EMMA has a well-defined start date, which facilitates a relatively straightforward test of the assertion that the Internet "reduced the costs of providing voluntary disclosures and presumably increased their supply" (Healy and Palepu, 2001).

I expect the benefits of low-cost dissemination through EMMA to be most apparent for local authorities, which are less likely than large general purpose issuers to have alternate channels through which they communicate with stakeholders. I also expect issuers that plan to issue debt after EMMA is introduced to place more importance on communicating with bond investors and make use of the EMMA system to a greater extent than other issuers. By contrast, the benefits of low-cost dissemination are least likely to accrue to issuers that are not required to file financial statements on an ongoing basis. Issuers of pre-refunded bonds are not required to provide continuing disclosures because the funds to repay investors are held in escrow. Therefore, I expect issuers of pre-refunded bonds to disclose less in EMMA than other issuers.

3. Data and research design

3.1. Sample, empirical proxies, and descriptive statistics

My analyses are based on a random sample of 1,972 municipal bond issues, issued by 1,359 issuers across 638 counties and 48 states.[3] The issuers in the sample include counties, county schools and colleges, county hospitals and nursing homes, county water and sewage providers, and county housing projects. I focus on counties (and county subsidiaries) because they are numerous, economically and demographically heterogeneous, and provide a wide range of services. In addition, because timely data from external sources is sparse at the county level, disclosure from issuers is informative to investors and voters.

Municipal bond issuers can issue multiple bonds over time, with different features and for different purposes. These bonds are underwritten and sold in serial maturity, and each offering under a bond contract is collectively referred to as a bond issue. I choose to run the analyses at the issue level for two reasons. First, a single issuer may have multiple issues outstanding that differ in purpose, security features, and credit rating. This heterogeneity is necessary to test the risk-disclosure relationship. Second, because of the variation in bond issues from a single issuer, credit analysis is typically performed at the issue level with different ratings assigned to each bond issue.

I begin by randomly selecting counties to include in the sample. Then, I use the Thomson-Reuters SDC Platinum database to identify all fixed-coupon issues, in principal amounts over $1 million, issued by these counties and their related special districts between July 2003 and June 2007 that remain outstanding in June 2012.[4] By requiring all bonds in the sample to be

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[3] The most represented states in the sample are North Carolina (9 percent), Florida (6 percent), and Wisconsin (6 percent). No other state accounts for more than 5 percent of the sample. None of the 14 counties in Vermont or 18 boroughs in Alaska had bonds outstanding with identifiable CUSIPs in the SDC Platinum database. Therefore, no observations for these two states are included in the sample.

[4] Continuing disclosure covenants were required for all securities underwritten after July 1995. However, CUSIP data in the SDC database is sparse in the 1990s. Therefore, the average bond in my sample was issued in 2005.

issued before 2007, I ensure that the events and disclosures studied occur well after issuance. By requiring that the last bond in the issue is not called or matured before June 2012, I ensure the results are not confounded by changes in sample composition.

Based on the CUSIP number of the last bond in the issue, I use Bloomberg to hand-collect post-issuance financial statement filing dates from July 1, 2004 to June 30, 2009 and EMMA to collect filing dates from July 1, 2009 to June 30, 2012.[5] I use the post-issuance filing information to measure four aspects of issue-level voluntary disclosure on an annual basis: the existence, frequency, and timeliness of financial statements, and the provision of budgets.[6] I also use the CUSIP numbers to collect data on bond characteristics and ratings from Bloomberg from July 2004 through June 2012.

3.1.1. Sample composition and disclosure measures

Table 1 details the post-issuance disclosure behavior of sample issuers according to their industry classification. *Filing Indicator$_{i,y}$* measures the existence of financial statements. It is an indicator variable equal to one if the issuer of issue *i* files at least one financial statement in year *y* and zero otherwise. Year *y* is any year after the year of issuance, defined as July 1 through June 30 because the majority of state and local governments have June 30 year-ends. In an average year, approximately 71 percent of issuers in the sample file post-issuance financial statements. *Filing Count$_{i,y}$* measures the frequency of financial statement filings. It is the sum of the number of financial statements filed by the issuer of issue *i* during year *y*. For example, an issuer preparing quarterly statements files four financial statements in a year. On average, sample issuers file 1.1 sets of post-issuance financial statements per year.

Because the budgeting process is informative in the municipal setting, I include the presence of a separately filed budget, *Budget Indicator$_{i,y}$*, as a proxy for the existence of forward-looking information. Separately filed budgets are relatively uncommon, occurring in 6 percent of issue-years.[7] However, the average issue-year propensity to file a budget is 37 percent when the sample is limited to issuers that separately file at least one budget during the sample period. Finally, I measure the timeliness of reporting, *Reporting Lag$_{i,y}$*, as the number of days between period-end and the report date of the first financial statement filing in year *y*. For ease of interpretation, I measure *Timeliness$_{i,y}$* as the natural log of *ReportingLag$_{i,y}$* in all regressions. On average, financial statements are filed 7 months after year-end.

General purpose issuers (*General$_i$*) comprise approximately 36 percent of sample issuers.[8] General purpose issuers can issue general obligation bonds, supported by ad valorem property taxes (80 percent), revenue bonds supported by project-specific revenues (11 percent), or certificates of participation that provide investors with a share of lease revenues (9 percent). These large issuers have more channels through which their financial statements, which are explicitly informative about the economic condition of the county, can be disseminated than specialized issuers (*Non_General$_i$*).

Health service providers and housing providers issue the riskiest bonds, together accounting for 73 percent of defaults between 1970 and 2011.[9] Hospitals and nursing homes comprise 7 percent of sample issuers. These health service providers are notably more likely to disclose and are timelier than other types of issuers in the sample, providing univariate support for a positive relationship between risk and disclosure. Housing providers (*Welfare$_i$*) comprise 3 percent of sample issuers. Multi-family housing providers generally finance the development of housing for low-income families and single-family housing bonds generally finance mortgages for the purchase of homes by low-to-moderate income residents. Together, expenditures made by these issuers are more readily linked to welfare spending than expenditures made by other issuers in the sample.

3.1.2. Descriptive statistics and empirical proxies

Table 2 reports statistics describing the characteristics of the bond issues, issuers, and counties in the sample. The average issue is 4 years old, has 15 years remaining to maturity on the last bond in the issue, and has a credit rating just below A1. Approximately 62 percent of sample issues are insured (*Insured$_i$*) and 15 percent of sample issues are insured by Ambac specifically (*AmbacInsured$_i$*). *Post_Ambac$_y$* is an indicator equal to one for the 31 percent of sample observations that occur after Ambac's 2010 bankruptcy. Similarly, *Post_EMMA$_y$* is an indicator equal to one for the 47 percent of sample observations that occur after the 2009 introduction of EMMA's continuing disclosure service.

AfterAmbac$_i$, *AfterEMMA$_i$*, and *New Issue$_{i,y}$* measure the incentive of issuers to reduce their cost of capital. *AfterAmbac$_i$* is an indicator variable equal to one for the 37 percent of issuers that issue new debt after Ambac's bankruptcy. Similarly, *AfterEMMA$_i$* is an indicator variable equal to one for the 45 percent of issuers that issue new debt after EMMA's continuing disclosure service is introduced. Whereas Ambac's bankruptcy and the inception of EMMA's continuing disclosure service

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[5] Because disclosure is compulsory in the year of issuance, the focus of this paper is on continuing disclosure beginning the year after issuance. Therefore, although the earliest bonds in the sample were issued in 2003, the post-issuance period for these bonds begins in July 2004.

[6] Unlike Bloomberg, EMMA does not always cleanly categorize budgets. Therefore, I classify filings as budgets if the filing date precedes the fiscal year-end.

[7] The unconditional propensity to file a budget is low because *Budget Indicator* measures only separately filed budgets and excludes budgets that are bundled with financial statements. Because of the fixed effect structure of the empirical tests, I draw quality inferences only from *changes* in the existence of a separately filed budget, not the static choice to separately file a budget. *Budget Indicator* can increase because an issuer that previously chose not to present a budget chooses to provide a budget or because an issuer that previously bundled next year's budget with this year's financial statements chooses to unbundle the budget. While the latter is not the intent of the measure, bundling is also a meaningful disclosure choice (Gennotte and Trueman, 1996).

[8] Eighty-nine sample issuers whose issuer type was originally classified as "N/A" are re-classified as "General Purpose" issuers because they either issue government lease-backed certificates of participation or issue bonds backed by sales tax revenues.

[9] Data from Moody's March 7, 2012 default report titled "U.S. Municipal Bond Defaults and Recoveries, 1970–2011."

Table 1
Sample composition and disclosure statistics.

Issuer industry	Issuers	Issues	Issue-year Obs	Filing indicator	Filing count	Budget indicator	Obs conditional on filing	Reporting lag
General purpose	496	756	4,831	0.73	0.95	0.10	3,506	238
School district	259	336	2,154	0.64	0.80	0.03	1,374	228
N/A	113	189	1,188	0.72	1.04	0.06	861	203
Secondary education	90	131	833	0.74	1.07	0.04	616	221
Water or sewer	88	124	783	0.75	1.02	0.03	585	193
Medical	62	77	476	0.77	2.88	0.04	365	94
Facilities (public properties and buildings)	57	79	499	0.62	1.14	0.02	307	217
Nursing home	36	45	264	0.83	3.47	0.12	219	67
Higher education	34	46	299	0.66	0.96	0.01	196	177
Environmental (pollution, waste management)	28	35	216	0.53	0.81	0.01	115	158
Multi-family housing	24	32	211	0.64	1.28	0.01	136	165
Industrial development	16	19	116	0.48	0.79	0.01	56	193
Single-family housing	13	43	259	0.84	1.40	0.03	218	157
Utility (electric, natural gas)	12	17	108	0.76	0.92	0.00	82	178
Transit (highway, parking, fuel sales tax)	11	16	107	0.79	1.14	0.01	85	201
Airport	11	17	106	0.72	0.85	0.00	76	193
Power (electric and utility)	5	7	51	0.76	1.12	0.00	39	180
Housing (student)	2	2	15	0.67	1.00	0.00	10	196
Tobacco	1	1	6	0.00	0.00	0.00	N/A	N/A
Mello-Roos	1	1	5	1.00	2.00	0.00	5	190
Full sample	1,359	1,972	12,527	0.71	1.09	0.06	8,851	211

This table presents statistics that describe post-issuance disclosure patterns from 2004 to 2012 across issuer industries within the sample. The financial statement *Filing Indicator* measures the existence of a financial statement, *Filing Count* measures the annual frequency of disclosure, and *Budget Indicator* measures the existence of a separately filed budget. *Reporting Lag* is measured as the number of days between the dates of the first annual financial statement filing and period-end, conditional upon the existence of a financial statement.

occur at a single point in time for all issuers, income and expense changes are staggered throughout the sample period. Therefore, cost of capital incentives arising from either a decline in per capita income or an increase in operating expenditures in year *y-1* are measured using an indicator equal to one if the issuer of issue *i* issues new bonds in year *y*. New Issue$_{i,y}$ is an indicator equal to one in the 31 percent of issue-years in which the issuer of issue *i* issues new bonds.

I obtain annual demographic data at the county level from the BEA for the 4,427 county-years in the sample. The average county population within the sample of 173 thousand is statistically higher than the national average county population of 100 thousand, consistent with the notion that more populated municipalities are more likely to issue debt (Evans and Patton, 1983). Average sample per capita income is $34 thousand, statistically lower than the national average for the sample period of $38 thousand. In an average year, county-level per capita income increases 3.5 percent.

Bloomberg collects historical financial data (when available) for select issuers. Lagged operating expense changes are populated for 545 issuers of 772 issues, or approximately one-third of the sample. Untabulated statistics reveal that the issuers for which expense information is available have twice as much debt outstanding and are twice as likely to be general purpose issuers than issuers for which expense information is not available throughout the panel.[10] On average, issuers in the sample spend $255 million per year and the average lagged expense change is 11 percent.

Neg$_{i,y-1}$ is an indicator variable equal to one in issue-years in which an issuer may have negative economic or fiscal information to report about the preceding year. This variable captures conflicting incentives to reduce the cost of capital and protect reputational capital. *NegEcon$_{i,y-1}$* proxies for negative economic information and is equal to one in any county-year in which per capita income declines in year *y-1*. Per capita income declines in approximately 15 percent of issue-years. Similarly, *NegHsg$_i$* is an indicator variable equal to one if the county-level CoreLogic house price index declined more than six percent in 2010 or 2011 (the most adverse quartile of house price changes across the sample with available data). *NegFiscal$_{i,y-1}$* proxies for negative fiscal information and is equal to one in any issue-year in which operating expenses increase in year *y-1*. Expense increases occur in approximately 69 percent of issue-years.

Information about elections and governmental structure at the county level comes from the 2007 International City/County Management Association (ICMA) County Form of Government survey. Though the survey was conducted early in the

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[10] I rely on within-issue changes in expenses to identify the relationship between disclosure and expenses. Therefore, I limit the sample of expense changes to those issues for which expense information is populated throughout the panel. This imposes a selection constraint on the data because it requires filings that were withheld for reputational reasons to ultimately become available ex-post.

Table 2
Descriptive statistics.

Characteristic	N	Mean	Std. dev.	Q1	Median	Q3
Panel A: Issue-year characteristics						
Age (years)	12,527	3.77	1.98	2.00	4.00	5.00
Credit rating	12,527	19.61	6.47	20.22	21.67	22.75
New issue	12,527	0.31	0.46	0.00	0.00	1.00
Post-Ambac (1=yes)	12,527	0.31	0.46	0.00	0.00	1.00
Post-EMMA (1=yes)	12,527	0.47	0.50	0.00	0.00	1.00
Time to maturity (years)	12,527	15.07	7.28	10.00	15.00	19.00
Expenses ($millions)	4,382	255.47	449.15	16.53	68.62	257.77
Lagged expense change (percent)	4,382	10.98	236.96	−0.94	3.38	8.19
Panel B: Bond issue characteristics						
Coupon	1,972	4.53	0.80	4.13	4.50	5.00
Issue size ($millions)	1,972	33.50	54.20	6.07	15.00	38.60
Pre-refunded (1=yes)	1,972	0.06	0.23	0.00	0.00	0.00
Insured (1=yes)	1,972	0.62	0.49	0.00	1.00	1.00
AmbacInsured (1=yes)	1,972	0.15	0.36	0.00	0.00	0.00
Panel C: Issuer characteristics						
Debt outstanding ($millions)	1,359	293.00	747.00	11.80	50.30	240.00
AfterAmbac (1=yes)	1,359	0.37	0.48	0.00	0.00	1.00
AfterEMMA (1=yes)	1,359	0.45	0.50	0.00	0.00	1.00
General (1=yes)	1,359	0.36	0.48	0.00	0.00	1.00
Non-general (1=yes)	1,359	0.64	0.48	0.00	1.00	1.00
Welfare (1=yes)	1,359	0.03	0.16	0.00	0.00	0.00
Panel D: County-year characteristics						
Income ($per capita)	4,427	33,569	8141	28,107	31,942	36,903
Population	4,427	173,487	355,286	26,673	63,079	162,917
Lagged income change (percent)	4,427	3.49	4.17	1.80	3.81	5.68
Lagged house price change (percent)	2,315	−1.49	8.51	−5.99	−2.22	2.27
Panel E: County characteristics						
Term length (years)	254	2.15	1.49	1.00	1.00	4.00
Percent incumbents run	246	0.50	0.31	0.33	0.43	0.76
Percent incumbents re-elected	225	0.76	0.34	0.60	1.00	1.00
Ranney index	329	0.87	0.10	0.81	0.89	0.95
Controller (1=yes)	254	0.81	0.39	1.00	1.00	1.00
Council-Mgr (1=yes)	254	0.31	0.47	0.00	0.00	1.00
TermLimit (1=yes)	254	0.05	0.21	0.00	0.00	0.00
Recall (1=yes)	220	0.50	0.50	0.00	0.00	1.00

This table presents descriptive statistics for the variables used throughout the analysis. Panel A summarizes the time-varying characteristics of the 12,527 bond issue-years in the sample. Panel B summarizes the time-invariant characteristics of the 1,972 bond issues in the sample. Panel C summarizes the characteristics of the 1,359 issuers in the sample. Panel D summarizes the time-varying characteristics of the 4,427 county-years in the sample. Panel E summarizes the time-invariant characteristics of the 254 counties included in the 2007 ICMA County Form of Government Survey and the 329 counties for which political party affiliation data is available. Variables are defined in the Appendix.

sample period (2007 and 2008), I assume that the information respondents provide persists throughout the sample period. The survey was sent to all 3,039 counties in the United States, with 1,102 responding (a 36 percent response rate). Of the 638 counties in the sample, 254 responded to the survey (a 40 percent response rate). Some of the survey questions pertain broadly to all county commissioners while some are specific to the senior official. Though all commissioners have political incentives to report positive information, incentives and monitoring of the senior official may be particularly relevant in making disclosure decisions because he is generally responsible for preparing the budget.

I use the County Form of Government survey to develop two measures of electoral incentives. First, the average term length for a senior official is 2 years and approximately 50 percent of the senior officials serve one-year terms. $ShortTerm_i$ is an indicator equal to one if the issuer of issue i operates in a county in which the senior official serves a one-year term. Senior officials in these counties are more myopic than others because they seek re-election or re-appointment by the county commission every year. Second, the survey asks how large the county commission is and how many incumbents ran for re-election to the commission in the last election. Incumbent commissioners seeking re-election face stronger electoral incentives to conceal negative information than those that do not seek re-election. $IncumbentsRun_i$ is an indicator equal to one for the 43 percent of counties in which over half of the county commissioners were incumbents running for re-election in 2007. Incumbents are more likely to seek re-election in these counties than in others.

Voters serve an oversight role that may constrain political incentives to conceal negative information. On average, 76 percent of incumbent commissioners running for re-election in 2007 were re-elected. I characterize the 25 percent of counties in which less than half of incumbent county commissioners seeking re-election were successful as an $IncumbentsLose_i$ county. Incumbents are more likely to lose re-election campaigns in these counties than others. I also

calculate a Ranney Index (Ranney, 1976) to measure the extent of competition between republicans and democrats registered to vote in 2010.[11] The index ranges from 0.5 (no competition between major parties) to 1.0 (perfect competition between major parties). Based on the distribution of the index in the sample, I create an indicator variable, $PolComp_i$, equal to one for the counties in the most competitive quartile in the sample (those with an index above 0.95).

Structural characteristics of counties may also help to constrain the political incentives of county officials. To measure the extent to which the senior official is monitored, I create an indicator equal to one for the 81 percent of sample counties in which the county controller is independently elected rather than appointed ($Controller_i$) and another indicator variable equal to one for the 31 percent of counties that are organized according to a council-manager form of government ($Council\_Mgr_i$). To measure the extent to which commissioners are governed by structural county characteristics, I create an indicator equal to one for the 5 percent of counties that impose term limits on commissioners ($TermLimit_i$) and an indicator equal to one for the 50 percent of sample counties in which citizens are empowered to collect signatures to remove elected officials from office ($Recall_i$).

3.2. Research design

To test whether changes in the costs of disclosure are associated with changes in disclosure, I estimate the following specification using ordinary least squares for issue i and year y[12]:

$$Disclosure_{i,y} = \alpha_i + \beta_y + \gamma_1 Event_y + \gamma_2 Event_y * Characteristic_i + \theta_s t + \kappa X_{i,y} + \varepsilon_{i,y}$$

$Disclosure_{i,y}$ is the quantity and quality of financial disclosures filed by the issuer of bond issue i in year y. Because disclosure choice is endogenously related to issue characteristics, the regression includes issue fixed effects (α_i) to control for time-invariant unobserved heterogeneity across issues and year fixed effects (β_y) to control for unobserved time effects. Therefore, only time-varying variables and interactions with time-varying variables are measured in these regressions.

The events that change the costs of disclosure are as follows: Ambac's bankruptcy, $Post\_Ambac_y$; a negative economic or fiscal outcome in year $y-1$, $Neg_{i,y-1}$; and the introduction of EMMA as the sole continuing disclosure repository, $Post\_EMMA_y$. The variable of interest varies depending on the event being studied.

The relationship between the diminution of bond insurance and disclosures made by issuers of uninsured bonds is captured by $Post\_Ambac_y$, which is absorbed by the year fixed effects. The variable of interest is the coefficient on the interaction term $Post\_Ambac_y * Insured_i$, which measures the incremental change in disclosures made by issuers of insured bonds relative to issuers of uninsured bonds after Ambac's bankruptcy. Untabulated statistics reveal that issuers of insured bonds have less debt and issue new debt less frequently than issuers of uninsured bonds. These statistics comport with anecdotal evidence that infrequent issuers with mid-investment grade underlying credit ratings are the most likely to seek insurance. Because insurance is not randomly assigned, it is not possible to draw causal interpretations from these regressions. Nonetheless, issue fixed effects remove the fundamental differences between insured and uninsured issues and facilitate the study of the relationship between changes in insurance and changes in disclosure. If the increased risk imposed on issuers of insured bonds is associated with more disclosure relative to issuers of uninsured bonds, γ_2 is positive.

The relationship between a negative economic or fiscal outcome occurring in year $y-1$ and the disclosure filed in year y, which reports information about year $y-1$, is measured by the coefficient on $Neg_{i,y-1}$. If the threat to reputational capital from a negative change in per capita income or an increase in expenditures is associated with less disclosure, γ_1 is negative.

The relationship between reduced dissemination costs and disclosure is captured by $Post\_EMMA_y$, which is absorbed by the year fixed effects. The variables of interest are the coefficients on the interaction between $Post\_EMMA_y$ and several issue characteristics. The interactions measure the incremental change in disclosures made by issuers of bonds that possess these characteristics relative to issuers of other bonds after EMMA became the sole continuing disclosure repository. If low-cost dissemination is associated with relatively more disclosure, γ_2 is positive.

I include a linear time trend variable to ensure the treatment variables do not capture the increasing disclosure trend that is evident throughout the sample period. I also include group specific time trends for each issue characteristic included in each regression. For example, the comparison of insured to uninsured bond issues after Ambac's bankruptcy is a difference-in-difference design that relies on the assumption that the treatment and control groups follow parallel trends in the pre-treatment period. Group-specific linear time trends ensure the treatment effects are distinct from pre-existing group-specific disclosure trends (Besley and Burgess, 2004). In these regressions, θ_s is a group-specific trend coefficient where s is an insurance indicator and t is a time trend.

X is a vector of control variables that includes annual credit ratings to account for unrelated changes in risk, the natural logarithm of county-level per capita income and population to account for demographic changes, and an indicator variable equal to one if the issuer of issue i offers new bonds during year y to absorb compulsory reporting. Robust standard errors are clustered at the issue level because insurance varies at the issue level (Bertrand et al., 2004).

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[11] Voter registration at the county level provided by David Leip.

[12] I use OLS because fixed effects logit is inconsistent and partial effects are difficult to estimate and interpret (Wooldridge, 2002). Nonetheless, when using logistic regressions for the two binary outcome variables (Filing Indicator and Budget Indicator), the signs of the coefficients are consistent with OLS.

Table 3
Disclosure and the diminution of bond insurance.

Regressor	Pred.	(1) Filing indicator	(2) Filing count	(3) Budget indicator	(4) Timeliness	(5) Filing indicator	(6) Filing count	(7) Budget indicator	(8) Timeliness
Post_Ambac*Insured	+	0.05**	0.04	0.03**	−0.02	0.03	0.00	0.02	−0.08*
		(0.02)	(0.06)	(0.01)	(0.03)	(0.03)	(0.10)	(0.02)	(0.05)
Post_Ambac*Insured*AmbacInsured	+					−0.01	−0.09	0.03**	−0.01
						(0.02)	(0.06)	(0.02)	(0.02)
Post_Ambac*Insured*AfterAmbac	+					0.02	0.27***	0.06***	0.04
						(0.03)	(0.10)	(0.02)	(0.05)
Post_Ambac*Insured*NegHsg	−					−0.06	−0.26**	−0.07***	0.09
						(0.04)	(0.11)	(0.03)	(0.06)
Post_Ambac*AfterAmbac	N/A					−0.01	−0.09	−0.06***	−0.04
						(0.03)	(0.08)	(0.02)	(0.05)
Post_Ambac*NegHsg	N/A					0.05*	0.17**	0.06**	−0.04
						(0.03)	(0.09)	(0.02)	(0.06)
Ln(Income)	−	−0.23*	−0.18	−0.04	−0.07	−0.31*	0.09	−0.09	−0.11
		(0.13)	(0.28)	(0.06)	(0.19)	(0.18)	(0.38)	(0.09)	(0.24)
Ln(Population)	+	−0.04	0.86*	0.31***	0.81***	0.18	1.30**	0.53***	0.95***
		(0.18)	(0.48)	(0.10)	(0.25)	(0.22)	(0.66)	(0.13)	(0.31)
Credit Rating	−	0.01	−0.01	0.01***	−0.01	0.01	−0.03	0.01***	−0.01*
		(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.02)	(0.00)	(0.01)
New Issue	+	0.03***	0.07***	0.01	−0.02*	0.03***	0.05*	0.01**	−0.02
		(0.01)	(0.03)	(0.00)	(0.01)	(0.01)	(0.03)	(0.01)	(0.01)
Pre-Ambac Mean of Dep. Var.		0.68	1.01	0.05	−5.25	0.72	1.09	0.06	−5.23
Issue-Year Obs		12,527	12,527	12,527	8,851	9,722	9,722	9,722	7,303
Issues		1,972	1,972	1,972	1,803	1,531	1,531	1,531	1,454
R-squared (within)		0.03	0.02	0.01	0.04	0.03	0.03	0.02	0.04
R-squared (overall)		0.43	0.50	0.40	0.67	0.36	0.49	0.41	0.66

$Disclosure_{i,y} = \alpha_i + \beta_y + \gamma_1 Post\_Ambac_y + \gamma_2 Post\_Ambac_y * Insured_i + \theta_s t + \kappa X_{i,y} + \varepsilon_{i,y}$.

$Disclosure_{i,y}$ is the quantity and quality of the post-issuance financial disclosures filed by the issuer of issue i in year y from 2004 to 2012, as follows: $Filing$ $Indicator_{i,y}$ measures the existence of a financial statement; $Filing$ $Count_{i,y}$ measures the annual frequency of disclosure; $Budget$ $Indicator_{i,y}$ measures the existence of a separately filed budget; and $Timeliness_{i,y}$ is the negative log of the number of days between the dates of the first report filed by the issuer of issue i in year y and period-end. The incremental change in disclosures made by issuers of insured bonds relative to issuers of uninsured bonds after Ambac's bankruptcy is estimated by the interaction between $Post\_Ambac_y$ (an indicator equal to one after Ambac's 2010 bankruptcy filing) and $Insured_i$ (an indicator equal to one if issue i is insured by a bond insurer). All regressions include issue fixed effects (which absorb the coefficients on uninteracted issue characteristics, including $Insured$), year fixed effects (which absorb the coefficient γ_1), a time trend, and a group-specific time trend for insured bonds. Columns 1 through 4 present results of the base specification. Columns 5 through 8 include interactions with issue characteristics that are defined in the Appendix. Control variables are also defined in the Appendix. The predicted sign of coefficients and the mean of dependent variables measured before Ambac's bankruptcy are provided. The *Adjusted R-squared (within)* describes the extent to which the regression explains variation in disclosure within issues. The *Adjusted R-squared (overall)* describes the extent to which cross-sectional variation in disclosure is explained. Robust standard errors clustered at the issue level are reported in parentheses.

* Statistical significance at 10% level (two-tailed).
** Statistical significance at 5% level (two-tailed).
*** Statistical significance at 1% level (two-tailed).

4. Results

4.1. Disclosure and the diminution of bond insurance

Columns 1 through 4 of Table 3 demonstrate that the risk imposed on issuers of insured bonds by the diminution of bond insurance is associated with more disclosure, on average. Relative to the pre-Ambac unconditional sample average *Filing Indicator$_{i,y}$* of 0.68, the coefficient of 0.05 on *Post_Ambac$_y$*Insured$_i$* indicates issuers of insured debt are 7 percent more likely to file financial statements after Ambac's bankruptcy than issuers of uninsured debt. Relative to the pre-Ambac unconditional sample average *Budget Indicator$_{i,y}$* of 0.05, the coefficient of 0.03 on *Post_Ambac$_y$*Insured$_i$* indicates issuers of insured debt are 60 percent more likely to file a budget after Ambac's bankruptcy than issuers of uninsured debt. These economically and statistically significant increases suggest that capital market incentives are an effective mechanism to incent municipal disclosure.[13]

The coefficients on the control variables are generally consistent with expectations and prior literature. Disclosure quantity decreases in per capita income, providing further evidence of a positive relationship between risk and disclosure. Disclosure quality (budgets and timeliness) increases in population, which has been used as a proxy for debt levels in prior

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[13] To explain the aforementioned results, confounding events must affect the disclosures made by issuers of insured bonds and uninsured bonds differently. One potential confounding event is Moody's rating scale recalibration. In untabulated results, I find that issuers of insured debt are incrementally likely to disclose after Ambac's bankruptcy irrespective of whether or not their bonds are recalibrated.

research (Evans and Patton, 1983). The positive relationship between credit ratings and the provision of budgets, while inconsistent with the notion that risk induces disclosure, could be driven by better disclosure leading to better ratings. Finally, because reporting is compulsory in the year of debt issuance, the quantity of disclosure increases when the issuer offers a new bond issue during the year, though these disclosures are less timely than other disclosures.

Cross-sectional variation in disclosure after Ambac's bankruptcy is documented in Columns 5 through 8 of Table 3. This variation highlights the tradeoff between the incentive to reduce the cost of capital through disclosure and the incentive to protect reputational capital through information suppression. Relative to issuers of bonds insured by other insurers, issuers of bonds insured by Ambac ($AmbacInsured_i$) are incrementally likely to highlight future expectations to their existing creditors by filing budgets after Ambac's bankruptcy. Relative to issuers of insured bonds that do not subsequently issue new debt, issuers of insured debt that issue new bonds after Ambac's bankruptcy ($AfterAmbac_i$) are incrementally likely to provide historical and forward-looking information to potential investors by providing more financial statements and filing budgets.

By contrast, issuers of insured bonds that simultaneously experience the diminution of bond insurance and extreme local house price depreciation provide less disclosure than issuers of insured bonds in counties that do not experience extreme house price depreciation. Consistent with their countervailing political incentive to suppress negative outcomes, these issuers ($NegHsg_i$) file fewer financial statements and are less likely to file a budget after Ambac's bankruptcy than other issuers of insured bonds.

4.2. Disclosure of negative outcomes

4.2.1. Negative change in per capita income

Columns 1 through 4 of Table 4, Panel A demonstrate that risk stemming from poor economic outcomes is associated with reduced disclosure, on average. Relative to the unconditional sample average $Filing\ Count_{i,y}$ of 1.09, the coefficient of −0.08 on $NegEcon_{i,y-1}$ implies issuers in counties that experience a negative change in per capita income file 7 percent fewer financial statements in the following year than issuers in unaffected counties. Issuers in counties that experience a negative change in per capita income are also 33 percent less likely to separately file a budget in the following year than issuers that do not experience a negative change in per capita income.[14]

Columns 5 through 8 of Table 4, Panel A document predictable correlations between electoral incentives, voter oversight, and information suppression following a local economic downturn. Illustrating the strength of incentives to protect reputational capital, issuers that issue new debt ($NewIssue_i$) after a negative change in per capita income do not respond to the heightened capital market incentive to disclose. These issuers are not incrementally likely to disclose relative to issuers that issue new debt after a positive change in per capita income.

Consistent with expectations, general purpose issuers ($General_i$) are less likely to disclose, provide fewer financial statements, and are less timely in filing after an economic downturn than issuers that file less economically informative financial statements. Issuers with strong political incentives to withhold negative information also disclose less after a negative change in per capita income than similarly affected issuers with weaker political incentives. Specifically, issuers in counties in which senior officials serve one-year terms ($ShortTerm_i$) are less likely to file a budget and are less timely in filing than issuers in counties in which senior officials serve longer terms. Issuers in counties in which incumbents tend to run for re-election ($IncumbentsRun_i$) are less likely to file a budget, though these issuers' financial statements are timelier than issuers in counties in which incumbent commissioners tend not to run for re-election. Overall, issuers are less likely to disclose negative economic information in the presence of electoral pressure.

Voter oversight is a particularly powerful governance mechanism to constrain these electoral incentives. Issuers in counties in which incumbents tend to lose ($IncumbentsLose_i$) are timelier in filing financial statements than issuers in counties in which incumbents tend to win. Issuers in counties characterized by a high level of political competition between parties ($PolComp_i$) file more financial statements and are timelier than issuers in counties with lower levels of political competition.

In contrast with the strength of voter oversight, I find limited evidence supporting the efficacy of structural governance in promoting disclosure following a local economic downturn. Consistent with expectations, issuers in counties that are organized by a council-manager form of government ($Council\_Mgr_i$) are timelier in filing financial statements than similarly-affected issuers organized by other forms of government. In addition, issuers in counties that allow voters to place recall initiatives on ballots ($Recall_i$) are more likely to file budgets than other issuers. However, these issuers are less likely to disclose. Moreover, issuers in counties that impose term limits on commissioners ($TermLimit_i$) are less likely to file budgets and are less timely than other issuers, suggesting term limits exacerbate rather than mitigate managerial myopia.

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[14] In unreported robustness tests, I ensure that the decline in disclosure following a local economic downturn is not driven by cost-cutting and layoffs. Specifically, I do not find variation in disclosure in the presence of high administrative costs following a downturn. Moreover, I find that disclosure rebounds two years after the downturn, suggesting a purposeful short-term suppression of information rather than an administrative cost-cutting measure that would likely have a persistent effect on disclosure.

Table 4
Disclosure of negative outcomes.

Regressor	Pred.	(1) Filing indicator	(2) Filing count	(3) Budget indicator	(4) Timeliness	(5) Filing indicator	(6) Filing count	(7) Budget indicator	(8) Timeliness
Panel A: Relationship between disclosure and a negative change in per capita income									
NegEcon	+/−	−0.02	−0.08**	−0.02***	0.01	0.06	0.07	−0.00	−0.04
		(0.02)	(0.04)	(0.01)	(0.03)	(0.07)	(0.17)	(0.05)	(0.13)
NegEcon*NewIssue	+					0.01	−0.05	0.03	−0.04
						(0.04)	(0.09)	(0.03)	(0.06)
NegEcon*General	−					−0.09**	−0.25***	−0.04	−0.08*
						(0.03)	(0.10)	(0.03)	(0.04)
NegEcon*ShortTerm	−					−0.04	−0.06	−0.08**	−0.18***
						(0.04)	(0.10)	(0.04)	(0.05)
NegEcon*IncumbentsRun	−					−0.03	−0.10	−0.08***	0.08*
						(0.03)	(0.08)	(0.03)	(0.04)
NegEcon*IncumbentsLose	+					0.01	−0.07	0.00	0.12***
						(0.03)	(0.08)	(0.02)	(0.04)
NegEcon*PolComp	+					−0.01	0.15*	−0.04	0.12***
						(0.04)	(0.09)	(0.03)	(0.04)
NegEcon*Controller	+					0.06	−0.06	−0.03	0.08
						(0.05)	(0.11)	(0.02)	(0.06)
NegEcon*Council_Mgr	+					0.01	0.15	0.02	0.12**
						(0.04)	(0.10)	(0.04)	(0.05)
NegEcon*TermLimit	+					0.07	−0.04	−0.10*	−0.13**
						(0.05)	(0.13)	(0.05)	(0.05)
NegEcon*Recall	+					−0.06*	−0.05	0.06**	0.04
						(0.03)	(0.10)	(0.03)	(0.05)
Ln(Income)	−	−0.26**	−0.28	−0.07	−0.07	−0.53	−0.49	0.08	−0.02
		(0.13)	(0.28)	(0.06)	(0.19)	(0.33)	(0.63)	(0.14)	(0.31)
Ln(Population)	+	−0.05	0.87*	0.31***	0.81***	−0.37	0.65	0.63*	0.57
		(0.18)	(0.48)	(0.10)	(0.26)	(0.42)	(0.94)	(0.33)	(0.52)
Credit rating	−	0.01*	−0.01	0.01***	−0.01	0.01	0.01	0.02***	−0.02*
		(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.03)	(0.01)	(0.01)
New issue	+	0.03***	0.07***	0.01	−0.02*	0.02	0.09*	0.03**	−0.04
		(0.01)	(0.03)	(0.00)	(0.01)	(0.02)	(0.05)	(0.01)	(0.03)
Mean of Dep. Var.		0.71	1.09	0.06	−5.21	0.77	1.15	0.08	−5.13
Issue-year Obs		12,527	12,527	12,527	8,851	2,600	2,600	2,600	2,005
Issues		1,972	1,972	1,972	1,803	415	415	415	395
R-squared (within)		0.03	0.02	0.01	0.04	0.07	0.05	0.06	0.08
R-squared (overall)		0.43	0.50	0.40	0.67	0.41	0.51	0.39	0.66
Panel B: Relationship between disclosure and an expenditure increase									
NegFiscal	+/−	−0.03**	−0.12***	−0.02***	0.01	−0.15	−0.61**	−0.04	−0.11
		(0.01)	(0.04)	(0.01)	(0.02)	(0.11)	(0.28)	(0.08)	(0.14)
NegFiscal*NewIssue	+					0.06	−0.09	0.05	0.03
						(0.06)	(0.10)	(0.04)	(0.06)
NegFiscal*Welfare	−					−0.18**	0.22	−0.11	1.15***
						(0.08)	(0.17)	(0.10)	(0.33)
NegFiscal*ShortTerm	-					0.04	0.16	0.05	−0.16**
						(0.06)	(0.14)	(0.04)	(0.07)
NegFiscal*IncumbentsRun	-					0.03	0.09	−0.02	0.14**
						(0.07)	(0.18)	(0.04)	(0.06)
NegFiscal*IncumbentsLose	+					−0.07	0.18	0.06*	0.07
						(0.05)	(0.13)	(0.03)	(0.05)
NegFiscal*PolComp	+					0.14***	0.35***	0.11**	0.18**
						(0.05)	(0.13)	(0.05)	(0.07)
NegFiscal*Controller	+					0.09*	0.14	−0.05**	0.02
						(0.04)	(0.10)	(0.02)	(0.06)
NegFiscal*Council_Mgr	+					−0.12	−0.05	0.09	0.12
						(0.07)	(0.16)	(0.06)	(0.09)
NegFiscal*TermLimit	+					0.00	0.03	−0.04	−0.10
						(0.07)	(0.21)	(0.07)	(0.08)
NegFiscal*Recall	+					0.01	−0.23	−0.06	−0.06
						(0.07)	(0.20)	(0.05)	(0.08)
Ln(Income)	-	−0.04	0.69	−0.19	−0.20	0.09	1.75	−0.33	0.10
		(0.24)	(0.55)	(0.12)	(0.34)	(0.51)	(1.07)	(0.28)	(0.46)
Ln(Population)	+	−0.13	0.39	0.20	1.56***	−0.65	1.50	0.09	2.43**
		(0.37)	(1.07)	(0.22)	(0.48)	(0.88)	(2.51)	(0.59)	(1.08)
Credit Rating	-	0.02**	0.02	0.01***	−0.00	0.04**	0.12*	0.00	−0.01
		(0.01)	(0.03)	(0.00)	(0.01)	(0.02)	(0.06)	(0.01)	(0.01)
New Issue	+	0.01	0.05	0.02*	0.01	0.06*	0.21***	0.07***	0.01

Table 4 (*continued*)

Regressor	Pred.	(1) Filing indicator	(2) Filing count	(3) Budget indicator	(4) Timeliness	(5) Filing indicator	(6) Filing count	(7) Budget indicator	(8) Timeliness
		(0.01)	(0.04)	(0.01)	(0.02)	(0.03)	(0.07)	(0.02)	(0.05)
Mean of Dep. Var.		0.76	1.14	0.09	−5.24	0.81	1.12	0.11	−5.15
Issue-Year Obs		4,382	4,382	4,382	3,345	995	995	995	802
Issues		772	772	772	733	177	177	177	172
R-squared (Within)		0.03	0.02	0.02	0.04	0.11	0.12	0.13	0.30
R-squared (Overall)		0.36	0.45	0.50	0.66	0.38	0.41	0.51	0.72

$Disclosure_{i,y} = \alpha_i + \beta_y + \gamma_1 Neg_{i,y-1} + \theta_g t + \kappa X_{i,y} + \varepsilon_{i,y}$.

Disclosure$_{i,y}$ is the quantity and quality of the post-issuance financial disclosures filed by the issuer of issue *i* in year *y* from 2004 to 2012, as follows: *Filing Indicator*$_{i,y}$ measures the existence of a financial statement; *Filing Count*$_{i,y}$ measures the annual frequency of disclosure; *Budget Indicator*$_{i,y}$ measures the existence of a separately-filed budget; and *Timeliness*$_{i,y}$ is the negative log of the number of days between the dates of the first report filed by the issuer of issue *i* in year *y* and period-end. Panel A estimates the relationship between disclosure and negative economic outcomes, measuring *NegEcon*$_{i,y-1}$ as an indicator equal to one if per capita income declines in year *y-1*. Panel B estimates the relationship between disclosure and negative fiscal outcomes, measuring *NegFiscal*$_{i,y-1}$ as an indicator equal to one if issuer operating expenditures increase in year *y-1*. All regressions include issue fixed effects (which absorb the coefficients on uninteracted issue characteristics), year fixed effects, a time trend, and group-specific time trends for each issue characteristic interacted with *Neg*$_{i,y-1}$. Columns 1 through 4 present results of the base specification. Columns 5 through 8 interact *Neg*$_{i,y-1}$ with issue characteristics that are defined in the Appendix. Control variables are also defined in the Appendix. The predicted sign of coefficients and the unconditional mean of dependent variables are provided. The *Adjusted R-squared* (*within*) describes the extent to which the regression explains variation in disclosure within issues. The *Adjusted R-squared* (*overall*) describes the extent to which cross-sectional variation in disclosure is explained. Robust standard errors clustered at the issue level are reported in parentheses.

  * Statistical significance at 10% level (two-tailed).
  ** Statistical significance at 5% level (two-tailed).
  *** Statistical significance at 1% level (two-tailed).

4.2.2. Increase in expenditures

Table 4 , Panel B documents similar disclosure patterns following a negative fiscal outcome as those following a negative economic outcome. Columns 1 through 4 of Table 4, Panel B demonstrate that risk stemming from increased expenditures is associated with less disclosure, on average. Relative to the 0.76 average *Filing Indicator*$_{i,y}$ of issuers for which expenditure data is available, the −0.03 coefficient on *NegFiscal*$_{i,y-1}$ in Column 1 implies issuers that increase spending are 4 percent less likely to file financial statements in the following year. These issuers also file 11 percent fewer financial statements and are 22 percent less likely to file a budget in the following year than issuers that do not increase spending.

I provide evidence in Columns 5 through 8 that issuers with strong political incentives to withhold negative information are less likely to disclose after an expenditure increase than similarly affected issuers with weaker political incentives. Specifically, issuers that increase spending on low-income housing (*Welfare*$_i$) are less likely to file financial statements than issuers that increase non-welfare spending.

However, conditional upon filing in the year succeeding a spending increase, the timeliness of disclosure has a mixed relationship with political incentives. Consistent with expectations, issuers in counties in which senior officials serve short terms (*ShortTerm*$_i$) are less timely in filing than issuers in counties in which senior officials serve longer terms. By contrast, issuers that increase spending on low-income housing (*Welfare*$_i$) and issuers in counties in which incumbent commissioners tend to run for re-election (*IncumbentsRun*$_i$) are more timely in filing than other issuers that increase spending.

Voter oversight is a powerful mechanism to constrain political incentives to withhold disclosure following a spending increase. Issuers in counties in which incumbents tend to lose (*IncumbentsLose*$_i$) are more likely to file a budget following a spending increase than issuers in counties in which incumbents tend to win. Issuers in counties characterized by a high level of political competition between parties (*PolComp*$_i$) are more likely to file financial statements, file more statements, are more likely to file a budget, and are timelier after a spending increase than issuers in counties with lower levels of political competition.

Whereas voter oversight is effective in constraining political incentives, structural governance has a limited relationship with disclosure following an expenditure increase. Issuers in counties in which the controller is independently elected (*Controller*$_i$) are more likely to file financial statements, but are less likely to file budgets following a spending increase than other issuers. None of the other governance mechanisms are related to disclosure in a statistically meaningful way.

The consistency of non-disclosure following negative economic outcomes and negative fiscal outcomes is notable. Taken together, these results lend support to the notion that electoral incentives promote the suppression of negative information and that voter oversight constrains the ability of politicians to suppress this information.

4.3. Disclosure after EMMA's inception as the sole disclosure repository

Table 5 documents cross-sectional variation in disclosure after EMMA reduced dissemination costs. Relative to the unconditional pre-EMMA propensity to disclose of 0.67, issuers with few alternate dissemination channels (*Non_General*$_i$) are 9 percent more likely to disclose than other issuers in the post-EMMA period. *Non_General*$_i$ issuers also file 28 percent

Table 5
Disclosure after EMMA's inception as the sole disclosure repository.

Regressor	Pred.	(1) Filing indicator	(2) Filing count	(3) Budget indicator	(4) Timeliness
Post_EMMA*Non-General	+	0.06**	0.27***	−0.03*	0.06**
		(0.03)	(0.07)	(0.01)	(0.03)
Post_EMMA*AfterEMMA	+	0.00	0.02	−0.00	−0.01
		(0.03)	(0.08)	(0.01)	(0.03)
Post_EMMA*Pre-Refunded	−	−0.07	−0.20*	−0.02	−0.06
		(0.05)	(0.11)	(0.03)	(0.05)
Ln(Income)	−	−0.18	−0.02	−0.06	−0.07
		(0.13)	(0.28)	(0.06)	(0.19)
Ln(Population)	+	−0.02	0.94*	0.29***	0.83***
		(0.18)	(0.48)	(0.10)	(0.25)
Credit rating	−	0.01	0.00	0.00***	−0.00
		(0.01)	(0.01)	(0.00)	(0.01)
New issue	+	0.02***	0.07***	0.01	−0.02
		(0.01)	(0.03)	(0.00)	(0.01)
Pre-EMMA Mean of Dep. Var.		0.67	0.98	0.04	−5.28
Issue-Year Obs		12,527	12,527	12,527	8,851
Issues		1,972	1,972	1,972	1,803
R-squared (within)		0.03	0.03	0.01	0.04
R-squared (overall)		0.43	0.50	0.40	0.67

$Disclosure_{i,y} = \alpha_i + \beta_y + \gamma_1 Post\_EMMA_y + \gamma_2 Post\_EMMA_y * Non\_General_i + \gamma_3 Post\_EMMA_y * AfterEMMA_i + \gamma_4 Post\_EMMA_y * Pre\_Refunded_i + \theta_m t + \kappa X_{i,y} + \varepsilon_{i,y}$.
$Disclosure_{i,y}$ is the quantity and quality of the post-issuance financial disclosures filed by the issuer of issue i in year y from 2004 to 2012, as follows: *Filing Indicator*$_{i,y}$ measures the existence of a financial statement; *Filing Count*$_{i,y}$ measures the annual frequency of disclosure; *Budget Indicator*$_{i,y}$ measures the existence of a separately filed budget; and *Timeliness*$_{i,y}$ is the negative log of the number of days between the dates of the first report filed by the issuer of issue i in year y and period-end. *Post_EMMA*$_y$ is an indicator equal to one after the continuing disclosure service of the MSRB's Electronic Municipal Market Access (EMMA) system became effective in 2009. All regressions include issue fixed effects (which absorb the coefficients on uninteracted issue characteristics, including *Non-General*, *AfterEMMA*, and *Pre-Refunded*), year fixed effects (which absorb the coefficient γ_1), a time trend, and a group-specific time trend for all issue characteristics interacted with *Post_EMMA*$_y$. These issue characteristics and all control variables are defined in the Appendix. The predicted sign of coefficients and the mean of dependent variables measured before EMMA's continuing disclosure service was introduced are provided. The *Adjusted R-squared* (*within*) describes the extent to which the regression explains variation in disclosure within issues. The *Adjusted R-squared* (*overall*) describes the extent to which cross-sectional variation in disclosure is explained. Robust standard errors clustered at the issue level are reported in parentheses.
  * Statistical significance at 10% level (two-tailed).
  ** Statistical significance at 5% level (two-tailed).
  *** Statistical significance at 1% level (two-tailed).

more financial statements and are 6 percent timelier than other issuers in EMMA. However, they are 75 percent less likely to provide budgets than *General*$_i$ issuers.

I do not find evidence supporting the efficacy of capital market disclosure incentives provided by post-EMMA bond issuance. However, consistent with expectations, issuers of pre-refunded bonds (*Pre_Refunded*$_i$) file 20 percent fewer financial statements in EMMA than issuers of bonds that are required to provide continuing disclosures. Taken together, these results are broadly consistent with the expectation that the benefit of the online repository accrued to issuers with high ex-ante dissemination costs.

5. Conclusion

Despite the size and economic importance of the municipal bond market, it remains lightly regulated and relatively opaque. However, in response to severely underfunded public pensions and several high-profile municipal defaults, the media and the SEC have re-focused attention on the disclosure practices of state and local governments. I use the tension between fiduciary incentives provided by creditors and political incentives provided by voters to explain some of the heterogeneity in observed disclosure practices across municipalities.

Overall, the evidence presented in this paper suggests that risk forces issuers to trade-off market-based disclosure incentives with reputational incentives to suppress negative information. The outcome of this trade-off depends on the nature of the risk. I show that exposure to risk is positively related to disclosure, to the extent reputational capital is not threatened by disclosing negative information. Thus, even in a market characterized by minimal regulation and relatively low borrowing costs, issuers respond to capital market incentives to use disclosure to reduce their cost of capital. However, the political incentive to suppress negative news is relatively powerful, particularly when incumbent county officials are exposed to electoral pressure and when voter oversight is weak.

While my analysis focuses on a specific setting, these incentives are likely to play a role in other lightly regulated markets as well. Importantly, the municipal setting helps to identify disclosure incentives that are subsumed by disclosure regulation in the heavily regulated United States equity market.

Acknowledgments

Appendix

Panel A: Definitions of disclosure variables

$Budget\ Indicator_{i,y}$	An indicator equal to one if the issuer of issue i files a separate budget in year y, and zero otherwise.
$Filing\ Count_{i,y}$	The number of financial statements filed by the issuer of issue i in year y.
$Filing\ Indicator_{i,y}$	An indicator equal to one if the issuer of issue i files at least one financial statement in year y, and zero otherwise.
$Reporting\ Lag_{i,y}$	The number of days between the dates of the first report filed by the issuer of issue i in year y and period-end, conditional upon filing a financial statement.
$Timeliness_{i,y}$	The negative log of the number of days between the dates of the first report filed by the issuer of issue i in year y and period-end. Formally, $Timeliness_{i,y} = Log(Reporting\ Lag_{i,y}) * -1$.

Panel B: Definitions of events

$Neg_{i,y-1}$	An indicator equal to one in any year characterized by negative economic or fiscal outcomes in year y-1.
$NegEcon_{i,y-1}$	An indicator equal to one in any year in which per capita income at the county level, as reported by the Bureau of Economic Analysis, declines in year y-1.
$NegFiscal_{i,y-1}$	An indicator equal to one in any year in which issuer operating expenses increase in year y-1.
$Post\text{-}Ambac_y$	An indicator equal to one after the 2010 bankruptcy of bond insurer, Ambac.
$Post\text{-}EMMA_y$	An indicator equal to one after 2009, when the continuing disclosure service of the MSRB's Electronic Municipal Market Access (EMMA) system became effective.

Panel C: Definitions of issue and issuer characteristics

$AfterAmbac_i$	An indicator equal to one if the issuer of issue i issues a bond after Ambac's bankruptcy.
$AfterEMMA_i$	An indicator equal to one if the issuer of issue i issues a bond after the continuing disclosure service of the MSRB's Electronic Municipal Market Access (EMMA) system became effective.
$Age_{i,y}$	Years between the issue date of issue i and year y, rounded.
$AmbacInsured_i$	Principal and interest payments for issue i are insured by Ambac.
$Coupon_i$	The stated annual interest rate at the time of issuance.
$Controller_i$	An indicator equal to one if the controller responsible for preparing and disseminating financial information is elected rather than appointed by the county commission.
$Council\text{-}Mgr_i$	An indicator equal to one if the county is organized by the council-manager form of government.
$Credit\ Rating_{i,y}$	The average credit rating for the longest-dated bond in issue i across rating agencies during year y, where Aaa=24, D=1, and NR=0.
$Debt\ Outstanding_i$	The aggregate amount of debt the issuer of issue i has outstanding as of December 31, 2011.
$Expenses_{i,y}$	The issuer of issue i's operating expenses in year y.
$Expense\ Change_{i,y-1}$	The percentage change in operating expenses from year y-2 to year y-1.
$General_i$	An indicator equal to one if the issuer of issue i is classified as a general purpose issuer.
$House\ Price\ Change_{i,y-1}$	The percentage change in CoreLogic's county-level house price index from year y-2 to year y-1.
$Income_{i,y}$	Average per capita income at the county level on an annual basis, as reported by the Bureau of Economic Analysis.
$Income\ Change_{i,y-1}$	The percentage change in county per capita income from year y-2 to year y-1.
$IncumbentsLose_i$	An indicator equal to one if less than 50 percent of incumbent commissioners successfully ran for re-election in the election nearest 2007.
$IncumbentsRun_i$	An indicator equal to one if 50 percent or more of the county commissioners were incumbents running for re-election in the election nearest 2007.
$Insured_i$	Principal and interest payments on issue i are insured by a municipal bond insurer. The primary insurers in the sample include: Assured Guaranty (FSA), MBIA, Ambac, XLCA, and FGIC.
$Issue\ Size_i$	The principal value of all the bonds in issue i.
$NegHsg_i$	An indicator equal to one if CoreLogic's county-level house price change at the county level was in the lowest quartile (below negative 6 percent) in 2010 or 2011.
$New\ Issue_{i,y}$	An indicator equal to one if the issuer of issue i issues new bonds during year y. Because underwriters are regulated, disclosure is compulsory in that year.
$Non\text{-}General_i$	An indicator equal to one if the issuer of issue i is not classified as a general purpose issuer.
$Population_{i,y}$	County population on an annual basis, as reported by the Bureau of Economic Analysis.
$PolComp_i$	An indicator equal to one if the county's Ranney index (Ranney, 1976) is in the most competitive quartile of the sample.
$Pre\text{-}Refunded_i$	An indicator equal to one if issue i is refinanced before the first call date (as of December 31, 2011).
$Ranney\ Index_i$	An index that ranges from 0.5 (no competition between major political parties) to 1.0 (perfect competition between major political parties), based on county voter registration in 2010.

Recall$_i$	An indicator equal to one if the county allows citizens petition for an elected official to be removed from office before the expiration of his/her term.
ShortTerm$_i$	An indicator variable equal to one if senior county officials are elected to one-year terms.
Term Length$_i$	The length of the term served by the senior county official.
TermLimit$_i$	An indicator equal to one if county commissioners are subject to legal term limits.
Time to Maturity$_{i,y}$	Years between year y and the maturity date of the longest-dated bond in issue i, rounded.
Welfare$_i$	An indicator equal to one if the issuer of issue i is either a multi-family housing issuer or a single-family housing issuer.

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