Government Reporting Timeliness and Municipal Credit Market Implications

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ABSTRACT: Municipal governments are often very slow in producing and disclosing financial statements, with the average time for filing compulsory statements taking over twice as long as the SEC-mandated time for publicly traded corporations. There are typically no governmental rules or explicit penalties connected with extended financial reporting. We propose this delay in reporting is likely to have negative capital market effects for the municipality and we investigate the credit market consequences of delayed reporting. Our empirical results are consistent with delayed reporting resulting in lower bond ratings for municipalities indicating a negative interpretation by bond rating analysts. Furthermore, we also find a higher yield for the government’s bonds consistent with bond market investors also viewing this delay as a negative signal with respect to the particular government entity. Our results add to the literature on government reporting as well as the literature regarding the determinants of government bond pricing.

Keywords: government financial reporting; reporting quality; credit ratings; cost of debt.
JEL Classifications: G12; G18; H11; H74; H83.
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INTRODUCTION

Publicly traded companies in the United States are required to file audited financial statements with the SEC following a prescribed timetable or experience federal penalties along with potential negative equity and debt capital market consequences. Individual municipal governments, such as cities and counties within the U.S., have no similar obligation to file their financial statements within a specific period of time with any centralized regulatory entity. Indeed, if any filing requirements exist at all, these are usually only at the state level for municipalities and typically possess very lenient time requirements. Consequently, there is

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characteristically little regulatory incentive for governments to complete audited financial statements in a timely manner. Private-sector companies subject to SEC rules must file financial statements within 60 to 90 days after their fiscal year-end (depending on size of the firm).¹ The Governmental Accounting Standards Board (GASB) indicates the average reporting time for large governmental entities is more than six months after their fiscal year-end, with smaller entities averaging an even longer delay of eight months (Mead 2011). Although the GASB considers timeliness to be an important characteristic of effective information, it lacks the authority to impose mandatory reporting requirements. Our research investigates whether the timeliness of government financial statement reporting has measurable consequences for a municipality’s cost of funding operations through debt capital. This matter is particularly important considering the $3.7 trillion municipal bond market (SIFMA 2015), which comprises over 44,000 state and local issuers (SEC 2012). Specifically, we examine the effects of financial reporting timeliness on a municipality’s assigned bond rating, as well as the effects on its ultimate bond yield upon issuance of its debt.

The lack of timeliness of governmental reporting has been identified as one of the most frequent concerns expressed by users of governmental financial statements (Mead 2011). Moreover, the SEC has stated in public testimony to the U.S. Senate subcommittee on Financial Services and General Government that purchasers of municipal securities should “have access to improved quality, quantity, and timeliness of information” (Schapiro 2009). Our purpose in this paper is to explore the timeliness issue and its effects on municipal borrowing. Although there is a lack of direct centralized oversight requiring timely governmental reporting, we posit that there is likely to exist real costs to the residents of cities and municipalities whose government bodies are lax in the timeliness of their financial reporting.

Our rationale for conducting this investigation is that municipal reporting timeliness is an issue in the governmental sector. Research conducted in the corporate arena affords beneficial insights in developing our expectations and analyses when examining municipal governments. For example, research indicates both debt market and equity market benefits for publicly traded companies that are more transparent in their financial statements and communications with various stakeholders. Specifically, research finds greater transparency is associated with higher firm value.² A second applicable literature stream relates to research investigating corporate earnings quality and indicates that higher quality provides positive capital market benefits such as lower cost of capital.³ A third and final thread of germane research explores the effects of corporate governance and suggests firms that possess stronger governance are generally recognized and rewarded in the capital markets with lower debt financing costs and higher firm value.⁴

While traditional equity market metrics related to the three areas of transparency, earnings quality, and corporate governance may not be directly transferable to municipal governments, we propose that investors are likely to utilize other available information correlated with these characteristics to help provide beneficial insight. We suggest government entities that make

¹ Commodity and Security Exchanges 17 C.F.R. §249.310 requires that Form 10-K be filed in 60 days for large accelerated filers, 75 days for accelerated filers, and 90 days for all other registrants.
² Representative investigations include Botosan and Plumlee (2002); Leone, Rock, and Willenborg (2007); Beyer, Cohen, Lys, and Walther (2010); Barth, Konchitchki, and Landsman (2013).
³ Illustrative studies include Affleck-Graves, Callahan, and Chipalkatti (2002); Francis, LaFond, Olsson, and Schipper (2004); Francis, LaFond, Olsson, and Schipper (2005); Graham, Li, and Qiu (2008).
⁴ For example, Anderson, Mansi, and Reeb (2004).
required financial statements public in a timelier fashion are likely to possess a more developed and refined accounting system, which can help increase a municipality’s transparency and should provide more reliable information to its stakeholders. This finer quality reporting system might also be interpreted as a signal of stronger municipal governance and/or a superior management team. Benefits related to these positive attributes can result in establishing a higher degree of confidence among stakeholders, which could be revealed through a higher bond rating and lower cost of debt.

Existing research is limited with respect to empirically addressing the timeliness of government financial reporting, possibly because of the extensive hand collection of data buried within government annual financial reports. Despite this constraint, some basic research exists indicating government timeliness in financial reporting has seriously deteriorated over time. Prior research has not attempted to monetize the cost that lagged reporting imposes upon governments despite the implied value timeliness provides for users of government financial reports (Mead 2011). We explore these costs by examining what influence the timeliness of government reporting has on determining a municipality’s bond rating and also the ultimate effects it has on a government’s cost of debt.

Our results indicate a significant negative association between the bond rating the government entity is assigned by bond rating analysts and the number of days it takes for a municipality to file its financial statements after the close of its fiscal year. Furthermore, we find a significant positive association between the number of days it takes to file its financial reports and a municipality’s bond yield. Additional analyses indicate the most severe adverse consequences related to both bond ratings and bond yields exist for those governments that fall in the most delayed reporting time quintile. Our results are consistent with the interpretation that reporting delays increase the cost of issuing municipal securities. Subsequently, a pattern of extended delays is likely to result in an increased tax burden for taxpayers of slow reporting municipalities compared to those with more streamlined and efficient reporting processes. Our research investigates this process and quantifies the negative results for slow reporting municipalities. We contribute most directly to the existing literature related to government financial reporting and also the literature regarding the determinants of municipal bond ratings and yields.

The remainder of this paper is organized as follows. The second section provides a brief literature review and our hypothesis development. The third section describes our methodology, and the fourth section describes our sample selection and descriptive statistics. The fifth section presents our empirical results, and the sixth section concludes.

**LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT**

GASB Concepts Statement No. 1, *Objectives of Financial Reporting* (GASB 1987) identifies timeliness as one of the six qualitative characteristics of financial information to be effectively communicated to users of financial information. GASB Concept Statement No. 1 further defines timeliness as financial information that is “issued soon enough after the reported events to affect decisions” (GASB 1987). However, despite the GASB’s concern for the timeliness of financial reporting, it does not possess the authority to impose mandatory reporting deadlines. The SEC issued Rule 15c2-12 in 1994 in an effort to require governments to disclose financial information annually. However, the ruling contains no time requirements regarding the public availability of the

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5 Research by Dwyer and Wilson (1989), McLelland and Giroux (2000), and Mead (2011) indicates deterioration from 100 days in the 1980s to more than 175 days in the new millennium.

6 “Municipal Securities Disclosure” 17 CFR 2.240.15c2-12 (2010).
financial information. In addition, the legislation does not include any enforcement provisions and, as a result, many governments do not comply (Hume 2002) and underwriters lack incentives to force compliance (Gellis 1996).

It appears that many municipalities exhibit a general lack of concern for the timeliness of government financial reporting and, consequently, average reporting time has been increasing.7 One interpretation regarding late reporting is that the GASB has imposed many additional disclosure requirements, which arguably contribute to a higher quality of reporting. On the other hand, based upon the precepts of GASB Concepts Statement No. 1, it is also rational to infer that seriously lagged financial reporting provides one visible indicator of low-quality government financial reporting when compared to peers. This increase in reporting time has occurred, paradoxically, at the same time in which academic research has provided some evidence that quality governmental accounting is valued by financial markets.

Bond Ratings and Yields

Bond Ratings

Bond ratings are critically important to investors because of the independent appraisal they provide to the marketplace regarding the default risk associated with a municipality’s debt offering. Ratings reflect the analysts’ detailed analysis and judgement concerning a government’s probability of default on future payments. The assigned credit rating contains important implications about the bond issue and its subsequent yield. The interest rate differential between credit rating groups can be considerable.8 In addition, regulations that are related to a particular security’s risk are often based upon the assigned credit rating. An assortment of governmental units, pension funds, and commercial organizations only authorize the purchase of financial securities that possess an “Investment Grade” rating.9 Another important area that is highly influenced by credit ratings relates to the level of capital that banks must maintain. Bank investments in higher rated securities require a lower level of capital on hand compared to lower rated securities under the Basel II banking agreement. These are just a few examples of how credit ratings are utilized in our financial markets. For a more detailed discussion see Crabtree and Maher (2009) and/or S&P (2016).

There also exists a rich stream of literature that describes the considerable financial effects related to credit rating upgrades and downgrades.10 This literature empirically analyzes and describes the extensive variety of information impounded in a security’s credit rating (e.g., see Crabtree and Maher 2009). The quality and volume of this evidence suggests that exploring the effects of government financial reporting timeliness on municipal credit ratings should provide beneficial insights.

7 Dwyer and Wilson (1989) report an average time to issue external reports of 100 days for their 1980s sample period. McLelland and Giroux (2000) indicate an average time of 125 days to issue external audit reports in the late 1990s, an increase of almost a month over the 1980s. More recently, Mead (2011) reports the time to issue financial statements has continued to increase, with an average of 175 days for large governments and 199 days for smaller governments.

8 For example, the average difference in actual interest costs between Baa and Ba categories can often exceed 100 basis points (S&P 2014b).

9 Investment Grade securities are defined as those rated Baa or higher by one of the major rating firms. A partial listing of organizations that determine requirements at least partially based upon credit ratings include the Federal Reserve Board, the Federal Home Loan Bank System, the Department of Labor, and the New York and Philadelphia Stock Exchanges. For a more detailed explanation of statutory requirements dependent upon credit ratings, see the S&P (2008) or Crabtree and Maher (2009).

10 For example, see Harford and Uysal (2014) or DeFond and Zhang (2014b).
regarding the determinants of government debt costs. Evidence regarding the timeliness of reporting should systematically be related to the ratings assigned to a municipality’s bonds.

There exists some fundamental research by Merritt Research Services, LLC (Ciccarone 2015) that finds municipalities with the highest bond ratings generally have shorter reporting times than municipal governments that have lower bond ratings. In addition to this basic univariate research, there are also several multivariate capital markets studies within the governmental research arena that have examined or employed bond ratings.11 Essentially, these studies have found bond rating analysts’ to be informed users of financial information who incorporate the influence of available financial data obtained by means of recent GAAP and GASB disclosures into the rating decision, which then ultimately affects the yield. Thus, bond ratings react in a manner that integrates additional disclosures and the perceived effects these disclosures have on municipal default risk.

**Bond Yields**

We also examine the effects of the timeliness of financial reporting on a municipality’s bond yield. While credit ratings are determined by a team of rating analysts, a municipality’s required bond yield is determined more directly by market investors and provides an additional view regarding the effects of municipal financial report timing. A significant body of research exists that explores various accounting and finance-related questions by investigating effects on bond yields for publicly traded corporations.12 We adopt an analogous approach and investigate the effects of government financial reporting timeliness on a municipality’s bond yield. This should help provide beneficial insights regarding market perceptions of this observable government characteristic.

A stream of literature within the government capital markets area has explored the determinants of municipal bond yields. Fundamentally, this research finds the quality and content of GAAP and non-GAAP municipal disclosures significantly influence a government’s net interest cost.13 Research in this domain also finds information asymmetry differences can affect bond issuance yields,14 and these yields can effectively be reduced by the use of bond insurance (Gore, Sachs, and Trzcinka 2004). These studies are principally examining the bond yield effects of the perceived quality of government reporting, and also the yield effects of the municipality’s disclosure policies and information environment. We adopt a similar approach in our research and explore the impact of timely government reporting on bond yields.

**Hypothesis Development**

Timeliness in the governmental sector can influence government bond pricing either through its initial impact on the government’s credit rating or subsequently through its impact on investors’ valuation upon issuance (see Mansi, Maxwell, and Miller 2004). In regard to the first event, bond rating agencies act as information intermediaries and have access to information during the rating process, which should help incorporate any information content regarding the timeliness of financial reporting into the credit rating. We propose that governments that report financial information in a timely manner are likely to have more accurate and efficient accounting systems in

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11 See Reck, Wilson, Gotlob, and Lawrence (2004) for a review of early literature, including Stover (1991). More recent literature includes Plummer, Hutchison, and Patton (2007), Baber and Gore (2008), and Callahan and Waymire (2015).
12 For example, see DeFond and Zhang (2014b); Mansi, Maxwell, and Miller (2011); Kecskés, Mansi, and Zhang (2012).
13 See Benson, Marks, and Raman (1991); Fairchild and Koch (1998); Baber and Gore (2008); Reck and Wilson (2014).
14 See Wilson and Stewart (1990); Vijayakumar (1995) Baber, Gore, Rich, and Zhang (2013).
place. In turn, these governments should be able to provide rating agencies with more accurate and timely information during the rating process. In addition, timelier financial reporting could be interpreted as a signal of more capable managers. Governments that are able to provide more timely and accurate information, ceteris paribus, should have a better credit rating, which leads to our first hypothesis (in alternative form) as follows:

**H1:** Governments that report more timely financial information have better credit ratings than less timely governments.

The second event where it might be possible to observe the influence of timely financial government reporting on pricing is investors' valuation upon bond issuance. Accounting information is commonly accepted as one of the key inputs for investor valuation, and the timing of the delivery of accounting information becomes important to the investor since timeliness is a necessary attribute of relevant information. In their review paper, DeFond and Zhang (2014a), discuss whether audits add value to financial information and indicate the evidence consistently finds audits reduce the cost of debt capital. For example, Mansi et al. (2004) establish that audits provide economic value by reducing the cost of debt partially due to the insurance role and partially due to the information role that they provide. Pittman and Fortin (2004) find newly public firms reduce their cost of capital by retaining a Big 6 auditor, which they suggest is because the audit firm reduces information asymmetry. Consistent with this concept, Minnis (2011) finds private firms reduce their cost of capital by obtaining an audit of their financial statements, which reduces information asymmetry. Similarly, within the governmental sector, research reveals that information asymmetry affects the bond yield for municipalities. Baber and Gore (2008) find that within states that impose GAAP disclosure requirements, municipalities realize lower required bond yields following the effective date of the regulation. Their results imply financial reporting regulation reduces contracting costs between borrowers and lenders by decreasing information asymmetry. In a follow up study, Baber et al. (2013) look at governments with restatement disclosures and find mean municipal debt yields are greater after the announcement. This is consistent with higher debt yields resulting from a higher information asymmetry environment. Overall, the evidence supports the concept that, in general, audited information reduces information asymmetry, which reduces required borrowing yields. Our research is directly related to this stream of research because we investigate the bond yield effects of delayed government reporting. Timeliness of financial reporting is an essential component that can affect a municipality's information asymmetry environment.

Mead (2011) reports that the ability for audited government financial information to decrease information asymmetry is greatly reduced as the amount of time to report increases. Mead (2011) surveys users of government financial reports and discovers 89 percent of respondents find the information useful if it is received within 45 days, but only 9 percent of respondents find the information useful if it is delayed for six months or more. Research establishes that investors value higher-quality government financial reports that help reduce information asymmetry (e.g., Baber and Gore 2008; Baber et al. 2013). One of the important attributes of quality is timeliness, so timelier reports should be highly valued by users of those reports. This leads to our second hypothesis (in alternative form) as follows:

**H2:** Governments that report more timely financial information have a lower cost of capital than less timely governments.

Our research should help inform the discussion of timely government financial reporting by exploring the effects of delayed reporting and quantifying the consequences.
RESEARCH DESIGN

Our first hypothesis predicts timelier government financial reporting will provide positive benefits with respect to a government’s bond rating. We proxy timely government financial reporting by calculating the number of days from the fiscal year-end it takes a government to issue financial statements. To test H1, we employ a basic municipal bond model developed by Baber and Gore (2008) and augment it with additional variables germane to our study. We estimate the following regression model:

\[
\text{Rating} = \beta_0 + \beta_1 \text{DaysToIssue} + \beta_2 \text{GFOA} + \beta_3 \text{Big4} + \beta_4 \text{Restate} + \beta_5 \text{NonGAAP} + \beta_6 \ln(\text{Yrs}) \\
+ \beta_7 \ln(\text{Population}) + \beta_8 \text{City} + \beta_9 \text{County} + \beta_{10} \text{District} + \beta_{11} \text{Treasury} + \varepsilon
\]

Our dependent variable, Rating, represents the bond rating for a particular government bond issue. Following Mansi et al. (2004), we convert each issue’s bond rating into a single numeric variable beginning with 1 for the riskiest bond rating and increasing by 1 for each higher rating category up to the highest rating (AAA). This permits the sensible interpretation that a higher rated bond is represented by a higher number. The primary variable of interest in the regression for our test is DaysToIssue (\(\beta_1\)), which represents the number of days from the government’s fiscal year-end to the date of the audit report on the financial statements.\(^{15}\) We predict \(\beta_1\) will be negative, indicating an expected inverse relationship between the number of days to issue financial reports and the government’s credit rating. Thus, we expect a shorter time period to issue financial statements to the public should be associated with a higher bond rating.

The remaining control variables are selected based on Baber and Gore (2008) and Baber et al. (2013).\(^{16}\) GFOA is an indicator variable equal to 1 if the issuing government received the Government Finance Officers Association (GFOA) certificate of achievement for excellence in financial reporting, and 0 otherwise. The GFOA awards the certificate to governments that satisfy financial reporting standards set by the GFOA, which include both GAAP compliance and additional voluntary disclosures. GFOA should be positively associated with Rating. Big4 is an indicator variable set to 1 if the government is audited by one of the Big 4 accounting firms, and 0 otherwise. A Big 4 audit has been established in the literature to indicate higher quality, so we expect a positive relation with Rating. Baber et al. (2013) show that governments that restate financial statements have higher interest costs than governments that do not restate, so we expect a negative association with Rating. To control for this we use Restate as an indicator variable equal to 1 if the government had a restatement, and 0 otherwise. NonGAAP is an indicator variable equal to 1 if the issuing government does not follow GAAP standards as indicated by the audit report, and 0 otherwise. NonGAAP should be negatively associated with Rating.

We control for the size of the issuing government by including the natural log of the population \(\ln(\text{Population})\) of the issuing government, which should be positively associated with Rating. We also include indicator variables for the type of government (e.g., city, county), as we expect bond

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\(^{15}\) The date of the audit report may not be the date the financial report is publicly available to users; however, it is the earliest date the financial report could be made available and should be viewed as the minimum date available (see Mead 2011).

\(^{16}\) We remove the Baber et al. (2013) issue-specific control variables from our model for our bond rating analyses following Jiang (2008), but utilize them in our bond yield analyses.
ratings could vary based on the issuing government type, but we do not have an a priori expectation for each. Finally, we control for prevailing interest rates by including Treasury, which is the yield for a treasury security of similar maturity length issued on the same day as the municipal bond.

Our second hypothesis is developed based on the premise that timelier government financial information should lower a government’s cost of debt capital. We proxy a government’s cost of debt capital by using the original issuance yield required for their bonds. Similar to our first hypothesis, we measure timely government financial information by calculating the number of days it takes from the fiscal year-end for a government to issue its year-end financial statements. To test H2 we estimate the following regression model based upon the work of Baber and Gore (2008) and Baber et al. (2013), which is very similar to Equation (1):

\[
Yield = \beta_0 + \beta_1 DaysToIssue + \beta_2 GFOA + \beta_3 Big4 + \beta_4 Restate + \beta_5 NonGAAP + \beta_6 Insure \\
+ \beta_7 Call + \beta_8 BankQual + \beta_9 Bid + \beta_{10} Ln(Issue) + \beta_{11} YrsToMaturity \\
+ \beta_{12} Ln(Population) + \beta_{13} City + \beta_{14} County + \beta_{15} District + \beta_{16} Treasury + \beta_{17} Rating \\
+ \varepsilon
\]

(2)

Our dependent variable, Yield, is the original issue yield representing the effective interest cost of obtaining debt financing for the issuing government. Many of the control variables are as previously defined for Equation (1), with the following additional control variables. We include several indicator variables for issue-specific qualitative features. Insure is an indicator variable equal to 1 if the bond issue is insured, and 0 otherwise. We expect Insure to have a positive association with Yield. Call is an indicator variable equal to 1 if the bond issue contains a call provision, and is 0 otherwise. Call should be positively associated with Yield. BankQual is an indicator variable equal to 1 if the issue is bank qualified, and is 0 otherwise. Bank qualified provides the ability of bank investors to realize the tax-exempt benefit of municipal bonds, so this should have a negative association with Yield. Bid is an indicator variable set to 1 if the issue was competitively bid, and is 0 otherwise. Bid should be negatively associated with Yield. We also control for the size and length of the issue by including Ln(Issue), which is the natural log of the face value of the bond and Ln(Yrs), which is the natural log of the years to maturity from the bond dated date. In general, larger more secure municipalities are able to successfully issue larger bonds so we expect Ln(Issue) to be negatively associated with Yield. Longer-term bonds inherently possess higher default risk, so Ln(Yrs) should be positively associated with Yield.

We also add an additional variable, Rating, to the model as recommended in the literature (e.g., Mansi et al. 2004; Mansi et al. 2011; Kecskés et al. 2013). Rating is estimated as the residual from Equation (1), which incorporates the effects of the bond rating information into Equation (2) while being orthogonal to the independent variables included in Equation (1). This is advantageous because many of the factors affecting the original issuance yield are already incorporated into the municipality’s bond rating. Utilizing Rating provides a well-established econometric method of incorporating the incremental influence of the rating on the yield and still allows us to measure the full effect that our primary variable of interest, DaysToIssue, has on Yield. We predict \(\beta_1\) (DaysToIssue) should be positive, indicating that an increase in the number of days to issue financial reports should be associated with a higher cost of capital.
SAMPLE SELECTION AND DESCRIPTIVE STATISTICS

Our sample is developed by first gathering all original municipal bond issuances from January 1, 2013 through October 14, 2014 from the Bloomberg municipal database including states, counties, cities, and district-type governments. We limit our query to general obligation debt because general obligation bonds are based on the underlying credit worthiness of the issuing municipality and not tied to one specific enterprise (e.g., bridge or highway). Bloomberg includes data for each unique CUSIP including bond insurance, call options, whether the issue is bank qualified, sale method (competitively bid versus negotiated), face value, maturity date, and government type. Yields were obtained from the Electronic Municipal Market Access (EMMA) database maintained by the Municipal Securities Rulemaking Board (MSRB). Unique CUSIPs obtained from Bloomberg were used to query EMMA online for original bond issuance yields.

Our process identified over 6,000 municipalities and more than 100,000 individual bond issues during our time period. Because it is not reasonably practical to hand collect data for such a large sample, we employ a random selection process to identify 125 bond issuances for each of the four entity types (state, county, city, and district) resulting in 500 distinct municipal government entities. We then hand collect the audited annual financial report that is available based on the audit report date and the bond issuance date for each issuance selected. Audited financial statements in PDF form were obtained from either documentation submitted to EMMA or from government websites as necessary. We obtained information on whether the financial statements are prepared according to GAAP and whether the auditor was a Big 4 auditor while reviewing audit reports. We also determined whether the government had restated any prior period financial statements by searching the PDF file for the terms “Restatement” and “Prior period adjustment” (not including any adjustments that were a result of adopting new GASB statements). Population data were obtained from the U.S. Census Bureau and treasury yields were obtained from the U.S. Department of the Treasury. We follow Mead (2011) and calculate DaysToIssue as the difference between the entity’s fiscal year-end and the date of the audit report in the annual financial report. We then winsorize DaysToIssue at the 1st and 99th percentiles to help ensure our results are not unduly influenced by outliers. Each government bond issue can be comprised of multiple serial bonds containing different maturity dates and different CUSIPs. This process results in 7,031 unique CUSIPs of serial bond issues from 373 unique governments. Sample selection details are presented in Table 1.

Descriptive statistics are provided in Table 2 where it can be observed that the overall mean time for governments to issue financial statements in our sample is 178 days after fiscal year-end, which is similar to Mead (2011). Also, the average days to issue for each government type is 173 days (cities), 200 days (counties), 135 days (districts), and 197 days (states), respectively, which is also comparable to Mead’s (2011) findings. The GFOA certificate of achievement for financial reporting was achieved by 47 percent of the governments within our sample. State governments received the GFOA certificate most often (82 percent), while district-type governments received it the least (6 percent).

17 Our search also included variations of our search terms by using wildcard characters to allow for variations of the terms “restatement” and “prior period adjustment.”
18 Population estimates can be found on the U.S. Census Bureau’s website at: http://www.census.gov/popest/data/index.html
19 Historical treasury rates can be found on the U.S. Department of the Treasury’s website at: http://www.treasury.gov/resource-center/data-chart-center/interest-rates/Pages/TextView.aspx?data=yieldAll
20 Primary inferences remain unchanged if we run our analyses without winsorizing the data.

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Table 3 shows the frequency of bond ratings within our sample, which range from BBB- to AAA or are unrated. Bloomberg provides ratings from Standard & Poor’s Financial Services LLP (S&P) and Moody’s Investors Service. We utilize ratings from S&P when provided, and Moody’s if S&P is not available. About 6 percent of our sample is unrated, while a majority of our sample is

### TABLE 1
Sample Selection

| Description                                                                 | CUSIPs  | Gov’ts. |
|----------------------------------------------------------------------------|---------|---------|
| Bonds issued 1/1/2013–10/15/2014                                           | 199,163 | 10,654  |
| Less: No Yield on EMMA                                                      | (46,214)| (2,052) |
| Less: Revenue Bonds                                                        | (50,525)| (2,529) |
| General Obligation Bonds Available for Sampling                             | 102,424 | 6,073   |
| Random Selection                                                           |         |         |
| States                                                                     | 2,173   | 34      |
| Counties                                                                   | 1,560   | 97      |
| Cities                                                                     | 1,670   | 119     |
| Districts                                                                  | 1,628   | 123     |
| Final Sample                                                               | 7,031   | 373     |

Table 2
Descriptive Statistics

Panel A: Total Sample

| Variable           | Mean  | Std. Dev. | Q1   | Median | Q3   |
|--------------------|-------|-----------|------|--------|------|
| Yield              | 2.30  | 1.14      | 1.42 | 2.39   | 3.13 |
| DaysToIssue        | 178.08| 62.47     | 143.00| 172.00 | 207.00|
| GFOA               | 0.47  | 0.50      | 0.00 | 0.00   | 1.00 |
| Big4               | 0.06  | 0.23      | 0.00 | 0.00   | 0.00 |
| Restate            | 0.38  | 0.49      | 0.00 | 0.00   | 1.00 |
| NonGAAP            | 0.13  | 0.33      | 0.00 | 0.00   | 0.00 |
| Insure             | 0.10  | 0.30      | 0.00 | 0.00   | 0.00 |
| Call               | 0.45  | 0.50      | 0.00 | 0.00   | 1.00 |
| BankQual           | 0.35  | 0.48      | 0.00 | 0.00   | 1.00 |
| Bid                | 0.56  | 0.50      | 0.00 | 1.00   | 1.00 |
| Ln(Issue)          | 13.92 | 1.83      | 12.60| 13.55  | 15.21|
| Ln(Yrs)            | 1.99  | 0.77      | 1.61 | 2.17   | 2.53 |
| Ln(Population)     | 12.59 | 2.63      | 10.57| 12.36  | 15.10|
| City               | 0.24  | 0.43      | 0.00 | 0.00   | 0.00 |
| County             | 0.22  | 0.42      | 0.00 | 0.00   | 0.00 |
| District           | 0.23  | 0.42      | 0.00 | 0.00   | 0.00 |
| State              | 0.31  | 0.46      | 0.00 | 0.00   | 1.00 |
| Treasury           | 1.96  | 0.89      | 1.49 | 2.18   | 2.63 |
| Rating             | 21.05 | 4.92      | 21.00| 22.00  | 23.00|

n 7,031

(continued on next page)
### TABLE 2 (continued)

**Panel B: Sample Means by Entity Type**

| Variable     | City Mean | County Mean | District Mean | State Mean |
|--------------|-----------|-------------|---------------|------------|
| **Yield**    | 2.28      | 2.19        | 2.42          | 2.30       |
| **DaysToIssue** | 173.56    | 200.42      | 135.35        | 197.53     |
| **GFOA**     | 0.41      | 0.47        | 0.06          | 0.82       |
| **Big4**     | 0.01      | 0.05        | 0.00          | 0.14       |
| **Restate**  | 0.16      | 0.24        | 0.14          | 0.83       |
| **NonGAAP**  | 0.15      | 0.20        | 0.19          | 0.02       |
| **Insure**   | 0.10      | 0.15        | 0.19          | 0.00       |
| **Call**     | 0.46      | 0.45        | 0.51          | 0.39       |
| **BankQual** | 0.53      | 0.40        | 0.57          | 0.00       |
| **Bid**      | 0.66      | 0.74        | 0.36          | 0.51       |
| **Ln(Issue)**| 13.02     | 13.35       | 13.01         | 15.71      |
| **Ln(Yrs)**  | 1.97      | 1.94        | 2.01          | 2.01       |
| **Ln(Population)** | 10.35   | 11.76       | 11.49         | 15.72      |
| **City**     | 1         | 0           | 0             | 0          |
| **County**   | 0         | 1           | 0             | 0          |
| **District** | 0         | 0           | 1             | 0          |
| **State**    | 0         | 0           | 0             | 1          |
| **Treasury** | 1.96      | 1.90        | 1.97          | 1.99       |
| **Rating**   | 20.75     | 20.77       | 19.95         | 22.31      |
| **n**        | 1,670     | 1,560       | 1,628         | 2,173      |

**Variable Definitions:**

- **Yield** = the original issue yield;
- **DaysToIssue** = the number of days from the government’s fiscal year-end to the date of the audit report of the financial statements;
- **GFOA** = an indicator equal to 1 if the issuing government received the Certificate of Achievement for Excellence in Financial Reporting from the GFOA;
- **Big4** = an indicator equal to 1 if the government was audited by a Big 4 auditor;
- **Restate** = an indicator equal to 1 if the government’s financial statements contained a restatement not including a change in accounting principle;
- **NonGAAP** = an indicator variable equal to 1 if the government’s financial statements were not prepared according to U.S. GAAP;
- **Insure** = an indicator equal to 1 if the bond issue is insured;
- **Call** = an indicator equal to 1 if the bond issue contains a call provision;
- **BankQual** = an indicator equal to 1 if the bond issue is bank qualified;
- **Bid** = an indicator equal to 1 if the bond issue was competitively bid upon issuance;
- **Ln(Issue)** = the natural log of the face value of the bond;
- **Ln(Yrs)** = the natural log of the years to maturity from the bond dated date;
- **Ln(Population)** = the natural log of the population of the issuing government;
- **City** = an indicator equal to 1 if the issuing government is a city or town;
- **County** = an indicator equal to 1 if the issuing government is a county;
- **District** = an indicator equal to 1 if the issuing government is a district;
- **State** = an indicator equal to 1 if the issuing government is a state;
- **Treasury** = the yield for a treasury security of similar maturity issued on the same day as the dated date of the bond issue; and
- **Rating** = each issue’s bond rating with the riskiest bond rating being equal to 1 and increasing by 1 for each higher bond rating, with AAA being the highest value.
### TABLE 3
Bond Rating Frequency

| Entity Type | Not Rated | BBB− | BBB+ | A− | A | A+ | AA− | AA | AA+ | AAA | Total |
|-------------|-----------|------|------|----|---|----|-----|----|-----|-----|-------|
| **City**    | 109       | 15   | 19   | 17 | 7 | 100| 247 | 515| 460 | 181 | 1,670 |
| Frequency   |           |      |      |    |   |    |     |    |     |     |       |
| Percent     | 1.6%      | 0.2% | 0.3% | 0.2% | 0.1% | 1.4% | 3.5% | 7.3% | 6.5% | 2.6% | 23.8% |
| Row %       | 6.5%      | 0.9% | 1.1% | 1.0% | 0.4% | 6.0% | 14.8% | 30.8% | 27.5% | 10.8% |       |
| Col. %      | 26.7%     | 75.0%| 100.0%|18.3% |3.2% |37.5%|32.9% |21.1% |29.2% |14.7% |       |
| **County**  | 120       | 5    | 0    | 0  | 17| 66 | 176 | 671| 134 |371 | 1,560 |
| Frequency   |           |      |      |    |   |    |     |    |    |    |       |
| Percent     | 1.7%      | 0.1% | 0.0% | 0.0% | 0.2% | 0.9% | 2.5% | 9.5% | 1.9% | 5.3% | 22.2% |
| Row %       | 7.7%      | 0.3% | 0.0% | 0.0% | 1.1% | 4.2% | 11.3% | 43.0% | 8.6% | 23.8% |       |
| Col. %      | 29.4%     | 25.0%| 0.0% | 0.0% | 7.7% |24.7% |23.4% |27.5% |8.5%  |30.1% |       |
| **District**| 179       | 0    | 0    | 0  | 11|101 |271 |551 |276 |239 |1,628 |
| Frequency   |           |      |      |    |   |    |     |    |    |    |       |
| Percent     | 2.5%      | 0.0% | 0.0% | 0.0% | 0.2% | 1.4% | 3.9% | 7.8% | 3.9% | 3.4% | 23.2% |
| Row %       | 11.0%     | 0.0% | 0.0% | 0.0% | 0.7% | 6.2% | 16.6% | 33.8% | 17.0% |14.7% |       |
| Col. %      | 43.9%     | 0.0% | 0.0% | 0.0% | 5.0% |37.8% |36.1% |22.5% |17.5% |19.4% |       |
| **State**   | 0         | 0    | 0    | 76 |186| 0  | 57  |707 |706 |441 |2,173 |
| Frequency   |           |      |      |    |    |    |     |    |    |    |       |
| Percent     | 0.0%      | 0.0% | 0.0% | 1.1% | 2.6% | 0.0% | 0.8% |10.1% |10.0% | 6.3% | 30.9% |
| Row %       | 0.0%      | 0.0% | 0.0% | 3.5% | 8.6% | 0.0% | 2.6% |32.5% |32.5% |20.3% |       |
| Col. %      | 0.0%      | 0.0% | 0.0% |81.7% |84.2%| 0.0% | 7.6% |28.9% |44.8% |35.8% |       |
| **Total**   | 408       | 20   | 19   | 93 |221|267 |751 |2,444|1,576|1,232|7,031 |
| Frequency   |           |      |      |    |   |    |     |    |    |    |       |
| Percent     | 5.8%      | 0.3% | 0.3% | 1.3% | 3.1% | 3.8% |10.7% |34.8% |22.4% |17.5% |100.0% |
rated AA (34.8 percent) or AA+ (22.4 percent), respectively. Table 4 shows the bivariate correlations between our variables. The majority of our variables are significantly correlated with Rating as expected, since bond rating agencies should incorporate much of this information during the rating process. Importantly, DaysToIssue is significantly negatively correlated with Rating, which lends some preliminary evidence in support of H1. In addition, many of our variables are significantly correlated with Yield, which is consistent with prior literature on the determinants of municipal bond yields. Notably, DaysToIssue is significantly positively correlated with Yield, lending some preliminary evidence in support of H2. It can be observed that many of the control variables display significant correlations between each other. To help ensure multicollinearity is not a significant problem in our models, we conduct additional analyses (non-tabulated) that include an examination of the variance inflation factors (VIFs) for our models described by Equations (1) and (2). Our analyses indicate multicollinearity should not be a problem in our models with respect to our inferences.21

RESULTS

Our first hypothesis explores whether timeliness in government financial reporting has an effect on the bond rating assigned by analysts to the municipality’s debt issue. Results from Equation (1) are shown in Table 5 where it can be observed that the coefficient on DaysToIssue is negative and significant with a value of $-0.0161$ (p-value = 0.0046). This negative relationship supports H1 and is consistent with the interpretation that delayed issuance of municipal financial statements is clearly associated with lower bond ratings. The number of days to issue financial statements might be viewed as a proxy for the overall quality of the municipality’s management or possibly as an indication of the municipality’s ability to provide more detailed, accurate, and timely information to the rating agency during the rating process. While we cannot definitively indicate the reasoning of the analysts, it is clear that an extended increase in the number of days to issue a municipality’s financial statements is negatively related to that government’s bond rating.

The majority of the control variables in our model have the expected sign and most display significance, consistent with prior literature. Because our data include serial bonds from the same municipality, individual CUSIPs within each issue may not be independent. Therefore, we estimate Equation (1) and cluster our standard errors by bond issue.

Our second hypothesis examines whether there is any significant relationship between government reporting timeliness and bond yields. As described previously in the “Research Design” section, we follow a two-step process established in prior literature (see Mansi et al. 2004; Mansi et al. 2011; Kecskés et al. 2013) and include the residuals from our bond rating model (Equation (1)) as an independent variable representing the effect of the bond rating orthogonal to the other independent variables. Once again, we estimate Equation (2) and cluster our standard errors by bond issue. The results from Equation (2) are shown in Table 6 and indicate the control variables are consistent with prior research and in the expected direction considering their relationship to bond yields. Most germane to our test of H2, DaysToIssue is positive and significant consistent with the interpretation that an increase in the number of days to issue financial

21 Wooldridge (2012) indicates VIFs above 10 signify when multicollinearity might be a problem. Our primary variable of interest DaysToIssue has a VIF of 2.1 or less in each model. None of the other control variables possess VIF estimates that approach 10. In summary, we do not believe multicollinearity to be a significant issue for our models.
### TABLE 4
Correlations

**Panel A: Correlation Variables Yield to BankQual**

|   | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. |
|---|----|----|----|----|----|----|----|----|----|
| 1. Yield          | 0.0262** |               |    |    |    |    |    |    |    |
| 2. DaysToIssue    |    | 0.0464*** |    |    |    |    |    |    |    |
| 3. GFOA           | -0.0015 |               | 0.207*** |    |    |    |    |    |    |
| 4. Big4           | -0.0261** | -0.0223* |               | 0.0166 |    |    |    |    |    |
| 5. Restate        | 0.0205* | 0.243*** | 0.341*** |               |    |    |    |    |    |
| 6. NonGAAP        | -0.0307** | -0.0328*** | -0.359*** | -0.0953*** | -0.178*** | 0.015 |    |    |    |
| 7. Insure         | 0.0848*** | -0.0206* | -0.189*** | -0.0402*** | -0.145*** | 0.029** |    |    |    |
| 8. Call           | 0.695*** | -0.0232* | -0.0397*** | -0.0310*** | -0.0323*** | 0.0249** | 0.0441*** |    |    |
| 9. BankQual       | -0.0561*** | -0.143*** | -0.442*** | -0.182*** | -0.318*** | 0.234*** | 0.190*** | 0.0931*** |    |
| 10. Bid           | -0.0374*** | 0.0708*** | 0.0541*** | -0.0605*** | 0.00809 | -0.0490*** | -0.0293** | 0.0215* | 0.0143 |
| 11. Ln(Issue)     | 0.115*** | 0.154*** | 0.458*** | 0.204*** | 0.427*** | -0.253*** | -0.187*** | 0.0444*** | -0.582*** |
| 12. Ln(Yrs)       | 0.876*** | -0.0168 | 0.0360*** | 0.003 | 0.0129 | -0.0314*** | 0.0134 | 0.683*** | -0.0116 |
| 13. Ln(Population) | 0.0410*** | 0.153*** | 0.508*** | 0.195*** | 0.537*** | -0.284*** | -0.146*** | -0.0693*** | -0.613*** |
| 14. City          | -0.0085 | -0.0404*** | -0.0651*** | -0.105*** | -0.254*** | 0.0325*** | -0.0038 | 0.0121 | 0.212*** |
| 15. County        | -0.0506** | 0.191*** | 0.0036 | -0.0131 | -0.151*** | 0.110*** | 0.0787*** | 0.00136 | 0.0628*** |
| 16. District      | 0.0593*** | -0.376*** | -0.450*** | -0.137*** | -0.273*** | 0.0988*** | 0.165*** | 0.0663*** | 0.260*** |
| 17. State         | -0.0008 | 0.208*** | 0.468*** | 0.233*** | 0.618*** | -0.219*** | -0.218*** | -0.0729*** | -0.489*** |
| 18. Treasury      | 0.891*** | -0.0097 | 0.0376*** | -0.0105 | 0.0173 | -0.0317*** | 0.0256** | 0.664*** | -0.0189 |
| 19. Rating        | -0.0626** | -0.153*** | 0.264*** | 0.0752*** | 0.0437*** | -0.255*** | 0.0582*** | -0.0824*** | -0.332*** |

**Panel B: Correlation Variables Bid to Rating**

|   | 10. | 11. | 12. | 13. | 14. | 15. | 16. | 17. | 18. |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 11. Ln(Issue) | -0.0327*** | | | | | | | |
| 12. Ln(Yrs)   | 0.0183 | 0.164*** | | | | | | |
| 13. Ln(Population) | -0.0742*** | 0.678*** | 0.0246** | | | | | |
| 14. City      | 0.111*** | -0.276*** | -0.0096 | -0.474*** | | | | | |
| 15. County    | 0.191*** | -0.166*** | -0.0309*** | -0.167*** | -0.298*** | | | | |
| 16. District  | -0.226*** | -0.272*** | 0.0189 | -0.230*** | -0.306*** | -0.293*** | | | |
| 17. State     | -0.0671*** | 0.652*** | 0.0194 | 0.797*** | -0.373*** | -0.357*** | -0.367*** | | |
| 18. Treasury  | 0.0252** | 0.161*** | 0.922*** | 0.0238** | 0.00074 | -0.0358*** | 0.011 | 0.0215* | |
| 19. Rating    | 0.126*** | 0.287*** | 0.0111 | 0.273*** | -0.0346*** | -0.0304*** | -0.122*** | 0.171*** | 0.0268** |

(continued on next page)
TABLE 4 (continued)

*, **, *** p < 0.10, p < 0.05, and p < 0.01, respectively.

Variable Definitions:
Yield = the original issue yield;
DaysToIssue = the number of days from the government's fiscal year-end to the date of the audit report of the financial statements;
GFOA = an indicator equal to 1 if the issuing government received the Certificate of Achievement for Excellence in Financial Reporting from the GFOA;
Big4 = an indicator equal to 1 if the government was audited by a Big 4 auditor;
Restate = an indicator equal to 1 if the government's financial statements contained a restatement not including a change in accounting principle;
NonGAAP = an indicator variable equal to 1 if the government's financial statements were not prepared according to U.S. GAAP;
Insure = an indicator equal to 1 if the bond issue is insured;
Call = an indicator equal to 1 if the bond issue contains a call provision;
BankQual = an indicator equal to 1 if the bond issue is bank qualified;
Bid = an indicator equal to 1 if the bond issue was competitively bid upon issuance;
Ln(Issue) = the natural log of the face value of the bond;
Ln(Yrs) = the natural log of the years to maturity from the bond dated date;
Ln(Population) = the natural log of the population of the issuing government;
City = an indicator equal to 1 if the issuing government is a city or town;
County = an indicator equal to 1 if the issuing government is a county;
District = an indicator equal to 1 if the issuing government is a district;
State = an indicator equal to 1 if the issuing government is a state;
Treasury = the yield for a treasury security of similar maturity issued on the same day as the dated date of the bond issue; and
Rating = each issue's bond rating with the riskiest bond rating being equal to 1 and increasing by 1 for each higher bond rating, with AAA being the highest value.
### TABLE 5
Regression Analysis for Bond Ratings

| Independent Variables | Prediction | Estimate   | p-value   |
|-----------------------|------------|------------|-----------|
| DaysToIssue           | –          | -0.01610***| (0.0046)  |
| GFOA                  | +          | 0.6754**   | (0.0438)  |
| Big4                  | +          | -0.4008    | (0.1733)  |
| Restate               | –          | -1.2355**  | (0.0304)  |
| NonGAAP               | –          | -2.4938*** | (0.0074)  |
| Ln(Population)        | +          | 0.6451***  | (0.0002)  |
| City                  | +/-        | 1.2370     | (0.1863)  |
| County                | +/-        | 0.9473     | (0.1934)  |
| District              | +/-        | -0.6027    | (0.5923)  |
| Treasury              | +/-        | 0.07218    | (0.5530)  |
| Constant              |            | 15.778***  | (0.0000)  |

Observations 7,031
Adjusted R\(^2\) 0.1711
F 5.2522

* , **, *** p < 0.10, p < 0.05, and p < 0.01, respectively, p-values are one-tailed for directional predictions.

This table reports the parameter estimates and p-values from the regression model using Equation (1) clustered around bond issue:

\[
\text{Rating} = \beta_0 + \beta_1 \text{DaysToIssue} + \beta_2 \text{GFOA} + \beta_3 \text{Big4} + \beta_4 \text{Restate} + \beta_5 \text{NonGAAP} + \beta_6 \ln(\text{Population}) + \beta_7 \text{City} + \beta_8 \text{County} + \beta_9 \text{District} + \beta_{10} \text{Treasury} + \epsilon
\]

Variable Definitions:

- **Rating** = a dependent variable, is each issue’s bond rating with the riskiest bond rating being equal to 1 and increasing by 1 for each higher bond rating, with AAA being the highest value;
- **DaysToIssue** = the number of days from the government’s fiscal year-end to the date of the audit report of the financial statements;
- **GFOA** = an indicator equal to 1 if the issuing government received the Certificate of Achievement for Excellence in Financial Reporting from the GFOA;
- **Big4** = an indicator equal to 1 if the government was audited by a Big 4 auditor;
- **Restate** = an indicator equal to 1 if the issuing government’s financial statements contained a restatement, not including a change in accounting principle;
- **NonGAAP** = an indicator variable equal to 1 if the government’s financial statements were not prepared according to U.S. GAAP;
- **Ln(Population)** is the natural log of the population of the issuing government;
- **City** = an indicator equal to 1 if the issuing government is a city or town;
- **County** = an indicator equal to 1 if the issuing government is a county;
- **District** = an indicator equal to 1 if the issuing government is a district: state governments represent the base group when all City, County, and District indicators are 0; and
- **Treasury** = the yield for a treasury security of similar maturity issued on the same day as the dated date of the bond issue.
### TABLE 6
Regression Analysis for Bond Yields

| Independent Variable | Prediction | Estimate    | p-value   |
|----------------------|------------|-------------|-----------|
| DaysToIssue          | +          | 0.001059*** | (0.0078) |
| GFOA                 | –          | −0.07092*   | (0.0530) |
| Big4                 | –          | −0.04549    | (0.2296) |
| Restate              | +          | 0.05478     | (0.1160) |
| NonGAAP              | +          | −0.006518   | (0.4538) |
| Insure               | +          | 0.2628***   | (0.0000) |
| Call                 | +          | 0.3303***   | (0.0000) |
| BankQual             | –          | −0.2933***  | (0.0000) |
| Bid                  | –          | −0.08861*** | (0.0043) |
| Ln(Issue)            | –          | −0.04933*** | (0.0000) |
| Ln(Yrs)              | +          | 0.4508***   | (0.0000) |
| Ln(Population)       | –          | 0.03245***  | (0.0094) |
| City                 | +/−        | 0.2098**    | (0.0187) |
| County               | +/−        | 0.08216     | (0.2125) |
| District             | +/−        | 0.2463***   | (0.0018) |
| Treasury             | +          | 0.6671***   | (0.0000) |
| Rating               | –          | −0.02154*** | (0.0000) |
| Constant             |            | 0.05878     | (0.8305) |

Observations: 7,031  
Adjusted R²: 0.8542  
F: 707.63

*, **, *** p < 0.10, p < 0.05, and p < 0.01, respectively, p-values are one-tailed for directional predictions.

This table reports the parameter estimates and p-values from the regression model using Equation (2) clustered around bond issue:

\[
\text{Yield} = \beta_0 + \beta_1 \text{DaysToIssue} + \beta_2 \text{GFOA} + \beta_3 \text{Big4} + \beta_4 \text{Restate} + \beta_5 \text{NonGAAP} + \beta_6 \text{Insure} + \beta_7 \text{Call} + \beta_8 \text{BankQual} + \beta_9 \text{Bid} + \beta_{10} \ln(\text{Issue}) + \beta_{11} \ln(\text{Yrs}) + \beta_{12} \ln(\text{Population}) + \beta_{13} \text{City} + \beta_{14} \text{County} + \beta_{15} \text{District} + \beta_{16} \text{Treasury} + \beta_{17} \text{Rating} + \epsilon
\]

Variable Definitions:  
Yield = a dependent variable, is the original issue yield;  
DaysToIssue = the number of days from the government’s fiscal year-end to the date of the audit report of the financial statements;  
GFOA = an indicator equal to 1 if the issuing government received the Certificate of Achievement for Excellence in Financial Reporting from the GFOA;  
Big4 = an indicator equal to 1 if the government was audited by a Big 4 auditor;  
Restate = an indicator equal to 1 if the government’s financial statements contained a restatement not including a change in accounting principle;  
NonGAAP is an indicator variable equal to 1 if the government's financial statements were not prepared according to U.S. GAAP;  
Insure = an indicator equal to 1 if the bond issue is insured;  
Call = an indicator equal to 1 if the bond issue contains a call provision;  
BankQual is an indicator equal to 1 if the bond issue is bank qualified;  
Bid is an indicator equal to 1 if the bond issue contains a call provision;  
Ln(Issue) is the natural log of the face value of the bond;  
(continued on next page)
statements increases the interest cost a municipality must pay to fund its operations through public
debt financing.22

The magnitude of the coefficient implies an increase of one-tenth of a basis point per extra day
taken to issue financial statements after the government’s fiscal year-end. Viewed differently, if a
municipality were to move from the 75th percentile of 207 days to the 25th percentile of 143 days,
this would result in a reduction of 6.8 basis points of interest costs. Another rational way to view the
economic magnitude is to consider if a municipality were to reduce their reporting time from the
current average of 178 days down to the SEC-required time for publicly traded companies, which is
90 days. This would result in a savings of 9.3 basis points in interest costs. Overall, this evidence
supports H2 implying governments could save significant interest costs by reducing the length of
time taken to issue financial reports.

### Additional Analyses

To further examine the influence of reporting timeliness on the cost of government debt, we
conduct additional analyses. We utilize Equations (1) and (2), but replace our single continuous
variable representing reporting timeliness (DaysToIssue) with a series of indicator variables.
Specifically, we stratify our sample into quintiles based on the number of days required to issue the
government’s financial statements after the close of the fiscal year. We then utilize indicator
variables that equal 1 if the government is in that quintile, and 0 otherwise. Our results for bond
ratings are shown in Table 7 where it can be observed that the coefficient on DaysToIssue-
Quintile5, representing the longest time to issue financial statements, is negatively associated with
bond ratings (p-value = 0.0094) while the other quintile indicators are not significant. This is
consistent with the interpretation that bond rating analysts are most concerned about those
governments that take the longest time to issue financial statements, and this lateness has a
negative effect on the government’s bond rating. Results using bond yields as the dependent
variable (shown in Table 8) are very similar, with DaysToIssue-Quintile5 being positively
associated with an increased yield required of slow reporting governments to raise debt capital.
These results further reinforce our primary findings that the length of time a government takes to
issue its financial statements can negatively influence its bond rating and ultimate cost of debt.

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22 As a sensitivity test, we re-estimate Equation (2) using the yield premium (yield over maturity-matched
treasury bond) as the dependent variable in place of yield. Our inferences remain the same with DaysToIssue
being negatively associated with the yield premium. As a further sensitivity test, we also re-estimate Equations
(1) and (2) utilizing only one observation for each municipality (n = 373). Our inferences remain unchanged and
continue to support H1 and H2.
**TABLE 7**

Regression Analysis for Bond Ratings with *DaysToIssue* Quintiles

| Independent Variable | Prediction | Estimate     | p-value    |
|----------------------|------------|--------------|------------|
| *DaysToIssue-Quintile2* | -          | 0.4854       | (0.2503)   |
| *DaysToIssue-Quintile3* | -          | 0.3534       | (0.3203)   |
| *DaysToIssue-Quintile4* | -          | 0.6297       | (0.1664)   |
| *DaysToIssue-Quintile5* | -          | -2.1295***   | (0.0094)   |
| GFOA                 | +          | 0.2840       | (0.2669)   |
| Big4                 | +          | -0.7758**    | (0.0335)   |
| Restate              | -          | -1.4725**    | (0.0153)   |
| NonGAAP              | -          | -2.4700***   | (0.0064)   |
| Ln(Population)       | +          | 0.6766***    | (0.0002)   |
| City                 | +/-        | 1.0588       | (0.2561)   |
| County               | +/-        | 0.7029       | (0.3473)   |
| District             | +/-        | -0.4129      | (0.7106)   |
| Treasury             | +/-        | 0.09256      | (0.4492)   |
| Constant             |            | 12.941***    | (0.0000)   |
| Observations         |            | 7,031        |            |
| Adjusted R²          |            | 0.1769       |            |
| F                    |            | 4.6278       |            |

*, **, *** p < 0.10, p < 0.05, and p < 0.01, respectively, p-values are one-tailed for directional predictions.

This table reports the parameter estimates and p-values from the regression model using Equation (1) clustered around bond issue:

\[
Rating = \beta_0 + \beta_1 DaysToIssue\text{-Quintile} + \beta_2 GFOA + \beta_3 Big4 + \beta_4 Restate + \beta_5 NonGAAP + \beta_6 Ln(Population) + \beta_7 City + \beta_8 County + \beta_9 District + \beta_{10} Treasury + \varepsilon
\]

Variable Definitions:
- **Rating** = the dependent variable, is each issue’s bond rating with the riskiest bond rating being equal to 1 and increasing by 1 for each higher bond rating, with AAA being the highest value;
- **DaysToIssue-Quintile** = an indicator variable representing the quintile that *DaysToIssue* falls into, where *DaysToIssue* is the number of days from the government's fiscal year-end to the date of the audit report of the financial statements;
- **GFOA** = an indicator equal to 1 if the issuing government received the Certificate of Achievement for Excellence in Financial Reporting from the GFOA;
- **Big4** = an indicator equal to 1 if the government was audited by a Big 4 auditor;
- **Restate** = an indicator equal to 1 if the government's financial statements contained a restatement not including a change in accounting principle;
- **NonGAAP** = an indicator variable equal to 1 if the government's financial statements were not prepared according to U.S. GAAP;
- **Ln(Population)** = the natural log of the population of the issuing government;
- **City** = an indicator equal to 1 if the issuing government is a city or town;
- **County** = an indicator equal to 1 if the issuing government is a county;
- **District** = an indicator equal to 1 if the issuing government is a district: state governments represent the base group when all City, County, and District indicators are 0; and
- **Treasury** = the yield for a treasury security of similar maturity issued on the same day as the dated date of the bond issue.
Table 8
Regression Analysis for Bond Yields with DaysToIssue Quintiles

| Independent Variable                  | Prediction | Estimate   | p-value   |
|--------------------------------------|------------|------------|-----------|
| DaysToIssue-Quintile2               | +          | -0.002772  | (0.4784)  |
| DaysToIssue-Quintile3               | +          | -0.02200   | (0.3266)  |
| DaysToIssue-Quintile4               | +          | 0.03957    | (0.2151)  |
| DaysToIssue-Quintile5               | +          | 0.1100**   | (0.0332)  |
| GFOA                                 | -          | -0.06173*  | (0.0950)  |
| Big4                                 | -          | -0.04003   | (0.2550)  |
| Restate                              | +          | 0.07134*   | (0.0611)  |
| NonGAAP                              | +          | -0.01116   | (0.4224)  |
| Insure                               | +          | 0.2630***  | (0.0000)  |
| Call                                 | +          | 0.3301***  | (0.0000)  |
| BankQual                             | -          | -0.2952*** | (0.0000)  |
| Bid                                  | -          | -0.08968***| (0.0045)  |
| Ln(Issue)                            | -          | -0.04859***| (0.0001)  |
| Ln(Yrs)                              | +          | 0.4480***  | (0.0000)  |
| Ln(Population)                       | -          | 0.03207**  | (0.0129)  |
| City                                 | +/-        | 0.2137**   | (0.0184)  |
| County                               | +/-        | 0.09277    | (0.1680)  |
| District                             | +/-        | 0.2286***  | (0.0048)  |
| Treasury                             | +          | 0.6686***  | (0.0000)  |
| Rating                               | -          | -0.02248***| (0.0000)  |
| Constant                             |            | 0.2112     | (0.4539)  |
| Observations                         |            | 7,031      |           |
| Adjusted R²                          |            | 0.8538     |           |
| F                                    |            | 596.08     |           |

* *, **, *** p < 0.10, p < 0.05, and p < 0.01, respectively. p-values are one-tailed for directional predictions.

This table reports the parameter estimates and p-values from the regression model using Equation (2) clustered around bond issue:

\[
\text{Yield} = \beta_0 + \beta_1 \text{DaysToIssue-Quintile} + \beta_2 \text{GFOA} + \beta_3 \text{Big4} + \beta_4 \text{Restate} + \beta_5 \text{NonGAAP} + \beta_6 \text{Insure} + \beta_7 \text{Call} + \beta_8 \text{BankQual} + \beta_9 \text{Bid} + \beta_{10} \text{Ln(Issue)} + \beta_{11} \text{Ln(Yrs)} + \beta_{12} \text{Ln(Population)} + \beta_{13} \text{City} + \beta_{14} \text{County} + \beta_{15} \text{District} + \beta_{16} \text{Treasury} + \beta_{17} \text{Rating} + \varepsilon
\]

Variable Definitions:
- **Yield** = the dependent variable, is the original issue yield;
- **DaysToIssue-Quintile** = an indicator variable representing the quintile that DaysToIssue falls into, where DaysToIssue is the number of days from the government’s fiscal year-end to the date of the audit report of the financial statements;
- **GFOA** = an indicator equal to 1 if the issuing government received the Certificate of Achievement for Excellence in Financial Reporting from the GFOA;
- **Big4** = an indicator equal to 1 if the government was audited by a Big 4 auditor;
- **Restate** = an indicator equal to 1 if the government’s financial statements contained a restatement not including a change in accounting principle;
- **NonGAAP** = an indicator variable equal to 1 if the government’s financial statements were not prepared according to U.S. GAAP;
- **Insure** = an indicator equal to 1 if the bond issue is insured;
- **Call** = an indicator equal to 1 if the bond issue contains a call provision;

(continued on next page)
In an attempt to incorporate some institutional background, and to help place our results in context, we obtained and examined the detailed methodology documentation related to local and regional governments provided by one of the largest and best-known bond rating agencies, Standard & Poor’s Rating Group (S&P 2013, 2014a, 2016). Throughout the documentation the rating criteria specifically indicate the importance that management, financial transparency, and timeliness of information have on the ultimate rating assigned to a municipality. For example, “The decentralized and autonomous nature of U.S. local governments creates a stronger link between management and credit quality, particularly when limited or weak management exists” (S&P 2013, Item 32). Moreover, in numerous documents S&P explicitly describe the importance of transparency and providing detailed financial information on a timely basis. For example, “Comprehensive reporting implies the requirement to report financial performance . . . and detailed information on a timely basis” (S&P 2014a, Item 42). An underlying theme found throughout S&P’s extensive methodology documentation is the direct importance of management’s ability to promote financial transparency on a timely basis (S&P 2016), indicating bond rating analysts pay specific attention to these municipal government characteristics. Although the valuation methodologies of municipal bond investors such as pension funds and mutual funds are not directly observable, we conjecture that these sophisticated investors collectively incorporate many of the same attributes and considerations in a similar manner as those described in the documentation of well-informed bond rating agencies.

In the spirit of providing some additional insight into the results and offering some anecdotal evidence regarding why governments preparers are slow with the completion and filing of their financial statements, we communicated with an experienced state auditor from the Utah State Auditor’s Office who has worked in the local government division for numerous years where he was in charge of monitoring all of the local governments around the state to ensure they submitted their financial reports in accordance with state law. His response to why governments take so long to prepare and issue financial statements indicates two reasons: (1) lack of interest, and (2) lack of routine. With respect to lack of interest, the state auditor believes that because many governments have an ability to raise taxes to cover necessary debt payments, he thinks many creditors feel relatively secure and are not that concerned about timely financial statements. Extending this impression further, this lack of interest could lead to a low priority for financial reporting that could lead to inadequate funding to perform financial reporting processes. The state auditor also thinks lack of routine is a factor. Governments usually “close their books” once a year so they have much
less frequent routines and dedicated resources compared with private entities that often close their books more regularly, e.g., monthly or quarterly. Another factor mentioned by the state auditor, which can add days to the process, is basically audit delay. Many of the CPAs auditing government financial statements also prepare federal and state taxes for their other clients. For example, because counties in Utah have a calendar year, the auditors are busy doing tax returns for their other clients in order to meet the April 15 deadline. This postpones the timing of when the auditor gets around to the municipal government audit. While not all governments have a calendar-year fiscal period, this explanation does point to potential conflicts of priority between various clients of a public accounting firm that could lead to financial reporting delays for governments.

CONCLUSION AND SUMMARY

The Government Accounting Standards Board (GASB) has expressed concern regarding the timeliness of financial reporting contemporaneous with research indicating municipal governments are significantly increasing the time it takes them to produce and issue financial statements. The GASB also documents that users of governmental financial statements remain concerned about delayed financial reporting, with these sentiments echoed in public testimony by the SEC. Our research examines these concerns and investigates the capital market effects related to the timeliness of government financial reporting. Our findings are consistent with the interpretation that delayed financial reporting results in lower bond ratings for slow reporting government entities indicating a higher risk of default anticipated by bond rating analysts. Moreover, we also find higher yields required in the marketplace for bonds issued by municipalities with prolonged financial reporting, which is consistent with a negative assessment by bond investors. Additional analyses indicate these results are most pronounced for those government entities whose reporting time places them in the most delayed reporting time quintile.

Overall, these empirical results suggest government entities that are excessively delayed in developing and producing year-end financial statements are costing their taxpayers a significant amount of money. Our findings indicate a move from the 75th percentile to the 25th percentile in reporting times, a reduction of 64 days, is associated with a reduction of 6.8 basis points in interest cost while a reduction from the current average of 178 days to the SEC publicly traded company required time of 90 days would result in a savings of 9.3 basis points in interest costs.

These results should be interpreted with the qualification that we have not attempted to quantify the necessary incremental cost to governments to significantly reduce the time required to issue financial statements. We conjecture that governments, on average, could obtain net cost savings even after the expense of implementing efficiencies are considered. However, we leave this issue for future research. Our findings clarify that government financial reporting is valued by bond market participants and those governments that produce timelier financial statements are rewarded with significant interest savings. These results should be of interest to those parties concerned with understanding the effects of timeliness of government reporting, as well as anyone interested in the determinants of government debt costs.

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