Municipal organizational structure and financial reporting quality[☆]

Inna Abramova
Accounting Subject Area
London Business School
iabramova@london.edu

Jacquelyn Gillette
Sloan School of Business
Massachusetts Institute of Technology
jgillett@mit.edu

Joseph Weber
Sloan School of Business
Massachusetts Institute of Technology
jpweber@mit.edu

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Abstract

We examine how the quality of financial reporting is connected to the organizational design of municipal entities. Using a novel database of California cities from 2014 to 2018, we find that financial reporting quality is positively associated with finance managers' breadth of responsibility and negatively associated with the city's depth of bureaucracy. Our findings are similar using within-city variation and after instrumenting for the city's organizational structure using weather shocks and election outcomes. We also demonstrate that the depth of the bureaucracy is also associated with the cost of debt. Further, the breadth of responsibility and the depth of the bureaucracy depend on city characteristics like population and county level GDP, as well as whether the city is a charter city or has the strong mayor council form of government. Overall, our findings suggest that the design of the financial reporting function within cities reflect fundamental economic characteristics of the city, and in turn, the variation in the design and responsibilities associated with the financial reporting function affects accounting outcomes and cost of capital. Specifically, incorporating greater responsibility into the finance function improves the preparer's knowledge of the city and leads to higher quality financial reporting. Conversely, greater delegation of the financial reporting unit reduces oversight and decreases financial reporting quality.

1. Introduction

There exists an extensive literature focusing on the organizational structure of the finance and accounting departments in public companies. Yet, we know very little about the process underlying the preparation of financial statements by governmental entities like cities and states. This topic is important as state and local government spending is responsible for approximately 8% of the U.S. national GDP, and the municipal bond market comprises over $4 trillion in bonds outstanding (Nakhmurina, 2020; SEC, 2013; SIFMA, 2022).

In this paper, we attempt to fill this void by first providing preliminary evidence on how the accounting function is structured across municipal entities and then examining whether this variation is associated with municipal accounting quality. We then examine whether the organizational design of the municipality is reflected in its cost of capital, and whether it amplifies or mitigates the role of accounting quality in this setting. We conclude our tests by examining the factors that affect the design of the accounting function within the city, and the responsibilities assigned to the finance managers.

The results from these analyses will be among the first attempts at understanding why municipalities choose different organizational forms, how the accounting function is accomplished in municipal organizations, and whether the observed variation in the accounting processes affects a variety of important economic outcomes. Moreover, our findings are relevant for the concerns regarding the fiscal stress faced by municipalities due to the global pandemic. We show that transparent information regarding cities' liquidity and financial soundness appears to be at least partially driven by how the municipality is organized and the importance it places on the financial reporting function.

Our preliminary analysis of the underlying data indicates that there is significant variation in how the accounting function is accomplished in municipalities. Some municipalities hire a city

manager who has accounting expertise, and they perform the accounting function themselves. Other cities hire a finance director who reports to the city manager, and others bury the accounting function in a separate division, like administrative services. In the more bureaucratic organizational designs, the finance manager reports to an Administrative Services Director that reports to an Assistant City manager, who then reports to the City manager, creating a significant amount of delegation in duties and a sprawling bureaucracy.

We also find that there is significant heterogeneity in the responsibilities afforded to the manager who performs the accounting function. For example, in roughly half the municipalities, the finance manager performs both the accounting function and the treasury function. While in the other half, there is a dedicated treasurer that manages the municipality's financial assets and liabilities. Similarly, many times the finance manager is also responsible for HR functions, IT support, and other administrative tasks. Thus, there are some organizations with an accounting specialist heading up the accounting function and that is their sole responsibility, while other organizations hire a generalist, where accounting is a smaller part of their portfolio of responsibilities.

Based on these observations of how the accounting function is carried out, we draw on the theories developed in the responsibility accounting literature, as well as in the legislative delegation and bureaucracy literatures in political science, to develop hypotheses on how the heterogeneity in the organizational design of these municipalities affects outputs of the accounting system. Holmstrom and Milgrom (1991), Demski (1994), and Indjejikian and Nanda (1994) develop theories on the delegation of decision rights to multiple agents within an organization, highlighting that the assigning of decision rights, the performance measurement systems in place, and the incentives faced by the agents will affect whether it is optimal to delegate decision rights

to one agent with lots of responsibilities, or to multiple agents, each with a single or few tasks.

On the one hand, as the manager responsible for the accounting function is assigned more responsibilities, they obtain increased transparency into other elements of the government and therefore have a better understanding of the city's operations and financial position. In addition, managers responsible for multiple tasks will typically have their performance measured on multiple factors, including the quality of the financial reports. On the other hand, when there is a specialist in charge of the accounting function - and that is their only responsibility - the organization can design an incentive system to optimize accounting quality more easily. Empirically, it is unclear whether the generalist or the specialist is likely to create higher quality financial statements in this setting.

Fox and Jordan (2011) summarize a broad political science literature on the role of legislative delegation of authority to bureaucrats in political organizations. This delegation can result in more positive outcomes when the delegation results in the function being performed by individuals that have more skill or innate knowledge for how to perform the underlying task. This delegation will have more negative outcomes if it results in an agency problem, where the agent uses the delegated authority to achieve outcomes that are orthogonal to or negatively correlated with the desired outcomes.

To test these hypotheses, we collect data on the organization of the administrative function (i.e., the city manager branch of the municipal entity) for the governments identified as cities and towns in California. We manually collect data on how the accounting function is accomplished from the organizational chart provided in each municipality's Annual Comprehensive Financial Reports (ACFRs) from 2014 to 2018. When the ACFR is unavailable, we collect the information

from the organizational chart provided in the city's budget. [1] Although restricting the sample to the state of California potentially affects the generalizability of the results, it also facilitates our ability to conduct our tests. Notably, California provides a machine-readable dataset of financial information for each municipality, which allows us to control for heterogeneity in the financial health of the cities in our sample.

To measure the finance manager's responsibilities and the extent to which the accounting function is delegated within the organization, we focus on two aspects of the organizational chart. First, we study the number of other responsibilities that the manager of the accounting function ("Finance Director") is responsible for overseeing, beyond the preparation of the underlying accounting reports. We call this variable *Breadth of Responsibility* (the number of units *below* finance director in the organizational chart). As the number of units increases, the finance manager is responsible for more of the governmental operations, beyond the accounting function. We also create a related variable, *Treasury*, which is an indicator of the treasury function being combined with the accounting function. Jointly, these variables measure the extent to which the accounting function is performed by a generalist or a specialist.

To test hypotheses regarding delegation, we examine where the finance department sits in the organization, defined as the length of the subordinate chain of units between the finance department and the city manager. We call this variable *Depth of Bureaucracy* (the number of directors *above* the finance director in the organizational chart). As the depth of the bureaucracy increases, the potential for suboptimal outcomes due to agency problems increases. Taken together, our three primary variables provide insights into the prominence and responsibilities of

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[1] Recently, the State Controller's Office changed the name of the "Comprehensive Annual Financial Report" to "Annual Comprehensive Financial Report," in compliance with Governmental Accounting Standards Board Statement No. 98.

the finance department within the government. We next investigate how these characteristics of the financial reporting function relate to the municipality's financial statement quality.

To measure financial statement quality, we examine the likelihood that the municipality receives a Government Finance Officers Association (GFOA) Certificate of Achievement for Excellence in Financial Reporting. The GFOA award is granted to municipal entities with outstanding annual reports that provide high-quality, transparent disclosure. The GFOA award is granted when the annual report is both compliant with GAAP and meets the board's assessment of transparent disclosure.[2] Consequently, receiving a GFOA award strongly signals financial reporting quality.

We begin our analyses using pooled cross-sectional regressions, which take advantage of the heterogeneity in organizational design across municipalities. In these regressions, we control for each city's economic characteristics over time as well as other common characteristics associated with accounting quality (e.g., auditor characteristics and the amount of debt in the capital structure).[3] We find that the likelihood of receiving a GFOA award is higher when greater responsibility is assigned to the Finance Director (*Breadth of Responsibility*). We also find the coefficient on *Treasury* is positive and significant. This further supports the conjecture that financial reporting outcomes are better when the manager responsible for the accounting function also has multiple other responsibilities. Overall, the results of our first set of analyses suggest that increasing the breadth of the finance manager's responsibilities improves financial statement

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[2] The assessment of high-quality, transparent disclosure is based on the criteria created by a board of individuals with expertise in public sector financial reporting, including financial statement preparers, independent auditors, and academics.

[3] We also include controls for all of the available supervisors in the organizational chart. By controlling for the available supervisors in the organizational chart, we aim to disentangle the Depth of Bureaucracy variable from the size of the local government. For example, some cities have an assistant city manager or an administrative manager in their organizational chart because of their size, even though these individuals do not supervise the financial reporting function.

quality.

Oppositely, we find that the *Depth of Bureaucracy* is negatively associated with the likelihood of receiving a GFOA award. This result supports the intuition that burying the finance department deeper into the bureaucracy decreases financial statement quality because it allows the finance department to engage in less optimal decision-making due to reduced oversight. It also suggests that organizations that do not value the importance of high-quality financial statements tend to place the finance department further down the bureaucratic chain (i.e., not directly reporting to the city manager).

Next, we perform our analyses with a variety of fixed effects at the county, city, and year levels. The inclusion of these fixed effects alleviates the concern that fundamental differences across counties or cities, or that common shocks to all the geographic areas in a given year, are driving our results. We find similar results on our *Breadth of Responsibility* and *Depth of Bureaucracy* variables. The coefficient on *Treasury*, however, is not significant, primarily due to a lack of variation in the time series.[4]

We proceed to further address endogeneity concerns by implementing an instrumental variable (IV) approach. This approach helps to alleviate the concern that an alternative mechanism simultaneously determines both the organization of the local government and the outputs of the finance department. Specifically, we use two instrumental variables to predict the *breadth* of the responsibilities assigned to the finance division and the *depth* of the finance division within a two-stage least squares (TSLS) framework. The first instrument is based on the damages caused by

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[4] The *depth* and *breadth* variables change over time as elections occur, the city council changes, and new City managers take the helm. There is almost no within-city variation, however, in how the treasury function is performed. To dissolve the treasury position requires a vote, and this seldom happens.

extreme county-level weather events.[5] The intuition behind using weather shocks as an instrument is that weather-induced damages likely incentivize the city government to reallocate resources and optimize the organizational structure to address the damages. The second instrument *interacts* these weather-induced damages with the newly-elected city council members (including the mayor). The *interaction* of the weather-induced damages with the newly-elected council members allows us to study the variation in ways in which weather shocks are likely to affect the city's organizational structure. Newly-elected officials are less likely to have relationships with existing members in the administrative function of the government, and thus likely to use organizational change as a mechanism to respond to economic shocks.

The results from this instrumental variables analysis confirm our previous findings. Specifically, we find that increasing the finance director's *breadth* of responsibilities improves the city's financial reporting quality while increasing the depth between the finance director and the city administrator reduces financial reporting quality. We use several weak identification tests and confirm that our IV approach provides a powerful identification. Weather-induced shocks result in a larger number of subordinate units that report to the finance division (i.e., greater *breath*). In addition, the interaction of weather-induced damages with the newly-elected city council members often adds incremental supervision over the finance division (i.e., greater *depth*). These results suggest that cities respond to weather-related shocks by reducing the responsibilities of senior managers and delegating more tasks to lower-level managers, including the finance manager (Radner, 1992; Harris and Raviv, 2002; Patacconi, 2009). This, potentially, allows the senior managers to devote their time to more immediate challenges the cities face.

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[5] For example, recent wildfires and storms contributed to severe damages in California.
https://www.theguardian.com/world/2014/mar/02/california-cleans-up-after-storm,
https://en.wikipedia.org/wiki/2018_California_wildfires,
https://en.wikipedia.org/wiki/2017_California_wildfires.

We conclude our paper with two descriptive analyses. The first analysis focuses on the link between accounting quality and municipalities' cost of capital. Prior literature documents a strong link between financial transparency and reductions in municipal interest rates (e.g., Gore et al., 2004; Baber et al., 2013; Cuny, 2016; Gillette et al., 2020). Our findings suggest that accounting quality is, at least in part, determined by the municipal organizational structure. A natural question is whether the link between accounting quality and cost of capital remains after directly controlling for municipal organizational structure, and whether elements of the design of the organizational structure are priced in debt markets. For example, if the depth of the financial reporting function within an organization reflects agency problems, or reduced importance of accounting, one might suspect that this would be reflected in the organization's cost of capital.

Our second analysis examines the determinants of the breadth and depth decisions. Specifically, since depth and breadth are choice variables that have been underexplored, we conduct an exploratory analysis to determine which city attributes are associated with these outcomes. Factors we consider are the size of the city, the organizational form (elected mayor and charter city status), the wealth of the county (as a proxy for the wealth of the city), and the diversity of the population.

The results of these analyses are as follows: First, we find that the link between accounting quality and cost of capital remains after controlling for municipal organizational structure. Specifically, total bond interest costs are lower for cities that receive a GFOA award in the same year. This result holds after controlling for the *depth* of the city's bureaucracy, *breadth* of the finance manager's responsibility, and the presence of an independent treasury function within the organization. Overall, the previously established link between cost of capital and accounting quality is still present even after controlling for the portion of accounting quality that is driven by

municipal organizational structure. We also find that cities which create significant depth between the financial reporting function and the city manager tend to have a larger cost of debt. This could be a reflection of the city placing a reduced importance on its financial reports, or the potential agency problems associated with a sprawling bureaucracy.

In terms of the design of the organization, larger municipalities assign fewer responsibilities to the finance director, and decrease the depth between the finance department and the city manager. The results on the depth variable are somewhat surprising, as larger cities will typically have a bigger bureaucracy, but these results suggest that the financial reporting function remains close to the city manager. We also find that wealthier cities push the financial reporting function down in the organization, while diverse cities, and cities with elected mayors tend to assign more responsibilities to the finance director.

Overall, our paper makes several contributions to the literature. At a high level, we are among the first accounting researchers to document the heterogeneity in how the accounting function is performed in municipalities. We use this heterogeneity to test theories regarding organizational design and responsibility accounting. Specifically, we examine factors affecting the design of the organization and how the delegation of decision rights and responsibilities within governmental organizations affects the quality of municipal financial statements. In contrast to the corporate setting, little is known about how the finance function of local governments is organized and how this affects financial reporting outcomes. Our study aims to fill this gap.

This paper also contributes to the literature on the determinants of financial disclosure in the municipal market. Regulators have expressed concerns regarding the low level of transparency and wide variation in accounting quality across municipal governments (e.g., SEC, 2009; SEC, 2012; SEC, 2017). Consequently, a growing literature examines the determinants of municipal

financial disclosure (Gore, Sachs, Trzcinka, 2004; Gore, 2004; Cuny, 2016). One likely important source of this variation is how the local government's finance and accounting function is organized. For example, the SEC indicates that "regardless of size, issuers of municipal securities may lack policies or procedures adequate to ensure accurate and full disclosure in their offering documents" (SEC, 2007, p.9). Testing this prediction, however, has been challenging due to the lack of systematic data on how municipal finance functions are organized. Our paper is the first to collect this data and provide empirical evidence on the link between municipal financial reporting quality and how the financial responsibilities of the government are delegated.

Our paper is likely of interest to academics, regulators, and government officials. We highlight the importance of local municipal governments' structure for the government's transparency. The structure of the local government also affects the quality of other important outputs, such as the community programs and safety services. Our study emphasizes the benefits of providing the finance director with greater responsibility over multiple units and keeping the finance department closer to the city manager within the city's organizational structure.

2. Literature Review and Hypothesis Development

2.1 Research on the accounting function in municipalities

There is relatively little evidence regarding the financial reporting process employed in municipal governments, the heterogeneity of that process, and how this shapes the municipality's financial statements. There are, however, a few papers that examine some of the aspects of the accounting function in the municipal sector.[6] In this stream of research, Rich and Zhang (2016) examine the effect of restatements on financial manager turnover. Additionally, Folz and Shults

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[6] Please see Kim et al. (2018) for a review of the governmental accounting literature.

(2018) examine whether training programs improve the outputs of the financial reporting function. Specifically, this study examines the effect of certification and training programs for municipal finance officers on municipal accounting quality using a sample of 60 cities in Tennessee. They find that implementing the state-mandated certification program, the Certified Municipal Finance Officer program, resulted in fewer outside audit findings in subsequent periods.

A second stream of research focuses on the factors affecting the quality of governmental entities' financial reports. This research finds that regulations and monitoring by higher-level governments (e.g., state governments or the federal government through the Single Audit Act) affect financial reporting outcomes (Gore, 2004; Baber and Gore, 2008; Nakhmurina, 2020; Gillette et al., 2020). Additionally, regulations such as balanced budget requirements affect financial reporting outcomes (Costello et al., 2017). Generally, these papers find that governments can improve accounting quality by enacting and enforcing rules that increase transparency.

This literature also investigates whether citizens, through unions or elections, influence the outcomes of the financial reporting process. For example, Baber and Sen (1984) and Evans and Patton (1987) study how political and economic incentives influence governmental officials' decisions to report financial information. Gore (2015) finds that unionized governments shelter resources within less visible funds to obscure the available resources. Collectively, these papers find that the municipality's management recognizes the importance of citizen oversight when making accounting decisions.

The literature also examines how the governance system employed in municipalities affects financial reporting outcomes. Gore (2009) finds that cities with staggered councils and more independent councils are less likely to hoard cash. The importance of the form of government (e.g., council-manager or mayor-council) on financial reporting outcomes is documented in Zimmerman

(1977), Evans and Patton (1983), Evans and Patton (1987), and Copley (1991). In addition, Copley (1991) and Baber et al. (2013) show that the auditor influences the outcomes of the financial reporting process.

Our paper adds to this literature by opening the black box of how the financial reporting function is performed in municipalities. The descriptive evidence discussed below suggests that there is substantial variation in how the financial reporting function is accomplished within these organizations. In the next section, we highlight the research suggesting that this variation is likely to affect the outcomes of the financial reporting process.

2.2 Theories of Organizational Design

The main analyses conducted in this paper are predicated on two related streams of theoretical research in the accounting, economics, and political science literatures. In the economics literature, Holmstrom and Milgrom (1991) expand the traditional principal-agent model to consider a variety of different topics, including how tasks can be allocated to different employees in an organization. In their stylized world with one principal and two agents, the delegation of tasks depends critically on the extent to which the principal has tools, like incentive compensation, to reduce agency problems. For example, under certain stylized facts, it is optimal to allocate one set of tasks to individual A and design an incentive structure that motivates her to produce high effort, and to allocate all other tasks to individual B using a fixed salary because it is harder to measure performance for these assignments.

The accounting literature has imported these ideas into the Responsibility Accounting literature.[7] One of the main concepts underlying this literature is that decentralized organizations

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[7] For a review of this literature see Biswas (2017).

allocate decision rights to different groups of agents. The allocation of these decision rights, the design of the performance measurement system, and the design of the performance reward system are all interrelated (Brickley and Van Drunen, 1990; Brickley, Smith and Zimmerman, 1994). At times, it is optimal to aggregate decision rights and provide them to one agent, and at other times it is optimal to disaggregate decision rights and allow multiple agents to be responsible for one task (see Indjejikian and Nanda, 1999). For example, the results from Becker and Murphy (1992) and Bolton and Dewatripont (1994) imply that the increasing returns from task specialization can result in higher-quality reporting by accounting divisions with fewer subordinate units.

We apply this theory to the accounting function in governmental entities. Theoretically, it is unclear that all governmental entities value accounting quality, and thus some entities may consider this a mundane task that is required to be performed annually. At the extreme, corrupt governments may find it optimal to increase the opacity of their financial reports. Alternatively, some governments include transparency as a central part of their platform and are therefore likely to place the accounting function as an important and central part of their organization.

It is also unclear how the other tasks performed by the finance manager will affect the accounting system. For example, combining the accounting department with the Treasury function or IT department can generate improvements in the city's internal information systems, leading to better financial reporting outcomes. Alternatively, Gavetti et al. (2007) suggest that managers delegated with performing multiple unrelated tasks may suffer from information overload.[8] Thus, our first hypothesis tests this two-sided prediction. Specifically, we examine the correlation between the transparency of the city's financial reporting and the number of other responsibilities

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[8] For example, one of the municipalities combined the accounting function with the operation of the government's television channel (for city council meetings). Here the skills to perform the two tasks are likely uncorrelated, and combining these tasks under one agent is likely to, at best, be a distraction to the Finance Director.

assigned to the finance department.

Our second hypothesis relates to the relationship between the bureaucratic depth of the finance department within the municipal organizational structure and financial reporting quality. On the one hand, greater depth (or a larger distance between the City manager and the Finance manager) can reduce the quality of the city's financial reports. The intuition is that burying the financial reporting function deeper into the organizational structure can reflect a reduced importance of the financial reporting function as well as an increase agency costs (Jensen and Meckling, 1976; 1992). A large hierarchical distance between the Finance unit and the City manager reduces the monitoring efficiency of the Finance manager's decisions, leads to high communication costs between these units, and potentially enables the finance manager to engage in self-interested behavior (Baiman and Rajan, 1995; Dessein, 2002; Dobrajska et al., 2015).

The concerns about delegation leading to lower accountability of the decision-maker are also prevalent in the context of politicians and bureaucrats in the political science literature. The theoretical work in this field highlights that delegation can deteriorate the organization's overall performance because of the "plausible deniability" effect. This theory argues that politicians who delegate to expert bureaucrats are better able to cover their shirking behavior and avoid being held fully accountable for the poor outcomes of their decisions (Fox and Jordan, 2011).

On the other hand, the bureaucratic depth of the finance department may not affect financial statement quality if the city council plays a strong monitoring role, preventing the self-interested behavior of the Finance manager. Moreover, finance department depth may improve financial reporting outcomes by delegating decision-making to specialist employees with superior, decision-relevant knowledge (Hayek, 1945; Jensen and Meckling, 1992; Dobrajska et al., 2015). Overall, the delegation of decision rights to a dedicated finance department results in a trade-off between

improving decision quality through the use of a specialist and losing the manager's control that may exacerbate agency costs (Hayek, 1945; Jensen and Meckling, 1976, Jensen and Meckling, 1992; Holmström, 1979). Consequently, our second hypothesis tests the correlation between financial statement quality and the depth of the accounting function within the bureaucracy.

Our final analyses examine the determinants of these organizational design choices and the effects of these organizational design choices on the city's cost of capital. Existing research establishes that there is a relationship between reporting transparency and cost of capital in the municipal sector (e.g., Gore et al., 2004; Baber et al., 2013; Cuny, 2016; Gillette et al., 2020). What is unclear is how this association is affected by variation in cities' organizational design. If financial reporting quality varies with cities' organizational design, then it is important to control for this relationship when examining how a city's financial reporting quality is associated with cost of capital. There is a lack of research on how the accounting function is performed in cities, or any well-developed theories on this topic, so we consider our determinants tests to be exploratory, and examine whether a host of city characteristics are associated with the depth and breadth decisions.

3. Data and Descriptive Statistics

3.1 Data

We collect municipal financial statements from 2014 to 2018 directly from the website of each city in California (482 cities). If the financial statements are unavailable on the city's website, then we search for the financial statements on the Electronic Municipal Market Access (EMMA)

website.[9] From each financial statement, we obtain the city's organizational chart and hand-collect the date of the audit signature, the auditor name, and the audit opinion.[10] We obtain data on city population, county, fiscal year-end, total assets, debt outstanding, and administrative expenses from the California State Controller website.[11]

There are several benefits to focusing our sample on municipalities in California. First, all cities are required to provide a standardized set of financial statements to the government within seven months after the end of the fiscal year. Almost all (99%) of the cities have fiscal years ending on June 30th, and all of these cities are subject to the same level of state oversight and audit procedures. Thus, the influence of the state over the financial reporting process is similar across all of the municipalities in this study, reducing the variation in the institutional forces that could influence our results. Second, California requires all cities to report their financial information and the payroll of all government employees to the state on an annual basis. This information is then aggregated and provided to the general public. Consequently, California offers a database of machine-readable financial information for each municipality in the state, which provides the necessary data for our study.

These benefits come at the potential cost of the limited generalizability of our findings. However, we note that California has higher reporting standards than other states. Therefore, variation in the organization of the reporting function is likely larger outside of California, and our results likely represent the lower bound on the role of the city's organizational design on financial reporting quality.

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[9] We also search previous versions of the city's website archived on the Wayback Machine and read through the minutes of prior city council meetings on the city website to find financial statements and confirm whether the city filed financial statements in a given year.

[10] If the organizational chart is missing from the financial statement, then we search for the chart within the city budgets.

[11] See, for example, https://bythenumbers.sco.ca.gov/Raw-Data/Cities-Raw-Data-for-Fiscal-Years-2003-2016/qqwc-cejz.

Figure 1 presents the organizational charts for two municipalities. Panel A provides the organizational chart for the city of Ceres in 2016. In this case, the finance department reports directly to the city manager and is relatively high up in the bureaucratic chain. Further, in addition to accounting tasks, the finance department is responsible for granting licenses and information technology.[12] Notably, the city hired a new IT manager in 2017 and moved the IT function out of the finance department and into its own unit. Finally, the city employs a treasurer that is not a part of the finance department, indicating that the management of the city's financial assets and liabilities is performed outside of the finance department.

Panel B presents the organizational chart for the city of Fremont. This city employs both an assistant city manager and a Deputy City manager. In this case, the Finance manager reports to the deputy city manager, who then reports to the assistant city manager, who then reports to the city manager. Thus, relative to Ceres, the length of the bureaucratic chain between the finance department and the city manager is much longer. In terms of responsibilities, however, the finance manager is only responsible for the finance and accounting tasks. Human resources and IT services, for example, are performed in separate departments. Similar to Ceres, Freemont also changed its organizational design during our sample period. In 2014, the finance department reported directly to the city manager. Thus, over time the city's bureaucratic *depth* increased, while the *breadth* of the finance department's responsibilities remained the same. Finally, we note that Fremont does not employ an elected Treasurer, indicating that the treasury function is performed within the finance department.[13]

The variation in the *depth* and *breadth* variables observed for these two municipalities is

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[12] We consider budgeting, billing, and finance to be finance and accounting tasks.
[13] For the functions in the finance department (including treasury) see page 197 of the following doc: https://www.fremont.gov/home/showpublisheddocument/1083/637751659276170000.

common in our sample. At times, the change in organizational design stems from a promotion. For example, the finance manager may be promoted to administrative services manager and given greater responsibilities. At other times, responsibilities are altered because a new specialist is hired, like IT services in Ceres. Finally, organizational charts shift as city managers delegate more or less of their responsibilities to subordinates.

3.2 Descriptive Statistics

We provide descriptive statistics for the variables used in our main analyses in Table 1. Our final sample includes 1,588 city-year observations from 2014 to 2018 for 379 California cities.[14] We measure the outcome variable of interest in our paper, the quality of the municipality's financial reports, with *GFOA Award*. *GFOA Award* is an indicator variable equal to one if the city is awarded a certificate of achievement for excellence in financial reporting in a given year, and zero otherwise. This measure of financial statement quality has been used in numerous academic papers over the years, including recent work by Baber and Gore (2008), Cuny and Dube (2017), Chen, Gore, and Poteba (2021), and Dambra, Even Tov, and Naughton (2022).[15] In our sample, the mean of *GFOA Award* is 0.754, indicating that 75.4% of the financial statements provided by California cities receive a GFOA award. This statistic is higher than in other settings, such as Cuny and Dube (2022) (40%) and Dambra et al. (2022) (60%), suggesting that California's financial reporting regulations result in greater transparency.

Turning to the independent variables of interest, *Depth of Bureaucracy* varies between zero and two. *Depth of Bureaucracy* is zero if the Finance Director reports directly to the City manager,

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[14] We limit observations to cities with at least two years of ACFR data. We note that while the majority of municipalities follow the California requirement to produce financial statements, some cities do not comply every year or at all.

[15] We view the GFOA award as a summary measure of accounting quality. When reviewing the evaluation criteria, we note that other common attributes of accounting quality are all included as part of the award determination (e.g., whether the financial statements are prepared in accordance with GAAP, the timeliness of the financial statements, and the comprehensiveness of the annual report).

and it is two if the Finance Director reports to both an Assistant City manager and an Administrative Director. [16] As to the responsibilities delegated to the Finance manager, the average (maximum) of *Breadth of Responsibility* is 1.196 (8). This result indicates that there is one non-accounting unit that reports to the finance manager, on average, but it could be as many as eight reporting units. There is substantial heterogeneity in the non-accounting functions that the finance director manages. The most commonly delegated responsibilities are information technology and human resources; however, there are also obscure responsibilities like managing the local television channel or the successor agency that oversees the redevelopment agencies[17]. Finally, we find that the Finance manager oversees the treasury function approximately 16% of the time (mean *Treasury Unit* = 0.162). When *Treasury Unit* is equal to zero, the treasury function is performed by a separate Treasurer or by the City manager.

Table 2 provides the Pearson correlations for the main variables in our sample. We note that *GFOA Award* is positively associated with *Breadth of Responsibility* and *Treasury Unit*, but unrelated to *Depth of Bureaucracy*.

4.   Research Design and Results

4.1 Main analyses

Turning to our main analyses, we examine the relation between cities' organizational structure and municipal accounting quality. We perform these analyses on the sample of 1,588 city-years from 2014 to 2018 using the linear equation below[18]:

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[16]   Another source of variation is stemming from the department in which the finance function is domiciled. In the smallest bureaucracies, the finance department stands on its own, while in others, it can be in the administrative services department, human resources, or a broader department like organizational services. Thus, there is substantial variation in the design of the bureaucracy, and we are capturing one element of it with our *depth* variable.

[17]   The redevelopment agencies were phased out in the mid-2000s.

[18]   Given the large number of fixed effects included in the model, we employ a linear estimation model using OLS for all of the outcome variables (e.g., Neyman and Scott, 1948).

$$GFOA\ Award_{i,t} = \beta_0 + \boldsymbol{\beta_1 Breadth\ of\ Responsibility}_{i,t} + \boldsymbol{\beta_2\ Depth\ of\ Bureaucracy}_{i,t} +$$

$$\boldsymbol{\beta_3 Treasury\ Unit}_{i,t} + \theta'X + \alpha_i + \delta_t + \varepsilon_{i,t.}$$

(1)

GFOA Award is an indicator variable equal to one if the city received a GFOA award in a given year, and zero otherwise. *Breadth of Responsibility* is the number of non-accounting divisions that report to the Finance Director. *Depth of Bureaucracy* is equal to zero if the Finance Director reports directly to the City manager, one if the Finance Director reports to an Administrative Director or an Assistant City manager (or deputy city manager), and two if the Finance Director reports to both an Administrative Director and an Assistant City manager (or deputy city manager). *Treasury Unit* is equal to one if the Finance Director oversees the treasury function, and zero otherwise.

We include a variety of control variables, denoted by *X*, that capture variation in municipalities' economic environment and financial reporting incentives, as defined in the Appendix. We also include city (α) and year (δ) fixed effects. City fixed effects absorb variation in city-level characteristics that do not vary over the five years of our sample, including potential differences in the users of financial reports across municipalities. Consequently, our analyses estimate within-city variation in accounting quality over time. Year fixed effects absorb common shocks to all of the cities in our sample over time. Standard errors are clustered by city.

The results in Table 2 suggest that municipal accounting quality is higher when the finance department collects more information from the subordinate units, and municipal accounting quality is lower when the subordinate chain between the finance department and the City manager is longer. Column (1) reports the results for the specification that includes year fixed effects without city or county foxed effects. Column (2) adds county fixed effects, and column (3) includes

city and year fixed effects.[19] Across the three specifications, the coefficient on *Breadth of Responsibility* is positive and significant, suggesting higher quality of reporting when the finance department collects more information from the subordinate units. In addition, tighter fixed-effect specifications (columns 2 and 3) produce significantly negative coefficients on *Depth of Bureaucracy*. Therefore, reporting quality is higher for longer subordinate chains between the city's financial department and the City manager. Economically, we find a 1.7% increase in GFOA likelihood when adding an extra subordinate unit and an 8.3% decrease in GFOA likelihood when adding an extra layer of delegation (column 3). In column (1), we find evidence that finance statement quality is higher when the Finance manager oversees the treasury function. However, the coefficient on *Treasury Unit* is insignificant in columns (2) and (3).

4.2 Two-stage least squares

We use two instrumental variables to predict *Breadth of Responsibility* and *Depth of Bureaucracy* within a two-stage least squares (TSLS) framework. The first instrument is based on the damages caused by extreme county-level weather events. We use extreme weather events, including wildfires, tornados, and hurricanes, as shocks to the city's administrative resources and the city government's incentives to respond to the events in a timely manner. When a municipality experiences an extreme weather event, the entity faces unexpected increases in expenditures related to property damages and storm cleanup, in addition to reductions in taxpayer revenue.[20] Thus, severe weather causes unexpected changes in city finances that reduce the funds available

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[19] The size of the population is omitted as a control variable because it does not vary within our sample period, and thus is absorbed by the city fixed effects.

[20] See, for example, https://www.thefiscaltimes.com/Articles/2011/01/31/Extreme-Weather-Striking-a-Blow-to-Government-Budgets.

to the financial reporting function.[21]

The second instrument *interacts* these weather-induced damages with the newly-elected city council members (including the mayor). This allows us to study the variation in the effect of the weather shocks depending on the election-driven circumstances that can facilitate changes in the city structure. Specifically, we expect that newly elected officials will respond to weather shocks differently, as they typically do not have existing relationships with the administrative function, and thus can more easily consolidate or decentralize the bureaucracy. Relatedly, newly elected officials can also use weather induced shocks to governmental resources as an excuse to reorganize the government. We focus on the interaction while controlling for the main effect of the newly-elected city council members to avoid including the confounding factors associated with the election outcomes and the city's performance in the analysis.

We test our prediction using severe weather data from the National Oceanic and Atmospheric Administration (NOAA) Storm Events Database, similar to Griffin et al. (2020).[22] The Storm Events Database covers storm-related events across the United States provided by the NOAA's National Weather Service, beginning in 1950.[23] This database includes detailed information on the type of storm (e.g., wildfire, tornado, etc.), storm location, storm event dates, injuries, deaths, and damages (in dollars). We link the Storm Events Database to our sample at the county level. We report the descriptive statistics for the instruments in Panel A of Table 3.

Table 3, Panel B suggests that 96 cities never experience weather damages during our sample

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[21] We reviewed a subsample of 40 ACFRs that discuss an extreme weather event and note there does not appear to be any *direct* relationship between these severe weather events and our measures of accounting quality.

[22] See also Engelberg and Parsons (2011). The data is provided at https://www.ncdc.noaa.gov/stormevents/.

[23] The location of each storm event in the Storm Events Database is listed as a county or a county-public forecast zone. We use the county-public forecast zones correlation file at https://www.weather.gov/gis/ZoneCounty to link each county-zone to the counties affected. We then match each county in the Storm Events Database to our sample using county names.

period (zero values for *Weather Damages*); 32 have one year affected by weather damages; 37 cities have two years with weather-induced damages; 53 cities have three years with damages; 67 have four years with damages; and 90 cities have all four years with weather-induced damages. For the interaction of these damages with the newly-elected council members, the number of years with non-zero values is at most three during our sample period.

We then perform the analysis at the county-year level on the sample of 1,480 county-years from 2014 to 2018 using the two-stage least squares framework with the following first-stage regressions:

$$Depth\ of\ Bureaucracy_{i,t} = \beta_0 + \beta_1 Weather\ Damages_{i,t} + \beta_2\ Weather\ Damages_{i,t} \times Elected\ City$$
$$Members_{i,t} + \theta'X + \alpha_i + \delta_t + \varepsilon_{i,t,} \tag{2}$$

$$Breadth\ of\ Responsibility_{i,t} = \beta_0 + \beta_1 Weather\ Damages_{i,t} + \beta_2\ Weather\ Damages_{i,t} \times Elected\ City$$
$$Members_{i,t} + \theta'X + \alpha_i + \delta_t + \varepsilon_{i,t,} \tag{3}$$

where *Weather Damages* is the total damages induced by local weather events that occurred during the period covering the last three months of the fiscal year and the first three months after the fiscal year-end; *Weather Damages×Elected City Members* is the interaction of *Weather Damages* with the city's *Elected Council Members*, as defined in the main analysis and the appendix.

Panel A of Table 4 reports the results of the first stage regressions. Weather-induced damages result in a larger number of subordinate units that report to the finance division (increasing *Breadth of Responsibility*), likely because the city government combines the finance division with other units. Moreover, weather-induced damages interacted with newly-elected council members result in the city government assigning an incremental supervision level above the financial reporting function (increasing *Depth of Bureaucracy*). This is consistent with the city government prioritizing its timely response to the weather shocks by economizing the time and attention of

senior managers and delegating more tasks to lower-level managers (Radner, 1992; Harris and Raviv, 2002; Patacconi, 2009).

Panel B of Table 4 reports the second-stage results of the IV tests and confirms our main finding that a larger number of reporting units below the Finance manager improves the quality of the financial statements. Further, while *Depth of Bureaucracy* is identified by our first stage, we do not find significant results for its effect on the quality of the financial reporting.

Table 5 reports the weak identification tests for the first stages predicting *Breadth of Responsibility* and *Depth of Bureaucracy*. We report Kleibergen-Paap F-statistic for the TSLS regression. Kleibergen-Paap statistic is a cluster-robust version of the Cragg-Donald statistic used in Stock and Yogo (2005) to test whether the instruments are weak. The value of the Kleibergen-Paap statistic is larger than the critical value of 11.04, which corresponds to the 5% confidence level and the maximal TSLS bias of 5% (Table 5.1 in Stock and Yogo). Thus, we reject the null hypothesis that the instruments in our setting are weak. We also reject the null hypothesis of weak instruments by comparing the Kleibergen-Paap statistic value to the 7.03 critical value corresponding to the 5% significance level test that the TSLS size distortion is no more than 10% (Table 5.2 in Stock and Yogo). Overall, Table 5 suggests that our instrumental analysis has a strong first stage.

5. Exploratory Analyses on Determinants of Breadth and Depth and the Association Between Municipal Borrowing Costs and the Organizational Structure

In our final analysis, we conduct exploratory analyses examine the implications of our results on the established link between accounting quality and cost of capital and the determinants of the *Depth* and *Breadth* organizational design choices. Prior literature finds robust evidence that greater financial transparency translates into reductions in municipalities' cost of borrowing (e.g., Gore et

al., 2004; Baber et al., 2013; Cuny, 2016; Gillette et al., 2020). One implication of our findings could be that this result is affected by the association between municipal organizational structure and financial transparency. Specifically, it is unclear whether the association between financial transparency and cost of capital holds after directly controlling for elements of the municipality's organizational structure.

To examine this question, we collect the full sample of 2,500 bond issuances issued by California cities in our sample and during our sample period. We measure each city's cost of capital as the total interest cost (TIC) on the bond issuance. We then estimate the association between total interest costs, accounting quality, and municipal organizational structure.

Table 6 reports the results. In column (1), we replicate the established result from prior literature that accounting quality is associated with reductions in city's cost of capital. Specifically, we find that the receipt of a GFOA award is negatively associated with total interest costs. In column (2), we test whether this association holds after directly controlling for elements of the city's organizational structure. We find that the receipt of a GFOA award remains negatively associated with total interest costs. Additionally, we find that *Depth of Bureaucracy* is associated with higher interest costs, consistent with municipal investors pricing the potential agency costs associated with a longer subordinate chain between city managers and the finance department. Overall, our findings provide evidence that although municipal organizational structure determines accounting quality, the link between accounting quality and cost of capital remains significant.

Our final set of tests studies the determinants of the municipal organizational structure. In Table 7, we model the *Depth* and *Breadth* of the financial statement preparation function in municipalities with various economic determinants at the city and county level and year fixed effects. Column 1 reports the findings on the determinants of *Breadth of Responsibility*. We find

that population density is negatively related to *Breadth*. Specifically, additional ten thousand people per square mile in the city are related to 0.64-0.69 smaller *Breadth*. In addition, *Breadth* is lower by 0.64-0.65 in charter cities. *Breadth* is also positively related to the county's real GDP. Cities in counties with an additional hundred billion dollars in GDP have 0.13 more subordinate units below the finance manager.

Column 2 in Table 7 shows the results for the determinants of *Depth of Bureaucracy*. Our findings suggest that an additional ten thousand people per square mile in the city are related to 0.16-0.18 shorter *Depth*. Further, we find that counties with a 25th percentile of the *Diversity Index* have a 0.04 shorter *Depth of Bureaucracy* than counties with a 75th percentile of the index ((0.6692-0.6044)*0.618); and counties with a 10th percentile of the *Diversity Index* have a 0.12 shorter *Depth of Bureaucracy* than counties with a 90th percentile of the index ((0.6950-0.4983)*0.618). The combination of this result with our findings of lower GFOA award likelihood for longer *Depth of Bureaucracy* is consistent with the evidence in the economics literature that ethnical fractionalization is associated with poor public policies, institutional inefficiency, corruption, and low trust (Mauro, 1995; Alesina and La Ferra, 2005). We also find *Depth of Bureaucracy* to be longer in cities with mayoral elections by 0.11, compared to cities that do not elect mayors.

We do not find the democratic share of votes in the county to be associated with *Breadth* or *Depth*. Therefore, even though the literature in economics finds that Democratic state governors and presidents differ from the Republican ones in their spending of federal intergovernmental transfers and the total factor productivity, we do not find support for these phenomena (Blinder and Watson, 2016; Carlino et al., 2023).

5. Conclusion

This manuscript provides evidence on the quality of financial reporting in connection to

cities' organizational structure. Specifically, we examine variation in the scope of subordinate units reporting to the finance director and the delegation of control rights to the finance function within municipalities. To examine this question, we use a novel database of California cities from 2014 to 2018 and financial reporting quality awards by the Government Finance Officers Association. Our main findings suggest that a larger number of subordinate units reporting to the finance director increases the city's financial reporting quality. In contrast, a longer subordinate reporting chain between the finance function and the city manager reduces the quality of the city's financial reports. When we use weather-induced damages and the proportion of the newly-elected city council members for identification, the findings support the intuition that more information reported to the finance manager improves cities' financial reporting quality.

We also find that municipal organizational structure incrementally matters for the borrowing rates beyond the role of financial reporting quality. A longer subordinate chain between the finance manager and the city manager (i.e., greater bureaucratic depth) is associated with higher interest costs. Further, having the finance manager perform the treasury role is associated with reductions in total interest costs.

Overall, this paper is one of the first to investigate how organizational design in the financial reporting function affects the quality of reporting in municipal entities. Our findings indicate that a broader scope of information incorporated into the finance function improves the preparer's overall understanding of the city's financial situation. In contrast, a higher bureaucratic hurdle stemming from a longer subordinate reporting chain to the financial statement preparer potentially adds to the moral hazard problems faced by the city.

These results are particularly important given the concerns regarding the fiscal stress municipalities likely face due to the global pandemic. We show that the extent to which cities

provide transparent information regarding their liquidity and financial soundness appears to be at least partially driven by how the municipality is organized and the importance it places on the financial reporting function.

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Appendix. *Variable Definitions*

Administrative Division	An indicator that equals one if the city's organizational structure has an administrative director in a given fiscal year and zero otherwise. The city's organizational structure can have this position, even if not above the finance manager (the administrative director is not overseeing the finance manager's work).
Assistant City Manager	An indicator that equals one if the city's organizational structure has an assistant city manager in a given fiscal year and zero otherwise. The city's organizational structure can have this position, even if not above the finance manager (the assistant city manager is not overseeing the finance manager's work).
Breadth of Responsibility	The number of subordinate units that report to the financial statement preparer in the city's organizational structure for the given fiscal year.
Change in Debt	Change in total debt for the city from the previous fiscal year to the current one (in millions).
Charter City	An indicator that equals one for charter cities and zero otherwise.
Competitive Sale	An indicator variable that equals one if the bond was sold through a competitive sale, and 0 otherwise.
Credit Rating	The numerical equivalent of the bond's credit rating, where higher values indicate higher credit ratings.
Debt	Total debt outstanding as of the end of the fiscal year (in millions).
Debt to Assets	Total debt scaled by total assets (leverage) calculated for the given fiscal year.
Democratic Votes Percent	Percentage of the votes in favor of the Democratic candidate among the major party voters.
Depth of Bureaucracy	The length of the subordinate chain of reporting units between the city's financial statement preparer and the city manager in a given fiscal year. *Depth of Bureaucracy* equals zero if the financial statement preparer reports directly to the city manager; one if the financial statement preparer reports to the administrative director or the assistant city manager; or two if both the administrative director and the assistant city manager are present in the reporting chain from the financial statement preparer and the city manager.
Diversity Index	The probability of randomly selecting two people in the county and getting two people of different races, calculated as the Herfindahl-Hirschman Index based on the shares of county population by race.
Elected Council Members	The number of newly elected city council members (including the mayor) scaled by the maximum number of city council members.

Appendix. *Variable definitions continued*

Directly Elected Mayor	An indicator that equals one for cities that directly elect mayors and zero otherwise.
GFOA Award	Indicator variable that equals one if the city received the Government Finance Officers Association (GFOA) award in a given fiscal year and zero otherwise. The GFOA awards the Certificate of Achievement for Excellence in Financial Reporting to cities with financial reports that go beyond GAAP's minimum requirements in preparation for the Annual Comprehensive Financial Report (ACFR).
Going Concern	An indicator that equals one if the audit opinion in the financial statements mentions a going concern for the given fiscal year, zero otherwise.
Insured	Indicator variable equal to 1 if the bond is insured, and 0 otherwise.
Maturity	Natural log of the length of the bond's maturity.
Personnel Expenditure	The natural logarithm of total expenditures related to administrative activities by the city in a given fiscal year, as reported by the California State Controller website under the line item "Management and Support."
Principal Amount	Natural log of the bond's total principal amount.
Population	The city's population decile.
Population density	The city's population scaled by the square miles covered by the city (in 10,000s).
Real GDP	Real GDP at the county level in hundreds of billions of chained 2012 USD.
Refunding Amount	Natural log of one plus the bond's refunding amount.
Taxable	Indicator variable equal to 1 if the bond is taxable, and 0 otherwise.
TIC	Total interest costs on the bond issue.
Top Auditor	An indicator that equals one if the financial statements are audited by one of the top three auditors in a given fiscal year based on the number of municipal clients in California.
Treasury Unit	An indicator that equals one if the financial statement preparer supervises the city's treasury unit in a given fiscal year.
Weather Damages	The total damages induced by local weather events occurred during the period covering the last three months of the fiscal year and the first three months after the fiscal year-end (in thousands), scaled by the city's general fund total liabilities. (On average, municipalities file their financial reports seven months after the fiscal year-end (Cuny, 2016; Gillette, Samuels, and Zhou, 2020). Additionally, California law requires municipalities to file their financial statements within seven months.)

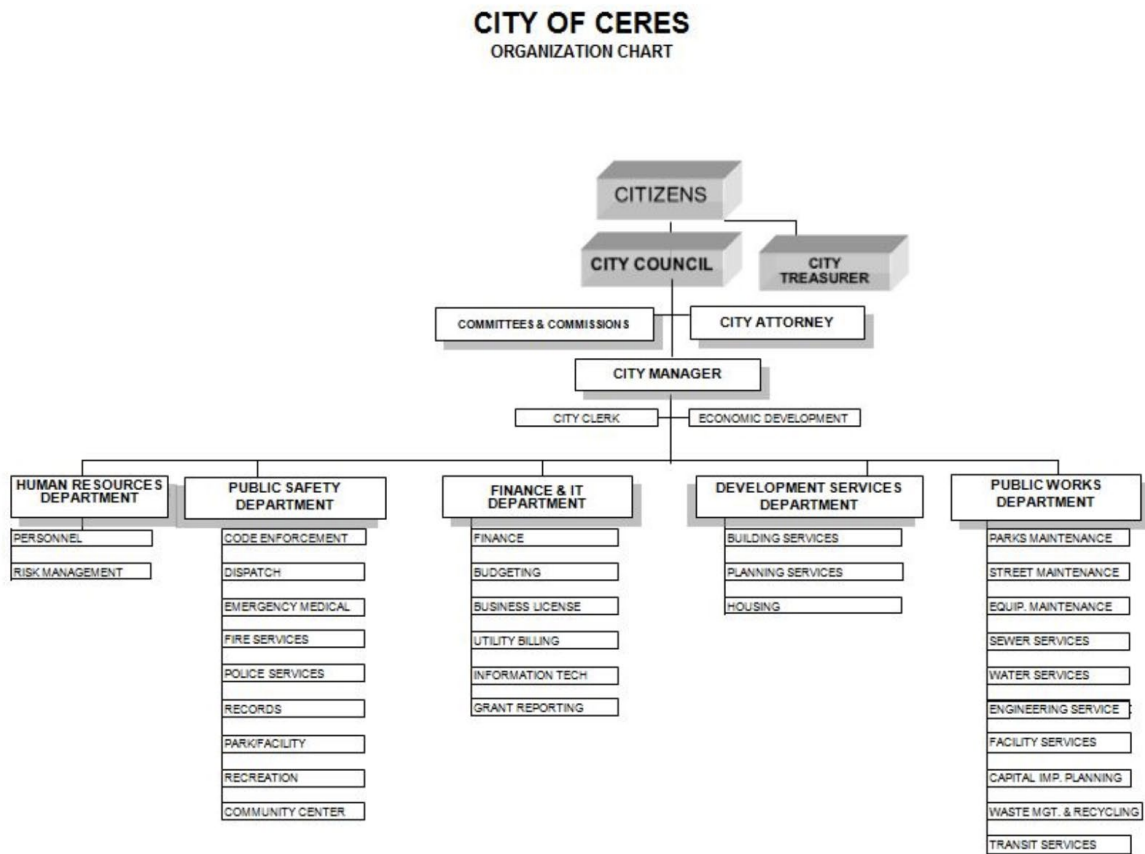|	
Weather Damages×Elected Council Members	The interaction of *Weather Damages* with *Elected Council Members*. *Elected Council Members* is defined in the next row of this table.

Figure 1: Organizational chart examples

Panel A: City of Ceres

City of Ceres, California
Basic Financial Statements
For the year ended June 30, 2016
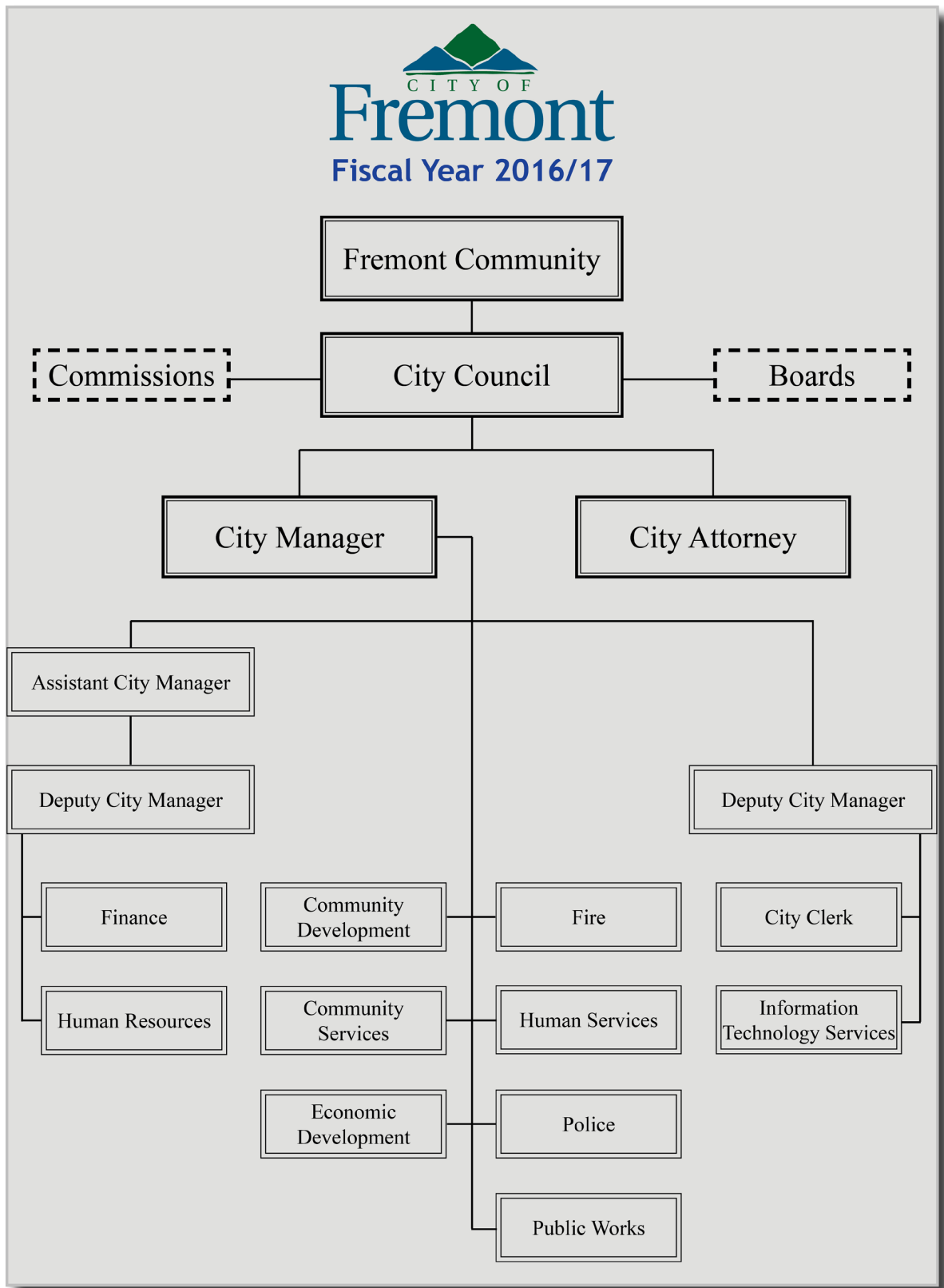
Organization Chart

CITY OF CERES
ORGANIZATION CHART

CITIZENS

CITY COUNCIL — CITY TREASURER

COMMITTEES & COMMISSIONS — CITY ATTORNEY

CITY MANAGER

CITY CLERK — ECONOMIC DEVELOPMENT

HUMAN RESOURCES DEPARTMENT	PUBLIC SAFETY DEPARTMENT	FINANCE & IT DEPARTMENT	DEVELOPMENT SERVICES DEPARTMENT	PUBLIC WORKS DEPARTMENT
PERSONNEL	CODE ENFORCEMENT	FINANCE	BUILDING SERVICES	PARKS MAINTENANCE
RISK MANAGEMENT	DISPATCH	BUDGETING	PLANNING SERVICES	STREET MAINTENANCE
	EMERGENCY MEDICAL	BUSINESS LICENSE	HOUSING	EQUIP. MAINTENANCE
	FIRE SERVICES	UTILITY BILLING		SEWER SERVICES
	POLICE SERVICES	INFORMATION TECH		WATER SERVICES
	RECORDS	GRANT REPORTING		ENGINEERING SERVICE
	PARK/FACILITY			FACILITY SERVICES
	RECREATION			CAPITAL IMP. PLANNING
	COMMUNITY CENTER			WASTE MGT. & RECYCLING
				TRANSIT SERVICES

Panel B: City of Fremont

City of Fremont

Fiscal Year 2016/17

Fremont Community

Commissions — City Council — Boards

City Manager | City Attorney

Assistant City Manager

Deputy City Manager | Deputy City Manager

Finance | Community Development | Fire | City Clerk

Human Resources | Community Services | Human Services | Information Technology Services

Economic Development | Police

Public Works

Table 1: Descriptive Statistics

This table describes the main sample of 1,588 city-years between 2014 and 2018. *GFOA Award* is an indicator variable equal to 1 if the city receives a GFOA award in a given year, and 0 otherwise. *Breadth of Responsibility* is the number of subordinate units that report to the finance department. *Depth of Bureaucracy* is the length of the subordinate reporting chain between the finance department and the city manager. *Treasury Unit* is an indicator variable equal to 1 if the finance department supervises the treasury unit, and 0 otherwise. All remaining variable definitions are provided in the Appendix.

	N	Mean	Min	Median	Max	Std. Dev.
GFOA Award	1,588	0.754	0.000	1.000	1.000	0.431
Breadth of Responsibility	1,588	1.196	0.000	0.000	8.000	1.703
Depth of Bureaucracy	1,588	0.415	0.000	0.000	2.000	0.575
Treasury Unit	1,588	0.162	0.000	0.000	1.000	0.369
Elected Council Members	1,588	0.087	0.000	0.000	1.000	0.161
Personnel Expenditure	1,588	15.305	11.359	15.305	18.237	1.083
Debt to Assets	1,588	0.689	0.000	1.000	1.000	0.393
Debt	1,588	0.100	0.000	0.023	1.781	0.269
Change in Debt	1,588	0.003	-0.097	-0.001	0.411	0.035
Going Concern	1,588	0.035	0.000	0.000	1.000	0.183
Top Auditor	1,588	0.363	0.000	0.000	1.000	0.481
Assistant City manager	1,588	0.383	0.000	0.000	1.000	0.486
Administrative Division	1,588	0.526	0.000	1.000	1.000	0.499

Table 2: Municipal structure and the quality of financial reporting

This table presents the results of the OLS regressions with various fixed effects where the quality of the municipal financial reporting is modeled as a function of the number of units that report to the Finance manager (*Breadth of Responsibility*) and the length of the subordinate chain between the Finance manager and the City manager (*Depth of Bureaucracy*). The dependent variable, *GFOA Award*, is a dummy variable equal to 1 if the municipality receives a Government Finance Officers Association Certificate of Achievement for Excellence in Financial Reporting and 0 otherwise. *Depth of Bureaucracy* is the length of the subordinate reporting chain between the Finance manager preparer and the City manager. *Breadth of Responsibility* is the number of subordinate units that report to the Finance manager. *Treasury Unit* is an indicator variable equal to 1 if the finance department supervises the treasury unit, and 0 otherwise. All variable definitions are provided in the Appendix. Column (1) includes year fixed effects; column (2) includes county and year fixed effects; and column (3) includes city and year fixed effects. Standard errors are clustered by city. ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively.

	(1) GFOA award	(2) GFOA award	(3) GFOA award
Breadth of Responsibility	0.025**	0.029***	0.017*
	(2.424)	(2.839)	(1.843)
Depth of Bureaucracy	-0.064	-0.076*	-0.083**
	(-1.513)	(-1.843)	(-1.968)
Treasury Unit	0.089**	0.052	-0.035
	(2.234)	(1.299)	(-0.772)
Assistant City manager	0.031	0.054	0.078**
	(0.854)	(1.562)	(2.043)
Administrative Division	0.057	0.038	0.062*
	(1.408)	(0.929)	(1.684)
Elected Council Members	-0.090	-0.067	-0.001
	(-1.616)	(-1.281)	(-0.022)
Personnel Expenditure	0.100***	0.077***	-0.001
	(4.459)	(3.351)	(-0.075)
Debt to Assets	-0.074	0.005	-0.021
	(-1.430)	(0.103)	(-0.558)
Debt	-0.037	-0.019	0.021
	(-0.738)	(-0.394)	(0.287)
Change in Debt	-0.224	-0.315	-0.076
	(-0.968)	(-1.400)	(-1.231)
Going Concern	-0.185*	-0.252**	-0.078
	(-1.825)	(-2.161)	(-1.371)
Top Auditor	0.136***	0.080**	0.058*
	(3.938)	(2.274)	(1.961)
Population	0.032***	0.020**	
	(3.309)	(2.091)	
Fixed Effects	Year	County, Year	City, Year
Observations	1,588	1,588	1,580
R-squared	0.223	0.358	0.894

Table 3: Summary statistics for the instrumental variables

Panel A describes the instrumental variables used in the two-stage least squares regressions. The two instrumental variables are (1) damages induced by local weather events (*Weather Damages*) and (2) the interactions of these weather-induced damages with the portion of the municipality's council that is newly elected (*Weather Damages×Elected Council Members*). Panel B reports the distribution of cities based on the number of sample years with a non-zero value of the instruments. The variable definitions are provided in the Appendix.

Panel A: Summary statistics for the instrumental variables

	N	Mean	Min	Median	P 75	P 95	Max	Std. Dev
Weather Damages× 1,000	1,588	2.215	0.000	0.000	0.018	2.489	1,765.490	45.486
Weather Damages×Elected Council Members× 1,000	1,588	0.089	0.000	0.000	0.000	0.005	20.617	0.981

Panel B: Distribution of cities depending on instrumental variable values over the sample period

	Number of sample years						
	0	*1*	*2*	*3*	*4*	*5*	*Total*
Count of cities that have a given number of sample years with non-zero Weather Damages	151	71	61	42	11	42	378
Count of cities that have a given number of sample years with non-zero Weather Damages×Elected Council Members	277	75	23	3	0	0	378

Table 4: Two-stage least squares analysis of the municipal organizational structure

This table shows the first-stage results for the two-stage least squares regressions explaining municipal organizational structure with two instrumental variables: (1) damages induced by local weather events and (2) the interactions of these weather-induced damages with the portion of the municipality's council that is newly elected, while controlling for the effects associated with the council turnover. Panel A reports the first-stage results. Column 1 (Column 2) models the number of units that report to the Finance Director (the length of the subordinate chain of reporting between the Finance Director and the City manager) with the total damages induced by local weather events (*Weather Damages*) and the interaction of these weather-induced damages with the proportion of the council that is newly elected (*Elected Council Members*). Panel B shows the second-stage results of the two-stage least squares regressions explaining the quality of financial reporting as a function of the municipal organizational structure. All variable definitions are provided in the Appendix. Year and county fixed effects are included in the regressions, and standard errors are clustered by county. ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively.

Panel A: The first-stage results		
	(1) *Breadth of Responsibility*	(2) *Depth of Bureaucracy*
Weather Damages	-0.123	0.169**
	(-0.707)	(2.452)
Weather Damages×Elected Council Members	-51.33***	-14.26**
	(-2.825)	(-2.155)
Treasury Unit	0.662***	-0.00129
	(2.754)	(-0.0227)
Elected Council Members	0.222	0.208***
	(0.722)	(3.067)
Personnel Expenditure	0.0647	-0.00852
	(0.640)	(-0.380)
Debt to Assets	0.245	0.0168
	(1.189)	(0.259)
Debt	-0.472	0.0290
	(-1.369)	(0.278)
Change in Debt	-0.438	0.117
	(-0.580)	(0.326)
Going Concern	0.172	-0.0333
	(0.524)	(-0.417)
Top Auditor	-0.221***	-0.0402
	(-2.607)	(-0.750)
Assistant City manager	-0.113	0.368***
	(-0.720)	(6.203)
Administrative Division	0.725***	0.533***
	(4.763)	(11.98)
Population	-0.013	0.012
	(-0.324)	(0.930)
Fixed Effects	County, Year	County, Year
Observations	1,588	1,588
R-squared	0.168	0.348

Table 4 *Continued*

Panel B: The second-stage results	
	(1)
	GFOA award
Breadth of Responsibility	0.465**
	(2.435)
Depth of Bureaucracy	-1.320***
	(-3.061)
Treasury Unit	-0.238
	(-1.417)
Elected Council Members	0.099
	(0.583)
Personnel Expenditure	0.037
	(0.646)
Debt to Assets	-0.081
	(-0.845)
Debt	0.224
	(1.601)
Change in Debt	0.020
	(0.043)
Going Concern	-0.369***
	(-3.048)
Top Auditor	0.126*
	(1.801)
Assistant City manager	0.560***
	(4.457)
Administrative Division	0.384
	(1.181)
Population	0.041**
	(2.322)
N	1,588

Table 5: Weak identification diagnostics tests

This table reports the results of the weak identification tests for the TSLS analysis. We start by reporting the Kleibergen-Paap F-statistic value, which is a cluster-robust version of the Cragg-Donald statistic used in Stock and Yogo (2005) to test whether the instruments are weak. The value of the Kleibergen-Paap statistic is larger than both the critical value of 11.04 (the 5% confidence level and the maximal TSLS bias of 5%) and the critical value of 7.03 (the 5% significance level test that the TSLS size distortion is no more than 10%). Overall, these tests reject the null hypothesis that the instruments in our setting are weak.

Kleibergen-Paap F-statistic	15.462
Critical Val. (Stock-Yogo, 5% maximal bias)	11.04
Critical Val. (Stock-Yogo, 10% maximal distortion)	7.03

Table 6: Cost of capital and the quality of financial reporting

This table presents the results of the OLS regressions where municipalities' cost of capital is modeled as a function of accounting quality and cities' organizational structure. The dependent variable, *TIC*, is the total interest cost on the municipal bond issue. *GFOA Award*, is a dummy variable equal to 1 if the municipality receives a Government Finance Officers Association Certificate of Achievement for Excellence in Financial Reporting and 0 otherwise. *Depth of Bureaucracy* is the length of the subordinate reporting chain between the Finance manager preparer and the City manager. *Breadth of Responsibility* is the number of subordinate units that report to the Finance manager. *Treasury Unit* is an indicator variable equal to 1 if the finance department supervises the treasury unit, and 0 otherwise. All variable definitions are provided in the Appendix. Both columns include year fixed effects, and standard errors are clustered by city. ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively.

	(1) TIC	(2) TIC
GFOA Award	-1.162***	-1.127***
	(-3.98)	(-4.15)
Breadth of Responsibility		-0.024
		(-0.59)
Depth of Bureaucracy		0.372**
		(2.32)
Treasury Unit		-0.322
		(-1.50)
Elected Council Members	-0.324	-0.523
	(-0.82)	(-1.32)
Top Auditor	0.141	0.085
	(1.21)	(0.72)
Assistant City manager	-0.168	-0.301*
	(-1.02)	(-1.92)
Administrative Division	0.545***	0.327**
	(3.32)	(2.57)
Population	0.120***	0.113***
	(3.08)	(3.30)
Credit Rating	0.019	0.019
	(1.27)	(1.25)
Insured	-0.098	-0.121
	(-0.78)	(-0.86)
Maturity	0.000***	0.000***
	(11.71)	(10.75)
Taxable	1.613***	1.550***
	(4.95)	(5.20)
Refunding Amount	0.022***	0.021***
	(3.01)	(3.06)
Principal Amount	-0.240***	-0.209***
	(-5.38)	(-3.99)
Competitive Sale	0.234**	0.208**
	(2.32)	(2.03)
Fixed Effects	Year	Year
N	2,500	2,500
R^2	0.510	0.522
adj. R^2	0.507	0.518

Table 7: Determinants of municipal organizational structure

In this table, we study the determinants of municipal organizational structure. Column 1 models *Breadth of Responsibility* and column 2 models *Depth of Bureaucracy*. *Breadth of Responsibility* is the number of subordinate units that report to the financial statement preparer in the city. *Depth of Bureaucracy* is the length of the subordinate chain of reporting units between the city's financial statement preparer and the city manager. *Population density* is the city's population scaled by the square miles covered by the city (in 10,000s). *Charter City* is an indicator that equals one for charter cities and zero otherwise. *Real GDP* is at the county level in hundreds of billions of chained 2012 USD. *Diversity Index* is the probability of randomly selecting two people in the county and getting two people of different races. *Directly Elected Mayor* is an indicator that equals one for cities that directly elect mayors and zero otherwise. *Democratic Votes Percent* is the percentage of the votes in favor of the Democratic candidate among the major party voters. All variable definitions are provided in the Appendix. Both columns include year fixed effects, and standard errors are clustered by city. ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively.

	(1) Breadth of Responsibility	(2) Depth of Bureaucracy
Population Density	-0.693**	-0.181**
	(-2.241)	(-2.047)
Charter City	-0.361**	-0.074
	(-2.008)	(-1.226)
Real GDP	0.130***	0.007
	(2.601)	(0.501)
Diversity Index	0.256	0.618**
	(0.254)	(2.043)
Directly Elected Mayor	0.003	0.113*
	(0.018)	(1.897)
Democratic Votes Percent	-1.006	-0.024
	(-1.467)	(-0.100)
Fixed Effects	Year	Year
N	1,588	1,588
R^2	0.038	0.029