

MUNICIPAL GOVERNANCE AND INTERNAL CONTROL DEFICIENCIES:
DOES STRUCTURE MATTER?

By

Dara Marie Marshall

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ABSTRACT

MUNICIPAL GOVERNANCE AND INTERNAL CONTROL DEFICIENCIES: DOES STRUCTURE MATTER?

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This study examines the association between governance and internal control deficiencies in the municipal government sector using cities with populations over 50,000. I hypothesize that municipalities with governance structures consistent with greater allocative efficiency (i.e., how well services produced match citizens' preferences) and lower productive efficiency (i.e., how effectively services are produced and provided given a level of resources) will have more internal control deficiencies. To test my hypothesis, I develop a new measure of municipal governance based on the following eight governance mechanisms: form of government, presence of a chief appointed official, shared budget-setting authority, election or appointment of department heads, direct democracy, council voting power of chief elected official, presence of chief elected official on council, and council terms. As predicted, I find that city governments with a combination of governance mechanisms consistent with greater allocative efficiency are more likely to report an internal control deficiency than cities that have adopted governance mechanisms consistent with greater productive efficiency.

DEDICATION

I dedicate this dissertation to my parents William and Joyce, my four sisters: Cheshana, Shelley, Amina, and Ashira, and my brother William.

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TABLE OF CONTENTS

LIST OF TABLES	vi
LIST OF FIGURES	vii
CHAPTER I: INTRODUCTION	1
CHAPTER II: BACKGROUND AND LITERATURE REVIEW	7
2.1 Background	7
2.2 Literature Review	8
2.2.1 Prior Research on Internal Controls	8
2.2.2 Corporate versus Municipal Governance	11
2.2.3 Municipal Governance and Efficiency	12
CHAPTER III: HYPOTHESIS DEVELOPMENT	15
CHAPTER IV: METHODS	23
4.1 Dependent Variable	23
4.2 Governance Structure	24
4.3 Control Variables	27
CHAPTER V: SAMPLE SELECTION AND DATA	29
CHAPTER VI: RESULTS	31
6.1 Primary Tests	31
6.2 Supplemental Analyses	34
CHAPTER VII: CONCLUSION	39
APPENDICES	62
Appendix A: Municipal Governance Mechanisms	63
Appendix B: Latent Class Analysis	69
REFERENCES	73

LIST OF TABLES

TABLE 1: Latent Class Analysis	43
TABLE 2: Variable Definitions	44
TABLE 3: Sample Description	46
TABLE 4: Descriptive Statistics of No Reportable Condition Firm-Year versus Reportable Condition Firm-Years.	47
TABLE 5: Correlation Matrix	49
TABLE 6: Determinants of Internal Control Deficiencies and Tests of the Effect of Governance Structure	52
TABLE 7: Determinants of Internal Control Deficiencies Using Form of Government Measure	54
TABLE 8: Comparison of Governance Measures	56
TABLE 9: Incidence of At Least One Reportable Condition over Time	58
TABLE 10: Poisson Regression of Incidence of Reportable Conditions over a Four-Year Period	60

LIST OF FIGURES

Figure 1: Governance Mechanisms and Influence
on Incentives and Organizational Missions

72

CHAPTER I: INTRODUCTION

In this study, I examine the relation between municipal governance structure and internal controls. Municipalities receive a significant amount of funding from the federal government. In the fiscal year 2010, the federal government had direct expenditures to state and local governments of over \$630.2 billion (U.S. Census 2010). With the new Budget Control Act of 2011, municipalities will face decreased federal assistance, which could increase financial distress. Also, municipalities are facing financial constraints given declining tax bases and reduced funding from state governments. Increased financial distress could lead to internal control deficiencies as it does in for-profit firms (Ashbaugh-Skaife et al. 2007; Doyle et al. 2007; and Ogneva et al. 2007). Poor internal controls provide opportunities for fraud (Garrison et al. 2011; MacDonald 2011).

I examine whether the government structure, which I define as the combination of governance characteristics, affects the control environment. The city of Detroit recently had a change in leadership precipitated by numerous scandals involving the former mayor. Some of these scandals involved the misuse of city resources. When the new mayor was elected, his business background as the chief executive officer of his own successful firm was expected to bring professionalism and better management to the city. Despite high expectations, the city continues to face financial issues. For example, the city's health department has problems with internal control as evidenced by an employee writing herself a grant for just under \$5,000. The leadership changed but the government structure did not.

Municipalities govern themselves in different ways in order to meet the preferences of their citizens and other stakeholders. These preferences can be particular preferences of different groups of citizens or stakeholders or they can be community wide preferences. The preferences

of particular groups do not always overlap with each other, community wide preferences, or the long-term interests of the community. Frant (1996) defines the matching of these two different types of preferences as allocative efficiency and productive efficiency. Municipalities that are allocatively efficient meet the particularistic preferences of various citizen or stakeholder groups. Municipalities that are productively efficient meet preferences of the city as a whole, which usually includes long-term goals and projects and delivering services in a cost-effective manner. Cities achieve these different efficiencies by combining different governance mechanisms, which I define as municipal governance structure.

American municipal governance structures are consistent with different mixes of allocative efficiency – meeting multiple particularistic preferences – and productive efficiency – meeting the needs of the city as a whole. For example, Lansing, Michigan has the following combination of governance characteristics: a strong-mayor form of government, a city council elected by district, an at-large, budgetary authority that rests with the mayor, a chief appointed officer (CAO), department heads that are appointed by the mayor, and staggered council terms; and the mayor is not a member of council nor can vote on council issues. By having a directly elected mayor with the authority to propose the budget and hire his/her own administration, the city of Lansing is more responsive to various interest groups. For example, the mayor can promise to appoint the head of an interest group to a position in his/her administration for support by that interest group in an election.

This is in contrast to the city of Grand Rapids, Michigan, that has a governance structure comprising these following governance characteristics: a directly elected mayor with no appointment or budgetary power, a chief appointed officer – the city manager – that is appointed by city council, and appointed department heads that serve the city manager; and the mayor is a

member of council that can vote in the event of a tie. The operating decisions of the city, such as the appointment of department heads and setting the budget, are more shielded from the influence of interest groups since the city manager is appointed by the council and not directly elected. Even though individual council members may still try to meet particular citizen preferences in order to get elected, the choice of city manager still rests on a majority vote of council and thus should reflect community wide preferences versus particularistic preferences of different citizen or stakeholder groups. By giving the city manager powers such as sole budget authority and appointment powers for department heads as well as strengthening the power of council by having election terms staggered and unifying power under council, this governance structure is less allocatively efficient.

Municipal government structure arises to meet varying preferences for allocative and productive efficiencies but these structures, the combination of governance mechanisms, affect components of the control environment. In the Detroit example, the leadership of the city changed but the structure did not. The structure of the city, with its combination of governance mechanisms such as the mayor solely proposing the budget and having his/her own staff separate from council, decreases communication. By the mayor being directly elected and separate from council, each branch is competing for votes and has lower incentive to monitor the other. This combination of governance mechanisms, the governance structure, creates a lower control environment leading to a higher incidence of auditors detecting internal control deficiencies. I test this hypothesis by examining the incidence of reportable conditions related to the financial statements as detected during the A-133 audit as a function of four governance structures. I do this while controlling for other characteristics of cities such as complexity, size, financial risk, revenue diversity, and auditor characteristics.

The examples of Lansing and Grand Rapids provide insight into how governance structures designed to meet different preferences for allocative and productive efficiencies can affect internal control. Lansing has had at least one significant deficiency each year for the past four years, with at least three being material weaknesses. These deficiencies include no segregation of duties and multiple adjustments that collectively caused material misstatement in the financial statements. The causes cited include consolidation of positions in the accounting department and lack of staff in the finance department. Grand Rapids has not had a significant deficiency in internal control since 2008. In its 2008 Single Audit, the significant deficiency was related to timeliness of departments reporting to the Comptroller for financial statement preparation. There wasn't any evidence that departments did not communicate with one another. This seems reasonable given that all department heads report to the city manager who reports to the council. There is no department within the city that is outside of that chain of command. This is in contrast to Lansing, where some departments are under the control of the mayor or his/her staff and others are under the council or a directly elected department head. Having different directly elected officials with their own staffs creates the potential of using appointments as political favors to gain reelection. This decreases productive efficiency and decreases the control environment as there are fewer resources dedicated to city wide needs such as financial reporting.

I test my hypothesis using a governance measure developed in Marshall (2010). Based on latent class analysis (LCA) of eight governance mechanisms (i.e., form of government, presence of a CAO, sole budget responsibility of the mayor, election or appointment of department heads, direct democracy, council voting power of chief elected official (CEO), presence of CEO on the council, and council terms), I identify four governance classes that reflect voter preferences for

different levels of allocative efficiency. Since governance mechanisms develop jointly (Armstrong et al. 2010), using a measure that accounts for different combinations of mechanisms addresses the endogeneity problem of relating governance to accounting outcomes. In the case of municipalities, governance mechanisms arise to meet the needs of the citizenry but there are tradeoffs. I posit that there is a tradeoff between responsiveness to the citizenry through allocative efficiency and investment in control systems through productive efficiency.

Using a sample of municipalities with populations over 50,000, I model the probability of disclosing an internal control deficiency as a function of governance structure and municipal characteristics analogous to the characteristics examined in the literature on publicly traded firms. Consistent with my hypothesis, I find that municipalities that have governance structures comprising a combination of mechanisms that reflect preferences for higher allocative efficiency are more likely to have internal control deficiencies than municipalities with mechanisms that reflect lower allocative efficiency. I also find that municipalities that are more complex, larger, and riskier are more likely to have an internal control deficiency consistent with prior literature on firms and not-for-profit organizations.

I contribute to the accounting literature in two ways. First, I examine the relation between governance and internal control using a measure of governance structure that is consistent with preferences for various levels of allocative and productive efficiencies. Prior studies that examine governance and internal control use governance indexes or individual governance mechanisms. This ignores the endogenous nature of governance, since governance mechanisms and an organization's information environment are simultaneously determined (Armstrong et al. 2010). Since different combinations of governance mechanisms are observed in different

information environments, my use of a governance measure based on LCA addresses the issue of combinations of municipal governance mechanisms being endogenously determined.

Second, my analysis provides a theoretical explanation of how governance affects internal controls through the efficiency issues that governance structure solves. Political science theory provides an explanation for the broad set of governance mechanisms observed in the municipal setting, whereas explanations for governance in the corporate or not-for-profit settings are varied and still being developed. Most U.S. municipalities modeled themselves after the federal government, but many have changed their governance structures in response to various problems, including corruption and patronage (Frederickson et al. 2003). Municipalities continue to adopt governance mechanisms in response to tradeoffs between levels of allocative efficiency, (i.e., how much its citizens will value the services produced) and productive efficiency (i.e., how effectively services are produced and provided given a level of resources) (Frant 1996; Frederickson et al. 2004; Svava and Watson 2010). An analogue in corporate governance today is the call by institutional investors and other stakeholders of corporations such as unions for more influence in corporate governance. This is one of the many reforms included in the Dodd-Frank Wall Street Reform and Consumer Protection Act which gives the Securities and Exchange Commission authority to make rules to give shareholders a greater role in corporate governance.

The rest of the study is organized as follows. Section two describes background information on municipal governance and internal control. Section three reviews relevant literature and develops my hypotheses. Section four describes the methods used, and section five outlines my sample selection and data. Section six presents the results, and section seven concludes.

CHAPTER II: BACKGROUND AND LITERATURE REVIEW

2.1 Background

For cities, the evaluation and disclosure of internal controls is mandated by the Single Audit Act of 1984, its subsequent amendments, and the Office of Management and Budget (OMB) Circular A-133. If a city receives enough federal funding (\$100,000 from 1984 until 1996; \$300,000 from 1996 until 2003; and \$500,000 from 2003 until the present), it is subject to provisions in the Act that mandate an audit. This audit includes a report on internal control over financial reporting and major programs. The report on internal controls for a Single Audit is not the same as what is disclosed under Sections 302 and 404 of the Sarbanes-Oxley Act. Under the Single Audit Act, auditors are not required to opine on the internal controls of an organization but rather describe:

“The scope of the auditors’ testing of internal control over financial reporting and compliance with laws, regulations, and provisions of contracts or grant agreements... Auditors should state in the reports whether the tests they performed provided sufficient, appropriate evidence to support an opinion on the effectiveness of internal control over financial reporting and on compliance with laws, regulations, and provisions of contracts or grant agreements.” (GAO Government Audit Standards 2007)

In addition to describing the scope of the testing of internal controls, the report must also contain any significant deficiencies, material weaknesses, and non-compliance.

Though the Single Audit Act has existed for almost three decades, there have been only a handful of studies in accounting examining internal controls in cities (Wallace 1981; Raman and Wilson 1992; Lopez and Peters 2010). Wallace’s (1981) study examines information about internal controls contained in the financial disclosures of municipalities. The author finds that

disclosures about internal controls generally do not provide information on risk exposure or costs and benefits, but her study came before the Single Audit Act and the formation of the Government Accounting Standards Board. Raman and Wilson (1992) examine the effect of mandating Single Audits on audit fees and find that cities that have internal control deficiencies and material non-compliance have higher audit fees, but they do not find consistent results for single audits increasing audit fees. Lopez and Peters (2010) use internal control deficiencies and material weaknesses disclosed in Single Audits as a measure of audit quality and examine the relationship between auditor type and audit quality. The authors find that audit quality in cities and counties is higher when city and county clients use Big-4 CPA firms or large audit firms, rather than government auditors. None of these studies examine the determinants of internal control deficiencies in cities.

2.2 Literature Review

In this section, I review the literature on governance and internal controls. I compare corporate and municipal governance. I also explain how U.S. municipal governance has changed through time and the reasons for the changes. I conclude by developing my hypothesis about how governance structure is consistent with levels of allocative and productive efficiencies, which in turn affect internal control.

2.2.1 Prior Research on Internal Controls

In the for-profit setting, recent accounting research examines the evaluation and reporting of internal controls required under Sections 302 and 404 of the Sarbanes-Oxley Act of 2002 (Schneider et al. 2009). Section 302 went into effect in August of 2002 and includes a mandate that management certify that they “have evaluated the effectiveness of internal controls and that they include in their report their conclusions on the effectiveness of internal controls” (Schneider

et al. 2009). Ge and McVay (2005) use data from the newly implemented disclosures under Section 302 to find that firms with material weaknesses disclosed under Section 302 tend to be more complex, have a large auditor, are smaller, and have lower return on assets. Ashbaugh-Skaife et al. (2007) find results similar to Ge and McVay (2005). In addition to concluding that smaller and more complex firms that engage a large auditor are more likely to have internal control deficiencies, they also find that financially distressed firms with prior restatements and merger and acquisition activity have a higher incidence of internal control deficiencies.

After the reporting requirements under Section 404 of the Sarbanes-Oxley Act (SOX) went into effect at the end of 2004 for large accelerated filers, other studies examined the determinants of internal control deficiencies. These studies found results similar to past studies; firms with losses, financial distress or risk, greater complexity (more segments), and high sales growth had higher incidence of internal control deficiencies (Krishnan and Visvanathan 2007; Ogneva et al. 2007).

There is also limited research on the determinants of internal control quality in the not-for-profit setting. Required internal control evaluations for state and local government and governmental agencies are mandated in the Single Audit Act of 1984. Through a 1990 administrative action, the OMB extended the scope of the Single Audit Act to not-for-profit organizations with the issuance of OMB Circular A-133. Two accounting studies have examined audits under the Single Audit Act of not-for-profits. Keating et al. (2005) conduct univariate analysis to determine the characteristics associated with adverse Single Audit Findings in not-for-profits. Their study finds that smaller not-for-profits and those not qualified as low-risk have more adverse Single Audit Findings. They also find that not-for-profits employing a Big-5 CPA firm had fewer reportable conditions, but those employing a large regional firm disclosed more

reportable conditions. Petrovits et al. (2011) extend the Keating et al. (2005) analysis with multivariate tests of the determinants of reportable conditions and material weaknesses. They also examine the impact of having reported internal control problems on donations. Those authors find that charities with reportable conditions in internal controls over financial reporting are smaller, complex, growing, and facing financial distress. They also find that charitable donations and government contributions decrease after these reportable conditions are disclosed.

The relationship between governance and internal controls has also been examined in both the for-profit and not-for-profit literature. Krishnan (2005) examines the role of audit committees on internal control quality and finds that having more financial experts on the audit committee is associated with fewer internal control issues. The author also finds that the more independent an audit committee, as measured by the proportion of independent directors, the fewer reported internal control issues there are in the firm's 8-Ks. Similar to Krishnan (2005), Zhang et al. (2007) examine audit committees and their relationship with internal control quality using audit committee independence and expertise. They extend Krishnan (2005) by including other audit committee characteristics such as audit committee size, audit committee meetings, audit committee accounting expertise, and audit committee non-accounting financial expertise. The authors also examine corporate governance characteristics such as board size, board meetings, and a dichotomous governance measure based on the median of the sum of five governance characteristics. All governance characteristics except their overall governance measure are examined individually. They find that firms with more independent audit committees and greater financial expertise are less likely to have internal control deficiencies. The authors do not find consistent results for their overall governance measure. Hoitash et al. (2009) examine various audit committee characteristics individually but also include a

governance measure that is a sum of five governance characteristics. Their results are consistent with prior research. They find that their governance measure is negatively associated with Section 404 material weakness disclosures. Doyle et al. (2007) also use a governance measure that is the sum of various indicators for governance mechanisms. Their governance measure is significant in only one of their analyses.

All of these studies examine individual governance characteristics or use governance indexes. By examining governance characteristics individually or by using governance indexes that are sums of various characteristics, the co-occurrence of various mechanisms and the endogenous nature of combinations of governance mechanisms are ignored. Armstrong et al. (2010) explain that governance mechanisms and a firm's information environment are simultaneously determined and thus different governance mechanisms and information environments should be seen together for a particular firm. They cite two papers (Larcker et al. 2007; Dey 2008) that create better measures of corporate governance by using factor analysis to determine the dimensions of corporate governance. I contribute to a better understanding of the association between governance and internal control by using a governance measure that attempts to address the issue of various governance mechanisms being endogenously determined.

2.2.2 Corporate versus Municipal Governance

Zimmerman (1977) argues that corporate governance and municipal governance differ in control and monitoring. Citizens are the residual claimants of a municipality, similar to shareholders, but due to high transaction costs and low individual benefits of voting, monitoring and control by municipal residents is low. In addition to shareholders in corporations facing lower transaction costs than citizens, shareholders can concentrate ownership through buying multiple shares whereas citizens cannot. Another difference between municipal governance and

corporate governance is form. Corporate managers are hired and monitored by boards of directors that are elected by shareholders. Some municipalities have a similar form where a city council is elected by the citizens of the city and that council monitors and hires a city manager for the city. Other municipalities have a form of government where the citizens directly elect a mayor who manages the city, as well as a council that acts as the legislative branch of the city. The mayor and council are monitored by each other as well as the citizens. The comparison of corporate governance to municipal governance highlights the complexity of the governance construct. Governance is multidimensional (Armstrong et al. 2010), but the current literature on internal controls does not address the endogenous co-occurrence of governance mechanisms.

2.2.3 Municipal Governance and Efficiency

Various governance mechanisms have developed in cities to deal with different efficiency issues. In the nineteenth century, most United States municipal governments adopted governance mechanisms to model the federal government with a separation of powers between executive and legislative branches (Frederickson et al. 2003). One mechanism is form of government. One type of form of government is the mayor–council form where there is a directly elected mayor who manages the city and a separately elected council. One consequence of this governance mechanism is that it leads to a less powerful government. Toward the turn of the nineteenth century, many cities responded to this lack of concentration of power in municipal government by strengthening the power of their mayors through various governance mechanisms such as giving the mayor power to appoint department heads (Renner and DeSantis 1993).

At the beginning of the twentieth century, the municipal reform movement began, and many cities adopted reforms such as civil services systems, city manager forms of government, direct democracy measures such as initiative and referendum, and at-large elections in an attempt

to make cities more professional and mirror the corporate form. These mechanisms were meant to combat corruption, patronage, and political machines, but there are tradeoffs. Frederickson et al. (2004) point out: “The structural characteristics of the reform project made it more difficult for disadvantaged groups to participate in local politics.” Some cities that reformed have subsequently re-adopted mechanisms such as elections by district, directly elected mayors, and increasing mayoral powers to make their governments more accessible and responsive to all their citizens (Frederickson et al. 2004; Svava and Watson 2010). In addition, some cities that did not reform adopted the governance mechanisms of reformed cities to become more professional and efficient. An example of the latter is the hiring of a CAO.

Prior research that examines the effect of municipal governance on various accounting outcomes uses a dichotomous measure of governance: whether a city has a mayor–council form of government or a council–manager form of government (i.e., a government with no separation of powers between mayor and council and an appointed city manager) (Zimmerman 1977, Evans and Patton 1987; Ward et al. 1994; Vijayakumar 1995; Giroux and McLelland 2003). Zimmerman (1977) examines differences in disclosure and auditors between mayor–council and council–manager forms of government. He finds that council–manager cities are more likely to be audited, use large national auditors, and have longer annual reports than mayor–council cities. Evans and Patton (1987) model municipal disclosure and test whether monitoring and signaling motivate disclosure as proxied by participation in the Certificate of Conformance program. The authors use several variables including form of government to proxy for monitoring incentives and find significance for form of government but not the other monitoring proxies. Vijayakumar (1995) examines the determinants of call decisions for municipal bonds. He uses the form of government to test whether incentives to pander to interest groups influence call decisions but

does not find significant results for that measure. Giroux and McLelland (2003) build upon Zimmerman's (1977) study by examining differences in financial performance between different forms of government in addition to differences in disclosure. Using two time periods, they find that council–manager forms of government have better quality disclosure and financial performance.

The evolving nature of municipal governance implies a need for a measure that includes additional mechanisms other than form of government. In a descriptive study, Frederickson et al. (2004) find that cities choose from governance mechanisms such as having a CAO, whether the mayor has sole budget authority, appointment versus elected department heads, and having direct democracy provisions such as initiative, referendum, or recall, in order to balance allocative efficiency and productive efficiency. Few accounting studies have used these and other governance mechanisms. Gore's (2009) analysis of the determinants of municipal cash balances includes controls for whether the CEO is on the council, whether that official votes on the council, and whether the council members' terms are staggered versus concurrent. She finds that excess cash balances, a proxy for high agency costs, are higher in cities where the CEO is on the council, the CEO votes on the council, and the council has staggered instead of concurrent terms. In a working paper, Baber et al. (2010) use twelve governance mechanisms including voter oversight and staggered council terms. Many of the measures they use are outside of the control of cities such as their state oversight measures and political competition measure, which differ from the mechanisms I use in this paper. Also, the authors' restatement model examines the individual effect of each mechanism and does not consider how these governance mechanisms interact.

CHAPTER III: HYPOTHESIS DEVELOPMENT

Several studies (Frederickson et al. 2003; Renner and DeSantis 1994; Frederickson et al. 2004) in public administration have found that “form of government” does not fully describe governance of municipalities due to cities adopting different combinations of municipal governance mechanisms. These authors attempt to describe municipal governance structure through case studies and qualitative clustering of governance mechanisms. Frederickson et al. (2004) surveyed 200 cities (116 responded) and by using 15 governance mechanisms, grouped cities into five categories: political, adapted political, conciliated, adapted administrative, and administrative. The authors did not construct their categories using any sort of quantitative method such as cluster analysis. Instead, they used historical references, like the Model City Charter, as a starting point for two of their governance categories, political cities and administrative cities. The authors developed the other three categories by documenting trends in how cities are adopting different governance mechanisms and then creating categories that fall between political and administrative cities. Though Frederickson et al.’s (2004) classification is informative; it is not based on a quantitative analysis of how governance mechanisms group together. Thus, it is difficult to determine if their classification truly measures the underlying construct of municipal governance structure.

My attempt at developing a governance measure using quantitative methods involves using LCA on eight governance mechanisms in order to identify distinct governance structures. Three of the mechanisms I use directly overlap with the mechanisms used in the Frederickson et al. (2004) study: form of government, presence of a CAO, mayor on council. The other four mechanisms I use have been examined in other studies: budgetary authority of the mayor (DeSantis and Renner 2002), elected department heads (DeSantis and Renner 2002; Frederickson

et al. 2003), mayor votes on council (Gore 2009), and staggered or concurrent council terms (Gore 2009).

Citizens' preferences for certain levels of allocative and productive efficiencies affect municipalities' governance structures, which in turn affect municipalities' internal control. The Committee of Sponsoring Organizations of the Treadway Commission (COSO) defines internal control as consisting of five components: control environment, risk assessment, control activities, information and communication, and monitoring (COSO 1992). For each governance structure, I will first discuss how preferences for allocative and productive efficiencies are expressed through the combination of governance mechanisms chosen and then how the combination of governance mechanisms affects two of the components of internal control: communication and monitoring.

From the eight governance mechanisms, four governance structures, i.e., specific combinations of mechanisms are the best fit for the LCA. In Table 1, structure one has the following combination of characteristics: mayor–council form of government, no CAO, mayor solely prepares the budget, appointed department heads, direct democracy measures, separation of powers (the mayor is not a member of council and does not vote on council), and concurrent council terms. This combination of mechanisms most closely resembles Frederickson et al.'s (2004) political city category. Political cities are consistent with high allocative efficiency and several of the mechanisms present in structure one (mayor–council form of government, no CAO, and separation of powers) are consistent with allocative efficiency. In combination, these eight mechanisms create an allocatively efficient governance structure by strengthening the power of the mayor. In addition, the governance mechanisms of concurrent council terms decrease the power of council by decreasing the continuity of council and potentially increasing

competition between council members. As a result, mayoral budgetary authority combined with a weaker council gives the mayor power to appease various interest groups by providing city resources to those groups. Some examples are the provision of services to certain neighborhoods or economic development resources for businesses.

The combination of governance mechanisms that create governance structure one is consistent with preferences for high allocative efficiency but also affects internal control through its components of monitoring and communication. Governance structure one's combination of mayor–council form of government with the mayor having sole authority to propose the budget with no CAO, separation of powers, and a weaker council creates an environment where the council has less incentive to monitor the delivery of city services. According to Zimmerman (1977), the explanation for lower monitoring in this environment is that the costs and benefits of the mayor's decisions are reduced for the council, since the mayor is directly elected by the people and can thus be held accountable separately for his or her actions. The council can blame the poor delivery of city services on the mayor and use their weaker power as an excuse for not being able to do more for their citizens. Since the council's and mayor's reelection hopes are not directly tied to each other's performance, communication is lower as well. Svava (2001) documents this in a survey of council members working under different forms of government. He finds that council members in mayor–council forms of government feel that communication is lesser between themselves and the mayor.

Governance structure two differs from structure one in a few ways. Though it has a mayor–council form of government, there is a CAO and the mayor does not have sole authority to propose the budget. Similar to structure one, the mayor is not a member of the council but in this structure the mayor can vote on council. Also, the council's terms are staggered, which

increases the power of the council especially with the combination of the mayor not having sole budget authority but having a CAO. Frederickson et al. (2003) find that in the majority of mayor–council cities that have a CAO, the decision to hire the CAO is made jointly by the mayor and the council. The combination of mayor–council form of government with a CAO and a mayor who can vote on council is similar to either the adapted political or conciliated city categories of Frederickson et al. (2004). These types of cities try to balance responsiveness to their citizens with professional management of city services. In terms of efficiency, they would be allocatively efficient, but less so than purely political cities and would be more productively efficient than political cities.

This mixture of moderately high allocative efficiency and moderate productive efficiency affects internal control through communication and monitoring in the following ways.

Communication is moderately high, since the mayor has to work with council on the decision to hire and fire the CAO and does not have sole budget authority. Also, the mechanisms of the mayor voting on council increase interaction with the council, which leads to more communication. Monitoring may still be low in this structure since the council is still not directly accountable for the actions of the mayor; however, since certain decisions are made jointly, such as those on the CAO, there is a higher incentive for the mayor and council to monitor one another compared to structure one.

The combination of governance mechanisms that compose governance structure three (council–manager form of government with a CAO, no sole budget authority for the mayor, no separation of powers since the mayor is on the council and votes on the council, and staggered council terms) differs significantly from the other three governance structures. Structure three is the only one that has a council–manager form of government and the mayor as a member of

council. Though this structure shares governance mechanisms with other structures, such as having a CAO, having the mayor vote on council, and having staggered council terms, the combination of these mechanisms with a different form of government changes the mix of allocative and productive efficiencies. For example, structure two has a CAO, but because it also has a mayor–council form of government, the CAO may be more of a political appointment by the mayor and the overall structure of government is more allocatively efficient. On the other hand, in council–manager forms of government, the council has the power to hire and fire the CAO, which lowers the level of politics associated with the position. This makes structure three less allocatively efficient since it is harder for interest groups to affect the choice of CAO. This is because the hiring and firing of the CAO is a group decision instead of just the mayor's. Staggered council terms combined with council–manager form of government also decrease allocative efficiency in this structure by strengthening the power of the CAO. Because council members' terms are staggered, it is harder for interest groups to shift power on the council in order to fire a CAO who is not catering to their particularistic preferences. In terms of the Frederickson et al. (2004) framework, this structure resembles that of administrative cities. These types of cities are known for professional management, efficiency in service delivery, and collaborative government (Newland 1995), which is consistent with high productive efficiency.

The description of administrative cities and the shared combination of mechanisms common to structure three and administrative cities imply a highly communicative environment with greater monitoring, which leads to better internal control. Zimmerman (1977) hypothesizes higher monitoring in council–manager forms of government because the consequences of a manager's (i.e., CAO) actions are concentrated in the council and thus the councils have a greater incentive to monitor city managers. Since there is no separation of powers in this

government structure and most decisions are made either by the council or the city managers (who answer directly to council) and their department heads, communication is higher than in structures one, two, and four.

Governance structure four is characterized by the following combination of governance mechanisms: mayor–council form of government with no CAO and no sole budget authority for the mayor, the mayor is not on council but can vote on council, and the council terms are concurrent. This structure is similar to structure one except that the mayor does not have sole budget authority and the mayor can vote on council. By taking away the sole budgetary authority of the mayor, his ability to make promises to different constituent groups is less even though he can vote on council. Giving the mayor power to vote on council does enable him some authority; however, he is still only one vote. Thus, the addition of this governance mechanism with the deletion of the sole budgetary mechanisms does not make up for the loss of power. In terms of the Frederickson et al. (2004) classification, this structure is similar to the adapted political city category, and thus structure four has greater allocative efficiency than productive efficiency. These cities have lower allocative efficiency than purely political cities because the powers of the mayor have been decreased through not having sole budgetary authority.

The mix of allocative and productive efficiencies consistent with structure four creates a governance structure that has decreased monitoring and communication. Structure four is similar to structure one with separation of powers and no CAO; so, the same issues with monitoring and communication would be expected. However, structure four does differ from structure one in the budgetary authority of the mayor and the mayor's role on council. These two mechanisms in combination with the other six governance mechanisms should decrease the negative effect on

communication and monitoring since the mayor shares budgetary and legislative decision making with others including the council.

As discussed above, the political science and public administration literature argues that there is variation across municipalities in voter preference for allocative and productive efficiencies on the part of municipal governments (Lineberry and Fowler 1967; Dye 1973; Frederickson et al. 2004). Allocative efficiency refers to the value citizens place on the services produced by the government, while productive efficiency refers to how effectively a government can provide services with a given level of resources. The choice of which municipal governance mechanisms to adopt and in what combination affects the levels of both allocative and productive efficiencies (Frant 1996) as discussed above. Governance structures are comprised of combinations of governance mechanisms. Thus, variation in governance structure implies variation in the levels of allocative and productive efficiencies.

From the previous discussion, it is clear that municipal governance structures that are consistent with greater allocative efficiency are characterized by fragmented power and less collaboration in the budget process. This leads to less information and communication and lower monitoring. In contrast, municipal governance structures consistent with high productive efficiency are characterized by unification of power, which leads to easier communication and information sharing. These factors positively impact the control environment. This leads to my primary hypothesis:

Hypothesis: Municipalities that have governance structures comprising a combination of mechanisms that lead to higher allocative efficiency and lower productive efficiency will have more internal control deficiencies.

From this hypothesis, I would expect that structure one would have a higher incidence of internal control deficiencies as compared to structure three. Since the mix of allocative and productive efficiencies of structures two and four is not as certain as that of structure one, I do not make a prediction about the incidence of internal control deficiencies for those structures.

IV: METHODS

To test my hypothesis about the relation between municipal governance structure and internal control deficiencies, I estimate the probability of disclosing an internal control deficiency as a function of governance structure, municipal characteristics, and auditor characteristics using a logistic model as follows:

$$\begin{aligned} Prob(RC_FinStat) = & \Phi(\beta_0 + \beta_1 STRUCTURE1 + \beta_2 STRUCTURE2 + \beta_3 STRUCTURE4 \\ & + \beta_4 COMPLEXITY + \beta_5 SIZE + \beta_6 DEBT_PER_CAPITA \\ & + \beta_7 LOW_RISK + \beta_8 LIMITED_REVENUE \\ & + \beta_9 BIG4 + \beta_{10} MUNICIPAL_SPECIALIST \\ & + \Sigma\delta_i Year + \Sigma\gamma_i State) + \varepsilon_{it} \end{aligned}$$

4.1 Dependent Variable

Consistent with Petrovits et al. (2011), I use the disclosure of a reportable condition related to financial reporting (*RC_FinStat*) as my measure of the incidence of internal control deficiency. A reportable condition related to financial reporting “involves deficiencies in the design or operation of internal controls that could adversely affect the organization’s financial reporting” (Petrovits et al. 2011). For example, one reportable condition found in the 2004 Single Audit of the City of Detroit was: “A lack of communication exists between certain agencies and the primary government, which has resulted in disagreements of interfund balances.” The database I use, the Federal Audit Clearinghouse (FAC), compiles Single Audit information based on form SF-SAC, which only discloses whether there was a reported significant deficiency in internal control and not the number of deficiencies found. Because of this, my dependent variable is dichotomous and not continuous.

4.2 Governance Structure

The governance structure variables are from a new measure of municipal governance developed in Marshall (2010). This measure addresses the endogeneity problem of relating governance to accounting outcomes by allowing for the simultaneous development of various combinations of governance mechanisms (Armstrong et al. 2010). Municipal governance arises to meet the needs of the citizenry, but there are tradeoffs between the responsiveness of municipal government to the citizenry and the efficiency of municipal government control systems. This measure captures this tradeoff.

The new governance structure measure is determined by LCA on eight municipal governance mechanisms: form of government, presence of a CAO, shared budget-setting authority, election or appointment of department heads, direct democracy, council voting power of CEO, presence of CEO on council, and council terms. Latent class analysis determines the probability of class membership conditional on the probability of response to each observed variable. Conditional on class membership, each class is independent from the other. From the eight observed municipal governance mechanisms, the LCA determines a four class solution. These four classes form four governance structures with different combinations of the eight governance mechanisms. Since the analysis gives a conditional probability of class membership, one class must be omitted from the subsequent analysis. Thus my model includes three of the four classes.

Table 1, Panel A shows the LCA of governance structure. Using cities over 10,000 in population – for statistical power, I specify four classes for the LCA because in Marshall 2010 the four class solution had the best fit for these eight governance mechanisms. Each class has a unique response pattern expressed by the conditional probability of affirmative response to eight

governance mechanisms. Governance structure is represented by the probability of class membership in each of the four classes. For example, municipalities that are most likely to have governance structure one are likely to have governance mechanisms consisting of a mayor–council form a government (100%), lack of chief appointed official (23% likely to have a chief appointed official), sole budgetary authority given to the mayor (60%), appointed department heads (21% some or all elected), direct democracy provisions (84%), strong separation of powers manifested by a low probability of the mayor being on council (0%) and voting on council (13%), and concurrent council terms (35% staggered terms). The combination of these mechanisms creates a governance structure where the mayor is powerful with little influence from council since the council’s terms are concurrent and thus the power of the council is weakened. With a powerful mayor and weak council, allocative efficiency is higher than productive efficiency since the provision of services is more politicized. This combination of mechanisms decreases monitoring. Thus, I expect this governance structure to be positively associated with internal control deficiencies.

Municipalities with a high probability of having governance structure three are most likely to have governance mechanisms consisting of a council–manager form of government (0.07% mayor–council), a chief appointed official (100%), shared budgetary authority (2% sole budget authority), appointed department heads (9%, some or all elected), direct democracy provisions (85%), little separation of powers (95% CEO member of council and 98% CEO votes on council), and staggered council terms (88%). This combination of mechanisms leads to productive efficiency since the provision of services to citizens is less politicized by being managed by a non-elected official directly monitored by a strong council. Thus, I expect this governance structure to be negatively associated with internal control deficiencies.

Governance structures two and four share mechanisms found in both governance structures one and three to varying degrees. Conditional on having governance structure two, municipalities most likely have governance mechanisms consisting of a mayor–council form of government with a chief appointed official, shared budget authority, appointed department heads, direct democracy provisions, some separation of powers since the mayor is not likely to be on council but is likely to vote on council matters, and staggered council terms. This combination of governance measures may create a balance of power between the mayor and council and possibly a balance between allocative and productive efficiencies. This could be due to the professionalism that a chief appointed official brings in addition to having some of the political incentives that a mayor–council form of government provides. However, Svava and Watson (2010) report that in two-thirds of mayor–council cities that have a CAO, the mayor appoints the CAO. The authors report that CAOs in these situations see themselves as working for the mayor. This structure could be consistent with more allocative versus productive efficiency. Thus I predict structure two to be positively associated with the incidence of reported internal control deficiencies.

Municipalities with governance structure four most likely have governance mechanisms consisting of a mayor–council form of government without a chief appointed official, appointed department heads, direct democracy provisions, and little separation of powers since the mayor likely votes on the council. Since the other governance mechanisms (mayor sole budget authority, mayor member of council, and staggered versus concurrent council terms) are almost equally likely, I cannot make strong predictions on the efficiency tradeoffs of this governance structure. All probabilities of class membership and conditional probabilities of response are found in Table 1.

4.3 Control Variables

Prior literature examining the determinants of internal control deficiencies has found various firm characteristics that are associated with the incidence of reported internal control deficiencies. These characteristics include complexity, financial risk, auditor type, size, rapid growth, and auditor firm risk classification. I examine complexity, financial risk, auditor firm risk classification, and auditor type. Due to data constraints, I do not examine growth. As I will subsequently discuss, I expect municipalities that are more complex, financially riskier, and smaller to have a higher incidence of reported internal control deficiencies.

Municipalities that collect revenue from multiple types of taxes or receive many different types of grants face increased difficulties with internal controls. Greater revenue sources lead to increased control activities since the amount of policies and procedures increase with each revenue source, thus increasing the likelihood of an internal control deficiency. I measure municipal complexity in two ways. First, I calculate the number of different general revenue accounts as specified by the Census (*COMPLEXITY*). Second, I include a revenue diversification index (*LIMITED_REVENUE*) used in prior government accounting research (Gore 2009; Copeland and Ingram 1982). This index has higher values when the revenue sources are less balanced, implying that a municipality receives the majority of its revenue from a few sources. Similar to the findings from Petrovits et al. (2011), I predict that municipalities with more general revenue sources (higher values of *COMPLEXITY*) and more diverse revenue (lower values of *LIMITED_REVENUE*) are likely to provide more services and are thus more likely to report an internal control deficiency.

If a municipality is financially risky, then it is more likely to face financial distress and be unable to invest in strong internal controls. I use the amount of debt per capita

(*DEBT_PER_CAPITA*) as a proxy for financial risk. I predict that municipalities with higher financial risk will have more internal control deficiencies.

In the prior literature, many authors argue that larger organizations have more resources to invest in internal controls and greater experience dealing with internal controls. However, larger cities usually offer a greater variety of services and thus may be more complex. I measure size by taking the log of population (*SIZE*). Because size can either represent more experience or complexity, I do not make a prediction on its effect on the incidence of internal control deficiencies.

Prior evidence on the relation between auditor type and internal control deficiencies is mixed. Ge and McVay (2005), Ashbaugh-Skaife et al. (2007), and Hoitash et al. (2009) find that material weaknesses are positively associated with the appointment of a Big 6 auditor. In the not-for-profit setting, Petrovits et al. (2011) find that internal control deficiencies are negatively related to Big 4 auditors and positively related to regional auditors. Lopez and Peters (2010) examine internal control deficiencies in cities and counties post SOX and find that large CPA firms are more likely to disclose an internal control deficiency than are government auditors. Due to the mixed prior results, I do not make a prediction on the direction of the relationship between the likelihood of an internal control deficiency and auditor type. I measure auditor type using an indicator variable equal to one if the audit is done by a Big 4 firm (*BIG4*), a firm listed by the Government Audit Quality Center as a government audit specialist (*MUNICIPAL_SPECIALIST*), or a government auditor (*STATE_AUDITOR*).

CHAPTER V: SAMPLE SELECTION AND DATA

I obtain data on municipalities from three sources: (1) the FAC's A-133 Single Audit Database, (2) the Census Bureau Annual Survey of State and Local Government Finances, and (3) the International City/County Manager Association (ICMA) Municipal Form of Government Survey. The A-133 data include identifying information on each city, the auditor's name and contact information, audit opinions, internal control opinions, and the amount of federal awards. The Census Bureau conducts an annual survey called the Annual Survey of State and Local Government, which includes income statement and balance sheet type items. Participation is required every fifth year, but is voluntary in other years. The ICMA's Municipal Form of Government Survey is voluntary and is conducted every five years. It includes a variety of questions on governance mechanisms including form of government, government official's duties and characteristics, provisions for referendum/recall, term limits, and election systems. I use the years 2001–2005 for the Census data, 2001 for the ICMA survey, and 2001–2005 for the A-133 data. All variables are defined in Table 2.

Table 3 describes the sample. For the period between 2001 and 2005, merging the FAC data with the Census data on cities over 50,000 in population on city name results in 980 city–year observations. Merging these results with the ICMA data results in 966 city–year observations. For my regression analysis, I omit the 2001 data since that is the year I use to construct my four governance structure variables, leaving a sample of 800 city–year observations.

Table 4 shows descriptive statistics for city–years with internal control deficiencies, measured as a reportable condition related to financial reporting and those without internal control deficiencies for the years 2002–2005. There are 152 city–years that have an internal

control deficiency compared to 648 city–years that do not, giving a rate of 23.5%. In univariate analysis, city–years that have internal control deficiency have higher probabilities of having governance structure one (*STRUCTURE1*), are larger (*SIZE*), are financially riskier (*DEBT_PER_CAPITA*), are less likely to be classified as low risk (*LOW_RISK*), receive a higher proportion of revenue from fewer resources (*LIMITED_REVENUE*), and are more likely to use a state auditor versus a CPA firm.

CHAPTER VI: RESULTS

6.1 Primary Tests

Table 5 reports simple correlations between reported internal control deficiencies, governance structure measures, and other municipal characteristics. Structure one is positively correlated with having at least one reportable condition detected. Structures two and three are not correlated with detected internal control deficiencies. *DEBT_PER_CAPITA*, *LIMITED_REVENUE*, and *STATE_AUDITOR* are positively correlated with detected internal control deficiencies, which is consistent with the literature on causes of internal control deficiencies. In consistency with prior literature, *SIZE* is also positively correlated with detected internal control deficiencies. This could be because it does not represent better efficiency as it does in the corporate literature and it is also negatively correlated with *LOW_RISK*. Detected internal control deficiencies are negatively correlated with *LOW_RISK*.

Table 6 presents initial tests of my hypothesis on the relationship between municipal governance structure and internal control. The first column presents results of a logistic regression analysis with *RC_FinStat* as the dependent variable and control variables used in prior literature. Consistent with Petrovits et al. (2011), I find that the coefficients for organizational complexity (*COMPLEXITY*) and financial risk (*DEBT_PER_CAPITA*) are positive and significant. The coefficient on *LOW_RISK* is significantly negative as predicted; also consistent with Petrovits et al. (2011) *SIZE* is positively associated with *RC_FinStat*, which is opposite to the relation that has been found in previous literature. *SIZE* could be a different proxy for complexity since larger cities have more constituents to serve. Larger values of *LIMITED_REVENUE* mean less revenue sources; so, the significantly negative coefficient on *LIMITED_REVENUE* means that municipalities with less revenue sources have less reported

internal control deficiencies. *LOW_RISK* was examined in Petrovits et al. (2011) and consistent with their results, the coefficient is significantly negative.

I also include auditor type variables in the model in Table 6 consistent with Petrovits et al. (2011) and Lopez and Peters (2010). Both studies find a positive relation between *BIG4* and reported control deficiencies. My results are not significant for *BIG4*.

MUNICIPAL_SPECIALIST and *STATE_AUDITOR* are used in Baber et al. where they find a negative relation between restatements and *MUNICIPAL_SPECIALIST* and a positive relation between *STATE_AUDITOR* and restatements. I do not find significance for *MUNICIPAL_SPECIALIST* but the coefficient on *STATE_AUDITOR* is positive and significant indicating that the probability of a reported internal control deficiency increases when a state auditor is used. This suggests that internal control problems may be more prevalent in cities where the use of governmental auditors is required.

Results from the primary test of my hypothesis are reported in the third column of Table 6. Governance structure three, the structure with lower allocative efficiency but higher productive efficiency, is the excluded group in my analysis (since the probabilities of being in each structure sum to one). Consistent with my hypothesis, the coefficient on *STRUCTURE1* is positive and significant suggesting that the incidence of an internal control deficiency is more likely for municipalities with higher allocative efficiency and lower productive efficiency as compared to those with lower allocative efficiency and higher productive efficiency. I also find a positive association between the incidence of internal control deficiencies and governance structure two (*STRUCTURE2*). This may reflect higher allocative efficiency and lower productive efficiency compared to structure three. I do not find results for governance structure

four, which may imply that this governance structure has lower allocative efficiency as compared to structures one and two.

Columns two and four of Table 6 present the marginal effects of the variables on the probability of a detected control deficiency. *LowRisk*, *LIMITED_REVENUE*, and *STATE_AUDITOR* have the largest marginal effects on detected reportable conditions. For the sake of interpretation, I will limit my discussion to the discrete variables: *LowRisk* and *STATE_AUDITOR*. The marginal effect of a discrete variable on the probability of an internal control deficiency measures the change in probability of a detected internal control deficiency when that variable's value changes from zero to one holding all other variables at their means. The marginal effect of *LowRisk* is 23.1%, which means that being classified as low risk decreases the probability of a reported internal control deficiency by 23.1%. Using a state auditor increases the probability of reported internal control deficiencies by 54.7% holding all other variables at their means. Column four presents the marginal effects of the full model. The marginal effect of *LowRisk* (21.7%) in the full model is similar in magnitude to the base model. The marginal effect of *STATE_AUDITOR* is no longer significant in the full model. This could indicate that cities that use state auditors are also cities with governance structures that enable internal control problems.

Table 7 presents results from a test using a traditional measure of municipal governance form of government. *MayorCouncil* is coded one if the form of government is mayor–council and zero if it is council–manager. Mayor–council forms of government have traditionally been considered more allocatively efficient than council–manager forms of government (Frederickson, Logan, and Wood 2003). Thus, I would expect the sign of the coefficient on *MayorCouncil* to be positive, indicating problems with internal control. The coefficient on *MayorCouncil* is 1.422

and significant indicating that municipalities with mayor–council forms of government have an increased probability of detected internal control deficiencies. The coefficients on the control variables in this analysis are qualitatively similar to the previous analysis using the newer measure of governance.

Though inferences from a test that uses the traditional measure appear to be similar to those from tests based on the newer measure, the analysis using my four governance classes provides a more nuanced understanding of the relation between municipal governance structure and internal control. In the analysis using the newer measure, two governance structures are found to be significant. Both have a mayor–council form of government. However, structure four has a mayor–council form of government as well, but does not share all of the other governance mechanisms of governance structures one and two and was not significantly associated with increased incidence of internal control deficiencies. Thus, municipalities with the combination of governance mechanisms found in structure one and two may be driving the results found in prior literature comparing mayor–council and council–manager forms of government. Structure four has less separation of power and more collaboration in the budget process compared to governance structure one even though both share the same form of government. Although structure four is more likely than structure three to have the mayor solely set the budget, the mayor in structure four is more likely to be a member of council. This increases communication with the council when setting the budget. The increase in communication leads to better sharing of information as well as increased monitoring, all of which improve internal controls.

6.2 Supplemental Analyses

To test if the newer measure has explanatory powers beyond what is explained by the traditional measure of municipal governance, I use both measures in a logistic regression

analysis. The results of this analysis are presented in Table 8. I present my analysis with and without state fixed effects. I present both the fixed effects model and the pooled model because pooling panel data or using fixed effects with a nonlinear model such as the logit model gives rise to an incidental parameters problem. (Greene 2004) Columns one and three present the results of my previous analysis without state fixed effects and columns two and four present the results of the full models from Tables 6 and 7 for comparison. The last two columns of Table 8 present my analysis on the incremental explanatory power of the newer municipal governance measure compared to the traditionally used form of government measure. Column five does not include state fixed effects and the coefficient on *MayorCouncil* is significant in the expected direction but none of the newer governance structure measures are significant. In column six I include state fixed effects and neither governance measure is significant.

From the results in Table 8, it seems that the newer governance measures do not have explanatory powers beyond the form of government measure. However, there could be another explanation for the no-significance finding. The logistic regression models I use are nonlinear models and thus are not well suited for the use of fixed effects or panel data¹ (Greene 2004.) A

¹ In a simulation analysis, Greene compares three nonlinear models: pooled logit, fixed-effects logit, and random effects logit. He does this to show the different biases in coefficients so that researchers are better able to choose between these models when they believe that a fixed effects binary response model is the most appropriate for their data. Greene finds that the random effects model is the worst choice but that fixed-effects model tends to be biased upward and the pooled model tends to be biased downward.

better model would be to use a dependent variable that is not a binary response, such as the number of control deficiencies in a year. At this time, I do not have that data.

I use a balanced panel to explore the persistence of internal control deficiencies by governance structure. As I am examining the number of audit reports that had at least one reportable condition in a four-year period per city, I only keep cities that appear in my sample in all four periods. This reduces my sample to 92 cities. Table 9 presents descriptive statistics on the number of audit reports with at least one reportable condition in this balanced panel of 92 cities. Panel A shows a breakdown of number of audit reports in a four-year period that have at least one reportable condition. The majority of cities (68.48%) have no reportable conditions detected in the 2002–2005 period. Only a few cities (7.61%) have at least one detected reportable condition every year from 2002 to 2005.

Table 9 also includes a breakdown of cities with at least one detected reportable condition by year (Panel B) and reportable conditions by city population (Panel C). From Panel B, the year with the most reportable conditions is 2004 with 22 of the 68 total audit reports with at least one detected reportable condition. In Panel C, cities with populations below 100,000 make up the majority (14 cities) of the 29 cities with at least one reportable condition in a four-year period; however, these cities make up the majority (44.57%) of my sample of 92 cities.

When examining reportable conditions within each population group, the largest cities in population (over 150,000 people) are more likely to have multiple reportable conditions within the 2002–2004 period. In cities with population over 150,000, 32.14% will have at least two audit reports with detected reportable conditions as against 4.35% of cities between 100,000 and 150,000 in population, and 21.96% of cities with population below 150,000. This result is consistent with the results for size in the multivariate analyses in Tables 6, 7, and 8, and may

show that larger cities have more trouble with their accounting systems due to their complexity. The smallest cities in the sample also have multiple internal control deficiencies in the sample period, which may be due to the availability of limited resources to invest in their accounting systems. Overall, Panel C of Table 9 may suggest a U-shaped relationship between internal control problems and city size.

Table 10 presents the results of a multivariate analysis of the persistence of internal control deficiencies. The dependent variable in the model is the total number of audit reports with detected internal control deficiencies during the four-year period. Since the governance structure measure does not vary in this period, I use the same measure that was used in the previous analyses. The control variables for municipal characteristics and auditor type change each year; so, I use the mean of these variables. As mentioned before, I use a sample of 92 cities that have all four years of single audit data. If I used a sample that included observations that did not have all four years, I would have to adjust the Poisson model.

From the results in Table 10, I find that cities that are more allocatively efficient are more likely to have multiple internal control deficiencies within the 2002–2005 period. Columns one and two show results from the base model and columns three and four show results for the full model. In column three, the coefficient on *STRUCTURE1* is 0.721 and the exponential of the coefficient is 2.06. This means that a one unit increase in *STRUCTURE1* would increase the number of cumulative reportable conditions by 2.06 times the expected number of cumulative reportable conditions. So, for example, the mean of the number of cumulative reportable conditions is 0.74; therefore, increasing *STRUCTURE1* by one unit increases the expected number of cumulative reportable conditions to 1.52. Increasing *STRUCTURE2* by one unit increases the expected number of cumulative reportable conditions to 3.67; for *STRUCTURE4*,

the increase is 2.96. The measure of municipal governance structure is a probability; so, I interpret these results as the difference between being classified into one type of structure versus another. From these results, it seems that even though all of these three structures increase the number of cumulative reportable conditions as expected, *STRUCTURE2* is more prone to having persistent internal control deficiencies.

CHAPTER VII: CONCLUSION

This study examines how governance structure impacts the effectiveness of internal controls. Specifically, I explore this relationship in a municipal setting where each city receiving federal funding is required to make disclosures about the effectiveness of its internal controls over financial reporting consistent with A-133 reporting requirements. Consistent with prior literature, I find that riskier and more complex municipalities have a higher incidence of internal control deficiencies. Using a new governance measure, I categorize municipal governance into four structures and find that municipalities with a governance structure consistent with higher allocative efficiency are more likely to have an internal control deficiency than municipalities that have governance structures consistent with lower allocative efficiency. Thus, I contribute to the literature on the determinants of internal controls by explaining how allocative efficiency in the municipal setting leads to poorer internal controls.

I also contribute to the governance literature by using a measure of governance structure that reflects the co-occurrence of different combinations of governance mechanisms. Prior accounting research on governance usually assumes that governance mechanisms have an additive effect on overall governance. This assumption is reflected in models where various governance mechanisms are included in regression models with no interactions between mechanisms. The additive relationship between governance mechanisms is also modeled by the use of governance measures that are merely the sum of how many different governance mechanisms are present in an organization. Other than one recent paper (Larcker et al. 2007), there is no accounting study that uses a governance measure that reflects that organizations' choice of governance measures are made in combination with other governance measures. The

use of a measure that highlights the underlying reasons different combinations of governance mechanisms are observed addresses the issue of governance being endogenously determined.

My results help to inform various interest groups. Constituents with preferences for allocative efficiency may encourage their elected officials to invest more in community programs and other services that directly benefit interest groups at the expense of investments in internal controls. Understanding that these preferences may lead to underinvestment in accounting systems may help constituents to be more reasonable in their demands. Being aware of how governance structure affects internal controls helps government officials to adjust to their environment and may spur them to invest more in their accounting systems to compensate for their governance structure type. Auditors can use these results to enhance their risk assessment in single audits of municipalities.

There are few studies that examine internal controls in the government setting. This leaves many unaddressed questions. Though I show the determinants of internal control deficiencies in municipalities and how governance structure affects internal control, I do not explore the consequences of detected internal control deficiencies. Federal agencies may change funding levels for cities with persistent internal control problems. Another possible consequence of detected internal control deficiencies may be violation of bond covenants and increased interest rates on new bond issues. In my sensitivity analyses, the new measure of municipal governance did not provide additional explanation over the form of government measure. Power may be partly to blame; so, a follow up with a larger sample may be appropriate. In my analyses, I assume that various governance structures are consistent with different levels of allocative and productive efficiencies. I base this assumption from prior literature in political science and public administration but I do not directly test this relation. Future research should relate various

demographic characteristics with this new governance structure measure as a means of testing the relation between governance structure and allocative and productive efficiencies.

TABLES

Table 1
Latent Class Analysis

Panel A : Four-Latent-Class Model of Municipal Governance (ICMA Data N = 1738)

	Latent Class			
	Political City – Strong Mayor form of Government	Strong Council Elected Mayor – mixed political city	City Manager City – Less Political no separation of powers and strong council	Political City – Weak Mayor, little separation of powers
<i>Probability of Membership</i>	0.12	0.12	0.66	0.10
<i>Conditional Probability of a Yes* Response</i>				
Mayor–Council Form of Government	1.00	0.67	0.07	1.00
Chief Appointed Official (CAO)	0.23	1.00	1.00	0.28
CEO sole Budget Authority	0.60	0.09	0.02	0.39
Some or All Department Heads Elected	0.21	0.11	0.09	0.23
Some provisions for initiative, referendum, popular referendum, or recall	0.84	0.79	0.85	0.75
CEO member of Council	0.00	0.15	0.95	0.49
CEO votes on council	0.13	0.68	0.98	0.97
Staggered Council Terms	0.35	0.88	0.88	0.53

Table 2
Variable Definitions

Variable	Definition
<i>RC_FinStat</i>	= An Indicator variable that equals 1 if there is a reportable condition/ significant deficiency on the financial statements; 0 otherwise.
<i>STRUCTURE1</i>	= Posterior probability of class membership in latent class 1
<i>STRUCTURE2</i>	= Posterior probability of class membership in latent class 2
<i>STRUCTURE3</i>	= Posterior probability of class membership in latent class 3
<i>STRUCTURE4</i>	= Posterior probability of class membership in latent class 4
<i>COMPLEXITY</i>	= Number of general revenue accounts as classified by the U.S. Census
<i>SIZE</i>	= Log of total population
<i>DEBT_PER_CAPITA</i>	= Ratio of total debt outstanding to total population calculated as Account Type 1/ population
<i>LOW_RISK</i>	= An Indicator variable that equals 1 if the auditee is a low risk auditee

(continued on next page)

Table 2 continued
Variable Definitions

<i>LIMITED_REVENUE</i>	=	Herfindahl type index of revenue diversification calculated as $(T01 / (T01 + T09 + T40)) \times (T09 / (T01 + T09 + T40)) \times (T40 / (T01 + T09 + T40))$.
<i>BIG4</i>	=	An Indicator variable that equals 1 if the auditor is classified as one of the Big 4 auditors; otherwise 0.
<i>MUNICIPAL_SPECIALIST</i>	=	An Indicator variable that equals 1 if the auditor is classified as a government audit specialist (by being a member of the Government Audit Quality Center of the AICPA) that is not one of the Big 4 auditors, large auditors, or state auditors; otherwise 0.
<i>STATE_AUDITOR</i>	=	An Indicator variable that equals 1 if the auditor is classified as a State Government Auditor; otherwise 0.
<i>MayorCouncil</i>	=	An Indicator variable that equals 1 if the form of government is Mayor–Council and 0 if it is Council–Manager.

Source: Form SF-FAC from the Federal Audit Clearinghouse, the 2011 Government Audit Quality Center membership list, and the U.S. Census Bureau

Table 3
Sample Description

Panel A: Sample Selection

	<u>Full Sample</u>
ICMA Form of Government Survey 2001	4,244
ICMA 2001 Data; population over 10,000	1,738
Cities in Federal Audit Clearinghouse Database 2001–2010	16,400
Census Annual Survey of Governments 2001–2005 (Counties, Cities, and Townships)	34,553

Panel B: Cities by Year

	<u>ICMA</u>	<u>Census</u>	<u>FAC</u>
2001	4,244	1,855	3,366
2002		27,954	3,438
2003		1,644	3,609
2004		5,890	2,951
2005		5,902	3,036

Panel C: Cities by Year with population \geq 50,000

	<u>ICMA</u>	<u>Census FAC Merge</u>	<u>Census/ FAC/ ICMA</u>
2001	360	168	166
2002		204	200
2003		159	157
2004		224	222
2005		225	221

Table 4
Descriptive Statistics of No Reportable Condition Firm-Year versus Reportable Condition Firm-Years

Panel A:	<i>RC_FinStat = 0</i>			
Variables	mean	p25	p50	p75
<i>STRUCTURE1</i>	0.136	0.000	0.000	0.000
<i>STRUCTURE2</i>	0.081	0.006	0.006	0.009
<i>STRUCTURE4</i>	0.056	0.000	0.000	0.001
<i>COMPLEXITY</i>	71.830	69.000	72.000	75.000
<i>SIZE</i>	11.573	11.113	11.414	11.811
<i>DEBT_PER_CAPITA</i>	1.650	0.774	1.196	2.089
<i>LOW_RISK</i>	0.796	1.000	1.000	1.000
<i>LIMITED_REVENUE</i>	0.713	0.518	0.629	1.000
<i>BIG4</i>	0.136	0.000	0.000	0.000
<i>MUNICIPAL_SPECIALIST</i>	0.502	0.000	1.000	1.000
<i>STATE_AUDITOR</i>	0.074	0.000	0.000	0.000
Observations	648			

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Table 4 (continued)
Descriptive Statistics of No Reportable Condition Firm-Year versus Reportable Condition Firm-Years

Panel B:	<i>RC_Finstat = 1</i>				
	mean	p25	p50	p75	p
<i>STRUCTURE1</i>	0.414	0.000	0.057	0.970	0.000
<i>STRUCTURE2</i>	0.099	0.000	0.006	0.035	0.332
<i>STRUCTURE4</i>	0.077	0.000	0.007	0.012	0.236
<i>COMPLEXITY</i>	72.283	69.000	73.000	76.000	0.265
<i>SIZE</i>	11.768	11.108	11.433	12.056	0.002
<i>DEBT_PER_CAPITA</i>	1.964	0.914	1.549	2.207	0.012
<i>LOW_RISK</i>	0.414	0.000	0.000	1.000	0.000
<i>LIMITED_REVENUE</i>	0.754	0.531	0.698	1.000	0.032
<i>BIG4</i>	0.125	0.000	0.000	0.000	0.725
<i>MUNICIPAL_SPECIALIST</i>	0.480	0.000	0.000	1.000	0.637
<i>STATE_AUDITOR</i>	0.138	0.000	0.000	0.000	0.011
Observations	152				

All variables are defined in Table 1. Each of the continuous variables is winsorized at 1% and 99% to mitigate outliers.

Table 5
Correlation Matrix

	<u>RC_FinStat</u>	<u>STRUCTURE1</u>	<u>STRUCTURE2</u>	<u>STRUCTURE4</u>
	b/p	b/p	b/p	b/p
<i>RC_FinStat</i>	1.000			
<i>STRUCTURE1</i>	0.294 (0.00)	1.000		
<i>STRUCTURE2</i>	0.034 (0.33)	-0.078 (0.03)	1.000	
<i>STRUCTURE4</i>	0.042 (0.24)	-0.070 (0.05)	-0.009 (0.81)	1.000
<i>COMPLEXITY</i>	0.039 (0.27)	-0.042 (0.23)	-0.043 (0.22)	-0.029 (0.41)
<i>SIZE</i>	0.110 (0.00)	0.148 (0.00)	-0.004 (0.90)	-0.028 (0.43)
<i>DEBT_PER_CAPITA</i>	0.089 (0.01)	0.033 (0.36)	0.040 (0.26)	-0.043 (0.22)
<i>LowRisk</i>	-0.335 (0.00)	-0.355 (0.00)	0.023 (0.52)	0.035 (0.32)
<i>LIMITED_REVENUE</i>	0.076 (0.03)	0.260 (0.00)	0.034 (0.34)	0.112 (0.00)
<i>BIG4</i>	-0.012 (0.73)	0.007 (0.83)	0.110 (0.00)	0.005 (0.90)
<i>MUNICIPAL_SPECIALIST</i>	-0.017 (0.64)	-0.132 (0.00)	-0.062 (0.08)	0.011 (0.75)
<i>STATE_AUDITOR</i>	0.090 (0.01)	0.367 (0.00)	0.061 (0.08)	-0.048 (0.17)
Observations	800			

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Table 5 continued
Correlation Matrix

	<i>COMPLEXITY</i>	<i>SIZE</i>	<i>DEBT_PER_CAPITA</i>	<i>LowRisk</i>
	b/p	b/p	b/p	b/p
<i>RC_FinStat</i>				
<i>STRUCTURE1</i>				
<i>STRUCTURE2</i>				
<i>STRUCTURE4</i>				
<i>COMPLEXITY</i>	1.000			
<i>SIZE</i>	-0.476 (0.00)	1.000		
<i>DEBT_PER_CAPITA</i>	-0.409 (0.00)	0.423 (0.00)	1.000	
<i>LowRisk</i>	0.010 (0.77)	-0.111 (0.00)	0.021 (0.55)	1.000
<i>LIMITED_REVENUE</i>	0.133 (0.00)	-0.145 (0.00)	-0.139 (0.00)	-0.149 (0.00)
<i>BIG4</i>	-0.261 (0.00)	0.478 (0.00)	0.273 (0.00)	-0.028 (0.42)
<i>MUNICIPAL_SPECIALIST</i>	0.111 (0.00)	-0.150 (0.00)	-0.064 (0.07)	0.117 (0.00)
<i>STATE_AUDITOR</i>	-0.060 (0.09)	-0.015 (0.66)	-0.041 (0.25)	-0.149 (0.00)
Observations	800		(continued on next page)	

Table 5 continued
Correlation Matrix

	<i>LIMITED REVENUE</i>	<i>BIG4</i>	<i>MUNICIPAL SPECIALIST</i>	<i>STATE AUDITOR</i>
	b/p	b/p	b/p	b/p
<i>RC_FinStat</i>				
<i>STRUCTURE1</i>				
<i>STRUCTURE2</i>				
<i>STRUCTURE4</i>				
<i>COMPLEXITY</i>				
<i>SIZE</i>				
<i>DEBT_PER_CAPITA</i>				
<i>LowRisk</i>				
<i>LIMITED_REVENUE</i>	1.000			
<i>BIG4</i>	-0.003 (0.94)	1.000		
<i>MUNICIPAL_SPECIALIST</i>	0.035 (0.32)	-0.391 (0.00)	1.000	
<i>STATE_AUDITOR</i>	-0.050 (0.15)	-0.121 (0.00)	-0.306 (0.00)	1.000
Observations	800			

All variables are defined in Table 1. Each of the continuous variables is winsorized at 1% and 99% to mitigate outliers.

Table 6
Determinants of Internal Control Deficiencies and Tests of the Effect of Governance Structure

Dependent Variable: Financial Statement Reportable Condition

Variable	Pred. Sign	Base Model	Base Model Marginal Effect	Full Model	Full Model Marginal Effect
		b/t	b/t	b/t	b/t
Intercept		-10.889** (-2.033)		-12.689** (-2.279)	
<i>STRUCTURE1</i>	+			1.454** (2.295)	0.177** (2.309)
<i>STRUCTURE2</i>	?			1.712** (2.573)	0.209*** (2.683)
<i>STRUCTURE4</i>	?			1.234 (1.533)	0.151 (1.487)
<i>COMPLEXITY</i>	+	0.082* (1.819)	0.010* (1.799)	0.109** (2.306)	0.013** (2.274)
<i>SIZE</i>	?	0.645** (2.373)	0.082** (2.302)	0.522* (1.799)	0.064* (1.771)
<i>DEBT_PER_CAPITA</i>	+	0.221** (1.992)	0.028** (2.035)	0.226* (1.936)	0.028* (1.953)
<i>LowRisk (d)</i>	-	-1.482*** (-5.112)	-0.231*** (-4.470)	-1.444*** (-4.714)	-0.217*** (-3.997)
<i>LIMITED_REVENUE</i>	-	-2.432** (-2.046)	-0.308** (-1.997)	-2.415** (-2.092)	-0.295** (-2.044)

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Table 6 continued
Determinants of Internal Control Deficiencies and Tests of the Effect of Governance Structure

Variable	Pred. Sign	Base Model	Base Model Marginal Effect	Full Model	Full Model Marginal Effect
<i>BIG4 (d)</i>	?	-0.746 (-1.277)	-0.078 (-1.515)	-0.795 (-1.232)	-0.079 (-1.490)
<i>MUNICIPAL_SPECIALIST (d)</i>	?	0.550 (1.336)	0.071 (1.372)	0.578 (1.385)	0.071 (1.423)
<i>STATE_AUDITOR (d)</i>	?	2.698** (2.370)	0.547** (2.305)	1.935* (1.716)	0.365 (1.392)
Year Indicators		Yes	Yes	Yes	Yes
State Indicators		Yes	Yes	Yes	Yes
Chi-square		119.847	119.847	132.607	132.607
Degrees of Freedom		32	32	35	35
Pseudo r-square		0.2748	0.2748	0.2959	0.2959
Number of Observations		680	680	680	680

(d) for discrete change of dummy variable from 0 to 1

* p<0.10 ** p<0.05 *** p<0.01

All variables are defined in Table 1. Each of the continuous variables is winsorized at 1% and 99% to mitigate outliers.

Table 7
Determinants of Internal Control Deficiencies Using Form of Government Measure

Dependent Variable: Financial Statement Reportable Condition

Variable	Pred. Sign	Base Model	Base Model Marginal Effect	Full Model	Full Model Marginal Effect
		b/t	b/t	b/t	b/t
Intercept		-10.889** (-2.033)		-12.256** (-2.161)	
<i>MayorCouncil (d)</i>	+			1.422*** (2.899)	0.212** (2.480)
<i>COMPLEXITY</i>	+	0.082* (1.819)	0.010* (1.799)	0.107** (2.165)	0.013** (2.168)
<i>SIZE</i>	?	0.645** (2.373)	0.082** (2.302)	0.485* (1.690)	0.059* (1.668)
<i>DEBT_PER_CAPITA</i>	+	0.221** (1.992)	0.028** (2.035)	0.253** (2.272)	0.031** (2.284)
<i>LowRisk (d)</i>	-	-1.482*** (-5.112)	-0.231*** (-4.470)	-1.397*** (-4.658)	-0.208*** (-3.947)
<i>LIMITED_REVENUE</i>	-	-2.432** (-2.046)	-0.308** (-1.997)	-2.525** (-2.191)	-0.307** (-2.168)
<i>BIG4 (d)</i>	?	-0.746 (-1.277)	-0.078 (-1.515)	-0.633 (-1.022)	-0.065 (-1.193)
<i>MUNICIPAL_SPECIALIST (d)</i>	?	0.550 (1.336)	0.071 (1.372)	0.664 (1.643)	0.082* (1.668)

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Table 7 continued
Determinants of Internal Control Deficiencies Using Form of Government Measure

Variable	Pred. Sign	Base Model	Base Model Marginal Effect	Full Model	Full Model Marginal Effect
<i>STATE_AUDITOR (d)</i>	?	2.698** (2.370)	0.547** (2.305)	2.089* (1.787)	0.401 (1.474)
Year Indicators		Yes		Yes	
State Indicators		Yes		Yes	
Chi-square		119.847	119.847	128.336	128.336
Degrees of Freedom		32	32	33	33
Pseudo r-square		0.2748	0.2748	0.2989	0.2989
Number of Observations		680	680	679	679
Marginal effects					
(d) for discrete change of dummy variable from 0 to 1					
* p<0.10 ** p<0.05 *** p<0.01					
All variables are defined in Table 1. Each of the continuous variables is winsorized at 1% and 99% to mitigate outliers.					

Table 8
Comparison of Governance Measures

	Pred. Sign	Governance Structure Measure	Governance Structure Measure	Form of Government Measure	Form of Government Measure	Both Measures	Both Measures
		b/t	b/t	b/t	b/t	b/t	b/t
Intercept		-17.569*** (-3.68)	-12.689** (-2.28)	-16.786*** (-3.52)	-12.256** (-2.16)	-16.949*** (-3.55)	-12.625** (-2.25)
<i>MayorCouncil</i>	+			1.404*** (4.42)	1.422*** (2.90)	1.473* (1.83)	1.562 (1.41)
<i>STRUCTURE1</i>	+	1.449*** (3.61)	1.454** (2.29)			-0.028 (-0.03)	-0.169 (-0.14)
<i>STRUCTURE2</i>	?	1.230* (1.79)	1.712** (2.57)			0.431 (0.58)	0.761 (0.77)
<i>STRUCTURE4</i>	?	1.317** (2.36)	1.234 (1.53)			-0.356 (-0.34)	-0.641 (-0.48)
<i>COMPLEXITY</i>	+	0.137*** (3.59)	0.109** (2.31)	0.135*** (3.55)	0.107** (2.17)	0.136*** (3.57)	0.110** (2.29)
<i>SIZE</i>	?	0.564** (2.21)	0.522* (1.80)	0.498** (1.96)	0.485* (1.69)	0.507** (1.97)	0.498* (1.73)
<i>DEBT_PER_CAPITA</i>	+	0.256** (2.50)	0.226* (1.94)	0.279*** (2.76)	0.253** (2.27)	0.275*** (2.72)	0.264** (2.32)
<i>LowRisk</i>	-	-1.522*** (-5.70)	-1.444*** (-4.71)	-1.563*** (-5.93)	-1.397*** (-4.66)	-1.559*** (-5.79)	-1.429*** (-4.65)
<i>LIMITED_REVENUE</i>	-	-0.495 (-0.72)	-2.415** (-2.09)	-0.477 (-0.69)	-2.525** (-2.19)	-0.497 (-0.72)	-2.239** (-1.99)

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Table 8 continued
Comparison of Governance Measures

	Pred. Sign	Governance Structure Measure	Governance Structure Measure	Form of Government Measure	Form of Government Measure	Both Measures	Both Measures
<i>BIG4</i>	?	-0.800 (-1.53)	-0.795 (-1.23)	-0.613 (-1.20)	-0.633 (-1.02)	-0.619 (-1.19)	-0.632 (-0.99)
<i>MUNICIPAL SPECIALIST</i>	?	0.121 (0.38)	0.578 (1.38)	0.235 (0.74)	0.664 (1.64)	0.249 (0.78)	0.676* (1.67)
<i>STATE_AUDITOR</i>	?	-0.211 (-0.35)	1.935* (1.72)	-0.133 (-0.23)	2.089* (1.79)	-0.175 (-0.30)	2.009* (1.82)
Year Indicators		Yes	Yes	Yes	Yes	Yes	Yes
State Indicators		No	Yes	No	Yes	No	Yes
Chi-square		78.591	132.607	80.703	128.336	84.085	130.692
Degrees of Freedom		14	35	12	33	15	36
Pseudo r-square		0.1888	0.2959	0.1947	0.2989	0.1964	0.3018
Number of Observations		799	680	798	679	798	679

* p<0.10 ** p<0.05 *** p<0.01

Table 9
Incidence of At Least One Reportable Condition over Time

Panel A: Cumulative Reportable Conditions (2002–2005)

Number of Reportable Conditions	Cumulative Frequency	Cumulative Percent	Frequency	Percent
0	63	68.48	63	68.48
1	10	10.87	73	79.35
2	6	6.52	79	85.87
3	6	6.52	85	92.39
4	7	7.61	92	100

Panel B: Reportable Conditions by Year

Reportable Condition	Audit Year				Total
	2002	2003	2004	2005	
N	79	75	70	76	300
Y	13	17	22	16	68
Total	92	92	92	92	368

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Table 9 (continued)
Incidence of At Least One Reportable Condition over Time

		Cumulative Incidence of Reportable Conditions					Total
		0	1	2	3	4	
Population Groups under 100,000	Frequency	27	5	3	2	4	41
	Percent of Total	29.35	5.43	3.26	2.17	4.35	44.57
	Percent of Population Group	65.85	12.20	7.32	4.88	9.76	
	Percent of Incidence Group	42.86	50.00	50.00	33.33	57.14	
Between 100,000 and 150,000	Frequency	20	2	1	0	0	23
	Percent of Total	21.74	2.17	1.09	0.00	0.00	25.00
	Percent of Population Group	86.96	8.70	4.35	0.00	0.00	
	Percent of Incidence Group	31.75	20.00	16.67	0.00	0.00	
Over 150,000	Frequency	16	3	2	4	3	28
	Percent of Total	17.39	3.26	2.17	4.35	3.26	30.43
	Percent of Population Group	57.14	10.71	7.14	14.29	10.71	
	Percent of Incidence Group	25.40	30.00	33.33	66.67	42.86	
Total		63	10	6	6	7	92
Percent Total		68.48	10.87	6.52	6.52	7.61	100.000

Table 10
Poisson Regression of Incidence of Reportable Conditions over a Four-Year Period

	<u>Pred. Sign</u>	<u>Base Model</u>	<u>Base Model</u>	<u>Full Model</u>	<u>Full Model</u>
		b/t	b/t	b/t	b/t
Intercept		-17.363*** (-3.30)	-31.850*** (-13.38)	-17.547*** (-3.61)	-30.599*** (-4.28)
<i>STRUCTURE1</i>	+			0.721* (1.94)	0.056 (0.10)
<i>STRUCTURE2</i>	?			1.601** (2.02)	0.408 (0.41)
<i>STRUCTURE4</i>	?			1.391*** (3.30)	0.515 (1.05)
<i>COMPLEXITY_mean</i>	+	0.153*** (3.35)	0.104** (2.23)	0.178*** (3.74)	0.103* (1.85)
<i>SIZE_mean</i>	?	0.447** (1.98)	0.739*** (3.44)	0.352 (1.60)	0.662*** (2.76)
<i>DEBT_PER_CAPITA_mean</i>	+	0.272*** (2.79)	0.209 (1.30)	0.297*** (2.76)	0.207 (1.20)
<i>LOWRISK_mean</i>	-	-1.973*** (-5.48)	-1.271*** (-4.37)	-2.044*** (-5.06)	-1.456*** (-3.38)
<i>LIMITED_REVENUE_mean</i>	-	1.699** (2.08)	-0.552 (-0.45)	0.686 (0.69)	-0.541 (-0.42)
<i>BIG4_mean</i>	?	0.171 (0.36)	-0.491 (-0.82)	-0.013 (-0.03)	-0.457 (-0.75)

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Table 10 continued
Poisson Regression of Incidence of Reportable Conditions over a Four-Year Period

	<u>Pred. Sign</u>	<u>Base Model</u>	<u>Base Model</u>	<u>Full Model</u>	<u>Full Model</u>
<i>MUNICIPAL_SPECIALIST_mean</i>	?	-0.085 (-0.20)	-0.389 (-0.69)	-0.243 (-0.63)	-0.402 (-0.70)
<i>STATE_AUDITOR_mean</i>	?	0.252 (0.56)	1.213* (1.67)	-0.202 (-0.46)	1.058 (1.27)
State Indicators		No	Yes	No	Yes
Chi-square		61.911	.	60.232	.
Degrees of Freedom		8	5	11	13
Pseudo r-square		0.2851	0.4313	0.3214	0.4335
Number of Observations		92	92	92	92
* p<0.10 ** p<0.05 *** p<0.01					

APPENDICES

APPENDIX A: MUNICIPAL GOVERNANCE MECHANISMS

In this appendix, I include an excerpt from Marshall (2010) that discusses various governance mechanisms and how they affect individual incentives and organizational goals. I also include a figure from Marshall (2010).

Marshall (2010) Excerpt:

“I examine the following governance mechanisms: form of government, Chief Elected Official (CEO) power, direct democracy, and legislative terms and independence. A summary of my predictions of how municipal governance mechanisms affect incentives and monitoring based on prior literature and my own conjecture are found in Table 1. I examine four broad governance mechanisms which are proxied by eight different survey items. Each of these governance mechanisms is associated with different individual incentives and organizational objectives. I expect that these mechanisms act together to fulfill organizational missions and mitigate agency issues by varying incentives and monitoring. Therefore, I expect that if some mechanisms increase certain incentives that they will exist with other mechanisms that decrease other incentives. How monitoring, incentives, and organizational goals are associated with these measures is described in the following sections.

Form of government

In the first two rows of table one are two governance mechanisms, mayor-council versus council manager form of government and whether there is a Chief Appointed Officer. These two mechanisms fall under the category of form of government. As described in previous sections, the mayor-council form of government is characterized by a separation of powers between the executive and legislative branches of government whereas the council-manager form of

government is similar to governance we see in the for-profit sector where an elected board hires and supervises an executive/manager. In the mayor-council form of government, having two branches of government reduces monitoring since the costs and benefits of agents' actions are less concentrated (Zimmerman 1977) (Table 1 row 1, column1). The career incentives are different compared to council-manager form of governments since the mayor is looking to further his political career compared to a career in the private sector. This reduces career incentives (Table 1 row 1, column 2) and increases political incentives (Table 1 row 1, column 3). At an organizational level, having a mayor-council form of government increases the organizational goal of reflecting voter preferences (Table 1 row 1, column 4) because this form of government is more political and thus stewardship of resources is not as important (Table 1 row 1, column 5).

The Chief Appointed Officer was created to lessen the demands on mayors in mayor-council form of government cities (Frederickson, Logan, and Wood 2003). In the council-manager form of government the CAO is the city manager. Frederickson, Logan, and Wood(2003) document that the presence of CAO in mayor-council cities has increased to over 50 percent and this increase is due to the trend of having greater administrative effectiveness. The presence of a Chief Appointed Officer (Table 1 row 2, column 1) increases monitoring since the costs and benefits of his actions are concentrated in the elected officials that monitor him as well as municipal residents. Since the CAO is a professional and is only hand-picked by the mayor in few cases (11%, Svava 1999), he has greater career incentives (Table 1 row 2, column 2) and less political incentives (Table 1 row 2, column 3). As the CAO does not directly answer to voters and is non-political by design, his presence decreases meeting the organizational goal

of fulfilling voter preferences (Table 1 row 2, column 4) and better aligns the organization with the mission of being a good steward of resources (Table 1 row 2, column 5).

Chief elected official (CEO) power

I include two items for Chief Elected official power, whether the CEO sets the budget by himself, and whether department heads are elected or appointed, based on their emphasis in prior literature (Renner and DeSantis 1994; Frederickson, Logan, and Wood 2003; Feiock, Keong, and Kim 2003). Having the power to set the budget gives municipal officials the ability to repay political favors if they are politically motivated. For municipal officials that have low-powered political incentives budgetary authority may increase career incentives through greater job fulfillment and less turnover (Renner and DeSantis 1994). Budgetary authority is usually delegated to the mayor with approval by council in mayor-council cities and is delegated to the city manager in council-manager cities but that has changed in recent years (Renner and DeSantis 1994, Frederickson, Logan, and Wood 2003). With the introduction of the chief appointed officer position, budgetary authority has been increasingly delegated to the CAO in mayor-council cities making them more similar to council manager cities (Frederickson, Logan, and Wood 2003) thus form of government no longer automatically determines budget setting authority. If the budget is set by the chief elected official, i.e. the mayor, then monitoring is decreased (Table 1 row 3, column 1) since the mayor is only accountable to voters and not the council. Career incentives are decreased for the chief appointed official if the chief elected official does not share budget setting authority with him and increases the political incentives for the CEO (Table 1 row 3, column 3) since he can now use budgetary authority to give political favors (Table 1 row, 3 column 2). At an organizational level voter preferences should be better met (Table 1 row 3, column 4) since unreformed municipal structures are more responsive to

their constituencies (Lineberry and Fowler 1967 and DeSantis and Renner 2002) and unreformed municipal structures are characterized by mayor-council form of government where the mayor has budgetary authority and council is elected by district. The goal of being a good steward of resources is diminished if the CEO sets the budget (Table 1 row 3, column 5) since the position has high-powered political incentives and thus short-term projects that will gain favor for reelection will be pursued over longer-term projects that may be more prudent (Frant 1996).

If a municipality's department heads are elected then those department heads are accountable to the electorate and not directly to the city manager or CAO. This decreases monitoring (Table 1 row 4, column 1) since the actions of the agent (the department heads) are no longer as concentrated (Zimmerman 1977). Also by having department heads elected career incentives for the department heads are decreased (Table 1 row 4, column 2) and political incentives increase (Table 1 row 4, column 3) since the position is no longer a professional civil service position but is now political. By making department heads more political through being elected, voter preferences are more likely to be met (Table 1 row 4, column 4) and stewardship of resources is less likely (Table 1 row 4, column 5).

Direct democracy

Direct democracy refers to the ability of the electorate to participate directly in their government. Maser (1998) refers to the provisions of initiative, referendum, and recall as direct democracy and explains that these provisions are meant to provide a threat to municipal officials that may not abide by the interests of their constituents. Maser (1998) argues that these provisions reduce the cost of monitoring and that the provision for recall provides incentives for elected officials 'to identify the medians on multiple issues, to avoid deviating from them.' This leads to the following predictions, monitoring is higher (Table 1 row 5, column 1), career

incentives are lower (Table 1 row 5, column 2), and political incentives are higher (Table 1 row 5, column 3) when provisions for referendum, initiative, and/or recall are present. Career incentives are lower when these provisions are present because they have the potential to destabilize government (Maser 1998) and when there is political instability more turnover is present for city managers (Renner and DeSantis 1994). Because provisions for direct democracy help to align elected officials with median voter preferences then the organizational goal of fulfilling voter preferences becomes more important (Table 1 row 5, column 4). I conjecture that the goal of stewardship of resources is also more important when there are direct democracy provisions because of the use of referenda in fiscal issues such as the issuance of bonds (Maser 1998).

Legislative characteristics

I use three measures of legislative characteristics: whether the chief elected official is on the council, whether the chief elected official votes on the council, and whether the council members are elected concurrently or in staggered terms. Because of separation of powers the chief elected official is not on the council in the mayor-council form of government but can be in the council-manager form of government. As a member of council, the chief elected official or mayor can have the authority to vote in all matters, only vote in the case of breaking a tie, or not vote at all. For the chief appointed officer (CAO) or city manager career incentives are higher (Table 1 row 6, column 2) when the CEO is on the council since this means that the CEO has less executive power. Because the CEO is not a separate executive when he is on the council political incentives are lower (Table 1 row 6, column 3). Having the CEO on the council is a characteristic of reformed governments which are less responsive to their constituencies (DeSantis and Renner 2002 thus voter preferences are lower (Table 1 row 6, column 4).

Staggered terms are associated with more political stability which leads to less city manager/CAO turnover (Renner and DeSantis 1994), therefore; monitoring of the CAO is lower (Table 1 row 8, column 1) and career incentives are higher (table 1 row 8, column 2). The governance mechanism of having the CEO vote on the council increases the political incentives of the CEO (table 1 row 7, column 3) since the CEO becomes more involved in the legislative process. Voter preferences are higher when the CEO votes on the council (table 1 row 7, column 4) and stewardship of resources is lower (table 1 row 7, column 5) since political incentives for the CEO are higher when they are able to vote and higher political incentives lead to greater allocative efficiency (Frant 1996). When council elections are staggered fewer council members run at a time thus each council member has more scrutiny. This causes higher political incentives on behalf of council (table 1 row 8, column 3). Staggered terms also bring stability into the political process slowing political change thus lowering the goal of voter preferences (table 1 row 8, column 4). Gore (2009) shows that councils with staggered terms have higher agency costs as proxied by administrative expenses thus I predict that staggered council terms lead to lower stewardship of resources (table 1 row 8, column 5). ”

APPENDIX B: LATENT CLASS ANALYSIS

In this appendix I include an excerpt from Marshall (2010) that describes latent class analysis. I then compare latent class analysis to factor analysis and cluster analysis.

From Marshall (2010):

“I use latent class analysis to group municipalities by governance types based on answers to the 2001 ICMA Form of Government Survey. Latent class analysis (LCA) determines the probability of being in a particular class and further determines the probabilities of each item response given membership in a certain class. From these probabilities, posterior probabilities of class membership are determined. The analysis works by analyzing a contingency table using maximum likelihood to determine the parameter estimates. The contingency table is made up of cells of every combination of answer to the items included in the analysis. For example, if I created a contingency table from three items that had two possible answers each the table would be made of eight cells ($2 \times 2 \times 2$). One issue with using LCA is that when more items are added the contingency table that is used for the maximum likelihood estimation becomes very large. This becomes a problem for model specification since there needs to be enough observations in the different cells of the contingency table. This problem of the average expected cell count being small is called sparseness and is a function of the sample size (N) divided by the size of the contingency table (W) (Collins and Lanza 2010). For example, the ICMA 2001 Form of Government Survey has thirty-one questions with some questions having multiple parts. If I used the 21 items with dichotomous answers, that would create a contingency table with 2,097,152 (221) cells and my sample size is only 1738. I do not use all 31 questions since I do not have a large enough sample for my model to be specified, thus I choose the eight most important

questions based on the prior literature. Since there are eight dichotomous indicators there are 256 possible combinations of answers. Because the latent governance construct mitigates agency issues while fulfilling organizational missions certain combinations of answers should be more prevalent than others and latent class analysis can determine what combinations hang together.”

Latent class analysis is used for governance structure instead of factor analysis for a few reasons. The first is that measurement of governance mechanisms is discrete instead of continuous. Factor analysis assumes that measures are continuous; so, it is not well suited for discrete measures. There are some ways to correct for this, such as tetrachoric correlation; however, there is another reason that factor analysis is not used. Factor analysis also assumes that the underlying latent variables are continuous. I do not view governance structure as a continuum ranging from good to bad but as discrete types developed to deal with various issues in a particular situation. Because of my view of governance, factor analysis would not be appropriate since it would capture a latent variable that does not have the properties to deal with discrete governance types.

Latent Class Analysis shares some similarities to cluster analysis. Both analyses determine groupings of observations based on multiple observed characteristics. In both analyses, these groups are not directly observed. Latent class analysis differs from cluster analysis in that it is based on a conditional probability model and cluster analysis is not based on any statistical model. There are statistical methods that can be used for different types of cluster analysis but determining the probability of an observation being in a cluster based on its characteristics is not possible with cluster analysis. I use these probabilities of class membership as a measure of governance structure and I would not have this information using cluster analysis.

FIGURES

Figure 1: Governance Mechanisms and Influence on Incentives and Organizational Missions

Reproduced from Marshall (2010)

Governance Mechanisms	Incentives Items	Individual			Organizational	
		Monitoring (1)	Career Incentives (2)	Political Incentives (3)	Voter Preferences (4)	Stewardship of Resources (5)
Form of Government	(1) Form Mayor-Council	-	-	+	+	-
	(2) CAO	+	+	-	-	+
CEO Power	(3) Budget setting CEO only	-	+ if CEO - If CAO	+	+	-
	(4) Department H. elected	-	-	+	+	-
Direct Democracy	(5) Provisions	+	-	+	+	+
Legislative Characteristics: Terms and Independence	(6) CEO on council	No prediction	+	-	-	+
	(7) CEO votes on council	No prediction	No Prediction		+	-
	(8) Staggered Terms	-	+	+	-	-

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