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Differences in internal control weaknesses among varying municipal election policies

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ABSTRACT

In a time when regulators and constituents are growing increasingly concerned with municipal fraud, abuse, waste and inefficiencies, developing a well-designed, effective internal control system is key for municipalities to curb these issues. In this study, the relationship between municipal elections and internal control weaknesses is examined. As elections have been shown to improve public officials' performance via accountability, appropriate use of elections is expected to have a pivotal effect on a municipality, ultimately impacting the operating effectiveness of the internal control system. Two election variables – election of the Finance official and use of term limits for City Council and the mayor – are evaluated to determine if a relationship with the prevalence of internal control weaknesses reported exists. The contribution of this study is the finding that both the use of term limits and election of the Finance official are associated with fewer instances of internal control weaknesses, implying that these election policies have a meaningful effect on governance quality, impacting the effectiveness of internal controls.

1. Introduction

In recent years in the public sector, measures have increased to curb municipal waste, misuse of funds, abuse of power and fraud. Regulators are increasingly concerned with the quality of financial reporting and disclosure in the public sector, largely in part due to recent instances of municipal securities fraud. In 2014, the Securities and Exchange Commission (SEC) created the Municipalities Continuing Disclosure Cooperation (MCDC) Initiative, which was an initiative to encourage municipal securities issuers to self-report violations of securities laws in exchange for reduced sanctions (SEC, 2014). In 2016, under this initiative, the SEC charged 71 municipal bond issuers with violations, finding that from 2011 to 2014 these issuers sold bonds with offering statements containing falsified statements or omissions about their compliance with continuing disclosure obligations (SEC, 2016). Also in 2016, federal prosecutors indicted the town supervisor of Ramapo, NY on 22 counts of securities fraud, wire fraud and conspiracy, which involved falsified accounting entries and misappropriation of funds (DOJ, 2016). These charges are believed to be the first criminal municipal securities charges brought against public officials.

In addition to the regulatory spotlight recently shone on municipal securities fraud, taxpayers are growing increasingly concerned with reducing fraud, abuse and waste of taxpayer funds, along with improving efficiency of city resources. In 2012, the largest municipal fraud in U.S. history came to light, which involved the comptroller/treasurer of Dixon, IL, Rita Crudwell, embezzling $53.7 million over her 29 years in office by diverting funds from Illinois tax-sharing programs to her personal bank accounts (Pope, 2013). This fraud was discovered because of a city employee whistle-blower. A simple internet search for "city misuse of funds" brings up more than a dozen instances over the last year alone currently being investigated across the country.

A well-designed, effective internal control system should mitigate some of these aforementioned issues. While internal controls

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alone cannot ensure fraud will not occur, a well-designed system will make these occurrences much more difficult to achieve. The internal control system also helps to safeguard assets and promote efficient operations, accuracy and reliability of financial reporting, and compliance with applicable laws and regulations (Thomson, 2015). The internal controls should be designed for these purposes and operating effectively in order to meet these objectives. A poorly designed or ineffective internal control system creates an environment with greater potential for inefficiencies, waste, misuse of funds, abuse of power and even fraud, in the worst case scenarios. Internal control weaknesses can signal instances of these issues within a city government.

As reduction of inefficiencies, waste, misuse of funds, abuse of power and fraud are of such importance in the municipal sector, understanding factors that strengthen the internal control system is key. This study examines determinants of internal control weaknesses related to municipal governance – specifically, the role of elections and the impact on internal control weaknesses. One of the most convincing mechanisms of good governance is increased electoral control through the use of regular elections (Adsera et al., 2003). Elections enable voters to hold public officials accountable for their actions by rewarding those who perform satisfactorily with reelection and removing from office those that do not perform adequately. As elections have been shown to improve public officials' performance via accountability, this study posits and finds that election policies have a meaningful effect on a municipality, ultimately impacting the operating effectiveness of the internal control system. This finding is important because a stronger internal control system will leave less opportunity for inefficiencies, abuse, waste and fraud.

This research study examines elections for the Finance Department, City Council and the mayor in relation to internal control weaknesses. These public officials are chosen because their job performance can impact the municipality's internal control system: first, the position responsible for financial reporting – the Finance official; second, those charged with general oversight of a municipality – City Council and the mayor. While the Finance official likely has a more direct impact on internal controls, especially those related to financial reporting, the oversight body may have a pervasive effect on the operations of a city that will have a trickle-down effect on the internal control system. Other studies in the public sector have analyzed effects of certain governance policies (for example, audit committee, staggered elections and use of a city manager) on internal control weaknesses, however this is the first study to evaluate these election components and their potential impact on internal controls.

The contribution of this study is the introduction of two new governance variables of interest in the municipal sector – term limits for City Council and the mayor and election of the Finance leader (versus appointing through other means) – in order to analyze whether these election policies impact the internal control weaknesses disclosed in the financial statement audit report. In order to examine these relationships, this study uses time-series data covering the time period of 2008–2015 to arrive at a sample of 1004 observations, as well as propensity score matching to address endogeneity concerns in studies of this kind. The evidence in this study suggests, after controlling for other determinants of internal control problems, that both the use of term limits and electing the Finance leader are associated with fewer instances of internal control weaknesses.

The remainder of this paper is organized as follows. In section two, background information related to municipal auditing and the theoretical framework for this study are presented. In section three, relevant literature is reviewed and hypotheses are developed. In section four, the research methods used are explained, including development of the models and variables, data and sample selection. Statistical results and analysis are described in section five, and finally concluding remarks are presented in section six.

2. Background and theoretical framework

This study examines the relationship between constituents of a municipality and the officials that represent them, like the elected Finance official or City Council members and the mayor, through the lens of the principal-agency framework. These public officials make decisions on citizens' behalf with regard to management of public funds and taxpayer resources, as well as availability of public goods and services. They are expected to act as agents of the people but may have divergent interests from the constituents they represent.

Municipal governance is a critical element to instill confidence in these public officials, as well as restore this confidence when damaged. Policies that emphasize accountability, transparency and oversight enhance citizens' trust in the government and its officials. In terms of election policies and their relationship with municipal governance, electing the Finance official grants constituents with electoral control, which increases accountability as officials can be voted out of office if they are not performing well. Term limits increase transparency by reducing the likelihood of Council entrenchment. Both of these policies are expected to improve the effectiveness of oversight. The governance institutions of a city set the "tone at the top" and present the attitude and expectations of the entity. A tone underscoring the importance of accountability, transparency and high quality oversight fosters an environment with less opportunity for misuse of funds, abuse of power or fraud. Policies that promote better governance may also improve fiscal responsibility, financial reporting quality and compliance with laws, regulations, contracts and grant agreements.

Within this principal-agent relationship, information asymmetry exists because public officials are privy to private information that voters do not have, which gives the officials an information advantage. Incentive plans are structured to align the interests of the principal and agent, and monitoring and oversight help to ensure that agents act in the interest of the principal. A common monitoring mechanism is the external audit report, which involves an extensive evaluation of financial reports, internal controls and processes in place within the entity. The audit report provides an objective assessment of whether these public agents effectively manage public resources and acts a tool for citizens to evaluate performance of public officials. The audit report, which gives an overall opinion as to the presentation of the financial statements, the internal control system design and operating effectiveness, and compliance with laws and regulations, gives voters information that otherwise would not be available to them, therefore reducing the information asymmetry problem.

In a municipal setting, transaction costs in the principal-agent relationship (i.e., costs of relocating to a different city) are high

compared to those of the capital market (Zimmerman, 1977). Voters cannot easily dispose of their investments in the municipality, i.e., their real estate investments, and are less able to protect themselves from opportunistic behavior by public officials acting as their agents. Due to these high transaction costs, monitoring and oversight are of the utmost importance (Baber et al., 2013).

3. Literature review and hypotheses development

A weak internal control system not only increases the potential for fraud and abuse, but when discovered by the external auditors, deficiencies in the internal control system are reported in the financial statement audit report, which impacts entities financially – namely, reduced financial support for nonprofit entities (Petrovits et al., 2011), increased equity costs for publicly traded corporations (Ashbaugh-Skaife et al., 2009; Hammersley et al., 2008; Ogneva et al., 2007) and increased debt costs for publicly held companies reporting internal control weaknesses (Costello and Wittenberg-Moerman, 2011; Crabtree and Maher, 2012; Dhaliwal et al., 2011; Elbannan, 2009; Kim et al., 2011). This study seeks to evaluate election mechanisms that are associated with fewer internal control weaknesses in an effort to ultimately reduce potential negative effects of these deficiencies. Two categories of election polices are evaluated: election of the Finance official and term limits for City Council and the mayor.

3.1. Internal control weaknesses and election of the finance official

The Finance official likely has a direct impact on internal controls, especially those related to financial reporting. The Finance official often sets and approves the policies in place in development or re-evaluation of the internal control system and is involved on a daily basis with the operation of the internal control system. This individual is aware of how the system is designed and whether it is operating effectively. An audit report disclosing a material weakness can have far-reaching effects for a city (for example, increased debt costs), which could lead to this individual not being re-elected, therefore creating greater incentive for the Finance official to develop and maintain an effective internal control system.

The Finance official is either a political leader elected by the people (i.e., a comptroller) or a civil servant hired by the organization or appointed by the mayor (i.e., a director of finance or chief financial officer). Political leaders are reappointed through public election, while civil service leaders do not undergo the election process. The “politician vs. professional” debate has been analyzed from different perspectives and for various government positions (Federal judges, School Board officials, Public Utility Commissioners, etc.) with conflicting results. There is an argument for an appointed or hired individual being more qualified than an elected official because an elected official does not necessarily have the same professional qualifications. However, in the majority of cities, the elected Finance official has finance or accounting experience similar to that of an appointed or hired individual. Because the Finance official is professionally qualified with financial expertise whether elected, appointed or hired, the main difference between the “professional” and “politician” in this setting is simply the presence of an election.

Individuals subject to competitive elections are more productive on average than officials that do not face competition (Banks and Sundaram, 1998). Regular elections can reduce politicians’ abuse of power and information asymmetry (Ferejohn, 1986), and the threat of removal via elections encourages officials to avoid shirking (Adsera et al., 2003; Lott and Bronars, 1993; Vanbeek, 1991). Voters discipline officials via elections by rewarding them with reelection or punishing them with removal from office, hereby creating an accountability mechanism (Adsera et al., 2003). Because elected officials are aware of voters’ control and ability to reward and punish, these individuals have been shown to perform better than those not subject to regular elections, known as the “accountability effect” (Alt et al., 2011; Banks and Sundaram, 1998; Barro, 1973; Besley and Case, 1995; Besley and Case, 2003; Besley and Smart, 2007; Ferejohn, 1986; Ferraz and Finan, 2011). Elections have also been shown to be an effective means to encourage officials to act in the public’s interest rather than their own self-interest, as these parties often have different priorities (Adsera et al., 2003; Barro, 1973).

Many cities are moving away from electing officials because the thought is that an appointed official is more qualified because they meet required qualifications in order to be appointed. However, an appointed official is typically appointed by the mayor and may not have the same interests as one elected by the people. Those cities that elect the Finance official typically do so because historically that is the method the city has used, not because of a modern policymaking decision. Because of the lack of existing research specifically related to electing a Finance official in a municipal setting, the first hypothesis presented here is stated in the null:

Hypothesis 1. Internal control weaknesses are independent of electing the Finance official.

3.2. Internal control weaknesses and term limits for City Council and the mayor

Those charged with general oversight of a municipality – City Council and the mayor – are examined next, as the oversight body can have a pervasive effect on the operations of a city via a trickle-down effect. Two election policies for City Council have been shown to impact efficiency and opportunities for fraud – term limits and staggered boards. While staggered boards have been examined in relation to internal control weaknesses in prior research (Rich and Zhang, 2014), term limits have not.[1] This study therefore focuses on term limits.

[1] Staggered boards are included as a control variable in this study for this reason.

City Council typically acts as the general oversight body for a municipality as a whole, and the mayor may be elected separately from the Council or elected from the Council members, depending on the government structure (mayor-council or council-manager). Regardless, all of these officials are typically elected officials. While it is standard procedure for City Council members and the mayor to be elected, when incumbent officials are subject to term limits and serving their final term, they are not subject to an election. In cities with term limits, officials automatically rotate out of office once they serve the maximum number of terms allowed. Despite the well-documented accountability effect provided by regular elections, an argument exists in conjunction with regular elections for limiting the number of terms an official can serve.

As with most oversight bodies, potential for management entrenchment exists with these public officials. Managerial entrenchment occurs when individuals gain so much power that they are able to use the entity (in this case, the municipality) to further their own interests rather than the interests of the stakeholders they represent. Entrenchment introduces inefficiency, lays grounds for corruption and hinders the government's ability to serve the needs of citizens (Bebchuk and Cohen, 2005).

Term limits exist in order to improve oversight effectiveness, encourage new thoughts and fresh ideas and protect voters from unjust power by reducing the likelihood of entrenchment (Crane, 1990). The use of term limits has been argued to make politicians more representative and responsive (Coyne and Fund, 1992; Crane, 1990). Furthermore, despite the removal of the election mechanism in an incumbent's final term, term limits have been shown to have beneficial effects on overall government efficiency (Smart and Sturm, 2006).

Conversely, in a gubernatorial setting, spending and taxes have been found to be higher for term-limited governors than their non term-limited counterparts (Besley and Case, 1995), but this term-limit effect may be reduced over time (Besley and Case, 2003). In addition, when a governor's performance is measured in terms of higher economic growth and lower taxes, spending, and borrowing costs for a state, reelection-eligible governors perform better than those who are ineligible for reelection due to term limits, possibly because reelection-eligible officials have more incentive to exert effort on behalf of voters (Alt et al., 2011).

In a corporate setting, term limits for sitting directors have been analyzed with mixed results because of the tradeoff between the reduction in the potential for entrenchment and the loss of institutional knowledge that occurs when individuals are forced to retire from the board. Vance (1983) argues that forced retirement for directors leads to a waste in experience and institutional knowledge. Buchanan (1974) and Salancik (1977) find that longer board tenure is associated with a greater commitment to the organization and willingness to expend effort to meet the company's goals; however, Salanick posits that this increased commitment is due to "side bets" the directors make in the company, such as purchasing company stock. On the contrary, the National Association of Corporate Directors argues that changing business conditions call for changes in board composition, and that limiting the number of years on the board and bringing in new directors encourage fresh ideas and critical thinking (NACD, 1996). Similarly, Lipton and Lorsch (1992) advocate term limits for directors as the potential for shirking and entrenchment increases as tenure increases.

Because term limits require officials to rotate out of office after a set number of consecutive terms, they aim to reduce the opportunity for entrenchment, improve oversight effectiveness, and encourage new thoughts and fresh ideas. However, a loss of knowledge, experience and institutional knowledge occurs when Council members are forced to retire. Furthermore, when Council members are ineligible for re-election and serving their final term, the ability for voters to discipline these officials through elections is removed, which removes the well-documented accountability effect of elections (Alt et al., 2011; Banks and Sundaram, 1998; Besley and Case, 1995; Ferejohn, 1986; Lott and Bronars, 1993). Even so, term limits have been shown to have overall positive effects on government efficiency (Smart and Sturm, 2006). Because of these conflicting arguments, the second hypothesis is presented non-directionally:

Hypothesis 2. Internal control weaknesses are independent of the use of term limits.

4. Research methodology

4.1. Propensity score matching

Due to the nature of this study, endogeneity may be a concern. Endogeneity occurs when predictors of an outcome (here, internal control weaknesses) are associated with other unobserved or observed variables (Titus, 2007). In addition, selection bias, which involves the non-random selection of observations based on the availability of observable data, therefore hindering proper randomization of the sample, may also be a concern in this study (Titus, 2007). Because only cities with observable data (for example, publicly available financial statement audit reports) are included in this study, those cities that do not have such data for whatever reason – perhaps they are too small or do not spend enough federal funds to warrant an audit report – are not included in this study.

In order to address these issues, propensity score matching (PSM) is used to achieve a matched sample, in which each observation undergoing treatment (in this case, implementing the election policy of interest) is paired with a control observation that is not undergoing treatment, matched on the remaining control variables in the model (a range of city and auditor characteristics, specifically *AUDCOMM, MGR, STAGGER, BIG 4, EXPER, LOWRISK, SIZE, ASSETS, CHANGE* and *FEDREV*). PSM attempts to estimate the effect of a treatment (i.e., election policy) by accounting for the covariates that predict receiving the treatment. In this study, the matched sample is then used to examine whether differences in the prevalence of internal control weaknesses can be attributed to the election policies of interest here (elections for the Finance official and term limits for Council members and the mayor). PSM was originally developed by Rosenbaum and Rubin (1983) and has been used in recent accounting studies in various topics – to name a few, Armstrong et al. (2010); Lawrence et al. (2011); Rich and Zhang (2014).

PSM is useful in this setting because it creates samples in which the matched observations with and without treatment are similar,

providing a prime setting to separate and analyze the effects of the election policies on internal control weaknesses. Furthermore, because this study analyzes a nonlinear relationship, PSM is considered the better method when compared to other common approaches like the Heckman model (Heckman, 1979), as an underlying assumption of the Heckman model is that the relationship between the outcome, treatment and covariates is linear (Briggs, 2004; Heckman, 1979).[2]

Limitations to PSM do exist and should be considered. First, matching samples results in using subsamples of the population, which reduces the randomization of the sample, so there is a trade-off between more accurately identifying the effects of treatment and reducing the ability to generalize the results to the full population (Cram et al., 2009). In addition, PSM relies on the assumption that the effects of unobservable factors are not related to the estimation of the effects of treatment (Lawrence et al., 2011).

4.2. Model development and variables

Internal control weaknesses (ICW) are audit issues significant enough to require disclosure in the audit report and are comprised of material weaknesses and significant deficiencies. A material weakness (MW) is defined as "a deficiency, or a combination of deficiencies, in internal control, such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected on a timely basis (OMB, 2011)." In order for an item to be labeled a material weakness, typically the issue appears pervasive. A significant deficiency (SD) is defined as "a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance (OMB, 2011)."[3]

The following model is introduced to test the probability of finding an internal control weakness:

$$\begin{aligned} Prob\ (ICW)_t = {} & B_1(FINANCE\ ELECT)_t + B_2(LIMITS)_t + B_3(AUDCOMM)_t + B_4(STAGGER)_t + B_5(MGR)_t + B_6(BIG4)_t \\ & + B_7(STATE)_t + B_8(EXPER)_t + B_9(LOWRISK)_t + B_{10}(SIZE) + B_{11}(ASSETS)_t + B_{12}(CHANGE)_t \\ & + B_{13}(FEDREV)_t + B_{14}(2009) + B_{15}(2010) + B_{16}(2011) + B_{17}(2012) + B_{18}(2013) + B_{19}(2014) \\ & + B_{20}(2015) + \varepsilon \end{aligned}$$

Variable descriptions can be found in Table 1.

Two different specifications are used to measure the dependent variable of an internal control weakness (*ICW*). In the model specification, an indicator variable for a material weakness (*MW*) is used as the dependent variable and is coded as a 1 if a material weakness is disclosed in the financial statement audit report in time *t*, 0 otherwise. In the second specification, an ordinal variable representing an index of severity of internal control weaknesses (*INDEX)* is created, modeled after Lopez and Peters (2010). This variable is coded as a 0 if no internal control weakness is found, 1 if a significant deficiency is found and a 2 if a material weakness is found, all measured in time *t*.[4]

The independent variables of interest are captured by indicator variables coded as 1 if the governance policy is in place. Hypothesis 1 relates to whether the election of a Finance official is associated with finding an internal control weakness. An indicator variable for an elected Finance official (*FINANCE ELECT*) is included and coded as a 1 if an elected Finance official serves in year *t* for the observation city; 0 otherwise. Hypothesis 2 relates to whether using term limits affects the likelihood of an internal control weakness. Therefore, an indicator variable for term limits (*LIMITS*) is included and coded as a 1 if term-limited officials (City Council members and mayor) serve in year *t* for the observation city; otherwise a 0. Both variables are hypothesized in the null, so a direction is not hypothesized.

In prior research, certain governance variables have been shown to impact audit quality or the probability of finding internal control weaknesses and are therefore controlled for in this study. First, the use of an audit committee improves municipal internal control quality (Rich and Zhang, 2014). Second, regarding the oversight body, in the private sector, staggering elections for the Board of Directors have been shown to be associated with lower firm performance (Bebchuk and Cohen, 2005; Gompers et al., 2003) and internal control problems (Baber et al., 2016). On the contrary, in a municipal setting, Rich and Zhang (2014) find that staggering elections for City Council positively impact internal control quality. Lastly, the presence of a city manager in a council-manager system as opposed to a mayor-council system has been found to vary inversely with internal control quality (Rich and Zhang, 2014). Indicator variables are included to control for differential effects of each of these governance policies (*AUDIT*, *STAGGER*, *MGR*, respectively), and each is coded as a 1 if the respective policy is in place in time *t*.

Prior research shows that municipality characteristics impact internal control quality, so variables are introduced to control for these differential effects. In nonprofit and governmental entities, entity size and complexity have been found to be determinants of internal control weaknesses (Keating et al., 2005; Lopez and Peters, 2010; Petrovits et al., 2011); therefore *SIZE* (the natural log of the

[2] Additional concerns with the Heckman model (where a first-stage prediction model is used to estimate the Inverse Mills Ratio which is then included as a bias correction term in the second-stage model) are that it relies on a specific functional form to provide an indirect estimate of treatment effects, whereas matching models do not and therefore provide a more direct estimate of the treatment effects (Lawrence et al., 2011; Li and Prabhala, 2007). Also, it is difficult to ascertain which variables only influence the first-stage model and not also the second-stage model, so using this method could result in estimating the effects of treatment with error (Lawrence et al., 2011).

[3] As of the sample period, any municipality that spends more than $500,000 of federal funds in a given year is subject to both a financial statement audit and a major programs audit. The audit report examined here is for the financial statement audit, and the related controls are controls over financial reporting.

[4] If a city has multiple deficiencies, the most severe in its audit report is used for coding. For example, if both a material weakness and a significant deficiency are disclosed, *INDEX* is coded as a 2 for the most severe deficiency reported (a material weakness).

Table 1
Variable descriptions.

Variable	Definition	Data source*
Dependent variables		
MW	Material weakness (0, 1): 1 if a material weakness is reported	DCF
INDEX	Internal control weakness scale (0, 1, 2): 0 if no control deficiencies, 1 if a significant deficiency is reported and 2 if a material weakness is reported	DCF
Independent variables		
FINANCE ELECT	Finance Department oversight (0, 1): 1 if head of Finance department is elected	Website
LIMITS	Term limits (0, 1): 1 if City Council has limits on number of consecutive terms served	Website
Control variables		
AUDCOMM	Audit committee (0, 1): 1 if city has an audit committee	Website
MGR	City manager (0, 1): 1 if a city manager is used (versus a mayor-council structure)	Website
STAGGER	Staggering elections (0, 1): 1 if City Council elections are staggered	Website
BIG 4	Big Four auditor (0, 1): 1 if audit firm is a Big Four auditor	DCF
STATE	State auditor (0, 1): 1 if auditor is a state auditor (versus a private CPA)	DCF
EXPER	Audit firm experience: number of single audits performed by the audit firm within the sample.	FAC
LOWRISK	Audit risk (0, 1): 1 if city is considered a low-risk entity as determined by the auditor according to OMB guidelines	DCF
SIZE	Population: natural log of city's population	Census
ASSETS	Positive net assets (0, 1): 1 if net assets are positive in the current year	CAFR
CHANGE	Positive change in net assets (0, 1): 1 if the change in net assets from the prior year is positive	CAFR
FEDREV	Federal revenue: natural log of federal revenue received in the current year	DCF
2009	2009 fiscal year (0, 1): 1 if audit report is for a fiscal year ending in 2009	DCF
2010	2010 fiscal year (0, 1): 1 if audit report is for a fiscal year ending in 2010	DCF
2011	2011 fiscal year (0, 1): 1 if audit report is for a fiscal year ending in 2011	DCF
2012	2012 fiscal year (0, 1): 1 if audit report is for a fiscal year ending in 2012	DCF
2013	2013 fiscal year (0, 1): 1 if audit report is for a fiscal year ending in 2013	DCF
2014	2014 fiscal year (0, 1): 1 if audit report is for a fiscal year ending in 2014	DCF
2015	2015 fiscal year (0, 1): 1 if audit report is for a fiscal year ending in 2015	DCF

* DCF = Data collection form for the city in the respective audit year, obtained from the Federal Audit Clearinghouse; FAC = Federal Audit Clearinghouse single audit data; CAFR = the city's CAFR for the respective audit year; Website = city's website; Census = 2005 US Census Bureau City Survey.

population) and *FEDREV* (the natural log of the city's federal revenue in time *t*, which is a proxy for complexity) are included as control variables.[5] Both of these continuous variables are winsorized at the 1 and 99 percent levels to adjust for data outliers common in working with this type of data (Tinkelman and Neely, 2011). In addition, financial health can affect internal control weaknesses (Fitzgerald and Giroux, 2014; Giroux and Mclelland, 2003; Keating et al., 2005; Petrovits et al., 2011), so two variables are included to control for these effects: financial position (an indicator variable coded as a 1 for positive net assets in time *t*) is represented by *ASSETS*, and financial performance (an indicator variable coded as a 1 for a positive change in net assets in time *t*) is represented by *CHANGE*.

Regarding the auditor, auditor type (i.e., private CPA firm versus state auditor) has been shown to affect the prevalence of internal control weaknesses (Jakubowski, 2008; Lopez and Peters, 2010), as have audit firm size (Deangelo, 1981; Dopuch and Simunic, 1980; Lawrence et al., 2011) and auditor experience (Keating et al., 2005; Petrovits et al., 2011). Therefore, the control variables *BIG4, STATE* and *EXPER* are included to control for these factors. Also following prior research, audit risk is controlled for here (*LOWRISK*) as it has been shown to vary with internal control weaknesses (Lopez and Peters, 2010; Rich and Zhang, 2014). Finally, the observation year is included as a control variable.

4.3. Sample selection and data

The largest cities with complete data available from the U.S. Census Bureau 2005 City Survey are selected, with populations ranging from 115,000 to eight million, for a total of 135 cities, including cities in 36 states. Data for these cities are collected from the reporting periods of 2008 through 2015 (eight years), totaling 1080 entity-year observations, from the Office of Management and

[5] Federal revenue amount is included here as a proxy for audit complexity. The determination of how many federal programs are audited each year is based on federal revenue spent (FEDREV) and audit risk (LOWRISK). Therefore, federal revenue amount is directly related to the amount of audit work performed in the federal programs portion of a municipal audit, and therefore is included here as a proxy for audit complexity. In prior studies, various measures have been used to approximate complexity, either at the entity-level or the audit-level. For example, in order to measure audit complexity, Marshall (2012) uses number of general revenue accounts; Ward et al. (1994) use number of significant funds; and Rubin (1988) uses number of city services. These measures are static figures with little to no variation from year to year. Because this study examines the same cities over an eight year period, a dynamic measure that may fluctuate from year to year is considered favorable as a proxy for audit complexity. Therefore, federal revenue, which fluctuates annually based on the amount of funds expended for federal programs, is used to capture audit complexity in this study. Rubin (1988) also uses number of audit reports issued to measure audit complexity, which is not relevant in this study because all observations in this sample issued 2 audit reports – a financial statement audit report and a federal programs audit report – which is now standard practice for any entity expended more than $750,000 of federal revenue ($500,000 for the sample period in this study).

Budget's Federal Audit Clearinghouse (FAC) Single Audit Database.[6] This panel data is observed over this time period in order to examine how governance policy changes may impact the internal control system and material weaknesses identified. After removing incomplete observations, a sample of 1004 entity-year observations remains, with the largest proportions from CA and TX, in line with the general population of the U.S.

All of the cities in the sample spend more than $500,000 of Federal funds annually and therefore are required to obtain a single audit. The Office of Management and Budget (OMB) requires entities subject to a single audit to submit a Data Collection Form (DCF), an electronic document certified by the auditor with detailed results of the municipality's audits. The DCF is maintained electronically in the FAC Single Audit Database. Data are obtained from the FAC and individual cities' websites and CAFRs, with the exception of the size (population) variable, which is collected from the U.S. Census Bureau 2005 City Survey. All of these sources are publicly available. See Table 1 for details about data sources for each variable.

5. Results and analysis

5.1. Univariate analysis

Table 2 presents summary statistics for the variables included in this study and is split into three categories: summary statistics for the full sample (n = 1004), for the PSM sample where *LIMITS* is the treatment variable (n = 826) and for the PSM sample where *ELECT* is the treatment variable (n = 120). The *SIZE* variable, measured as the natural log of population, ranges from 11.6 to 15.9, which corresponds with the population range of 115,000 to 8 million. The *FEDREV* variable, included here as a measure of audit complexity and measured as the natural log of federal revenues, ranges from 13.7 to 23.9, which corresponds with federal revenue amounts ranging from $878k to $25 million. *EXPER* is the other continuous variable included in this study, measured by the number of single audits performed within the sample for each observation's audit firm, ranges from 1 to 75. The summary statistics from the three samples show that the samples appear to be similar in composition.

As the remainder of the variables are binary variables, in order to gain more useful information about the summary statistics of the full sample, additional descriptive statistics are presented for the categorical variables in Tables 3 and 4. Table 3 presents descriptive statistics for the categorical variables split into population subsamples. When looking at the independent variables of interest here (*FINANCE ELECT* and *LIMITS*), the percentage of cities with these policies in place generally increases as city size (measured by population) increases, with only 7% of total observations having an elected official while 43% of total observations have term limits. Approximately 29% of the largest cities (populations exceeding 1,000,000) disclose a material weakness, while a lesser percentage (24%) of the smallest cities (populations ranging from 115,000 to 250,000) report a material weakness. Overall, twenty-eight percent of all cities report a material weakness. Compared to prior studies in the area of municipal governments, the sample used here has a higher percentage of entities with material weaknesses than those in other studies; however, the sample period used here (2008–2015) is a later time period than that used in comparable studies. Two factors may be driving this difference related to this time period: the data for this study are from the time period post-SOX implementation and subsequent to the global financial crisis of 2007–2008, while comparable studies use earlier data not affected by these elements.[7] Given the change in the climate of the auditing profession in this post-SOX time period, a greater prevalence of internal control weaknesses reported in the later time period is likely. Furthermore, the financial hardship resulting from the financial crisis may have reduced resources for entities to implement appropriate internal controls, like hiring well-qualified employees, sufficient training and implementing proper systems, to name a few.

Rich and Zhang (2014) report that 10% of their sample of 240 municipalities report a material weakness. However, their study uses data from 2001, while this study uses data from 2008 to 2015. In addition, Rich and Zhang use a sample of 240 observations with populations greater than 50,000, while the sample used here is comprised of 1004 observations with populations greater than 115,000. This difference in the composition of the cities in the sample may also impact reporting a material weakness. Namely, larger cities are more likely to report material weaknesses, and the sample used here is of all medium-sized to large cities, compared to a sample including smaller cities in Rich and Zhang (2014). Lopez and Peters (2010) report a percentage of material weaknesses of 7.1%; however, they also use data from an earlier time period (2004–2006) and have a larger sample (13,386 observations) that includes small and large cities, as well as counties, which likely influences the prevalence of material weaknesses reported.[8]

In Table 4, for comparison, descriptive statistics for categorical variables in this study are decomposed into groupings of *FINANCE ELECT* = 1 (n = 68), *FINANCE ELECT* = 0 (n = 936), *LIMITS* = 1 (n = 435) and *LIMITS* = 0 (n = 569). In the '*FINANCE ELECT* = 1' group, twenty-one percent of the observations with an elected finance official report a material weakness compared to 28% of those with a 0 for *FINANCE ELECT,* while 22% of observations in the '*LIMITS* = 1' group do compared to 32% of those with a 0 for *LIMITS*. This result is in line with the expectation of this study that those with an elected Finance official or term limits will have less internal

[6] https://harvester.census.gov/fac/dissem/accessoptions.html.

[7] Required implementation of all parts of SOX for large public companies was the first fiscal year ending after November 15, 2006 while smaller companies were required to implement in the first year end following December 15, 2007 (SEC, 2006).

[8] Regarding this variation, the percentage of material weaknesses for each year ranges from 25% to 34%, with the exception of 2015, which only includes 98 observations (compared to an average of 130 reported in the earlier years), 16 of which report a material weakness (16%). The low number of observations for 2015 is likely due to the timing of data collection. Data collection occurred in June 2016, at which time some 2015 reports were not yet filed with the Federal Audit Clearinghouse. The low percentage of material weaknesses is likely also due to the timing of data collection. Prior research has shown that reporting is more delayed for cities with internal control weaknesses (Ashton et al. 1987; Carslaw and Kaplan 1991); therefore cities with material weaknesses take longer to report and may not be included in the 2015 observations as they had not yet reported when data collection occurred in June 2016.

Table 2
Summary statistics.

Full sample; $n = 1004$					PSM – LIMITS sample; $n = 826$				PSM – ELECT sample; $n = 120$			
	Minimum	Maximum	Mean	Std. Deviation	Minimum	Maximum	Mean	Std. Deviation	Minimum	Maximum	Mean	Std. Deviation
MW	0	1	0.276	0.447	0	1	0.270	0.444	0	1	0.2667	0.4441
INDEX	0	2	0.796	0.846	0	2	0.785	0.843	0	2	0.8167	0.8299
FINANCE ELECT	0	1	0.068	0.251	0	1	0.056	0.229	0	1	0.5000	0.5021
LIMITS	0	1	0.433	0.496	0	1	0.500	0.500	0	1	0.4917	0.5020
LOWRISK	0	1	0.517	0.569	0	9	0.513	0.581	0	1	0.3833	0.4882
ASSETS	0	1	0.99	1.251	0	40	1.005	1.373	0	1	0.9083	0.2898
CHANGE	0	1	0.7	0.458	0	1	0.699	0.459	0	1	0.7417	0.4396
EXPER	1	75	36.7	27.848	1	75	36.476	27.613	3	75	40.0250	27.5676
BIG4	0	1	0.148	0.356	0	1	0.161	0.368	0	1	0.3750	0.4862
STATE	0	1	0.063	0.243	0	1	0.059	0.236	0	1	0.0583	0.2354
AUD COMM	0	1	0.437	0.496	0	1	0.432	0.496	0	1	0.3917	0.4902
MGR	0	1	0.534	0.499	0	1	0.559	0.497	0	1	0.3417	0.4763
STAGGER	0	1	0.678	0.467	0	1	0.696	0.460	0	1	0.6833	0.4671
FED REV	13.7	23.9	17.5	1.250	14.5	23.8	17.4	1.172	15.7	23.8	18.2	1.390
SIZE	11.6	15.9	12.7	0.704	11.6	15.9	12.6	0.678	12.1	15.9	13.2	0.865
2009	0	1	0.131	0.338	0	1	0.134	0.341	0	1	0.1500	0.3586
2010	0	1	0.134	0.341	0	1	0.138	0.345	0	1	0.1417	0.3502
2011	0	1	0.134	0.341	0	1	0.137	0.344	0	1	0.1417	0.3502
2012	0	1	0.122	0.327	0	1	0.116	0.321	0	1	0.1083	0.3121
2013	0	1	0.125	0.331	0	1	0.122	0.328	0	1	0.1167	0.3224
2014	0	1	0.125	0.330	0	1	0.121	0.326	0	1	0.1167	0.3224
2015	0	1	0.098	0.297	0	1	0.097	0.296	0	1	0.0750	0.2645

Table 3
Descriptive statistics: categorical variables split by population.

Population	> 1,000,000 $n = 63$	750,000–999,999 $n = 37$	500,000–749,999 $n = 120$	250,000–499,999 $n = 263$	115,000–249,999 $n = 521$	Totals $n = 1004$
FINANCE ELECT	24	7	7	22	8	68
	38%	*19%*	*6%*	*8%*	*2%*	*7%*
LIMITS	56	23	42	116	198	435
	89%	*62%*	*35%*	*44%*	*38%*	*43%*
AUDCOMM	40	15	52	131	201	439
	63%	*41%*	*43%*	*50%*	*39%*	*44%*
STAGGER	16	30	66	153	416	681
	25%	*81%*	*55%*	*58%*	*80%*	*68%*
MGR	24	16	46	127	323	536
	38%	*43%*	*38%*	*48%*	*62%*	*53%*
BIG4	14	18	35	51	31	149
	22%	*49%*	*29%*	*19%*	*6%*	*15%*
STATE	7	0	12	23	21	63
	11%	*0%*	*10%*	*9%*	*4%*	*6%*
LOWRISK	6	15	52	126	309	508
	10%	*41%*	*43%*	*48%*	*59%*	*51%*
CHANGE	40	20	79	209	357	705
	63%	*54%*	*66%*	*79%*	*69%*	*70%*
ASSETS	52	35	115	253	498	953
	83%	*95%*	*96%*	*96%*	*96%*	*95%*
MW	18	10	49	76	124	277
	29%	*27%*	*41%*	*29%*	*24%*	*28%*

Table 4
Descriptive statistics: categorical variables for full sample split by *FINANCE ELECT* and *LIMITS*.

	FINANCE ELECT = 0 $n = 936$	FINANCE ELECT = 1 $n = 68$	LIMITS = 0 $n = 569$	LIMITS = 1 $n = 435$
FINANCE ELECT	0	68	36	32
	0%	100%	6%	7%
LIMITS	403	32	0	435
	43%	47%	0%	100%
AUDCOMM	416	23	217	222
	44%	34%	38%	51%
STAGGER	644	37	350	331
	69%	54%	62%	76%
MGR	528	8	260	276
	56%	12%	46%	63%
BIG4	123	26	82	67
	13%	38%	14%	15%
STATE	63	0	42	21
	7%	0%	7%	5%
LOW RISK	483	25	307	199
	52%	37%	54%	46%
CHANGE	665	40	393	312
	71%	59%	69%	72%
ASSETS	900	53	541	412
	96%	78%	95%	95%
INDX = 0	452	30	254	228
	48%	44%	45%	52%
INDX = 1*	221	24	134	111
	24%	35%	24%	26%
MW	263	14	181	96
	28%	21%	32%	22%

* Note that to avoid repetition, INDX = 2 is not included in this chart because it is equivalent to when MW = 1.

control problems. Almost half (47%) of the observations with a value of 1 for *FINANCE ELECT* use term limits, while only 7% of the observations in the '*LIMITS* = 1' group have an elected Finance official, likely due to the overall small number of observations with a value of 1 for *FINANCE ELECT* in the sample. Approximately one-third (34%) of the '*FINANCE ELECT* = 1' observations use an audit committee, compared to over half (51%) of the '*LIMITS* = 1' observations. Over half (54%) of the '*FINANCE ELECT* = 1' observations have staggering elections, while 76% of the '*LIMITS* = 1' observations use staggered boards. A large difference is found in regards to using a city manager – only 12% of the '*FINANCE ELECT* = 1' group use a city manager compared to almost two-thirds (63%) of the '*LIMITS* = 1' group. In other words, observations with an elected official are more likely to have a mayor-council system than a city

Table 5
Pearson's correlation coefficients.

	Significant deficiency	MW	INDEX	FINANCE ELECT	LIMITS	AUDCOMM	MGR	STAGGER	LOWRISK	ASSETS	CHANGE	EXPER	BIG4	STATE	FEDREV	SIZE
Significant deficiency	1															
MW	.365**	1														
	0.000															
INDEX	.706**	.879**	1													
	0.000	0.000														
FINANCE ELECT	0.051	−0.042	−0.010	1												
	0.103	0.181	0.754													
LIMITS	−0.034	−.108**	−.103**	0.020	1											
	0.282	0.001	0.001	0.521												
AUDCOMM	.072*	−0.019	0.016	−0.054	.129**	1										
	0.023	0.558	0.618	0.088	0.000											
MGR	−.152**	−.218**	−.219**	−.225**	.176**	−0.022	1									
	0.000	0.000	0.000	0.000	0.000	0.494										
STAGGER	−.154**	−.195**	−.192**	−.077*	.155**	−.072*	.241**	1								
	0.000	0.000	0.000	0.014	0.000	0.022	0.000									
LOWRISK	−.236**	−.363**	−.364**	−0.045	−0.053	−.093**	.164**	.157**	1							
	0.000	0.000	0.000	0.159	0.100	0.004	0.000	0.000								
ASSETS	−0.037	0.039	0.034	−0.045	−0.029	0.054	−0.005	−0.037	−0.020	1						
	0.243	0.214	0.286	0.153	0.354	0.086	0.874	0.245	0.523							
CHANGE	−.152**	−.144**	−.175**	−.067*	0.029	.192**	.164**	.074*	.121**	−0.013	1					
	0.000	0.000	0.000	0.033	0.362	0.000	0.000	0.020	0.000	0.688						
EXPER	−0.016	−0.011	−0.032	−0.003	−.078*	0.024	.110**	−.146**	−0.022	−0.018	.103**	1				
	0.618	0.722	0.306	0.914	0.013	0.449	0.000	0.000	0.496	0.568	0.001					
BIG4	.158**	.093**	.134**	.177**	0.014	.106**	−.087**	−.258**	−.111**	−0.028	−.083**	.251**	1			
	0.000	0.003	0.000	0.000	0.662	0.001	0.006	0.000	0.000	0.381	0.008	0.000				
STATE	0.039	.079*	.072*	−.070*	−0.052	−0.029	−.219**	−.191**	−.099**	−0.011	0.052	.244**	−.108**	1		
	0.219	0.012	0.022	0.027	0.098	0.353	0.000	0.000	0.002	0.731	0.101	0.000	0.001			
FEDREV	.138**	.098**	.126**	.353**	.087**	.148**	−.235**	−.349**	−.193**	−0.023	−.082**	.183**	.311**	.099**	1	
	0.000	0.002	0.000	0.000	0.006	0.000	0.000	0.000	0.000	0.466	0.009	0.000	0.000	0.002		
SIZE	.179**	.072*	.120**	.316**	.188**	.113**	−.162**	−.275**	−.173**	−0.050	−0.028	.247**	.284**	.069*	.702**	1
	0.000	0.022	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.110	0.382	0.000	0.000	0.028	0.000	

Note: Correlation coefficients are presented for all independent variables except the categorical variables representing audit year. Variable descriptions can be found in Table 1.

* Significant at 0.05.

** Significant at 0.01 (all two-tailed tests).

manager system, while the opposite is true for cities with term limits. Thirty-eight percent of the '*FINANCE ELECT* = 1' observations employ a Big 4 auditor and zero use a government auditor, while only 15% of the '*LIMITS* = 1' observations use a Big 4 auditor and five percent use a government auditor. The majority of the observations in both groups have both positive net assets and a positive change in net assets (for '*FINANCE ELECT* = 1', 78% and 59%, respectively; for '*LIMITS* = 1', 95% and 72%, respectively). Finally, the percentage of observations with low audit risk were comparable for the two groups: 37% for the '*FINANCE ELECT* = 1' group and 46% for the '*LIMITS* = 1' group.

Table 5 presents Pearson's correlation coefficients among the independent variables in this study. The correlation coefficient estimates include all available observations (n = 1004). The highest correlation coefficient among independent variables is that between *SIZE* and *FEDREV,* which is 0.702. In untabulated results, the variance inflation factors (VIFs) are calculated, which for these two variables are 2.103 and 2.173, respectively, and are not considered to be high enough to indicate multicollinearity. Furthermore, since these two variables are control variables and the VIFs for the variables of interest are considered low (1.18 for *LIMITS* and 1.21 for *FINANCE ELECT*), this is not cause for concern (Allison, 2012). The next highest correlation coefficient is between *FEDREV* and *FINANCE ELECT* at 0.353. The VIFs for each of the variables included in these models is analyzed in untabulated results and found to have low enough values not to be indicative of multicollinearity. Also of note regarding the correlation coefficients is the observation that both *MW* and *INDEX* have a negative, significant relationship with *LIMITS (*coefficients = −0.108 and −0.103, respectively; *p*-value = 0.001 for both), while both of these variables have a negative relationship with *ELECT* that is not found to be significant.

5.2. Multivariate analysis

Using propensity score matching (PSM), two matched samples of observations are created to address the two variables of interest here – *LIMITS* and *FINANCE ELECT*. First, PSM is used to create a matched sample with *LIMITS* as the treatment, where each observation with term limits is paired with a control observation without term limits, matched on the remaining control variables in the model (*AUDCOMM*, *MGR*, *STAGGER*, *BIG 4*, *EXPER*, *LOWRISK*, *SIZE*, *ASSETS*, *CHANGE* and *FEDREV*). This procedure results in a matched sample of 826 observations, denoted as "PSM sample – *LIMITS*." PSM is then used to create a matched sample with the *FINANCE ELECT* variable as the treatment, where each observation with an elected Finance official is paired with a control observation without an elected official, matched on the remaining independent variables in the model, resulting in a matched sample of 120 observations, denoted as "PSM sample – *FINANCE ELECT*."

The two hypotheses presented in this study are both supported statistically in the model estimation, both when using material weaknesses as the dependent variable and when using an index of severity of all internal control weaknesses. The results for the PSM samples are presented in Tables 6 (logistic regression with *MW* as the dependent variable) and 7 (ordinal regression with *INDEX* as the dependent variable).

Hypothesis 1 stated in the null posits that internal control weaknesses are independent of using elections for the Finance official, and the alternative is found to be statistically supported in both model estimations. Using an election to appoint the Finance leader has a significant, inverse association with reporting a material weakness (PSM sample - *LIMITS*: estimate = −1.509, *p*-value < 0.01; PSM sample – *FINANCE ELECT*: estimate = −1.978, *p*-value < 0.05) and with the severity index of internal control weaknesses (PSM sample – *LIMITS*: estimate = −1.094, *p*-value < 0.01; PSM sample – *FINANCE ELECT*: estimate = −1.500, *p*-value < 0.05). Cities that use elections rather than appointment or other means of hiring to select and maintain the Finance official are less likely to disclose a material weakness. This finding that elected Finance officials are associated with less control weaknesses supports the theory of an accountability effect accompanying elections and improved performance for officials who are subject to elections.

Regarding term limits, hypothesis 2 stated in the null posits that internal control weaknesses are independent of the use of term limits, and statistical support is found for the alternative. Specifically, term limits have a significant, inverse relationship with reporting a material weakness (PSM sample – *LIMITS*: estimate = −0.557, *p*-value < 0.01; PSM sample – *FINANCE ELECT*: estimate = −1.750, *p*-value < 0.10) and with the index of internal control weaknesses (PSM sample – *LIMITS*: estimate = −0.494, *p*-value < 0.01; PSM sample – *FINANCE ELECT*: estimate = −2.365, *p*-value < 0.01). When public officials are required to rotate out of office after a set number of consecutive terms, a city is less likely to report a material weakness and less likely to report more severe control weaknesses. This supports the notion that term limits improve overall governance quality by bringing fresh ideas to the council and minimizing entrenchment, which can lead to shirking and officials acting out of self-interest. The positive effects of term limits appear to be more meaningful than the loss of the accountability effect that occurs when an incumbent's election mechanism is removed in his or her final term in office.[9]

Regarding the control variables included here, most of the results are in line with prior research but there are some variations found between the two PSM samples used in this study. When *MW* is used as the dependent variable, using the PSM sample – *LIMITS*, audit committee, city manager, staggering elections, low audit risk, positive change in net assets and auditor experience are all found to have a significant inverse relationship with internal control weaknesses – in other words, reduce the likelihood of reporting a material weakness. These findings for audit committee, city manager and staggering elections are in line with Rich and Zhang (2014). When using the PSM sample – *FINANCE ELECT*, the only control variables found to be significant are city manager and auditor experience. See Table 6 for detailed results.

[9] In order to determine whether *MW* is the sole factor driving the results when using *INDEX* as the dependent variable, this model is also run using only significant deficiencies as the dependent variable. When doing so, *LIMITS* is significant (*B* = −0.332, *p* = .031) and *FINANCE ELECT* is found to be insignificant (*B* = −0.012, *p* = .971).

Table 6
PSM logistic regression results of the estimation of the material weakness model.

		PSM sample – LIMITS $n = 826$				PSM sample – FINANCE ELECT $n = 120$			
		(1) Basic model		(2) Full model		(3) Basic model		(4) Full model	
Independent	Expected	Coefficient	*p*-value	Coefficient	*p*-value	Coefficient	*p*-value	Coefficient	*p*-value
Variable	Sign	Estimate		Estimate		Estimate		Estimate	
FINANCE ELECT	±			−1.509	0.002***			−1.978	0.047 **
LIMITS	±			−0.557	0.006***			−1.750	0.069 *
AUDCOMM	−	−0.432	0.023**	-0.473	0.017***	-0.032	0.964	0.763	0.350
MGR	−	−0.472	0.015***	−0.424	0.040**	−2.083	0.019***	−1.986	0.123 *
STAGGER	±	−0.670	0.002***	−0.588	0.007***	−0.495	0.490	0.274	0.745
LOWRISK	−	−2.037	0.000***	−2.050	0.000***	−0.681	0.334	−0.307	0.685
ASSETS	±	0.127	0.617	0.089	0.576	20.601	0.999	19.249	0.999
CHANGE	±	−0.253	0.202	−0.270	0.177	0.487	0.497	−0.305	0.717
EXPER	±	−0.004	0.293	−0.007	0.072*	0.012	0.377	0.038	0.039 **
BIG4	±	0.013	0.963	0.051	0.854	−0.481	0.629	−1.522	0.184
STATE	±	−0.411	0.318	−0.444	0.299	−1.526	0.285	−1.539	0.296
FEDREV	±	0.011	0.931	0.083	0.524	0.229	0.720	0.151	0.818
SIZE	±	−0.203	0.319	0.058	0.787	−0.905	0.238	0.846	0.417
2009	±	−0.145	0.684	−0.166	0.644	−0.317	0.721	−0.432	0.638
2010	±	0.228	0.505	0.209	0.546	−0.476	0.600	−0.387	0.678
2011	±	−0.244	0.486	−0.256	0.470	−0.555	0.544	−0.389	0.678
2012	±	0.014	0.970	−0.047	0.899	−1.183	0.265	−1.278	0.252
2013	±	0.099	0.776	0.040	0.910	−0.537	0.573	−0.609	0.545
2014	±	0.186	0.593	0.175	0.620	1.079	0.236	1.249	0.189
2015	±	−0.573	0.164	−0.588	0.156	0.379	0.720	0.541	0.641
Cox and Snell R-squared		0.202		0.322		0.25		0.302	
Chi Square		186.786***		206.80***		34.555 **		43.094 **	
ROC Score		0.795		0.810		0.819		0.862	

This table presents estimates for a logit specification where the dependent variable is an indicator variable (*MW*) equal to 1 if the city has a material weakness, 0 otherwise, using propensity score matched (PSM) samples based on the approach described in Lawrence et al. (2011). In columns (1) and (2), a PSM sample where each observation with term limits is matched with a control municipality without term limits is used. In columns (3) and (4), a PSM sample where each observation with an elected Finance official is matched with a control municipality without an elected Finance official is used. Variable descriptions can be found in Table 1.

* Significant at 0.10.

** Significant at 0.05.

*** Significant at 0.01 (all two-tailed tests, except where sign of coefficient is consistent with expected sign, then one-tailed test is used).

When these models are used with *INDEX* as the dependent variable, results are similar. Using the PSM sample – *LIMITS*, audit committee, city manager, staggering elections, low audit risk and auditor experience have a significant inverse relationship with internal control weaknesses, while big four auditor has a significant direct relationship with ICW. When the PSM sample – *FINANCE ELECT* is used with *INDEX* as the dependent variable, the only governance result that holds with prior research is the use of a city manager, which is found to have a significant inverse relationship with the ICW index. Audit committee is found to be significant but directly related to *INDEX*, which conflicts with other results and prior research. This result is likely due to little variation due to small sample size. In addition, size is found to be significant and directly associated with the ICW index, while audit complexity is found to be significant and inversely related to the index. See Table 7 for results.

In addition to the main PSM results presented, both ICW models are also estimated using the full, unmatched sample ($n = 1004$). Results hold for both variables of interest, *FINANCE ELECT* and *LIMITS*. Using an election to appoint the Finance leader has a significant, inverse association with reporting a material weakness (estimate $= -1.086$, p-value < 0.01) and with the severity index of internal control weaknesses (estimate $= -0.707$; p-value < 0.05). Cities that use elections rather than appointment or other means of hiring to select and maintain the Finance official are less likely to disclose a material weakness. Regarding term limits, term limits are found to have a significant, inverse relationship with reporting a material weakness (estimate $= -0.498$, p-value < 0.01) and with the index of internal control weaknesses (estimate $= -0.517$; p-value < 0.01). When public officials are required to rotate out of office after a set number of consecutive terms, a city is less likely to report a material weakness and less likely to report more severe control weaknesses. See Tables 8 and 9 for these results.

5.3. Limitations and additional analyses

In this study, an attempt is made to study changes in election policies and any resulting change in internal control weaknesses related to this change; in order to achieve this, time-series data is used. However, election policies are considered “sticky” as there is

Table 7
PSM ordinal regression results of the estimation of the ICW index model.

	PSM sample – LIMITS $n = 826$					PSM sample – FINANCE ELECT $n = 120$			
	Basic model		Full model			Basic model		Full model	
Independent	Expected	Coefficient	*p*-value	Coefficient	*p*-value	Coefficient	*p*-value	Coefficient	*p*-value
Variable	Sign	Estimate		Estimate		Estimate		Estimate	
FINANCE ELECT	±			−1.094	0.002***			−1.500	0.023 **
LIMITS	±			−0.494	0.002***			−2.365	0.001 ***
AUDCOMM	−	−0.250	0.091**	−0.281	0.064**	1.435	0.006***	2.079	0.001***
MGR	−	−0.294	0.055**	−0.270	0.096**	−3.496	0.000***	−3.342	0.001 ***
STAGGER	±	−0.485	0.004***	−0.396	0.021**	−0.458	0.467	0.151	0.831
LOWRISK	−	−1.443	0.000***	−1.470	0.000***	0.339	0.513	0.398	0.483
ASSETS	±	0.109	0.539	0.098	0.533	1.256	0.107	0.389	0.634
CHANGE	±	−0.421	0.008***	−0.427	0.008***	−0.312	0.547	−0.821	0.161
EXPER	±	−0.007	0.016**	−0.009	0.002***	−0.007	0.514	0.017	0.150
BIG4	±	0.447	0.038**	0.464	0.032**	1.588	0.021**	0.712	0.354
STATE	±	−0.111	0.733	−0.133	0.688	−0.350	0.747	−0.760	0.531
FEDREV	±	0.021	0.829	0.038	0.694	−1.427	0.003***	−1.794	0.001 ***
SIZE	±	0.012	0.941	0.245	0.149	0.764	0.169	2.615	0.001 ***
2009	±	−0.254	0.345	−0.254	0.346	−0.330	0.630	−0.264	0.708
2010	±	0.009	0.972	0.003	0.990	−0.154	0.823	−0.112	0.876
2011	±	−0.441	0.102	−0.432	0.111	−0.237	0.739	−0.077	0.916
2012	±	−0.364	0.196	−0.373	0.190	−1.002	0.205	−1.014	0.217
2013	±	−0.108	0.692	−0.123	0.656	−0.426	0.565	−0.448	0.561
2014	±	−0.023	0.932	−0.013	0.962	0.900	0.222	1.063	0.170
2015	±	−0.664	0.030**	−0.672	0.028**	0.364	0.680	0.741	0.432
Cox and Snell R-squared	0.211	0.231	0.349	0.427					
Chi Square		195.78***		216.66***		51.567 ***		66.786 ***	

This table presents estimates for an ordered logit specification where the dependent variable is a scalar variable (INDEX) equal to 2 if the city has a material weakness, 1 if a significant deficiency, 0 otherwise, using propensity score matched (PSM) samples based on the approach described in Lawrence et al. (2011). In columns (1) and (2), a PSM sample where each observation with term limits is matched with a control municipality without term limits is used. In columns (3) and (4), a PSM sample where each observation with an elected Finance official is matched with a control municipality without an elected Finance official is used. Variable descriptions can be found in Table 1.

* Significant at 0.10.

** Significant at 0.05.

*** Significant at 0.01 (all two-tailed tests, except where sign of coefficient is consistent with expected sign, then one-tailed test is used). Variable descriptions can be found in Table 1.

not much change from year to year for one city. On the contrary, internal control weaknesses are not found to be "sticky" as they change often within cities of the sample – of the 135 cities examined, 95 cities (approximately 70%) had a change in the *MW* variable during the eight year period studied. If election policies and internal control problems were both "sticky," then including the same city over multiple years may overstate results; however, because internal control weaknesses are not "sticky," this issue is lessened here. Furthermore, by using PSM samples, which are much smaller than the overall sample, this "stickiness" issue is mitigated because the potential for repeated values to skew the results is reduced.

One way to mitigate this issue would be to study a broader cross-section of cities in one year instead of a smaller sample studied over multiple years. Unfortunately, the data used here do not allow for this as many of the data are obtained from the cities' websites, and smaller cities do not have the resources to maintain all of the data necessary for this study on their websites. Cities with a population greater than 115,000 are included in this study because medium to larger sized cities are more likely capable of maintaining and providing the data used in this study. Because of this, the sample used here is comprised of the largest cities in the U.S. and therefore may not be generalizable to cities of smaller sizes. However, because the cities range in size greatly (populations vary from 115,000 to 8.14 million), the sample is still quite varied among these larger cities. Furthermore, the total population of the sample cities in this study is 61 million, meaning that a substantial percentage of the country's overall population is included in the sample (approximately 20%). This limitation should be considered when analyzing results presented here.

An additional limitation of this study is the inability to decipher between terms for the Council members, therefore it lacks the capability to determine if there is a change in performance when term-limited members are in earlier terms versus their final term. Term limits here are analyzed for a group rather than an individual person (City Council), and distinguishing between terms for Council members is not possible because the majority of the observations included here are subject to staggered elections (68% of the sample – see Table 4A), where Council members serve their last terms in different years. Therefore, this study is unable to distinguish between the last term and earlier terms in office for the Council as a whole.

When examining the independent variables of interest here (*FINANCE ELECT* and *LIMITS*), the percentage of cities with these policies in place generally increases as city size (measured by population) increases. Upon review of the descriptive statistics, it was

Table 8
Logistic regression results of the estimation of the material weakness model for the full sample.

		Basic model		Full model	
		n = 1004		n = 1004	
Independent	Expected	Coefficient	p-value	Coefficient	p-value
Variable	Sign	Estimate		Estimate	
FINANCE ELECT	±			−1.086	0.006***
LIMITS	±			−0.498	0.008***
AUDCOMM	–	−0.313	0.070**	−0.300	0.089**
MGR	–	−0.607	0.001***	−0.580	0.002***
STAGGER	±	−0.652	0.000***	−0.518	0.007***
LOWRISK	–	−1.971	0.000***	−1.995	0.000***
ASSETS	±	0.106	0.551	0.082	0.531
CHANGE	±	−0.342	0.058*	−0.355	0.052*
EXPER	±	−0.003	0.341	−0.005	0.143
BIG4	±	0.152	0.548	0.257	0.318
STATE	±	0.044	0.898	−0.027	0.939
FEDREV	±	−0.102	0.332	−0.039	0.719
SIZE	±	−0.053	0.770	0.110	0.558
2009	±	−0.181	0.574	−0.193	0.553
2010	±	0.122	0.695	0.109	0.728
2011	±	−0.153	0.627	−0.154	0.629
2012	±	−0.168	0.614	−0.201	0.551
2013	±	−0.013	0.966	−0.039	0.904
2014	±	0.105	0.744	0.122	0.707
2015	±	−0.711	0.065*	−0.719	0.063*
Cox and snell R-squared	0.205	0.218			
Chi square		224.815***		240.643***	
ROC statistic		0.797		0.805	

This table presents estimates for a logit specification where the dependent variable is an indicator variable (*MW*) equal to 1 if the city has a material weakness, 0 otherwise. Variable descriptions can be found in Table 1.

* Significant at 0.10.

** Significant at 0.05.

*** Significant at 0.01 (all two-tailed tests, except where sign of coefficient is consistent with expected sign, then one-tailed test is used).

noted that the percentage of larger cities with an elected official is much higher than that of smaller cities – 31% of cities with a population greater than 750,000 have an elected Finance official compared to 4% of cities with a population less than 750,000. In order to address possible endogeneity between size and the prevalence of elected officials, the sample is split into two subsamples and results analyzed for each of the subsamples: small cities (population $<$ 750,000) and large cities (population $>$ / $=$ 750,000). In untabulated results, findings hold for both subsamples in that *FINANCE ELECT* remains a significant predictor having an inverse relationship with internal control weaknesses (for small cities, estimate −0.578. p-value $<$ 0.10; for large cities, estimate = −14.022, p-value $<$ 0.10).

Lastly, an additional test is performed to verify robustness of the results – specifically, a different measure for term limits is included. Instead of a categorical variable coded as a 1 if term limits exist, a continuous variable specifying the number of terms allowed is included. The cities that use term limits range from 1 to 4 terms allowed. Those with unlimited term limits are coded as a 5 to represent a greater number of terms allowed than those with term limits. Results remain consistent with those presented from the original specifications. Namely, this continuous variable has a positive, significant relationship with finding internal control weaknesses; in other words, the more terms allowed (or less limited the terms are), the more likely to find internal control weaknesses. With this continuous variable, as the number of terms allowed increases, the probability of finding a control weakness also increases.

6. Conclusion

In a time when waste, misuse of funds, abuse of power and fraud are coming to light in the public sector, a well-designed, effective internal control system is important to help mitigate these issues. While internal controls alone cannot ensure fraud will not occur, when operating effectively, a well-designed system can deter these occurrences, as well as help to safeguard assets and promote efficient operations, accuracy and reliability of financial reporting, and compliance with applicable laws and regulations (Thomson, 2015). Contrarily, a poorly designed or ineffective internal control system may breed inefficiencies, waste, misuse of funds, abuse of power and even fraud. Internal control weaknesses can signal instances of these problems within a city government.

As reduction of inefficiencies, waste, misuse of funds, abuse of power and fraud are of such importance in the municipal sector, understanding factors that strengthen the internal control system is key. This study finds that cities with elected Finance department heads are less likely to report material weaknesses than those with non-elected leaders. This election variable, which has not been

Table 9
Ordinal regression results of the estimation of the ICW index model for the full sample.

		Basic model $n = 1004$		Full model $n = 1004$	
Independent	Expected	Coefficient	*p*-value	Coefficient	*p*-value
Variable	Sign	Estimate		Estimate	
FINANCE ELECT	±			−0.707	0.016**
LIMITS	±			−0.517	0.000***
AUDCOMM	–	−0.071	0.597	−0.061	0.655
MGR	–	−0.375	0.007***	−0.334	0.023**
STAGGER	±	−0.437	0.003***	−0.317	0.038**
LOWRISK	–	−1.301	0.000***	−1.354	0.000***
ASSETS	±	0.078	0.458	0.067	0.464
CHANGE	±	−0.469	0.001***	−0.482	0.001***
EXPER	±	−0.008	0.004***	−0.009	0.001***
BIG4	±	0.528	0.009***	0.600	0.003***
STATE	±	0.261	0.355	0.253	0.382
FEDREV	±	0.103	0.478	0.279	0.064*
SIZE	±	−0.020	0.807	−0.016	0.846
2009	±	−0.250	0.309	−0.247	0.316
2010	±	0.043	0.859	0.040	0.871
2011	±	−0.270	0.269	−0.259	0.290
2012	±	−0.287	0.262	−0.296	0.250
2013	±	−0.159	0.525	−0.174	0.490
2014	±	0.051	0.837	0.054	0.830
2015	±	−0.728	0.010***	−0.753	0.008***
Cox and Snell R-squared		0.205		0.218	
Chi Square		224.815 ***		240.643 ***	

This table presents estimates for an ordered logit specification where the dependent variable is a scalar variable (*INDEX)* equal to 2 if the city has a material weakness, 1 if a significant deficiency, 0 otherwise. Variable descriptions can be found in Table 1.

* Significant at 0.10.

** Significant at 0.05.

*** Significant at 0.01 (all two-tailed tests, except where sign of coefficient is consistent with expected sign, then one-tailed test is used).

considered prior to this study, appears to have predictive ability in determining the likelihood of an internal control weakness, and this finding provides support for the notion that an elected official performs better than a hired or appointed one, likely due to improved accountability because of the re-election process having a positive impact on job performance. An additional unique result discovered here is that the use of term limits for City Council and the mayor reduces the instances of internal control weaknesses reported, which supports findings in prior research that term limits improve the overall effectiveness and efficiency of an entity. The benefits of term limits noted in prior studies (fresh views, new ideas, rotating out incumbents, avoiding entrenchment, etc.) appear to outweigh the loss of accountability when elections are removed in the final term for term-limited incumbents.

The finding that both elected officials and term-limited Council members are associated with a lower probability of an internal control weakness indicates that cities should consider the meaningful effects of their policy-making decisions regarding the governance of the city. In regards to the elected Finance official, while a municipality may not be able to simply change this policy, they can better evaluate efficiencies or problems associated with an appointed or hired official and attempt to replicate the benefits of an election even when there is not one. Similarly, cities without term limits can benefit from evaluation of City Council members who are not term-limited to ensure that entrenchment and other inefficiencies are not being introduced in these settings.

These results are important for a number of reasons. First, regulators are concerned with reporting quality in the public sector. Second, taxpayers are concerned with increasing efficiency of city resources and reducing abuse and waste of taxpayer funds. Finally, significant financial repercussions due to internal control weaknesses have been reported in prior research, namely increased bond costs in the municipal sector. As more emphasis is placed on this element in the public sector, city governments can focus on ways to mitigate waste, fraud and other abuses by improving internal controls.

While these findings contribute to the municipal governance literature, they are not without limitations. First, because multiple years of the same cities are included in the data, election policies are “sticky,” which may overstate results; however, because internal control weaknesses are not “sticky,” this issue is lessened here. Future research can reproduce this study using a broader cross-section of cities in one year instead of a smaller sample studied over multiple years. Second, this study is comprised of the largest cities in the U.S. and therefore may not be generalizable to cities of smaller sizes. Future research can examine this topic using a broader sample including smaller cities as well as counties and towns. Third, data limitations do not allow for deciphering between terms for the Council members, therefore this study lacks the capability to determine if there is a change in performance when term-limited members are in earlier terms or their final term. Future research can examine any difference in performance for elected officials in their last term versus earlier terms. Despite these limitations, this study makes important contributions to the existing literature in this area.

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