Why do Cities Hoard Cash?
Determinants and Implications of Municipal Cash Holdings

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ABSTRACT

This paper examines the determinants of municipal cash holdings and the implications of holding high levels of cash. The first part of the analysis investigates municipal manager incentives to accumulate cash as part of normal operations. Results indicate that municipalities with a higher variation in revenues, fewer sources of revenues, and higher growth accumulate more cash. Larger governments and those receiving relatively more state revenue accumulate less cash.

Further analysis considers whether high levels of cash indicate agency problems, and finds municipalities with high cash holdings spend more on administrative expenses, city manager salaries, and bonuses. I find no evidence that municipalities with excess cash return it to citizens by reducing taxes. The presence of staggered councils and councils that are not independent tend to exacerbate excessive cash holdings. These results are consistent with the proposition that governments with high cash levels have agency problems relative to those with lower cash holdings.

I. INTRODUCTION

The popular press often advocates the use of municipal "rainy day" funds, whereby cities save money in good economic times, and spend it in the future during economic downturns. In so doing, municipalities can provide a constant level of services to citizens, regardless of revenue volatility. Rainy day funds are therefore typically considered prudent financial management. At the same time, however, studies of corporate cash holdings suggests that large cash build-ups are associated with self-interested managerial behavior, such as engaging in value-decreasing mergers (Jensen and Meckling 1976; Blanchard et al. 1994; Harford 1999) and consuming perquisites (Jensen 1986).

Although the notion that municipalities accumulate large cash holdings seems counter-intuitive, the State of Illinois documents that over one quarter of all Illinois towns (379) hold funds greater than two years' annual expenditures (Illinois Comptroller's Office, 2002).[1] In other words, these towns could operate at normal spending levels for two years without collecting additional revenue. In addition to illustrating the magnitude of funds held, this anecdote is also compelling in light of past court rulings. Specifically, the Illinois Supreme and Appellate courts have consistently held that accumulating funds of more than two years' average annual expenditures is "strong evidence of an unnecessary accumulation and is sufficient to sustain an objection to the fund's [municipality's] tax levy."[2]

This anecdotal evidence raises issues largely unexplored in the literature. As examples, how much cash do local governments typically hold, and are there operational reasons for accumulating cash? Is the accumulation of high cash levels associated with self-interested

[1] Note that I use the terms 'funds' and 'cash' interchangeably throughout the paper.
[2] See Toynton v. Commonwealth Edison, 285 Ill. App. 3d 357; 674 N.E. 2d 809 (3rd Dist 1996).

managerial behavior, or is it prudent financial management? I address both of these questions in this paper.

I begin by documenting the nature and extent of municipal cash holdings. Using a large sample of cities and towns from 1997-2003, I find that the extent of cash accumulation is economically significant, with governments holding a mean (median) of fourteen (nine) months' worth of expenditures in cash. To put this in perspective, bond rating agencies recommend that governments maintain a balance of 5-10% of operating expenditures, or approximately one month, with 2.4 months cited as evidence of a strong financial position (Standard & Poors 1999).

Although these cash levels appear high, managers have legitimate reasons for accumulating cash as part of normal operations, such as to protect against revenue volatility or to avoid constraints in accessing debt markets. Analysis in the first part of my paper examines the determinants of expected cash holdings to understand municipal managers' incentives to accumulate cash. Expected cash holdings are estimated as the benchmark level of cash accumulated in the absence of agency problems, or actions that benefit managers at the expense of citizens. The evidence is consistent with the notion that managers hold cash for precautionary reasons. Specifically, I find that governments with relatively high variation in revenues, fewer sources of revenues, and higher growth are more likely to accumulate cash, while larger governments and those receiving more state revenue are less likely to accumulate cash holdings.

While managers have incentives to hold cash for operational reasons, it is also plausible that high cash levels exacerbate agency problems between managers and citizens. For example, high levels of cash can free managers from the discipline of requesting voter approval for unpopular projects or programs. Thus, the second part of the paper investigates whether high cash holdings are associated with evidence of agency problems or indicate prudent financial

management. Specifically, I test whether municipalities with high cash reserves have higher spending on administrative overhead expenses, higher manager salaries and bonuses, and distribution of excess cash to citizens through tax reductions.

Following prior literature such as Opler et al. (1999), high cash holdings (or "excess cash") are measured as the residuals from the empirical model of expected cash holdings. Results indicate that governments with excess cash spend relatively more on administrative expenses, manager salaries, and bonuses, and do not than return excess cash to citizens in the form of tax reductions.

Additional analysis examines governance characteristics associated with cash holdings, and finds that entrenched managers are associated with higher cash levels. Specifically, municipalities carry more cash when board (council) elections are staggered and the council is not independent (i.e., the chief elected official either sits on the council or votes on the council). The implication is that governments with high cash levels appear to have agency problems relative to those with lower cash reserves.

The current study contributes to prior literature in several ways. First, I document the prevalence, determinants, and agency implications associated with accumulating cash holdings in a governmental setting. Such relations have not been examined previously, although two prior studies explore cash reserves (or "endowments") in nonprofit entities. Fisman and Hubbard (2005), who focus on determinants of nonprofit endowments, find evidence that managers accumulate cash for precautionary reasons, such as to shield against revenue volatility. Core et al. (2006) explore whether excess cash leads to agency problems between nonprofit managers and donors. They find that nonprofits with large endowments pay managers higher salaries and are inefficient (i.e., spend less on programs), consistent with the existence of agency problems.

Because the governmental setting is fundamentally different from both the corporate and nonprofit sectors, however, it is not readily apparent *ex ante* that results of prior studies apply to governments. Two potentially important differences are that municipalities have the power to tax citizens to raise revenues, and municipal managers are elected rather than appointed. Each of these differences impacts both the determinants and agency implications over cash holdings compared to that of corporations and nonprofits.[3]

Similar to Fisman and Hubbard (2005), I document determinants of cash holdings in a non-corporate setting, and like Core et al. (2006), I investigate the agency implications of such holdings. In contrast with both Fisman and Hubbard (2005) and Core et al. (2006), I examine whether non-corporate managers reduce cash holdings by returning it to taxpayers. In further contrast with both studies, and in an extension of the municipal literature in general, I investigate whether excess cash holdings are associated with manager entrenchment characteristics. Such governance traits are not previously explored in municipal sector literature.

The study also contributes to the governmental accounting literature in general, with implications for public policy beyond those with respect to cash holdings. For example, the study is the first to explore issues associated with municipal manager compensation or municipal efficiency. Such research is important for evaluating managers' stewardship over citizens' resources. The stewardship function is considered of primary importance in the municipal sector and one of the main reasons for governmental accounting standards (GASB 2006). Thus, research about municipal managers' stewardship over compensation and efficiency is of interest to policy-makers.

[3] Differences between the nonprofit and municipal sectors and their potential impact on cash holdings are described in detail in Section III.

The results of my study also have implications for recent policy debates about governmental rainy day funds. While state regulators often monitor financial shortfalls caused by fiscal distress, fewer appear to monitor the accumulation of excess funds. Citizens are similarly unlikely to monitor excess cash holdings. Most citizens have difficulty assessing municipal finances due to the complexity and availability of government financial reports, thus reducing their effectiveness as monitors (Zimmerman 1977). The evidence presented here suggests that in addition to setting minimum cash reserve balances to avoid fiscal distress, municipalities should also consider setting maximum balances to avoid potential agency problems.

The remainder of this paper is organized as follows. Section II examines the determinants of expected cash holdings, absent agency concerns. Section III explores the agency implications of excess cash holdings. Section IV investigates the relation between manager entrenchment and cash holdings, while Section V concludes.

II. DETERMINANTS OF EXPECTED CASH HOLDINGS

Theory

In this section, I develop a benchmark model of expected municipal cash holdings based on strategic and economic reasons for maintaining cash balances. I hypothesize that the following factors are associated with managers' incentives to maintain efficient cash balances as part of normal operations.

Uncertainty of cash flows. Fisman and Hubbard (2005) model nonprofit endowment as a function of precautionary savings, showing a positive relation between the volatility of donation revenue and cash holdings. Similarly, when municipalities have volatile revenue sources, managers are likely to increase cash holdings in order to maintain a constant level of services. I

therefore expect the volatility of revenue to be positively associated with cash reserves. Following Fisman and Hubbard (2005) and Core et al. (2006), I use the coefficient of variation to capture revenue uncertainty.

Access to credit markets. The relation between access to credit markets and cash holdings in the municipal sector is not straightforward. On one hand, municipalities can reduce the amount of precautionary cash holdings by borrowing from credit markets. Opler et al. (1999) suggest that raising external funds can be costly due to high transactions costs, so entities with more limited access to capital markets use cash holdings as a buffer. Core et al. (2006) and Fisman and Hubbard (2005) find that nonprofits maintain higher cash levels when firms have limited financing sources. If municipalities similarly have limited access to credit markets, then they will hold higher cash levels, leading to a negative relation between credit market access and cash holdings.

On the other hand, the municipal sector is unique in that bankruptcy is rare, which limits investors' risk of default. Moreover, municipalities can borrow at a tax-free rate because most municipal bonds are not taxable. Municipalities are therefore unlikely to experience limited access to credit markets in the same sense as either corporations or nonprofit entities. The relatively low cost of capital, coupled with the opportunity to earn a higher rate on their investments than the rate at which they can borrow, potentially encourages cash accumulation.[4] This implies a positive relation between cash holdings and credit market access.

[4] Note that municipal arbitrage, or the ability to borrow at a tax-free rate while investing at a higher, "taxable" rate, is allowed under some limited circumstances. The 1986 tax law limits the ability of municipalities to invest specific bond proceeds into investment vehicles that earn rates higher than those incurred through the associated debt. However, fund accounting methods effectively enable municipalities to hold high cash levels in one fund, and invest them at higher rates, while staying within the IRS regulations for bonds issued in another fund. It is therefore plausible that municipalities earn higher rates of interest than they pay out on debt, encouraging an accumulation of cash.

Core et al. (2005) and Fisman and Hubbard (2005) measure nonprofits' access to credit markets as a dummy variable equal to one if debt is issued in the prior ten years. While nonprofit debt issuance is relatively rare, municipalities make much greater use of the credit markets. I therefore define this variable following Opler et al. (1999) and include total debt per capita to represent access to credit markets[5].

Limited revenue sources. When municipalities have access to a variety of revenue sources, they can raise funds relatively more quickly, and are less susceptible to adverse revenue shocks. Conversely, when revenues are concentrated in fewer sources, such as a high reliance upon property taxes, then municipalities are more likely to maintain higher cash reserves. I therefore expect a positive relation between limited revenue sources and cash holdings. Following Copeland and Ingram (1982), I measure limited revenue sources using a revenue diversification index.[6] The index is computed as the product of the fraction of total revenue from each source, or $(r_1/R)(r_2/R)\ldots(r_N/R)$, where r is the amount of revenue received from a specific source, and R is total revenue. The more unbalanced the revenue sources, the higher the index value.

Size. Larger organizations have economies of scale in liquid assets such that large firms can hold relatively less cash, as discussed by Opler et al. (1999). Consistent with this hypothesis, Opler et al. (1999) and Core et al. (2006) find size varies inversely with cash reserves. Following prior municipal literature, I control for municipal size using the log of population.

[5] An alternate specification uses the log of debt per capita with consistent results.
[6] I use two alternate specifications of limited revenue sources (untabulated). The first measures revenue sources directly by including separate measures for the percentage of revenue derived from property taxes, sales taxes, and income taxes. The second includes an indicator variable equal to one if the revenue from any one source is above the sample median for that state. Results are consistent with those reported.

Growth. Growing municipalities have incentives to save cash in anticipation of future spending on capital projects such as infrastructure expansion. I measure growth as the change in population over the preceding five years, following Baber and Gore (2008).

State revenue. Increased levels of state monitoring potentially affect cash holdings. Specifically, municipalities holding high amounts of cash are less likely to receive funding from state resources. Following prior literature, I define the influence of state revenue as the percentage of state revenue received, or total revenue received from the State/total revenue, and expect an inverse relation with cash holdings.

Specification

I use the following OLS model to measure the determinants of expected municipal cash holdings:

$$\text{CASH/EXPENDITURES}_{it} = \alpha_0 + \alpha_1\text{CV REVENUE}_{it} + \alpha_2\text{DEBT CAPITA}_{it-1} + \alpha_3\text{LIMITED REVENUE} + \alpha_4\text{SIZE}_{it} + \alpha_5\text{GROWTH}_{it} + \alpha_6\text{STATE REVENUE}_{it} + \Sigma\alpha_k\text{QUARTER}_k + \Sigma\alpha_m\text{STATE}_m + \Sigma\alpha_t\text{YEAR}_t \quad (1)$$

CASH/EXPENDITURES is the ratio of cash and cash equivalents to monthly operating and interest expenditures; CV REVENUE is the coefficient of variation of revenue, defined as the ratio of the standard deviation of revenue to mean revenue, measured over the previous four years; DEBT CAPITA is total debt/total population; LIMITED REVENUE is a revenue diversification index, or $(r_1/R)(r_2/R)\ldots(r_N/R)$, where r is the amount of revenue received from a specific source, and R is total revenue; SIZE is the log of total population; STATE REVENUE is the total state revenue received/total revenue; GROWTH is the change in population from year t-5 to t, deflated by population in year t; QUARTER is a series of dummy variables indicating the quarter of the fiscal year end; STATE is a dummy variable indicating the state; and YEAR is a dummy variable indicating the year.

Cash is computed as total cash and marketable securities, deflated by total expenditures per month, which includes operating and interest expenditures[7]. Note that I exclude cash reserves within pension plans, as I assume they are not available to spend.[8] On the other hand, I include cash held in bond funds (other than sinking funds), because such holdings are often not legally restricted. To the extent that such cash holdings are restricted in a particular state, then the inclusion of state indicator variables controls for the mean effect of such restrictions. In additional tests (not reported), I estimate a specification that excludes bond fund cash, and find results consistent with those reported, with the exception of debt per capita, which is no longer statistically significant.

An alternate measure of available funds encompasses measuring fund balance (or fund equity) in place of cash holdings. However, Fisman and Hubbard (2005) find virtually identical results when fund equity (i.e., total assets less total liabilities) is used. One concern with using fund balance is the issue of restricted funds, which may not be available to spend. Core et al. (2006) find stronger results – that is, coefficients of larger magnitude – when the sample is constrained to unrestricted funds. In order to partially address this concern, I exclude cash holdings that are legally restricted to service future debt (sinking funds), which are likely to be the largest source of restricted fund equity. Data constraints prohibit further analysis because the fund equity amounts are not available from the Census database. Note that a detailed description for all Census data items used in my tests is presented in Table 1.

Following prior literature, I measure cash at the end of each fiscal year. If governments tend to collect large amounts of cash at the end of the fiscal year, however, then it may appear that they have excess cash, when in fact, they have a timing issue. For example, if property taxes

[7] Using the logarithm of cash/expenditures yields results consistent with those reported.
[8] Anecdotal evidence indicates that local governments may be able to expend pension funds. See www.cafrman.com for further details about the availability of pension fund cash.

are collected close to year-end, and governments are highly reliant on these revenues, then they may have a high level of cash at year-end. I control for this possibility by including an indicator variable to distinguish the government's quarter of fiscal year-end.[9] In addition, many governments collect property taxes over a period of time, thus negating this concern.

Other state-specific effects potentially affect cash holdings. For instance, local governments in states with closer monitoring over municipal finances in general may carry lower cash balances. Moreover, states can vary on dimensions of the economy or the extent of regulations. I therefore include a series of indicator variables to distinguish municipalities by state. Finally, I incorporate yearly fixed effects.

Sample Selection and Descriptive Statistics

Data are from the 1997 – 2003 Census Bureau's Annual Survey of Governments for all cities, towns, boroughs, and villages in the database. Note that the sample period ends in 2003 because the Census data are merged with other databases that are available only through 2003. The Census contains details for all "income statement" accounts, including revenues, expenditures, and transfers. The Census also provides "balance sheet" data such as cash and debt. I eliminate 4,043 observations with missing data for cash or operating expenses, and 57 observations with apparent errors such as negative debt. A total of 66,612 observations without four years' consecutive data, the minimum number of observations necessary to estimate the regression models, are also deleted. The sample selection procedures, outlined in Table 2, yield 9,413 observations.

[9] The measure of limited revenue sources is also likely to control for this effect. In further tests, I substitute the ratio of property taxes/total revenues as an additional control (not tabulated), and find results consistent with those presented. Further, untabulated descriptive statistics show that on average, only 17% of all municipalities derive more than 50% of their total revenue from any one source (property taxes, sales taxes, or income taxes), thus negating this concern.

Descriptive statistics are presented in Table 3. Using the full population of municipalities, panel A shows the mean and median cash flows deflated by monthly operating and interest expenditures for each year. Note that deflating cash by monthly expenditures represents the number of months governments can operate without collecting revenue. I present statistics for the full population, rather than for the subset used in subsequent tests, because the tests require municipalities to be present for four consecutive years, which substantially reduces the sample size. Overall, cities and towns carry a median of 9.3 months of expenditures in cash, and a mean of 13.7 months. In addition, yearly trend data show that median cash levels are fairly constant across years. Note that the number of observations fluctuates in some years because Census reporting is only required every five years (i.e., 1997 and 2002), and is voluntary in the remaining years.

Panel B presents descriptive statistics for select variables. The first two columns present data for the full Census database. The next four columns compare characteristics of observations used in my tests ("test sample") with those eliminated due to a lack of voluntary disclosure of interim Census data. Focusing on columns 3 and 4, the mean cash level of 10.6 months and median of 8.3 months show that the sample cash balances are significantly smaller than for the full population of municipalities in columns 1 and 2. The test sample differs along other dimensions as well. Namely, univariate tests of differences find that sample municipalities have higher debt, more limited revenue sources, are larger, receive less state revenue, and spend proportionately less on administrative expenses than do municipalities that do not voluntarily report interim Census data.

Panel C shows correlations for select test variables. Cash holdings are positively associated with the coefficient of variation in revenue, growth, and limited revenue sources. Cash holdings are inversely related to debt per capita, size and the change in property taxes.

Empirical Results

I estimate OLS regressions to determine expected cash holdings and present the results in Table 4. The dependent variable is the ratio of cash/monthly operating and interest expenditures. Fiscal year-end, state, and year indicators are included in the regressions, but are not tabulated. All regression specifications report t-statistics adjusted for robust standard errors clustered on municipality (Rogers 1993). To mitigate the influence of potential outliers, all continuous variables are winsorized at the top and bottom 1% of the distribution.[10]

Results indicate that municipalities with more volatile revenues, more limited revenue sources, and with higher growth have higher cash holdings, while larger municipalities, those with greater debt, and more state funding have less cash. All of the model's explanatory variables are significant, and in the predicted direction. The explanatory power of the full model presented in Column (1) is 21%, which is similar to that reported in prior nonprofit literature. Overall, my results are consistent with the theory that municipal managers hold cash for precautionary and operational reasons.

Descriptive statistics displayed in Table 3 show that many (primarily smaller) municipalities report statistics to the U. S. Census only when required (every five years), while others voluntarily report such data annually. It is also apparent that municipalities reporting annual data differ along other dimensions as well. Prior literature suggests that firms which do

[10] I conduct three (unreported) alternate specifications tests in place of winsorizing the data. First, I eliminate very small municipalities with a population of less than 2000 for consistency and comparability across observations, following Figlio and O'Sullivan (2001). Second, influential observations are identified and eliminated based upon Cook's D and leverage points. Third, all data are retained and rank regressions are employed. Results are consistent with those presented.

not voluntarily disclose information are more likely to be associated with agency problems (Graham et al. 2005). It is unclear whether the deleted non-reporters potentially have greater agency concerns, however. That is, univariate tests show that the non-reporters have higher cash holdings and spend more on administrative expenses, consistent with agency concerns. However, the non-reporters also receive greater amounts of state revenue, consistent with higher state monitoring. Thus, the impact of deleting these municipalities is not obvious.

To consider the possibility that self-selection is a concern, I estimate a first-stage probit specification of the choice to report interim data to the Census (not tabulated), and include the inverse Mills ratio in the cash determinants specification in model 2 of Table 4. Results are consistent with those for the first specification that does not consider self-selection. In addition, I conduct a robustness check that drops the coefficient of variation in revenue from model 1 because this variable requires four years of data. This specification therefore retains most observations from 1997 and 2002, when Census reporting is required. Results are qualitatively similar to those reported.

It is plausible that some municipalities borrow on a short-term basis, in anticipation of receiving a large lump-sum collection of revenue in the near future, such as from sales or property taxes (deemed "tax anticipation notes"). In this case, cash balances at a point in time can appear large, when in fact typical balances are quite different. In additional tests (not reported), I include the log of new debt issued in the current year as an additional control, both with and without the inclusion of total debt outstanding. I find that the amount of new debt issued is not significantly associated with cash holdings.

In addition, as two alternate debt market measures, I control for the frequency of public debt issuance and bond ratings (not reported). Note that doing so requires a large sample size

reduction due to data constraints, and because many municipalities do not access public debt markets. I find that neither bond ratings nor the frequency of public debt issuance is significantly associated with cash holdings, while the remaining results are consistent with those reported in Table 4.

III. AGENCY IMPLICATIONS OF EXCESS CASH HOLDINGS

While Section II explores the determinants of expected cash holdings, I now examine municipal managers' use of excess cash, which is defined as holdings above the benchmark levels measured in Table 4. I consider two reasons why municipal managers accumulate excess cash holdings. First, managers can save excess cash to reduce the volatility of future services, consistent with prudent financial management and the notion of rainy day funds. Second, managers can accumulate excess cash holdings because they are acting in a self-interested manner. Jensen (1986) predicts that holding excess cash leads to agency problems, in that managers spend cash on perquisite consumption and do not return it to shareholders.

While many studies investigate agency issues associated with cash holdings in the corporate sector, few examine similar issues in non-corporate entities. Core et al. (2006) explore whether excess cash leads to agency problems between nonprofit managers and donors. They find that nonprofits with large endowments pay managers higher salaries and are inefficient (i.e., spend less on programs), consistent with the existence of agency problems.

Notice that Core et al. (2006) considers cash holdings of private nonprofit entities, whereas this study considers cash holdings of municipalities. Although the government and nonprofit sectors are similar in some respects, they differ fundamentally in several important aspects. For example, agency problems in municipalities are likely greater than those exhibited in nonprofits because the municipal monitoring environment is weak. Citizens are not typically

strong monitors over municipal finances, as discussed by Zimmerman (1977), and the credit market (considered the strongest monitor) has no incentives to encourage the reduction of cash holdings (Gore, 2004). In contrast, nonprofits are often monitored by large donors, who encourage the expenditure of excess cash, as suggested by Core et al. (2006). Agency problems are also likely greater in municipalities because they have the power to tax citizens to raise revenues. In contrast, nonprofits collect revenue through donors and granting agencies, both of which can choose to withhold funds if problems are evident.

In other respects, municipalities are likely to exhibit fewer agency concerns than those of nonprofits. For instance, government managers can return excess cash to citizens in the form of tax reductions or rebates, which reduces agency issues. Anecdotal evidence suggests that some governments (e.g. Alaska and Oregon) return surplus funds to citizens. In contrast, the nonprofit sector is characterized by an inability to return cash to donors.

Finally, the nature of the political setting renders the governmental sector unique from both the nonprofit and corporate settings. Namely, municipal officials face competitive elections at regular intervals which can impact municipal cash holdings. On one hand, competitive elections encourage elected officials to act in voters' best interests – that is, to not accumulate excess cash holdings, and to spend cash prudently (e.g. through more efficient operations). On the other hand, if entrenched incumbents are in place, or elections are not competitive, cash build-ups and/or agency problems can occur. Thus, *ex ante*, the consequences of holding high cash levels in a municipal setting are not obvious.

I next explore whether holding excess cash is consistent with prudent financial management or leads to agency problems by examining associations with municipal efficiency (administrative overhead), manager compensation, and tax reductions.

Excess Cash and Administrative Overhead Expenses

Nonprofit sector research measures efficiency through the program expense ratio, defined as the ratio of program expenses/total operating expenses. The program expense ratio measures the efficiency with which funds are spent toward production of the nonprofit's main purpose, or programs, rather than toward overhead expenses such as fundraising or administration. Prior research suggests that lower program expense ratios are evidence of agency problems between managers and donors (Core et al. 2006). Similarly, if holding excess cash leads to inefficient spending in the municipal sector, then there should be a positive relation between administrative expenses and excess cash. If holding excess cash indicates prudent financial management and increased efficiency, then there should be a negative relation between excess cash and administrative expenses.

I empirically examine the relation between excess cash and administrative expenses using the following OLS model:

$$ADMIN_{it} = \alpha_0 + \alpha_1 EXCESS\ CASH_{it-1} + \alpha_2 DEBT\ CAPITA_{it} + \alpha_3 SIZE_{it} + \Sigma\alpha_k STATE_k + \Sigma\alpha_t YEAR_t \quad (2)$$

where ADMIN is defined as the ratio of total administrative expenses deflated by total operating expenses; and the remaining variables are described previously.

I use the administrative expense ratio rather than the program expense ratio typically used in nonprofit sector research because measuring total services in the municipal sector is somewhat problematic. In contrast to nonprofit organizations, municipalities do not separately disclose program service expenses. For example, while a municipality may disclose the total expenditures towards roads, the accounting numbers are likely to include both direct road expenses and an administrative overhead component. Nonetheless, Census data contains sufficient detail to distinguish administrative expenses from program services. I measure the

amount of administrative expenses following Figlio and O'Sullivan (2001), and include central staff services, financial administration, and unallocable expenses.

I include two measures of excess cash. The first measures excess cash using the residuals from the expected cash model presented in Table 4, following Core et al. (2006). The second measure incorporates two indicator variables to distinguish municipalities in the highest and lowest quartile of residuals.

I include several control variables. Core et al. (2006) find a positive relation between debt outstanding and efficiency, so I include total debt per capita as a control. In addition, subjecting municipalities to outside monitoring by voters, such as by requiring a vote on a new bond issue, likely increases efficiency.[11] Larger municipalities are more likely to spend funds efficiently on administrative overhead because they have economies of scale in operations, so I include the log of population to control for size. Finally, I include year and state indicator variables.

Table 5 presents the results. Note that the sample size in Table 5 is smaller than in Table 4 because the excess cash variable is lagged. Column (1) shows a positive and significant relation between excess cash and administrative expenses when excess cash is measured using a continuous variable. Column (2) shows that the significant positive relation between excess cash and administrative expenses is robust to using an indicator variable for the highest quartile of excess cash. In terms of economic significance, the results show that municipalities in the highest excess cash quartile spend approximately 2% more than those in the bottom three quartiles. Further, using the coefficient for the continuous model multiplied by 12, because the

[11] An alternate proxy for outside monitoring uses an indicator variable equal to one if a new bond is issued in the current year, with results consistent with those reported.

dependent variable is deflated by monthly expenses, reveals that municipalities with excess cash spend 12% more on administrative expenses annually for every dollar of excess cash holdings.

With respect to the control variables, size is negatively associated with administrative overhead expenses. Further, municipalities that are subjected to more frequent outside monitoring by voters in the form of higher debt are associated with less overhead spending. Overall, the administrative expense model regression adjusted r-squares of 25% are fairly comparable to those in the nonprofit literature.

Excess Cash and Municipal Managers' Compensation

While the preceding results provide evidence that municipal managers spend excess cash disproportionately on administrative expenses, such tests do not directly measure whether managers spend excess cash on perquisites. A more direct test of whether municipal managers with excess cash consume perquisites or act consistent with prudent financial management is to examine salaries. Core et al. (2006) find that nonprofits with excess cash pay their CEOs and officers significantly higher compensation, consistent with agency problems. Similarly, if municipal managers with excess cash behave opportunistically, then I anticipate a positive relation between excess cash and managers' salaries.

I use the following OLS model to examine the relation between excess cash and municipal managers' salaries:

$$COMP_{it} = \alpha_0 + \alpha_1 EXCESS\ CASH_{it-1} + \alpha_2 SIZE_{it} + \Sigma\alpha_k STATE_k + \Sigma\alpha_t YEAR_t \qquad (3)$$

where COMP is defined as the log of the manager's total base salary compensation and the remaining variables are described previously.

I focus on the chief administrative officer, or CAO, because this position is present across a broad cross-section of municipalities. Note that in the case of cities, the CAO is typically the

city manager, while in the case of towns, the CAO is the top administrator. In contrast, the majority of elected officials hold part-time positions with relatively low salaries. Detailed CAO compensation data are available through surveys provided by the International City/County Manager Association (ICMA). ICMA survey data are commonly used in the economics literature, and the survey response rates are typically high (i.e., 52% for 2003 compensation data). I use two such surveys in the tests that follow - the salary surveys, which provide CAO salaries, and the fringe benefit surveys, which provide data for CAO bonuses, age, tenure, and level of education.

Descriptive statistics for the 2000-2003 salary data used in my tests are in panel A of Table 6. The mean manager salary is $98,450, while the mean tenure is 7.5 years. On average, 94% of managers have college degrees. Note that the ICMA survey distinguishes managers by age category, where 1 represents ages less than or equal to 30 years old, 2 represents ages 31-35, etc. Managers are between the ages of 46 and 50 on average, which is represented by the age category of 5.

Multivariate results are presented in panel B of Table 6. Model 1 shows a positive and significant relation between excess cash and managers' salaries (t=5.82), and model 2 shows that governments with cash in the top quartile pay managers significantly more (t=4.04), while governments in the bottom quartile pay less (t=-1.47). However, the preceding results do not consider manager-specific variables which can also explain manager salaries, such as the manager's age, tenure, and level of education. I next control for these characteristics by merging the salary survey data with the fringe benefit survey data for the subset of municipalities with ICMA data available. The salary and fringe benefit surveys are prepared within two months of each other (for the same fiscal year) and therefore are likely to contain data for the same given

CAO. However, it is possible that the CAO left in the two months between surveys. Excluding CAOs with tenure of less than one year yields results consistent with those reported.

Results are presented as models 3 and 4 of Table 6. Although somewhat weaker (t=2.31 and 3.15 in columns 3 and 4, respectively), the results still show a positive and significant relation between excess cash holdings and annual salary. With respect to the control variables, I find that the managers' tenure, age, and degree all vary directly with salaries. The overall explanatory power of the models is high, with adjusted r-squares in the 70-73% range.

Municipal managers are sometimes paid bonuses, which presents another means of testing whether municipalities spend excess cash consistent with agency problems, or consistent with prudent financial management. I next examine the relation between excess cash holdings and whether municipal managers receive bonuses. Note that while the ICMA data identifies whether managers receive a bonus, it does not disclose the actual dollar amount. Note further that the bonus is not included in the regressions of annual base salary presented in panel A, so this specification does not replicate the salary specifications. Descriptive statistics in panel A of Table 6 reveal that 24% of CAOs receive such bonuses.

The results in Table 6, panel C, model 1 show that the excess cash residuals are positively associated with the probability of receiving a bonus, and model 2 finds that those with high excess cash holdings are driving the results (t=7.83). Municipalities with low excess cash holdings are not significantly associated with the provision of bonuses. Columns 3 and 4 control for manager characteristics, and reveal that managers with longer tenures and those who are relatively younger are more likely to receive bonuses. Results in model 3 show that bonuses are marginally significantly associated with excess cash residuals ($p < 0.10$) while significantly associated with high excess cash holdings in column 4. The overall evidence is consistent with

managers of municipalities with high cash holdings receiving higher salaries and bonuses, consistent with the agency hypothesis, and inconsistent with prudent financial management.

Growth as an Alternate Explanation

An alternative explanation for the preceding results is that growing municipalities save cash to finance future capital or infrastructure expenditures, and that such municipalities are also likely to attract more talented (and hence higher-paid) managers. I use two approaches to rule out this alternative hypothesis.

First, I control for growth in the primary cash models in Table 4 using the change in population over five years, which is a common measure of growth in the municipal sector (e.g., Baber and Gore, 2008). Second, in unreported tests, I add the growth measure to the specifications in Tables 5 - 6, and find results consistent with those reported. The coefficient for the growth variable is not significant in the latter two specifications, however. Thus, the evidence is not consistent with excess cash held to address future infrastructure needs attributable to growth.

Distributing Excess Cash to Citizens

For corporations, one means of resolving agency concerns caused by holding excess cash is to return it to shareholders in the form of a dividend. Payouts to shareholders reduce the resources under managers' control, thus reducing the potential agency problems associated with excess cash. The municipal equivalent to a cash distribution is a reduction in taxes or the payment of a rebate to citizens. Note that there are three means municipalities can reduce property taxes: by reducing tax rates directly, by reducing assessed values, or by providing rebates to citizens. The use of the change in taxes captures all three of these components.

I test the relation between excess cash and the reduction in taxes by using the following OLS regression model:

$$TAXES_{it} = \alpha_0 + \alpha_1 EXCESS\ CASH_{it-1} + \alpha_2 TAX\ LIMIT + \alpha_3 SIZE_{it} + \alpha_4 GROWTH_{it} + \alpha_5 \Delta STATE\ REVENUE_{it} + \alpha_5 \Delta DEBT_{it} + \alpha_5 LAGGED\ \Delta TAXES_{it} + \alpha_5 \Delta LAGGED\ TAX\ LEVELS_{it} + \Sigma \alpha_t YEAR_t \quad (4)$$

where TAXES is defined alternately using the change in property taxes from year t-1 to t, and the change in total taxes from year t-1 to t, with each deflated by beginning population; following Poterba and Rueben (1995), TAX LIMIT is an indicator variable equal to 1 for municipalities in states that impose effective property tax limits, and 0 otherwise; ΔSTATE REVENUE is the change in total state revenue received/total revenue from year t-1 to t; ΔDEBT is the change in debt per capita from year t-1 to t; LAGGED ΔTAXES is the lagged change in taxes; and LAGGED TAX LEVELS is lagged taxes per capita from year t-1 to t. The remaining variables are defined previously. Negative α_1 indicates that municipalities return excess cash to citizens.

Univariate correlations, presented in panel C of Table 3, indicate a statistically significant negative correlation between the change in property taxes and cash holdings, while the relation between the change in total taxes and cash holdings is not significant. Table 7 presents multivariate results for regression model (4). After controlling for other variables, I find no association between excess cash and either the change in property taxes (models 1 and 2), or the change in total taxes (models 3 and 4).[12] Such results contradict a characterization that cash holdings are returned to citizens through tax reductions.

[12] In further tests (not tabulated), I estimate a logit model where the dependent variable is defined as 1 if taxes are reduced, and zero otherwise. Results are consistent with those presented.

IV. EXCESS CASH AND MANAGER ENTRENCHMENT

The results in Section III are consistent with managers engaging in self-interested behavior in the presence of high cash holdings. This section considers directly whether governance characteristics such as manager entrenchment and board (council) independence are associated with cash holdings. Evidence in Harford et al. (2007) indicates that the relation between manager entrenchment and cash holdings is not straightforward. On one hand, entrenched managers value the flexibility of holding high cash levels. Under this scenario, when entities generate excess cash, entrenched managers prefer to accumulate it rather than spend it, leading to a positive relation between cash holdings and entrenchment. On the other hand, entrenched managers may instead prefer to spend excess cash immediately, which leads to a negative relation between manager entrenchment and cash. Therefore, existing theory provides no basis for whether entrenchment increases or decreases cash holdings.

Examining all measures of manager entrenchment and governance characteristics are beyond the scope of this study. Instead, I focus on two well-documented measures used in prior research, namely, staggered boards and board independence. Prior studies find that measures of manager entrenchment are generally the most important indicators of poor performance (Bebchuk and Cohen 2005) and internal control issues, such as accounting restatements (Baber et al. 2007). Further, among the entrenchment governance mechanisms examined by Bebchuk and Cohen (2005), one of the most important indicators of management entrenchment is whether a firm has a staggered (or classified) board. Prior research finds that staggered boards are highly resistant to takeover (Bebchuk et al. 2002), and significantly insulate management from market discipline in the form of turnover (Faleye 2006). I therefore include an indicator variable equal to one if city council elections are staggered, and zero otherwise.

Second, I consider council independence. Measuring council independence is not straightforward, however, because little empirical evidence exists about non-corporate board governance. In an examination of nonprofit boards, O'Regan and Oster (2005) indicate that nonprofit boards are typically comprised solely of members that are outside of the organization - that is, employees are seldom on the board. As a substitute measure of independence, O'Regan and Oster (2005) use an indicator variable equal to one if the CEO votes on the council. However, it is not known empirically how often elected officials either vote or sit on the council. I therefore include two measures of council independence: an indicator variable equal to one if the top elected official votes on the council, and an indicator variable equal to one if the top elected official sits on the council.

Finally, following Harford et al. (2007), I also include a measure of council size. I collect data for staggered councils, council independence, and council size using the ICMA governance survey data for the subset of municipalities for which data are available. Note that data are for 2002, since ICMA governance data are only collected every five years.

Descriptive statistics for the governance measures are shown in Panel A of Table 8. Overall, the chief elected official is allowed to vote on the council for 58% of sample municipalities, the chief elected official sits on 66% of councils, and 78% of all councils have staggered elections. In addition, the average council contains seven members. Univariate correlations in Panel B of Table 8 show that cash holdings are positively correlated with staggered councils, and whether the chief elected official votes on the council or sits on the council. Cash holdings are negatively correlated with council size.

Table 8, panel C presents multivariate results between cash holdings and governance measures, using the cash regression specification presented in Table 4, model 2, with the

addition of governance characteristics, following a design similar to Harford et al. (2007). Results show that staggered councils and councils where the top elected official either votes or sits on the council are positively associated with cash holdings, while council size is negatively associated with cash holdings. The results, while preliminary in nature, are consistent with entrenched managers holding more cash, while cities with large councils holding less cash.

V. CONCLUSION

Local governments are a significant and growing sector of the economy, comprising 20% of gross domestic product and holding approximately $1.2 trillion in cash in 2002. In comparison, consider that Opler et al. (1999) report corporate cash holdings of $716 billion in 1994 for the S&P 500. As such, the lack of research investigating the implications of municipal cash holdings is surprising. My paper examines the determinants of municipal cash holdings from 1997-2003, as well as some of the agency implications of holding high cash levels. Such research provides evidence about municipal managers' stewardship over citizens' resources, which is one of the primary purposes of governmental financial reporting (GASB 2006). In addition, understanding the determinants and consequences of municipal cash holdings informs the recent policy debate about governmental rainy day funds.

Overall, the evidence is consistent with managers holding cash for operational and precautionary reasons. Namely, I find that municipalities with a higher variation in revenues, more limited revenue sources, and growing municipalities hold higher levels of cash. Larger municipalities and those with more state funding tend to hold less cash. In contrast with prior literature, I find no consistent relation between access to credit markets and cash holdings.

The analysis also provides evidence that municipalities with high cash levels, or excess cash, spend significantly more on administrative expenses, manager salaries, and bonuses. I find

no evidence that municipalities with excess cash respond by returning it to citizens in the form of reduced taxes. Additional analysis examining governance characteristics associated with cash holdings finds that cities with staggered councils and councils that are not independent are associated with higher cash levels, consistent with entrenchment. Overall, the evidence is consistent with the view that holding high cash levels is associated with agency problems between municipal managers and citizens. Thus, while rainy day funds can provide precautionary buffers against revenue fluctuations, in the extreme, they are associated with agency problems.

My paper has limitations, however. The data are limited to municipalities who report Census data for at least five years, as well as to those who respond to ICMA salary, fringe benefit, and governance surveys. However, the use of Census data also allows a much larger sample than is typically examined in municipal sector research. In addition, ICMA data afford richer tests, because compensation and governance data are not disclosed in municipal financial reports, unlike their corporate and nonprofit counterparts.

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TABLE 1
Variable Descriptions and Census Data Definitions

Variable name	Variable description	Census data definitions
Administrative	Ratio of administrative operating expenses/total operating expenses	(E23+E29+E89)/E
Cash	Ratio of year-end cash to monthly operating and interest expenses	(W31+W61)/(E+I)/12
Change in property taxes	(Property taxes$_t$ - property taxes$_{t-1}$) /population$_t$	(T01$_t$-T01$_{t-1}$)/population$_t$
Change in total taxes	(Total taxes$_t$ - total taxes$_{t-1}$) /population$_t$	(T_t-T_{t-1})/population$_t$
CV revenue	Coefficient of variation in revenue	n/a
Debt per capita	Ratio of total debt outstanding to total population	Account type 1/population$_t$
Excess cash	Residuals from OLS model of cash determinants (in Table III)	n/a
Growth	(Population$_t$ - population$_{t-5}$) /population$_{t-5}$	n/a
High cash	1 if cash residuals are in the highest quartile in year t-1; else 0	n/a
Limited revenue	Revenue diversification index, or (r_1/R)(r_2/R)…(r_N/R), where r is the amount of revenue received from a specific source, and R is total revenue	r=T01, T09, or T40; R = T01+T09+T40
Low cash	1 if cash residuals are in the lowest quartile in year t-1; else 0	n/a
Size	Log of total population	n/a
State revenue	State revenue/Total revenue	C/(A+B+C+D+T+U)
Tax limits	1 if municipality is in a state with property tax limits; else 0	n/a

TABLE 2
Sample Selection

Total observations in Census database	80,125
Less observations with missing data	- 4,043
	76,082
Less data errors	- 57
	76,025
Less observations for municipalities with less than four years of data	- 66,612
Final Census data sample	9,413

TABLE 3
Descriptive Statistics

Panel A. Ratio of Cash/Monthly Operating and Interest Expenditures by Year.

Year	*Total sample Mean (median)*
1997 (n=31,707)	12.97
	(8.33)
1998 (n=4,169)	10.38
	(7.66)
1999 (n=4,208)	11.18
	(8.33)
2000 (n=4,859)	11.73
	(8.61)
2001 (n=1,848)	11.65
	(8.88)
2002 (n=27,592)	15.91
	(11.01)
2003 (n=1,642)	12.27
	(9.31)
Total (n=76,025)	13.67
	(9.25)

Panel B. Comparison of Descriptive Statistics for Select Test Variables.

	Full sample (n=76,025)		*In Census 5 Years (Test sample) (n=9,413)*		*In Census < 5 years (n=66,612)*		*Difference*
Variable	*Mean (median)*	*Standard deviation*	*Mean (median)*	*Standard deviation*	*Mean (median)*	*Standard deviation*	
Cash	13.67	14.56	10.64	9.54	14.10	15.09	4.46***
	(9.25)		(8.34)		(9.42)		
Debt per capita	0.75	8.65	2.14	17.13	0.56	6.61	5.66***
	(0.04)		(0.88)		0.00		
Limited revenue	0.25	0.07	0.27	0.06	0.25	0.07	3.23***
	(0.27)		(0.29)		(0.27)		
Size	7.50	1.96	9.64	1.82	7.20	1.78	18.02***
	(7.35)		(9.82)		(7.12)		
Growth	0.35	83.20	0.02	0.10	0.40	88.89	1.12
	(0.00)		(0.00)		(0.00)		
State revenue	0.20	0.18	0.15	0.13	0.21	0.19	3.91***
	(0.14)		(0.11)		(0.15)		
Administrative	0.26	0.20	0.17	0.13	0.27	0.21	8.10***
	(0.21)		(0.14)		(0.22)		

TABLE 3 (continued)

Panel C. Pearson Correlations for Select Test Variables.

	Cash	*CV rev.*	*Debt per capita*	*Limited revenue*	*Size*	*Growth*	*State Rev.*	*Admin*	*Change in prop. taxes*	*Change in total taxes*
Cash	1.00									
CV revenue	0.15*	1.00								
Debt per capita	-0.08*	0.00	1.00							
Limited revenue	0.16*	-0.07*	-0.05*	1.00						
Size	-0.14*	-0.23*	-0.14*	0.31*	1.00					
Growth	0.08*	0.05*	-0.01	-0.01	0.02	1.00				
State revenue	-0.02	0.05*	-0.12*	0.15*	-0.07*	-0.04*	1.00			
Administrative	0.23*	0.19*	-0.17*	0.08*	-0.27*	0.05*	0.08*	1.00		
Change in property taxes	-0.06*	0.04*	0.06*	-0.09*	0.00	0.05*	0.02	-0.02	1.00	
Change in total taxes	-0.01	0.07*	0.09*	-0.03	0.03	0.04*	-0.04*	-0.02	0.76*	1.00

* Indicates significance at the 5% level.

Variable descriptions are as follows: *Cash* is the ratio of total cash and marketable securities to monthly operating and interest expenditures; *CV revenue* is the coefficient of variation of total revenue, measured as the ratio of the standard deviation of total revenue/mean total revenue, over the prior four years ending at year t; *Debt per capita* is total debt outstanding/total population; *Limited revenue* is a revenue diversification index, or $(r_1/R)(r_2/R)\ldots(r_N/R)$, where r is the amount of revenue received from a specific source, and R is total revenue; *Size* is the log of population; *Growth* is the change in population from t-5 to t, deflated by population in year t-5; *State revenue* is the total state revenue received/total revenue; *Administrative* is the ratio of total administrative expenses/total operating expenditures; *Change in property taxes* is the ratio of the change in property taxes from t-1 to t, deflated by population in year t-1; and *Change in total taxes* is the ratio of the change in total taxes from t-1 to t, deflated by population in year t.

TABLE 4
Determinants of Municipal Cash Holdings

Variable	*Model 1 (n=9,413)*	*Model 2 (n=9,413)*
Intercept	19.95	11.47
	(10.01)***	(3.13)***
CV revenue$_{t - t-4}$	7.92	7.76
	(6.00)***	(5.86)***
Debt per capita$_t$	-0.24	-0.19
	(-2.72)***	(-2.15)**
Limited revenue	21.74	21.32
	(8.91)***	(8.74)***
Size$_t$	-0.94	-0.37
	(-10.07)***	(-1.54)
Growth	12.46	12.59
	(7.00)***	(7.08)***
State revenue	-3.89	-4.20
	(-3.06)***	(-3.28)***
Lambda		2.71
		(2.79)***
Quarter dummies	Included[2]	Included[2]
Year dummies	Included[2]	Included[2]
State dummies	Included[2]	Included[2]
Adjusted R^2	0.21	0.21

*, **, *** indicate significance at p <.10, .05, and 01; based on two-tailed tests.

[1]t-statistics are reported in parentheses, using robust standard errors clustered on municipality.
[2]For brevity, the quarter-specific, year-specific, and state-specific intercept terms are not reported.

This table presents estimates for an OLS regression model, where the dependent variable is the ratio of total cash and marketable securities to monthly operating and interest expenditures. Variable descriptions are as follows: *CV revenue* is the coefficient of variation of total revenue, measured as the ratio of the standard deviation of total revenue/mean total revenue, over the prior four years ending at year t; *Debt per capita* is total debt outstanding/total population; *Limited revenue revenue* is a revenue diversification index, or $(r_1/R)(r_2/R)\ldots(r_N/R)$, where r is the amount of revenue received from a specific source, and R is total revenue; *Size* is the log of population; *Growth* is the change in population from t-5 to t, deflated by population in year t-5; *State revenue* is the total state revenue received/total revenue; and *Lambda* is the inverse Mills ratio computed from a first-stage probit specification of the choice to voluntarily disclose interim Census data.

TABLE 5
The Relation between Excess Cash and Administrative Overhead Expenses

Variable	*Model 1 (n=7,379)*	*Model 2 (n=7,379)*
Intercept	0.44	0.43
	(19.98)***	(19.27)***
Excess $cash_{t-1}$	0.01	
	(7.88)***	
High $cash_{t-1}$		0.02
		(7.06)***
Low $cash_{t-1}$		-0.00
		(-0.03)
Debt per capita	-0.01	-0.01
	(-5.36)***	(-5.28)***
Size	-0.02	-0.02
	(-14.24)***	(-14.06)***
Year dummies	Included[2]	Included[2]
State dummies	Included[2]	Included[2]
Adjusted R^2	0.25	0.25

*, **, *** indicate significance at p <.10, .05, and 01; based on two-tailed tests.

[1]t-statistics are reported in parentheses, using robust standard errors clustered on municipality.
[2]For brevity, the year-specific and state-specific intercept terms are not reported.

This table presents estimates for an OLS regression model, where the dependent variable is the ratio of total administrative expenses/total operating expenditures. Variable descriptions are as follows: *Excess cash* is the residuals from an OLS regression of Model 2 in Table 4, and is calculated separately for each year; *High cash* is a dummy variable equal to 1 if the *Excess cash* residuals are in the upper quartile for each year, and *Low cash* is a dummy variable equal to 1 if the residuals are in the lower quartile for each year; *Debt per capita* is total debt outstanding/total population; and *Size* is the log of population.

TABLE 6
The Relation between Excess Cash and Manager Compensation

Panel A. Descriptive Statistics for Manager Compensation Data.

Variable	*n*	*Mean*	*Median*	*Standard deviation*	*25th percentile*	*75th percentile*
Salary (in $$$)	2,713	98.45	93.30	34.25	74.09	117.53
Bonus	1,635	0.24	0.00	0.42	0.00	0.00
Tenure	1,635	7.45	6.00	6.15	3.00	11.00
Degree	1,635	0.94	1.00	0.24	1.00	1.00
Age	1,635	5.42	6.00	1.47	5.00	6.00

Panel B. Multivariate Regressions of Manager Annual Base Salary.

Variable	*Model 1 (n=2,713)*	*Model 2 (n=2,713)*	*Model 3 (n=1,082)*	*Model 4 (n=1,082)*
Intercept	9.82	9.81	9.39	9.38
	(155.71)***	(154.55)***	(127.15)***	(129.11)***
Excess $cash_{t-1}$	0.01		0.002	
	(5.82)***		(2.31)**	
High $cash_{t-1}$		0.04		0.04
		(4.04)***		(3.15)***
Low $cash_{t-1}$		-0.02		0.01
		(-1.47)		(0.48)
Size	0.16	0.16	0.17	0.17
	(29.02)***	(28.70)***	(23.55)***	(23.94)***
Tenure			0.04	0.04
			(5.45)***	(5.58)***
Age			0.07	0.07
			(3.45)***	(3.46)***
Degree			0.11	0.11
			(4.17)***	(4.13)***
Year dummies	Included[2]	Included[2]	Included[2]	Included[2]
State dummies	Included[2]	Included[2]	Included[2]	Included[2]
Adjusted R^2	0.70	0.70	0.73	0.73

*, **, *** indicate significance at p <.10, .05, and 01; based on two-tailed tests.

[1]t-statistics are reported in parentheses, using robust standard errors clustered on municipality.
[2]For brevity, the year-specific and state-specific intercept terms are not reported.

TABLE 6 (Continued)

Panel C. Multivariate Regressions of Manager Bonus.

Variable	*Model 1 (n=1,635)*	*Model 2 (n=1,635)*	*Model 3 (n=1,616)*	*Model 4 (n=1,616)*
Intercept	-1.62	-1.80	-2.26	-2.42
	(-4.00)**	(-4.82)**	(-6.25)**	(-7.06)***
Excess $cash_{t-1}$	0.02		0.02	
	(5.54)**		(3.42)*	
High $cash_{t-1}$		0.41		0.36
		(7.83)***		(5.69)**
Low $cash_{t-1}$		0.10		0.11
		(0.33)		(0.42)
Size	0.11	0.11	0.13	0.14
	(3.02)*	(3.26)*	(3.72)**	(3.92)**
Tenure			0.65	0.65
			(65.32)***	(65.20)***
Age			-0.57	-0.57
			(-6.33)***	(-6.22)***
Degree			0.24	0.23
			(0.68)	(0.63)
Year dummies	Included[2]	Included[2]	Included[2]	Included[2]
State dummies	Included[2]	Included[2]	Included[2]	Included[2]
Likelihood ratio	101.32	103.79	176.79	179.08

*, **, *** indicate significance at p <.10, .05, and 01; based on two-tailed tests.

[1]chi-square statistics are reported in parentheses, using robust standard errors.
[2]For brevity, the year-specific and state-specific intercept terms are not reported.

This table presents estimates for an OLS regression model in panel B, where the dependent variable is the log of total annual base salary compensation, and a logit model in panel C, where the dependent variable is a dummy variable equal to one if a bonus is paid. Variable descriptions are as follows: *Excess cash* is the residuals from an OLS regression of Model 2 in Table 4, and is calculated separately for each year; *High cash* is a dummy variable equal to 1 if the *Excess cash* residuals are in the upper quartile for each year, and *Low cash* is a dummy variable equal to 1 if the residuals are in the lower quartile for each year; *Size* is the log of population; *Tenure* is the log of the total years the manager has been in his current position; *Age* is the log of the manager's age category, where 1=ages <30, 2=ages 31-35,...10=ages>70; and *Degree* is a dummy variable equal to one if the manager has an undergraduate or graduate degree, and zero otherwise.

TABLE 7
The Relation between Excess Cash and the Reduction of Taxes

	Dependent variable:			
	Change in property taxes		*Change in total taxes*	
Variable	*Model 1 (n=7,379)*	*Model 2 (n=7,379)*	*Model 3 (n=7,379)*	*Model 4 (n=7,379)*
Intercept	-0.01	-0.01	-0.01	-0.01
	(-2.37)**	(-2.56)***	(-1.33)	(-1.35)
Excess $cash_{t-1}$	-0.00		-0.00	
	(-0.70)		(-0.50)	
High $cash_{t-1}$		0.00		0.00
		(0.39)		(0.40)
Low $cash_{t-1}$		0.00		-0.00
		(0.67)		(-0.13)
Tax limits	-0.01	-0.01	0.02	0.02
	(-4.55)***	(-4.54)***	(-6.83)***	(-6.83)***
Size	-0.00	-0.00	-0.00	-0.00
	(-1.14)	(-1.06)	(-4.17)***	(-4.23)***
Growth	0.06	0.06	0.10	0.10
	(5.95)***	(5.92)***	(6.14)***	(6.10)***
ΔState revenue	-0.13	-0.13	-0.18	-0.18
	(-8.86)***	(-8.85)***	(-8.58)***	(-8.58)***
ΔDebt	0.01	0.01	0.01	0.01
	(4.59)***	(4.54)***	(3.29)***	(3.24)***
Lagged Δtaxes	-0.16	-0.16	-0.20	-0.20
	(-6.00)***	(-6.00)***	(-7.96)***	(-7.97)***
Lagged tax levels	0.08	0.08	0.09	0.09
	(28.17)***	(27.71)***	(26.59)***	(26.19)***
Year dummies	Included[2]	Included[2]	Included[2]	Included[2]
Adjusted R^2	0.34	0.34	0.27	0.27

*, **, *** indicate significance at p <.10, .05, and 01; based on two-tailed tests.

[1]t-statistics are reported in parentheses, using robust standard errors clustered on municipality.
[2]For brevity, the year-specific intercept terms are not reported.

This table presents estimates for an OLS regression model, where the dependent variable is the ratio of the change in property taxes from t-1 to t, deflated by population in year t-1 (models 1 and 2), or the ratio of the change in total taxes from t-1 to t, deflated by population in year t-1 (models 3 and 4). Variable descriptions are as follows: *Excess cash* is the residuals from an OLS regression of Model 2 in Table 4, and is calculated separately for each year; *High cash* is a dummy variable equal to 1 if the Excess cash residuals are in the upper quartile each year, and *Low cash* is a dummy variable equal to 1 if the residuals are in the lower quartile for each year; *Tax limits* is a dummy variable equal to 1 if the local government resides in a state with effective property tax limitation measures, and 0 otherwise; *Size* is the log of population; *Growth* is the change in population from t-5 to t, deflated by population in year t-5; Δ*State revenue* is the change in total state revenue received/total revenue; Δ*Debt* is the change in debt per capita; *Lagged* Δ*taxes* is the lagged change in taxes; and *Lagged tax levels* is lagged taxes per capita.

TABLE 8
The Relation between Cash Holdings and Manager Entrenchment

Panel A. Descriptive Statistics for Management Entrenchment Variables (n=4,047).

Variable	*Mean*	*Median*	*Standard deviation*
Cash	10.04	9.29	7.13
CEO votes on council	0.58	1.00	0.49
CEO on council	0.66	1.00	0.47
Staggered council	0.78	1.00	0.42
Board size (unlogged)	6.93	7.00	2.77

Panel B. Pearson Correlations for Measures of Manager Entrenchment (n=4,047).

	Cash	*CEO votes on council*	*CEO on council*	*Staggered council*	*Board size*
Cash	1.00				
CEO votes on council	0.10*	1.00			
CEO on council	0.11*	0.77*	1.00		
Staggered council	0.20*	0.19*	0.21*	1.00	
Board size	-0.09*	-0.27*	-0.23*	-0.19*	1.00

* Indicates significance at the 5% level.

Variable descriptions are as follows: *Cash* is the ratio of total cash and marketable securities/monthly operating and interest expenditures; *CEO votes on council* is a dummy variable equal to one if the chief elected official votes on the council, and zero otherwise; *CEO on council* is a dummy variable equal to one if the chief elected official is a member of the council, and zero otherwise; *Staggered council* is a dummy variable equal to one if council elections are staggered, and zero otherwise; *Board size* is the log of council size.

TABLE 8 (Continued)

Panel C. Multivariate Regressions of Manager Entrenchment.

Variable	*(1) (n=4,257)*	*(2) (n=4,151)*	*(3) (n=4,162)*	*(4) (n=4,301)*
Intercept	2.45	4.18	3.29	6.17
	(0.61)	(1.00)	(0.79)	(1.51)
CEO votes on council	0.81			
	(2.27)**			
CEO on council		0.96		
		(2.58)***		
Staggered council			1.05	
			(2.30)**	
Board size				-1.74
				(-2.92)***
CV revenue$_{t - t-4}$	10.45	10.69	9.74	9.92
	(5.07)***	(5.30)***	(4.80)***	(5.07)***
Debt per capita$_t$	-0.05	-0.01	-0.07	-0.08
	(-0.40)	(-0.11)	(-0.59)	(-0.64)
Limited revenue	29.61	25.57	30.49	30.03
	(8.56)***	(8.57)***	(8.77)***	(8.69)***
Size$_t$	-0.24	-0.23	-0.21	-0.05
	(-0.96)	(-0.89)	(-0.84)	(-0.19)
Growth	15.24	15.22	15.32	15.00
	(6.47)***	(6.49)***	(6.57)***	(6.50)***
State revenue	-8.69	-8.57	-9.06	-8.75
	(-4.02)***	(-4.04)***	(-4.30)***	(-4.25)***
Lambda	1.50	1.37	1.50	1.45
	(1.66)*	(1.45)	(1.69)*	(1.61)
Quarter dummies	Included[2]	Included[2]	Included[2]	Included[2]
Year dummies	Included[2]	Included[2]	Included[2]	Included[2]
State dummies	Included[2]	Included[2]	Included[2]	Included[2]
Adjusted R^2	0.24	0.24	0.25	0.25

*, **, *** indicate significance at p <.10, .05, and 01; based on two-tailed tests.

[1]t-statistics are reported in parentheses, using robust standard errors clustered on municipality.
[2]For brevity, the quarter-specific, year-specific, and state-specific intercept terms are not reported.

This table presents estimates for an OLS regression model, where the dependent variable is the ratio of total cash and marketable securities to monthly operating expenditures. Variable descriptions are as follows: *CEO votes on council* is a dummy variable equal to one if the chief elected official votes on the council, and zero otherwise; *CEO on council* is a dummy variable equal to one if the chief elected official is a member of the council, and zero otherwise; *Staggered council* is a dummy variable equal to one if council elections are staggered, and zero otherwise; *Board size* is the log of council size; *CV revenue* is the coefficient of variation of total revenue, measured as the ratio of the standard deviation of total revenue/mean total revenue, over the prior four years ending at year t; *Debt per capita* is total debt outstanding/total population; *Limited revenue* is a dummy variable equal to 1 if either property taxes, sales taxes, or income taxes are greater than 50% of total revenue, and 0 otherwise; *Size* is the log of population; *Growth* is the change in population from t-5 to t, deflated by population in year t-5; *State revenue* is the total state revenue received/total revenue; and *Lambda* is the inverse Mills ratio computed from a first-stage probit specification of the choice to voluntarily disclose interim Census data.