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An empirical analysis of auditor report timing by large municipalities

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Abstract

Our paper provides further evidence on the timeliness of external audit-reporting for municipalities. Ordinary least squares regression and multiple comparison tests were used to analyze a sample of cities described in the paper. Results were similar to Dwyer and Wilson (1989). However, overall time to issue external audit reports was about a month longer than found in Dwyer and Wilson (1989, p. 41). Explanations are provided as suggestions for factors that affect external audit-timing. Also, we comment on report timing by type of an external auditor. © 2000 Elsevier Science Ltd. All rights reserved.

1. Introduction

External auditors of local governments should submit their audit report as soon as possible after the fiscal year-end of the auditee. However, the results of our study suggest that the length of time from fiscal year-end to the external auditor report date (report time) seems to be increasing. An earlier study by Dwyer and Wilson (1989, p. 41) considering the 1982 fiscal year found an average audit time of three months. Our study of report time for a sample of cities for fiscal year 1996 indicated an average report time of over four months (125 days). Since there have been technological improvements in both financial accounting and auditing (Kinney, 1997, p. v), it would be reasonable to hypothesize that report times should be decreasing.

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Our study considers if additional insight can be gained by analyzing external audit-timing from a sample of cities for fiscal year-end 1996 and considers changes since 1982. The most likely factor increasing the time from fiscal year-end to the external auditor-report date (report time) is the importance of federal regulations that increase the complexity and risk of the financial audits, especially the Single Audit Act of 1984 (USC, 1984). Federal regulation increased external audit requirements, including reports on internal control and compliance with federal laws and regulations (USC, 1984). External audit reports and in some cases external auditor working papers are reviewed by federal and state agencies with oversight responsibilities (Deis and Giroux, 1992, pp. 468–470). These agencies document substandard external audits and refer severely non-compliant external auditors to state boards of accountancy for remedial action (see, e.g., Deis and Giroux, 1992, p. 472).

The Government Accounting Standards Board (GASB) was established in 1984 to promulgate state and local governmental accounting standards and has issued a number of statements as well as interpretations and technical bulletins (see, e.g., Granof, 1998, p. 24; GASB, 1999). These pronouncements added additional auditing and reporting complexity.

Factors that should decrease report time include information technology (IT) advances and strong financial positions at most cities (Bhattacharya et al., 1997, p. 59; Lawrence 1983, p. 609). Over half the cities in the sample used in our paper had AAA bond ratings (Moody's, 1996), most had certificates of achievement (CA), and few had qualified external audit opinions. Despite these off-setting effects, audit report times were longer, therefore, the report timeliness process should be re-analyzed.

GASB (1987, p. 24) strongly supports the issuance of reports on a timely basis. The Dwyer and Wilson (DW) (1989, p. 29) model of external auditor report timeliness used signaling by municipal managers, regulation, annual report message and technological development as the theoretical base for hypothesis testing (see McLelland and Giroux, 1998). In our study we look again at factors related to the timing of municipal audit reports. This included additional factors for analysis including the use of a comprehensive annual financial report as a signaling variable, component units (COMPUN) as a complexity measure, the introduction of a new technology construct on Internet reporting, and the effects of federal regulation. We tested for external auditors' report-timeliness by auditor type.

We are interested in factors affecting the timing of external audit reports for three reasons. The first is the needs of those using the reports. Bond raters, insurers, institutional investors, and city officials make decisions based on this information (McLelland and Giroux, 1998). City council members often request timely annual reports from city managers (CMs) and chief financial officers (CFOs) for review and decision making (GASB, 1987, pp. 26–28). Bond

rating (BR) agencies and bond insurers use annual report information, since the preliminary information, that is issued before the annual report usually is not supplied. ¹ Timely reports are particularly critical for cities attempting to achieve higher bond ratings. Accordingly, research suggests that individual investors rely primarily on bond ratings. There is little evidence that individual investors review annual reports or other financial information (Ingram et al., 1983, 1989). Ingram et al. (1983, pp. 1001–1002; 1989, p. 264) found interest rate changes on municipal bonds (associated with financial good news or bad news) only after bond rating changes (which were based, in part, on annual reports provided to the BR agencies). Audit delays lead to higher risks, missed opportunities, and greater information asymmetry.

Second, audit efficiency may be enhanced if we have a better understanding of audit report timeliness. Audit efficiency can be increased if a lesser number of audit inputs are needed for a particular output. Audit report timeliness is a surrogate for audit inputs (Bamber et al., 1993, p. 2) (See McLelland and Giroux, 1998). Third, audit timeliness is a signal of financial management competence (DW, 1989, p. 38). We hypothesize that the signaling of prompt audit and annual report timeliness is a measure of good news and effective financial management. It is in the interests of both external auditors and clients to issue reports quickly, suggesting both efficiency and competence. On the other hand, delays suggest some combination of audit and financial problems, perhaps disagreements between auditors and clients (DW, 1989, pp. 34, 35).

DW (1989, p. 41) results, based on a 1982 sample, are before the additional audit requirements introduced with the Single Audit Act of 1984 (USC, 1984). These additional requirements include reports on internal control, compliance with laws and regulations, and formal reviews by cognizant audit agencies (USC, 1984). This increased complexity associated with federal regulations should increase external audit report time (see McLelland and Giroux, 1998). Two variables were used to test the impact of federal regulations in our study. The intergovernmental grants percentage was used to test the importance of grants for a test of relative federal regulation requirements. The second variable was the disclosure of federal audit reports.

The remainder of our paper is structured as follows. Section 2 describes the model development. Section 3 contains the description of the sample tested and the variables used in the empirical model. Section 4 reports the results. Finally, Section 5 offers conclusions together with suggestions for further research.

¹ This insight was provided from discussions with local municipal CFOs. Also Ingram et al. (1989, p. 254) found that most cities provided annual reports to rating agencies (96.6%) and institutional investors (85.4%).

2. Model development

Our dependent variable was the number of days from the end of the fiscal year to the external audit report date (defined as OPNTIME). This variable was similar to DW (1989), except DW (1989, p. 41) used months rather than days. DW also measured the mail date of the annual reports (DW, 1989, p. 49). We conducted a limited analysis on the time from fiscal year-end to the annual report transmittal date, the date of the transmittal letter from the mayor or CM to the members of the city council (TOTALTIME).

2.1. Signaling

Administrators and elected officials are expected to signal fiscal competence and stewardship to the citizens, investors, and other users (DW, 1989, pp. 32– 34). We hypothesized that this signal is best represented by the issuance of a comprehensive annual financial report (CAFR). Rubin (1992, p. 170) found a negative but statistically insignificant relationship between the issuance of a CAFR and external audit timeliness. Most cities in our sample presented CAFRs for the fiscal year 1996. However, eight submitted general purpose financial statements (GPFS) instead. GPFS are shorter reports that normally exclude individual and combining statements, as well as statistical tables. There are fewer audit requirements to a GPFS, which normally suggests a shorter audit time (a positive coefficient). However, a GPFS may indicate a low demand for financial information, resulting in a less comprehensive and timely report. ² No sign is predicted.

Competent managers may have incentives to report timely financial information. Evans and Patton (1987, p. 133) argued that since municipal management quality is difficult to observe, managers have incentive to signal above average managerial quality. Reporting timely information may be a sign of above average performance. One suggestion is that the professional CMs benefit more than mayors from positive professional recognition by signaling competent performance (Evans and Patton 1987, p. 133). Professional managers are more likely to have future career aspirations that may depend on professional recognition (Rubin 1992, p. 163). Following DW (1989, p. 38), the existence of a CA is considered a measure of reporting excellence and should be inversely related to the reporting times. Managerial competence was measured in our study by the presence of both a CM and CA. A single variable (CMCA – a professional manager and a CA) was used, since most cities now have a CA.

Cities can voluntarily include the additional audit reports required by federal regulations in the annual report. This was captured by a dummy variable

² We thank an anonymous reviewer for suggesting this rationale with which we agree.

(DISCLO), coded 1 if federal audit reports were included in the annual report, coded 0 otherwise. We believe that the inclusion of these voluntary reports by the city could represent good news associated with clean opinions. In this interpretation, a negative sign would result, i.e., the good news signal should be associated with more timely reporting.

2.2. Information technology

Our analysis indicated that municipal web pages (WEBPG) included tourism, general, and specific information on individual cities, together with ways to communicate directly with these cities. A few cities presented budget information and financial reports, sometimes updating them on a monthly basis. Users of financial statements can receive timely information, while cities can reduce their mailing and publishing costs.

Previous research has found that organizational productivity is positively related to IT investment (Bhattacharya et al., 1997, p. 59; Clement and Gotlieb 1987, p. 336). Clement and Gotlieb (1987, p. 336) investigated the relationship between managerial control and on-line information systems and found that IT investment improved productivity and processing times. Bhattacharya et al. (1997, p. 59) found support for the notion that investments in IT increased operating efficiency. Cities with innovative IT should have more timely financial reporting than those without for two reasons. First, improved technology suggests efficient reporting, a primary reason to invest in high-tech hardware and software (Bhattacharya et al., 1997, p. 59). Second, the existence of innovative technology suggests the focus on improved information capabilities and concern for user information needs (Clement and Gotlieb, 1987, p. 336). Internet reporting is an excellent medium to communicate timely information to users and indicates government interest in innovative technology. The existence of a city web page was used as a proxy for innovative technology. We predict a negative relationship, since high tech innovations should be related to more timely reporting. That is, cities with web pages should have shorter reporting times.

2.3. Report content

Report message content can affect reporting times. Good news is generally reported early and bad news is withheld as long as possible (DW 1989, p. 35). Two indicators of good or bad news are the types of audit opinion issued and the BR of the city. A qualified audit opinion is a sign of bad news to financial users. Numerous studies including Whittred (1980a, p. 576), Givoly and Palmon (1982, p. 505), Ashton et al. (1987, pp. 291, 284), Bamber et al. (1993, p. 16), and DW (1989, p. 49) have found that qualified audit opinions result in longer reporting times. In contrast, Ashton et al. (1989, p. 666) reported a

negative relationship between qualified audit opinions and audit delay. However, Ashton et al. (1989, p. 666) results were for Canadian firms and were only significant in four of the six years. Audit opinion (AUDOPN) is a dummy variable, coded 1 if auditor's opinion is unqualified, coded 0 otherwise. Following DW (1989, p. 43), AUDOPN is predicted to have a negative sign. An unqualified opinion, an indication of good news, should be reported sooner.

Cities experience differential fiscal health and cities with fiscal problems may report information slower than cities without such issues. Studies finding reporting lags associated with bad economic news include Whittred and Zimmer (1984, p. 294) and Lawrence (1983, p. 609). We measured relative fiscal-health using Moody's BR. A negative sign is expected, cities with fiscal problems (i.e., those with lower BRs) should have longer report times. It should be noted that BRs in our sample were quite high in 1996 as a result of a strong economy (McLelland and Giroux, 1998).

2.4. Client size and complexity

Client size may relate to external audit complexity and possible delays in audit timing. To capture the effects of size, the log of population (LPOP) was used. Following Bamber et al. (1993, p. 7), a positive relationship is predicted for LPOP and reporting times. Large cities should be associated with quicker external audit report timing. However, Rubin (1992, p. 161) pointed out that special interest groups at large cities may pressure governmental officials to issue reports on a timely basis.

The analysis of component units is a measure of complexity and a potential surrogate for reporting and external auditing requirements associated with the additional standards issued by the GASB. According to GASB Statement No. 14 (GASB, 1991, para. 20) a component unit is a legally separate organization for which the elected officials of the primary government are financially accountable. The financial information from component units can be blended into the financial statements of the primary government or discreetly presented in separate columns of the combined financial statements (GASB, 1991, para. 42). Joint ventures also are included in financial reports (GASB, 1991, para. 42). The number of component units (COMPUN) included all component units, joint ventures and measured organizational complexity. The additional complexity associated with COMPUN should increase external audit time and a positive coefficient is expected. Municipalities with more COMPUN should experience longer report timing.

2.5. Audit characteristics

Auditor type, independent versus governmental external auditor, is related to audit timing. Rubin (1992, p. 174) suggested that cities which use inde-

pendent auditors demand more timely reports, and independent auditors deliver more timely reports. Rubin (1992, p. 174) found for a sample of 74 Ohio cities that the use of state auditors resulted in significantly longer audit reporting times. In several states in our sample the auditor type was mandated. ³ We posit that when state auditors are used the reporting lag will be longer. State auditors may not be concerned with the effects of competition or with their reputations resulting in longer audit reporting lags. A negative relationship is expected between the use of an independent auditor (INDEPAUD) and report timing.

Several studies attempted to predict the effect of different fiscal year-ends on audit reporting lag. External auditors experience a busy season usually in January to April, while working predominantly on 31 December year-ends. The literature in this area documented mixed results. Davies and Whittred (1980, pp. 54, 55) found longer delays for companies with busy season yearends. However, Ashton et al. (1987, p. 284; 1989, p. 666) found shorter delays. DW (1989, p. 44) used 31 October to 31 March year-end as the busy season (not significant) and we used a different definition. ⁴ One of the reasons for the mixed results just noted is that each study defined a busy season year-end in a different way (the above mentioned studies used one, two, or more months yet no two studies used the exact same months or the same number of months). Therefore, no prediction is made regarding busy season audits (BSAUD).

External auditors of cities may have to rely on other audit firms (OTHE-RAUD) for certain parts of the audit, such as government-owned utilities, other enterprise operations, and activities associated with the reporting entity (Moizer et al., 1986, p. 350). We predicted that reliance on other auditors increases audit time (a positive sign), since their completed work has to be reviewed and incorporated in the overall city audit (AICPA, 1972, Section 543, para. 10).

2.6. Regulatory constraints

The presence of certain state-mandated accounting and reporting regulations represents another set of circumstances which may contribute to reporting times. DW (1989, p. 50) found that state-accounting regulation (e.g., financial statements are required to be prepared in conformity to generally accepted accounting principles) significantly increased audit time, but statereporting regulations (e.g., single audit requirements and conformance with

³ In our sample nine cities located in three states used state auditors (see Table 5).

⁴ We used 31 October to 31 December fiscal year-ends. Our sample contains no January or March and only 1 February fiscal year-end. When we added the February observation to busy season audits (BSAUD) to be consistent with DW, there were no significant changes in the results.

generally accepted auditing standards) significantly reduced audit time. However, their analysis (based on 1982 data) was before the implementation of the Single Audit Act of 1984 (USC, 1984) and related federal regulations. We used a single state regulations (SR) variable, coded 1 if any state-accounting regulation was present, coded 0 otherwise. Most cities in our sample with SR were subject to both accounting and reporting regulations. We predict that SR will increase reporting times, although it is expected to be less influential since the implementation of Single Audit Act of 1984 (USC, 1984) provisions.

The Single Audit Act of 1984 (USC, 1984) and additional federal regulatory requirements are expected to make the audit more complex and increase audit delay (AICPA, 1994, p. 207). However, it is difficult to determine differential effects since the regulations apply to all governments. The log of intergovernmental grants to total revenue (FEDREG) is used as a surrogate to capture differential revenue complexity. Cities with high grant percentages are expected to have additional regulatory requirements relative to low grant cities and a positive sign is predicted.

3. Descriptive analysis and method

3.1. Sample

We requested annual reports by letter from each of the 209 US cities that had populations that were more than 100 000. ⁵ Large cities were chosen to analyze audit report timeliness because we felt that there would be a high incentive for signaling as well as a high need for analysis by bond investors (see McLelland and Giroux, 1998). In addition to the annual reports, data were obtained from the municipal finance officer association (MFOA) (1983) and the US Census Bureau (1994). ⁶ Our final sample contained complete information on 164 cities (see McLelland and Giroux, 1998). ⁷

⁵ The letters requested a copy of the cities' 1996 fiscal year-end comprehensive annual financial report. Second requests were sent on all non-replies. A response rate of 79.9% was achieved.

⁶ In September 1982, the MFOA through its Committee on Accounting, Auditing and Financial Reporting conducted and published a survey designed to gather the information necessary to build the association's inventory of existing statutory requirements relating to accounting, auditing and financial reporting (MFOA, 1983, p. iii). A survey questionnaire was developed and distributed by the MFOA to selected individuals within the 50 states and the District of Columbia (MFOA, 1983, p. 42). We have used these state regulations in our paper.

 $^{^{7}}$ We tested for a size bias among the 165 cities. We received financial statements for and those that did not respond to our requests. We compared the populations for the two groups of cities. No difference was detected, based on a one-tail *t*-test. In later testing, one extreme value was detected and deleted.

3.2. Description of variables

A definition of all independent variables is contained in Table 1. The annual reports from our sample cities provided most information. In order to determine if an individual city had a WEBPG we went to two recognized industry resources for this information. ⁸ Regulatory information was obtained from a survey of all 50 states conducted by the MFOA (1983). ⁹ BRs were obtained from 1996 Moody's Municipal and Governmental Manual (Moody's, 1996). ¹⁰

Key descriptive statistics from the sample data are summarized in Table 2. Seven categories of data are presented. The first category is the OPNTIME, which averaged 125 days or just over four months. A substantial amount of variability existed for this measure.

Eight cities presented a general purpose financial statement (GPFS) rather than a CAFR. Of the cities in the sample, 57.3% had a CM, 85.4% were awarded a CA, and 51.2% had both. However, only 17.1% presented compliance audit reports associated with single audit requirements. In the fall of 1997, 106 (64.6%) of the cities had WEBPGs. Of the 106 cities with WEBPGs, 27 included budget information and 10 included financial statements. Almost all cities in our sample (93.3%) had unqualified opinions, higher than the 76.1% reported by DW (1989, p. 47) for 1982 data. Eighty-six cities (52.4%) had Aaa rated bonds, while only five had ratings of Baal or below. Consequently, there is little evidence of fiscal problems. The average size of the sample was 311,000. Cities had from 0 to 26 COMPUN, with an average of 4.4. Only nine cities used state auditors, all within three states where they were mandated (see footnote 3). As defined in the paper (31 October to 31 December year-ends), 25.6% of the sample had BSAUD. Other auditors were used in 34.1% of the audits. SR on accounting or reporting occurred in 57.3% of the sample. On average intergovernmental grants were 21.6% of total revenue, although ranging from almost 0 to 58.8%.

3.3. Method

We used ordinary least squares (OLS) regression as the primary empirical analysis. The regression model was

⁸ Both sources were reviewed in September 1997. Contact the corresponding author for details.

⁹ The 1983 MFOA survey (MFOA, 1983) was updated by us to include 1996 regulations for all states in our sample.

¹⁰ Of Moody's ratings for our sample cities 80.1% were for general obligation bonds. In cases, where cities had no outstanding general obligation bonds, we used the rating for the largest dollar amount of outstanding bonds as of the fiscal year-end 1996. In most cases, these were either revenue or tax allocation bonds. Three cities were not rated and were assigned the lowest bond rating (Moody's Municipal & Governmental Manual, 1996).

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Independent variable name ^a	Description ^b	Expected Sign
Signaling		
CAFR	Dummy, coded 1 if the city issues a $CAFR$ 0 if a general purpose financial	?
	statement	
СМСА	Dummy, coded 1 if municipality has a	_
	professional manager and CA in 1995,	
	0 otherwise	
DISCLO	Dummy, coded 1 if the city discloses single	-
	audit reports in the CAFR, 0 otherwise	
Information technology		
WEBPG	Dummy, coded 1 if municipality has a	-
	WEBPG, 0 otherwise	
Report content		
AUDOPN	Dummy, coded 1 if auditor's opinion is	-
	unqualified (clean), coded 0 otherwise	
BR	Moody's BR (Moody's Muncipal &	-
	Governmental Manual, 1996), coded 8 if	
	BR is Aaa, down to 0 for unrated bonds	
Client size and complexity		
LPOP	Natural logarithm of city population	+
COMPUN	Number of component units and joint	+
	ventures in reporting entity	
Audit characteristics		
INDEPAUD	Dummy, coded 1 if the municipality	-
	employs and independent auditing firm	
PSALID	Dummy acaded 1 if the municipalities	2
BSAUD	fiscal year end occurs between 31 October	<u>'</u>
	and 31 December coded 0 otherwise	
OTHERAUD	Dummy, coded 1 if the municipality	+
	employs an additional audit firm for part	
	of the city audit, coded 0 otherwise	
Regulatory constraints		
SR	Dummy, coded 1 if the municipality is	+
	subject to SR, coded 0 if non-regulated	
FEDREG	Natural log of intergovernmental revenue	+
	divided by total revenue	

Description of variables (dependent variable is reporting time lag)

^a See Tables 2 and 3 for explanation of variable names.

^bMeasured in 1996 unless otherwise indicated.

OPNTIME = f(CAFR CMCA DISCLO WEBPG AUDOPN BR LPOP COMPUN INDEPAUD BSAUD OTHERAUD SR FEDREG) (1)

Name	Mean	S.D.	Minimum	Maximum	
Dependent variables					
OPNTIME ^a	124.701	35.712	57.000	229.000	
Signaling					
CAFR ^b	0.951	0.216	0.000	1.000	
CMCA ^c	0.512	0.501	0.000	1.000	
DISCLO ^d	0.171	0.377	0.000	1.000	
Information technology					
WEBPG ^e	0.646	0.480	0.000	1.000	
Report content					
AUDOPN ^f	0.933	0.251	0.000	1.000	
BR ^g	6.744	1.649	0.000	8.000	
Client size and complexity					
1996 population 000's (POP)	311.201	411.666	100.000	3554.000	
COMPUN ^h	4.433	3.757	0.000	26.000	
Audit characteristics					
INDEPAUD ⁱ	0.945	0.228	0.000	1.000	
BSAUD ^j	0.256	0.438	0.000	1.000	
OTHERAUD ^k	0.341	0.476	0.000	1.000	
Regulatory constraints					
SR ¹	0.573	0.496	0.000	1.000	
FEDREG ^m	0.216	0.120	0.006	0.588	

Table 2 Summary statistics for dependent and independent variables (n = 164)

^a Time to audit opinion.

^bComprehensive annual financial report issued.

^cCity manager and certificate of achievement obtained.

^dCity discloses single audit reports.

^eCity has web page.

^fUnqualified audit opinion.

^g Bond rating.

^h Number of component units.

ⁱUse of an independent auditor.

^jAudit performed in busy season.

^k Use of a second auditor.

¹City subject to state regulations.

^mIntergovernmental grant percentages.

Regression diagnostics were used to detect outliers, normality of residuals, multicollinearity and heteroskedasticity. The tests used were studentized residuals, normal probability plots, a Spearman correlation matrix, variance inflation factors, and Glejser test (Glesjer, 1969), respectively and are discussed in Section 4. A Spearman correlation matrix is presented in Table 3 and suggests no evidence of high correlations across the independent variables.

Table 3 Spearman correl	lation coef	ficients $(n =$	= 164)										
and miningle			(1.01	-		ر ا						-	
	CAFR ^a	CMCA ^b	DIS- CLO°	WEBPGd	AU- DOPN⁰	BR ^r	LPOP [£]	COM- PUN ^h	INDEP- AUD ⁱ	BSAUD	OTHE- RAUD ^k	SR	FED- REG ^m
$CAFR^{a}$	1	0.232^{*}	0.028	0.069	0.505^{*}	-0.128	0.110	-0.062	-0.055	0.003	-0.076	0.034	-0.048
$CMCA^{b}$		1	0.021	0.018	0.275^{*}	0.035	-0.073	-0.034	0.139	-0.238^{*}	-0.223*	-0.300^{*}	-0.056
DISCLO ^e			1	0.003	0.122	-0.092	-0.016	-0.201^{*}	0.038	0.31	-0.019	0.228^{*}	0.061
WEBPG ^d				1	0.108	-0.007	0.323^{*}	0.155**	-0.122	-0.063	0.102	0.032	0.048
AUDOPN ^e					1	-0.079	0.157	-0.005	-0.065	0.046	-0.167**	0.064	-0.017
\mathbf{BR}^{f}						1	-0.069	-0.100	0.137	-0.084	-0.068	-0.032	0.025
$LPOP^{g}$							1	0.344^{*}	-0.062	0.028	0.285^{*}	0.092	0.011
COMPUN ^h								1	0.047	-0.022	0.389^{*}	0.030	-0.028^{*}
INDEPAUD									1	-0.350^{*}	0.061	-0.208^{*}	-0.015
BSAUD										1	0.049	0.422^{*}	-0.109
OTHERAUD ^k											1	0.153**	0.042
SR^1												1	0.262^{*}
FEDREG ^m													1
^a Comprehensive	s annual fi	nancial rep	ort issued	d.									
^b City manager :	and certific	cate of achi	evement	obtained.									
^c City discloses s	ingle audi	t reports.											
^d City has web p	age.												
^e Unqualified au	dit opinio	n.											
^f Bond rating.													
^g Natural log of	population	n.											
^h Number of con	nponent u	mits.											
ⁱ Use of an inde	pendent au	ıditor.											
^j Audit performe	sud in busy	season.											
^k Use of a secon	d auditor.												
¹ City subject to	state regu	lations.											
^m City subject to	federal re	egulations.											
* Significant at 0	0.01 (two-t	ail test).											
** Significant at	0.05 (two-	tail test).											

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Duncan's multiple range test (Duncan, 1955) was used to analyze audit timing differences for five of the Big-Six accounting firms (one of the Big Six did not audit any of the cities in our sample), other national public accounting firms, local or regional public accounting firms, and state auditors.

4. Empirical results

To test whether the increase in OPNTIME between DW (1989, pp. 41–43) (which included smaller cities) and our 1996 results was due to city size, a sample of 118 cities over 100,000 from 1983 was compared to our 1996 sample. ¹¹ The 1983 cities had an OPNTIME of 114 days versus 125 days for the 1996 sample (an 11 days difference). Based on a one-tail *t*-test, this was significantly different (t=2.27) at the 0.05 level. This suggests that timing differences between the DW and current sample were likely due both to city size and other factors.

OLS regression results are presented in Table 4. No violations of regression assumptions were found using variance inflation factors tests for multicollinearity. One extreme value was detected and deleted. Results are based on the reduced model. A normal probability plot indicates normal residuals. The OPNTIME model had an adjusted R^2 of 31.1%, and the model was significant at P < 0.0001 based on a two-tail *F*-test. Nine of the 13 independent variables were significant at the 0.10 level. Results of the model (as determined by the *F*-statistic and adjusted R^2) compared favorably with prior results of DW (1989, p. 49) and Rubin (1992, p. 170). DW (1989, p. 45) reported adjusted R^2 of 0.12 and Rubin (1992, p. 170) an adjusted R^2 of 0.33 for comparable OPNTIME models. ¹²

4.1. Signaling

CAFR was negative and significant which suggests that use of a CAFR decreased report timing. We believe this indicated administrators signaling good news to report users. CMCA was negative and significant as expected. This was roughly consistent with DW (1989, p. 44). DW (1989, p. 44) used separate dummies for CM and CA and found only CA was significant in their model. When we used two dummies as in DW (1989, p. 44), both were insignificant. However, in 1996, 85.4% of the sample had CA and it was the

¹¹ These were cities in our 1996 sample for which we had 1983 annual reports. They should be representative of the 1996 sample and comparable to DW's 1982 sample cities.

¹² An OLS regression run using TOTALTIME (OPNTIME plus number of days to the issuance of the letter of transmittal of the CAFR) as the dependent variable had an adjusted R^2 of 12.5% and four significant variables. It provided no additional information beyond OPNTIME and therefore is not presented.

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Table 4

Regression results: main effects model, coefficient (*t*-statistics in parenthesis) $n = 164^*$

Variable descriptions	Predicted sign	OPNTIME
Signaling		
CĂFR	?	-45.301 ^a
		(-3.58)
CMCA	_	-7.339 ^b
		(-1.38)
DISCLO	_	-14.102°
		(-2.51)
Information technology		
WEBPG	_	-18.893 ^d
		(-3.60)
D		. ,
Report content		10 (50
AUDOPN	_	(1,72)
DD		(1.72) 1.242
DK	_	-1.243
		(-0.00)
Client size and complexity		
LPOP	+	11.414 ^d
		(3.02)
COMPUN	+	-0.785
		(-1.10)
Audit characteristics		
INDEPAUD	_	-34.739 ^d
		(-3.10)
BSAUD	?	-4.692
		(-0.74)
OTHERAUD	+	20.373 ^d
		(3.59)
Regulatory constraints		
SR	+	10.230 ^b
		(1.72)
FEDREG	+	6.669 ^b
		(1.94)
Intercept		150.89
Model F		6.65 ^a
R ² /adjusted R ²		0.37/0.31

* An extreme value was detected and deleted.

Level of significance (*t*-test):

^a P < 0.01 two-tail test.

^bP < 0.10 one-tail test.

 $^{\circ}P < 0.05$ one-tail test.

 $^{\rm d}P < 0.01$ one-tail test.

 $^{e}P < 0.05$ two-tail test.

combination of the CA and a CM that was important for lower audit timing. DISCLO indicated the presence of single audit reports presented in the CAFR. The coefficient for DISCLO was negative and significant, consistent with a signaling interpretation.

4.2. Information technology

WEBPG was negative and significant, as expected. Cities who invested in and used this medium may be more advanced in information handling, processing, and communication. They also may be dedicated to making information available in a timely fashion to all potential users. ¹³ The relationship of WEBPGs to other forms of reporting and communication is not well understood and these results suggest that further research is warranted.

4.3. Report content

A negative relationship between report message contents and reporting time was predicted, but AUDOPN had a positive sign. The result for AUDOPN may be because of the few qualified opinions (12 out of 164) in the sample. Based on a review of the qualifications, 7 of the 12 include qualifications for lacking fixed asset records. As this type of qualification probably existed for several years, additional delays in reporting this type of qualification may not be considered current bad news. BR was insignificant concerning external audit timeliness.

4.4. Client size and complexity

LPOP was positive and significant as expected. This was a surrogate for size, which increased the time for the audit report. This variable was not significant in DW (1989, p. 49). COMPUN was insignificant. This was considered a measure for complexity. 14

4.5. Audit characteristics

The negative coefficient for INDEPAUD indicated that the use of governmental auditors increased audit time. BSAUD was negative but not significant.¹⁵ This suggests that BSAUD has little or no effect on external

¹³ Only 10 cities presented financial statements on their web page (insignificant when used in the OLS regression model in place of WEBPG).

¹⁴ As a further test, an interaction term was added (COMPUN*OTHERAUD) to the OLS regression model. This also was insignificant.

¹⁵ Several different definitions of busy season were tested. All were insignificant.

audit reports timing. The busy season may cause firms that audit both public and private firms to re-schedule or delay audits during the peak season resulting in additional audit time. However, this may be offset by the cities being better prepared for the audit process (as they must compete with private firms for auditing time) thereby reducing audit time.

OTHERAUD was positive and significant as expected. The link is clear: more time was expended when other auditors were used. Additional procedures were required when more than one auditor was used. For example, auditing standards required the principal auditor to make inquires concerning the professional reputation and independence of the other auditor (AICPA, 1972, Section 543, para. 10). The principal external auditors also adopted appropriate measures to assure the coordination of activities with those of the other auditors in order to achieve a proper review of matters affecting the consolidating or combining of accounts in the financial statements (AICPA, 1994, p. 219). These procedures increased the complexity and may have caused additional reporting problems, thereby increasing the time required to complete the audit (AICPA, 1994, p. 219).

4.6. Regulatory constraint

SR increased OPNTIME, somewhat similar to DW (1989, p. 49) who found accounting regulations increased reporting times and reporting regulations decreased reporting times. ¹⁶ FEDREG was positive and significant for OPNTIME. Cities with a higher percentage of intergovernmental grants had a longer audit time, as expected. The likely cause is the increased regulations associated with the Single Audit Act of 1984 (USC, 1984) and other federal regulation.

4.7. Audit firm analysis

A detailed analysis across audit firms was not included in the OLS regression analysis because of complexity and inconclusive results. Further analysis is described below. A comparison of Big Six versus non-Big Six firms was run. The difference in mean delay between Big Six and non-Big Six firms was four days (126 versus 123 days). To analyze differences further a Duncan's multiple range test was used (Duncan, 1955), the results of which are presented in Table 5. Mean audit delays ranged from approximately 98 to 134 days for Big Six firms (Table 5). However, even the longest mean delay among clients of the Big Six was shorter than the mean delay for clients of state auditors (approximately 158 days). The external audit report time for two of the Big Six firms (firms T

¹⁶ We also tested separate accounting and reporting dummy variables, which were insignificant.

Audit firm ^b	n ^c	Opinion	days			Opinion da	Opinion days		
		Mean	Gro	upings ^d		Minimum	Maximum		
Big Six firm T	7	97.6	С			71	117		
Big Six firm U	6	107.0	С	В		67	159		
Other national firms ^e	4	118.0	С	В		80	149		
All other public	65	118.2	С	В		57	229		
accounting firms									
Big Six firm V	13	128.6	С	В	Α	58	179		
Big Six firm W	42	130.4	С	В	Α	68	215		
Big Six firm X	18	133.6		В	Α	71	201		
State auditors	9	157.9			Α	136	184		
Total	164								

Duncan multiple range test for external auditor^a, dependent variable = OPNTIME

^a Duncan (1955).

Table 5

^b Firm names are not used. Instead different letters (Big Six firm T, Big Six firm U, etc.) were used. ^cn = Number of sample cities audited. One extreme value was detected and deleted.

^d Means with the same letter are not significantly different.

^e Includes only non-Big Six public accounting firms.

and U) together with the other national firms and all other public accounting firms (non-Big Six firms) were significantly shorter than the state auditors according to Duncan's multiple range test.

5. Summary and conclusions

We found evidence supporting hypothesized factors affecting the timeliness of external audit reporting. Larger cities had longer external audit report times. Results corroborate prior research (e.g., DW, 1989; Rubin, 1992) by showing that cities with a combination of city manager and a certificate of achievement also used independent auditors rather than governmental auditors were more timely in their reporting. We also found that cities with more timely audit reports had web pages did not use other auditors, presented single audit reports, and had lower intergovernmental grant percentages. Our results suggest that regulation complexity increased external audit time, but this was partially offset by information technology and signaling incentives (see McLelland and Giroux, 1998). While our results were mixed, the specific implications to cities are important. Several of the factors may be controllable by city management, thereby allowing them to reduce reporting times (see McLelland and Giroux, 1998). City managers and elected officials that want to reduce external audit times can consider our results.

We found little difference in our sample between Big Six and non-Big Six firms relative to audit timing. While some Big Six firms seem to be more timely

than others, the differences were not statistically significant except in one case. However, governmental auditors were significantly different from some of the independent auditing firms.

One approach to future research may be a comparative statistics or time series approach to changing report times over an extended period. In addition, one might detail the specifics of web page disclosures (e.g., budgets, financials, city council meetings, etc.) relating to accounting information. As of the middle of 1997, relatively little of this type of information was presented.

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