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THE DETERMINANTS OF PERCEIVED AUDIT QUALITY AND AUDITEE SATISFACTION IN LOCAL GOVERNMENT

Donald Samelson, Suzanne Lowensohn and Laurence E. Johnson*

ABSTRACT. Prior research addresses relationships between audit attributes and perceptions of both audit quality and auditee satisfaction in the private sector. This study extends such research to local government audits, where audit quality has been questioned. Additionally, this study investigates the effect of auditor size on perceived audit quality and satisfaction. 302 finance directors surveyed positively associated auditor expertise, responsiveness to client, professionalism, understanding of client systems, and study of internal controls with perceived audit quality. Furthermore, auditee satisfaction was positively related to auditor expertise, responsiveness to client, audit manager involvement, understanding of client systems and study of internal controls. Big 5 firms were not associated with higher levels of perceived audit quality or auditee satisfaction, despite charging significantly higher audit fees.

INTRODUCTION

Government audit quality has been in question for more than two decades. Highly-publicized financial problems within large city governments in the mid-1970s brought widespread attention to the issue of government accountability. Concern was fueled by a General Accounting Office (GAO) study (GAO, 1986), which revealed that 34 percent of the 120 audits examined were substandard. While

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government audit quality has improved since that time (Lowensohn & Reck, 2004; GAO, 1988, 1989), renewed concern of late has led to a new national project examining government audit quality.[1] Thus, studies of government audit quality make ongoing contributions both to the practice community and to the academic literature.

In the private sector, behavioral research has identified audit-engagement attributes related to audit quality (Carcello, Hermanson, & McGrath, 1992). Since governments differ substantially from private-sector companies in certain respects, it is not clear that findings from the private sector will generalize to local governments. Thus, we adapt Carcello, Hermanson and McGrath's (1992) findings to investigate perceived audit quality in the public sector.

We also investigate the influence of audit quality measures on auditee satisfaction in the local government sector. Prior research (Behn, Carcello, Hermanson & Hermanson, 1997–hereafter simply Behn et al.) examined the effects of audit quality factors on auditee satisfaction in the private sector. As is the case with audit quality, differences between the respective audit environments may limit the generalizability of private-sector auditee satisfaction research findings to government. Hence, we also examine the effect of quality factors on auditee satisfaction in the government arena to fill a void in the extant literature.

A noteworthy aspect of the study is that it controls for possible effects of auditor size on perceived quality and satisfaction. The local government audit market provides an opportunity to examine the effect of audit firm size on perceived audit quality and auditee satisfaction because governments employ both Big 5[2] and nonBig 5 audit firms on a regular basis, unlike public companies, which almost exclusively appoint only the largest public accounting firms. This is an important extension, particularly given the prevailing view in the academic accounting literature that, at least in the private sector, audits provided by the Big 5 audit firms are superior in quality to audits provided by other audit firms.

A sample of 302 finance directors of local governments reveals general but not complete correspondence with the audit attributes that influence perceived audit quality for public companies and governments. Consistent with private sector findings (Carcello, Hermanson & McGrath, 1992), we find explicit association between

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perceived audit quality and the following audit attributes: (1) industry expertise (2) responsiveness to client scheduling needs, (3) exercise of due professional care, (4) conduct of fieldwork, and (5) exercise of professional skepticism. We find mixed evidence that the degree of CPA firm executive involvement influences perceived audit quality. In contrast to Carcello, Hermanson and McGrath's (1992) findings, our results indicate that auditor tenure and independence are not associated with perceived audit quality.

Concerning the determinants of auditee satisfaction as reported by Behn et al. (1997), we again find substantial, but not total, consistency between sectors. We observe consistency with respect to (1) auditor industry expertise, (2) auditor responsiveness to client scheduling needs, (3) audit manager involvement, and (4) conduct of fieldwork. Whereas Behn et al. (1997) found that experience with client and professional skepticism influence client satisfaction, our results reveal no such influence.

A further finding of our study is that Big 5 audit firms are negatively associated with perceived audit quality and are not significantly associated with auditee satisfaction. This is especially interesting given that, in supplementary analysis, we replicate the Big 8/6/5 fee premium reported in most extant government audit fee studies.

The remainder of this paper is organized as follows. The next section provides the background for the study. The third section presents our research methodology and the research models, while the fourth section addresses the empirical results and discussion thereof. The paper concludes with a summary, a discussion of the study's limitations, and suggestions for future research.

BACKGROUND

Audit Quality and Auditee Satisfaction

Audit quality and auditee satisfaction represent two important, yet distinct, concepts within the overall audit market (Behn et al., 1997). To remain viable, audit firms must strive for both high quality audit performance and high levels of auditee satisfaction. While audit quality is important to both internal and external stakeholders, auditee satisfaction is "central to the accounting profession" (Bhattacharya, 2001, p. 14).

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The concept of audit quality is complex and difficult to measure directly (DeAngelo, 1981). Therefore, researchers frequently use proxies for audit quality and consider quality to be associated with audit firm attributes, such as size (Shockley & Holt, 1983), investment in firm reputation (Beatty, 1989), premium fees (Copley, 1991), or extent of litigation (Palmrose, 1988). Research generally supports the perceived association between Big 8/6/5 auditors and high audit quality in the corporate sector (McKinley, Pany & Reckers, 1985) and not-for-profit sector (Krishnan & Schauer, 2000), as well as the municipal bond market (Allen, 1994).

Researching private sector audit quality, Schroeder, Solomon and Vickrey (1986) surveyed audit committee chairs and audit partners to determine their perceptions of audit quality in regard to 15 factors. Following suit, Carcello, Hermanson and McGrath (1992) surveyed Big 6 auditors, Fortune 1000 controllers, and sophisticated financial statement users regarding attributes of audit quality. Respondents to Carcello, Hermanson and McGrath (1992) indicated the relative influence they believed 41 audit-related factors had on audit quality, and the researchers conducted factor analysis to identify 12 composite factors of audit-related attributes which were related to audit quality. Both the Schroeder, Solomon and Vickrey; and Carcello, Hermanson and McGrath (1992) studies found that factors associated with the audit *team*–the specific audit firm personnel performing the audit–generally have a greater influence on perceived audit quality than factors associated with the overall audit *firm*.

Quality attributes also have been investigated in relation to auditee satisfaction. Behn et al. (1997) use the twelve Carcello, Hermanson and McGrath (1992) quality factors to examine the effect of audit quality attributes on auditee satisfaction in the private sector. They find significant, predominantly positive, relationships between auditee satisfaction and many of the audit quality attributes identified by Carcello, Hermanson and McGrath (1992).

The Government Audit Environment

Governments differ from private-sector entities in a number of ways, including the nature of entity operations and their accounting and financial reporting.[3] Government units are distinguished from commercial organizations, for example, by the absence of a profit motive, their collective ownership by constituents who do not share

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proportionately in government-provided goods or services, and the political processes affecting decision-making (Freeman &Shoulders 2003).

Private-sector audit procedures must be enhanced or altered to address issues unique to government entities, i.e., fund accounting, budgeting, compliance with laws and regulations, encumbrances, budget-to-actual comparison statements, specific audit reports, bases of accounting, and assessment of internal controls. Moreover, on most government engagements, auditors must follow United States General Accounting Office (GAO) Government Accounting Standards (GAO 2003), the "Yellow Book" standards. These standards exceed the requirements of generally accepted auditing standards, issued by the American Institute of Certified Public Accountants, in a number of audit areas (GAO, 2003). In short, the technical requirements of government auditing are sufficiently specialized that private-sector audit quality research findings may not generalize to the government audit sector. Thus, we examine the effects of established elements of private-sector audit quality on perceived audit quality in municipalities.

A characteristic that distinguishes the government audit environment from the private sector audit environment is the overriding importance of *accountability* in government. Indeed, Governmental Accounting Standards Board (GASB, 1987) in Concepts Statement No. 1, *Objectives of Financial Reporting* (par. 76) states: "The duty to be publicly accountable is more significant in government financial reporting than in business enterprise financial reporting." This emphasis on accountability may cause government finance officers to view the demands of the audit process differently than their private sector counterparts (*i.e.,* with more tolerance), potentially leading to differences between sectors in the manner where audit quality attributes affect auditee satisfaction. Accordingly, we investigate the influences of audit quality attributes on auditee satisfaction in the current study.

There is reason to investigate the effect of auditor size on perceived audit quality and/or auditee satisfaction. Copley (1991, p. 263) suggests that in the government arena, "the (then) Big Eight firms are not the only auditors providing a higher quality of service." Consistent with Copley's observation, Johnson, Davies and Freeman (2003) find that Big 5 audit firms charge higher fees but do not

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devote additional audit effort to their government audits, compared with nonBig 5 auditors. Since audit effort is a surrogate for audit quality (e.g., Palmrose, 1989; Deis & Giroux, 1992), it is not clear that, in government, larger audit firms are associated with an elevated level of perceived audit quality. Neither is there a clear basis to expect a positive relationship between auditor size and client satisfaction in the government audit market. Stevens (1981) provides anecdotal evidence that large audit firms sometimes have negative views of governments as audit clients. We consider the possibility that government finance officers take note of any such negativism, which may in turn bear on auditee satisfaction.

To summarize, we investigate the following research questions: First, which established audit quality attributes are associated with (1) an overall measure of perceived audit quality and (2) auditee satisfaction in the government audit market? Second, since governments employ both Big 5 and nonBig 5 audit firms on a routine basis, do perceived audit quality and/or auditee satisfaction differ whether the auditor is a Big 5 firm or not?

METHODS

We use a research instrument to capture (1) perceptions of audit quality (HIQUAL) and overall auditee satisfaction (OSAT), (2) relevant independent variables previously used by Carcello, Hermanson and McGrath (1992) and Behn et al. (1997), and (3) other variables. A summary comparison of the variables identified by Carcello, Hermanson and McGrath (1992), used by Behn et al. (1997), and included in the current study appears in Table 1.

Our survey questions relate primarily to the audit team rather than the audit firm, since, as previously noted, Schroeder, Solomon and Vickrey (1986) and Carcello, Hermanson and McGrath (1992) each report that audit quality factors are more often associated with the specific audit team than the audit firm. All opinion items related to audit attributes were measured on 7-point Likert scales (strongly agree - strongly disagree).[4]

We estimate separate (i.e., non-simultaneous) regression models of perceived audit quality and auditee satisfaction.[5] Variable descriptions appear in Table 2.

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TABLE 1
A Comparison of Samples, Research Focus, and Variables in Carcello, Hermanson and McGrath; Behn et al.; and the Current Study

Carcello, Hermanson and McGrath (AJPT 1992)	Behn et al. (AH 1997)	Current Study
Auditors, users and preparers of financial statements - Fortune 1000 companies	*Controllers of Fortune 1000 companies*	*Finance Directors of governments with population > 25,000*
Perceptions of how factors affect audit quality	*Relationship between audit quality and audit client satisfaction*	*Relationship between audit quality, auditee satisfaction and perceived audit quality*
FACTOR 1 - Audit Team and Firm Experience with client	*AQ1 - Audit team and firm experience with client*	*ATEN - Auditor tenure*
FACTOR 2 - Industry expertise	*AQ2 - Industry expertise*	*EXPERT - Expertise in government accounting & auditing*
FACTOR 3 - Responsiveness to client needs	*AQ3 - Responsiveness to client needs*	*SCHED - Responsiveness to client's scheduling needs*
FACTOR 4 - CPA firm compliance with general audit standards	*AQ4 - Technical competence; AQ5 – Independence; AQ6 - Due professional care*	*INDEP - Independence DPCARE - Due professional care*
FACTOR 5 - CPA firm commitment to quality	*AQ7 - CPA firm commitment to quality*	*not included in the study*
FACTOR 6 - CPA firm executive involvement	*AQ8 - CPA firm executive involvement*	*MGRTIME - Manager involvement*
FACTOR 7 - Conduct of field work	*AQ9 - Conduct of fieldwork*	*FIELDW –composite of ACCTSYS and ICS*
FACTOR 8 - Involvement of the audit committee	*AQ10 - Involvement with audit committee*	*not included in the study*
FACTOR 9 - Individual team member characteristics	*AQ11 – Ethics, accounting and auditing knowledge*	*EXPERT - Expertise in governmental accounting & auditing*
FACTOR 10 - Skeptical attitude of CPA personnel	*AQ12 - Skeptical attitude of CPA personnel*	*SKEPT - Skeptical attitude of CPA personnel*
FACTOR 11 - CPA personnel maintain fresh perspective	*not included in the study*	*not included in the study*
FACTOR 12 - Degree of individual responsibility	*not included in the study*	*not included in the study*

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TABLE 2
Summary of Variables

Name	Construct or Concept Measured
Dependent variables	
HIQUAL	Perceived quality of audit[1]
OSAT	Overall satisfaction with audit[1]
Independent variables	
ATEN	The audit firm's tenure as the government's auditor[2]
EXPERT	The audit team had the necessary expertise in government accounting and auditing to effectively audit government[1]
SCHED	The audit team's was responsive to the government's scheduling needs[1]
INDEP	The audit team maintained independence in appearance and in fact[1]
DPCARE	The audit team exercised due professional care throughout the conduct of the audit engagement[1]
MGRTIME	The engagement manager was actively involved in planning and conducting the audit[1]
ACCTSYS	The audit team's understanding of the government's accounting system was adequate[1]
ICS	The audit team's study of the government's internal controls was thorough[1]
FIELDW	A composite "fieldwork" variable comprising ACCTSYS and ICS[1]
SKEPT	The audit team maintained an attitude of professional skepticism throughout the audit engagement[1]
B5	The audit firm is one of the Big Five[3]

Notes:
1. Measured on a 7-point numerical scale
2. Measured in years
3. Dichotomous.

Our audit quality model includes relevant audit attributes identified by Carcello, Hermanson and McGrath (1992) with the addition of the variable B5 (to capture the effect of firm size).[6] The model appears as follows:

$$HIQUAL = b_0 + b_1ATEN + b_2EXPERT + b_3SCHED + b_4INDEP + b_5DPCARE + b_6MGRTIME + b_7FIELDW + b_8SKEPT + b_9B5 + \varepsilon \quad (1)$$

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Our auditee satisfaction model includes all significant audit team attribute items used by Behn et al. (1997, p. 18, panel B), with the exception of "CPA firm commitment to quality" and "interaction with audit committee"[6] For ease of comparison, the independent variables appear in the satisfaction model in the same order as they appear in the perceived quality model. The auditee satisfaction model thus takes the following form:

$$OSAT = b_0 + b_1ATEN + b_2EXPERT + b_3SCHED + b_4MGRTIME + b_5 FIELDW + b_6 SKEPT + b_7B5 + \varepsilon \quad (2)$$

The next section presents a discussion of the independent variables.

Discussion of Independent Variables

Carcello, Hermanson and McGrath (1992) identified "auditor experience with the client" as a significant factor contributing to perceived audit quality, while Behn et al. (1997) find a positive association between this variable and auditee satisfaction. The corresponding variable in our study is auditor tenure (in years), ATEN, for which we expect a positive coefficient in both models.

EXPERT refers to auditors' expertise in government accounting and auditing and corresponds to measures of industry expertise employed by Carcello, Hermanson and McGrath (1992) and Behn et al. (1997). Given the specialized nature of government accounting and auditing, we anticipate a positive relationship between this variable on both perceived audit quality and auditee satisfaction.

"Responsiveness to client needs" was significant in Carcello, Hermanson and McGrath (1992) and Behn et al. (1997). We operationalize this factor specifically as the auditor's responsiveness to the auditee's scheduling needs (SCHED). We expect a positive coefficient for this variable in both models.

INDEP (auditees' perceptions of whether audit team members avoided compromising their independence) and DPCARE (auditees' perceptions of the extent to which audit team members exercised due professional care) are variables we use to operationalize the audit quality attribute "CPA firm compliance with general audit standards" identified by Carcello, Hermanson and McGrath (1992). Positive signs for both coefficients in the quality model are anticipated. Behn et al. (1997) found neither variable to be

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associated with auditee satisfaction, so we exclude INDEP and DPCARE from our satisfaction model.

MGRTIME is our measure of executive involvement and refers to the extent to which the engagement manager was involved in planning and conducting the audit. The corresponding variable in Carcello, Hermanson and McGrath (1992) and Behn et al. (1997) is "CPA firm executive involvement." Consistent with these studies, we predict a positive coefficient for this variable in both models.

Carcello, Hermanson and McGrath (1992) identified a "conduct of fieldwork" quality factor based upon use of microcomputers, use of statistical sampling techniques, and quality of the study of internal control. Behn et al. (1997) also employed this variable. To some extent, the variables that loaded on this factor in their study are obsolete (*i.e.*, use of microcomputers). Given this, and in light of the specialized nature of government accounting, we decided to capture separately two important aspects of fieldwork. ACCTSYS thus refers to the adequacy of audit teams' understanding of auditees' accounting systems, while ICS measures auditees' perceptions of the thoroughness of the auditors' study of governments' internal control systems. We employ a composite fieldwork variable, FIELDW (the mean of the values for ACCTSYS and ICS), in our models; positive coefficients are expected.

Carcello, Hermanson and McGrath (1992) report that professional skepticism is viewed as an attribute of audit quality, while Behn et al. (1997) find that this construct is significantly *negatively* associated with auditee satisfaction. Accordingly, in our study, SKEPT captures the degree of professional skepticism maintained by audit team members during the course of audit conduct. We predict a positive association between SKEPT and perceived audit quality. We conjecture that professional skepticism may influence government officials' satisfaction with their auditors differently from the manner in which professional skepticism influences their corporate counterparts. As noted previously, the duty of accountability perhaps causes government officials to be comparatively tolerant of auditors' exercise of professional skepticism. Accordingly, we do not predict the sign of SKEPT in the satisfaction model.

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Behn et al. (1997) suggest that researchers extend the auditee satisfaction line of research to clients of nonBig 5 firms; the government audit market provides such an opportunity. Also, as noted previously, some prior research casts doubt on whether Big 5 auditors provide higher quality audits, compared with other auditors in government. Thus, it is useful to investigate the effect of auditor size on perceived audit quality and on auditee satisfaction. Accordingly, the dichotomous variable B5 differentiates Big 5 audit firms from other audit firms in our data. We do not predict the sign of this variable in either model.

Data Analysis

Our Likert-scale data are ordinal but cannot be assumed continuous or equal-interval (Borooah, 2002). Thus, we use ordinal regression for primary analysis, supplemented by ordinary least squares regression (OLS).[7]

Ordinal regression is a linear-regression-like model which is appropriate for attitudinal responses measured on an apparently continuous ordinal scale (McCullagh & Nelder, 1989). Ordinal regression is amenable to the pooling of adjacent categories and allows for the interpretation of model parameters even if the variable is not truly continuous (McCullagh, 1980) or if there is limited justification for category assignment (SPSS, 2003). Ordinality is assumed, and "the imposition of an arbitrary scoring system for the categories is thereby avoided" (McCullagh, 1980, p. 110).

Recoding scale values helps make data more interpretable while retaining ordinality (Alreck & Settle, 1985) and is consistent with ordinal regression. Therefore, we recoded our Likert-scale data into three groups corresponding to the meaning of the scale anchors. Scale responses "one" and "two" are recoded into a new value of "one," corresponding to "disagree," responses "three," "four," and "five" are recoded to "two," corresponding to "neutral," and responses "six" and "seven" are recoded to "three," corresponding to "agree."

We employ the ordinal regression function housed in SPSS Release12.0 for Windows (SPSS, 2003). Ordinal regression requires the selection of a "link function" (a predicted function of the actual cumulative probabilities underlying the regression model) according to the research issue and the characteristics of the data. Based on the distribution of the dependent variables, we selected the

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complementary log-log link function.[8] Note that the ordinal regression procedure yields "threshold estimates," which correspond to intercept terms in OLS. The number of threshold estimates always equals [(the number of dependent variable categories) - 1]. Since we employ three dependent variable data categories, the ordinal regression models include two threshold estimates.

RESULTS AND DISCUSSION

The survey instrument and accompanying cover letter were mailed in late spring 2002 to the finance directors of all U.S. local municipalities with populations greater than 25,000 (N = 1,217). We received 302 usable responses for a 25% response rate, after excluding auditees of state audit agencies and observations for which response values were identical for each question. The responses represent audits for fiscal years ending in calendar 2001. No significant differences were noted between early and late responses.

Table 2 presents descriptive statistics for the overall sample. Panel A reports those variables measured on a 7-point scale. The table shows that respondents generally have favorable views of the performance of their auditors, in that the means for the dependent variables and the independent variables are well above the scale midpoint of 3.5,[9] though, responses for most variables span the full range of values (1 to 7). Auditor tenure (not shown in Table 3)

TABLE 3
Descriptive Statistics: Overall Sample (N=302)

Panel A			
	Measured on a 7-point scale		
Variable	Mean	SD	Range
HIQUAL	5.96	1.054	1-7
OSAT	5.81	1.067	1-7
EXPERT	5.92	1.109	1-7
SCHED	5.99	1.126	1-7
INDEP	6.50	0.907	1-7
DPCARE	6.06	0.998	1-7
MGRTIME	5.95	1.166	1-7
ACCTSYS	5.96	1.051	2-7
ICS	5.54	1.225	1-7

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TABLE 3 (Continued)

Panel A			
	Measured on a 7-point scale		
Variable	Mean	SD	Range
FIELDW	5.75	1.005	2-7
SKEPT	5.95	0.968	3-7

Panel B				
	Dichotomous, Set = 1		Dichotomous, Set = 0	
Variable	Number	%	Number	%
B5	66	21.9	236	78.1

averaged 7.03 years, while ranging from 1-50 years. Panel B reports descriptive statistics for the dichotomous variable, B5. It shows that 21.9 percent of the respondent entities were audited by Big 5 auditors, allowing us to examine the effect of firm size.

Table 4 presents the descriptive statistics sorted by Big 5 and nonBig 5 auditors. Inspection reveals that auditees of Big 5 firms generally have a somewhat less favorable view of the performance of their auditors relative to clients of nonBig 5 firms. Note, however, that the response values for Big 5 firms are substantially above the 3.5 scale midpoint value.

TABLE 4
Descriptive Statistics and Univariate Test Sorted by Big 5 Variable

	Big 5 (n = 66)			NonBig 5 (n = 236)		
Variable	Mean	Std Dev.	Range	Mean	Std Dev.	Range
HIQUAL	5.64	1.198	1-7	6.05**	0.995	2-7
OSAT	5.55	1.255	1-7	5.88*	0.999	2-7
ATEN	7.59	5.315	2-25	6.87	5.998	1-50
EXPERT	5.53	1.268	1-7	6.03**	1.037	1-7
SCHED	5.77	1.134	1-7	6.05*	1.119	1-7
INDEP	6.52	0.969	1-7	6.50	0.887	1-7
DPCARE	5.86	1.127	1-7	6.12*	0.951	2-7
MGRTIME	5.58	1.393	1-7	6.06**	1.074	1-7
FIELDW	5.55	1.053	3-7	5.81*	0.986	2-7
ACCTSYS	5.62	1.147	3-7	6.06**	1.005	2-7
ICS	5.48	1.256	2-7	5.56	1.219	1-7
SKEPT	5.89	0.963	4-7	5.97	0.971	3-7

Notes: * means are significantly different (p. 1); ** means are significantly different (p.10).

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Table 5 presents bivariate correlations among the independent variables. We observe several fairly high correlations (>.40) between numerous independent variables. The overall high levels of correlation are not surprising given the narrow range of the data (generally 1 to 7), but indicate that attention must be paid to the possibility that excessive collinearity might be present in the regression estimates. Common diagnostic measures are not available in ordinal regression; however, examination of the Wilk-Shapiro statistic and variance inflation factors for each model (estimated using OLS) identified no problems with non-normality of residuals or collinearity.

TABLE 5
Correlation Coefficients among Independent Variables

	ATEN	EXPERT	SCHED	INDEP	DPCARE
EXPERT	-0.043				
SCHED	-0.044	**0.494**			
INDEP	-0.145	**0.341**	**0.342**		
DPCARE	0.004	**0.776**	**0.607**	**0.358**	
MGRTIME	0.023	**0.593**	**0.576**	**0.286**	**0.656**
ACCSYS	0.010	**0.645**	**0.502**	**0.378**	**0.670**
ICS	-0.102	**0.468**	**0.452**	**0.330**	**0.577**
FIELDW	-0.057	**0.623**	**0.538**	**0.399**	**0.702**
SKEPT	0.023	**0.464**	**0.478**	**0.324**	**0.581**
B5	0.051	**-0.186**	-0.101	0.007	-0.106
	MGRTIME	ACCSYS	ICS	FIELDW	SKEPT
ACCSYS	**0.524**				
ICS	**0.372**	**0.556**			
FIELDW	**0.501**	**0.862**	**0.900**		
SKEPT	**0.533**	**0.481**	**0.486**	**0.548**	
B5	**-0.172**	**-0.173**	-0.024	-0.105	-0.031

Notes: Coefficients in boldface are significant at p <=.01

Table 6 displays the results of the perceived audit quality model estimated by ordinal regression. The chi-square statistic indicates that the model gives a significant improvement over the baseline intercept-only model. EXPERT, SCHED, DPCARE, FIELDW and SKEPT are significant and positive, while ATEN, MGRTIME, and INDEP are not significant. B5 is negative and significant. The Cox and Snell, as well

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as the Nagelkerke Pseudo R-square statistics, indicate that the model is capturing over 50% of the variance in audit quality.[10]

TABLE 6
Ordinal Regression Model of Factors Associated with Perceived Audit Quality (Dependent Variable is HIQUAL)
N = 302

	Coefficient Estimate	Standard error	Wald-Statistic	p-value*
Threshold (1.00)	10.394	1.770	34.469	.000
Threshold (2.00)	16.139	2.030	63.196	.000
ATEN	0.040	0.218	0.034	.427
EXPERT	1.762	0.364	23.390	.000
SCHED	0.590	0.348	2.878	.045
INDEP	0.177	0.440	0.162	.344
DPCARE	0.947	0.363	6.813	.005
MGRTIME	0.400	0.362	1.222	.135
FIELDW	1.765	0.386	20.891	.000
SKEPT	1.000	0.396	6.371	.006
B5	-0.824	0.386	4.557	.033
Model Chi-square statistic		250.844		
Probability (Chi-square statistic)		0.000		
Pseudo R^2				
Cox and Snell		0.564		
Nagelkerke		0.809		

Notes: All variables have an expected positive sign, except B5, whose sign is not hypothesized.
Link function: Complementary Log-log.
* 1-tailed tests, except for B5.

Table 7 presents results of the auditee satisfaction model estimated by ordinal regression. Table 6 illustrates that, consistent with Behn et al. (1997), EXPERT, SCHED, MGRTIME, and FIELDW are positively related to auditee satisfaction. In contrast, neither ATEN, SKEPT, nor B5 are significantly associated with satisfaction. The model is capturing over 50% of the variance in auditee satisfaction. The results of the primary analysis, reported in tables 5 and 6, are similar to results obtained in supplemental analysis using OLS.[11]

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TABLE 7
Ordinal Regression Model of Factors Associated with Auditee Satisfaction (Dependent Variable is OSAT)
(N = 302)

	Coefficient Estimate	Standard error	Wald-Statistic	p-value*
Threshold (1.00)	4.632	0.886	24.238	.000
Threshold (2.00)	8.209	0.976	70.808	.000
ATEN	-0.111	0.151	0.536	.232
EXPERT	1.883	0.245	59.297	.000
SCHED	0.596	0.255	5.477	.009
MGRTIME	0.802	0.249	10.404	.001
FIELDW	0.749	0.281	7.111	.004
SKEPT	-0.455	0.327	1.944	.162
B5	-0.035	0.271	0.017	.898
Model Chi-square statistic		160.189		
Probability (Chi-square statistic)		0.000		
Pseudo R^2				
Cox and Snell		0.412		
Nagelkerke		0.553		

Notes: All variables have an expected positive sign, except B5 and SKEPT, whose signs are not hypothesized.
Link function: Complementary Log-log.
* 1-tailed tests, except for B5 and SKEPT.

Discussion of Perceived Audit Quality

Our primary analysis reveals that most of the audit quality attributes identified by Carcello, Hermanson and McGrath (1992) are associated with audit quality as perceived by municipal finance directors, with the expected signs. These are EXPERT, SCHED, DPCARE, FIELDW, and SKEPT. Expertise (EXPERT) is viewed as an important component of audit quality. This is an intuitively satisfying finding in light of the specialized nature of government accounting and auditing. As expected, auditors' responsiveness to the scheduling requirements of the auditee (SCHED) is recognized as a component of audit quality, as is the exercise of due professional care (DPCARE). Recalling that FIELDW is a composite of "study of internal control" and "understanding of the accounting system," it is apparent that government finance officers generally are impressed by

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the work done in the planning phase of audits. Finally, the results indicate that finance officers recognize the importance of professional skepticism (SKEPT) to audit quality.

Unlike Carcello, Hermanson and McGrath (1992), our primary analysis reveals that auditor tenure (ATEN), a posture of independence (INDEP), and CPA firm executive involvement in the audit (MGRTIME) are not significantly associated with perceived audit quality. Regarding ATEN, we speculate that the insignificance of this variable may reflect the influence of auditor rotation in the government arena. According to Wendell, Pearson and Gregson (1998) a substantial proportion of governments periodically rotate auditors either because of legal requirements or policy. This prevalence of auditor rotation may lead to comparatively short auditor tenure as a typical condition; the resulting limited variability in auditor tenure may account for the insignificance of ATEN. Indeed, inspection of the data shows that fifty percent of the governments in our sample reported auditor tenure of five years or less. Another potential explanation is that audit team members assigned to government audits change from year to year such that the auditor tenure measure is not meaningful.[12]

The insignificant effect of auditor independence (INDEP) on perceived audit quality is surprising. A possible explanation for this result is that independence is established, in the view of finance officers, during the auditor appointment process and is affected little or not at all by events taking place during audit fieldwork. Indeed, the audit procurement process for many governments is extensive, such that most threats to auditor independence likely are identified and dealt with before the audit commences. A potential threat to independence that may arise after the auditor is appointed is money from consulting fees or other non-audit services. We have no data on non-audit services that the governments in our sample may have paid to their auditors. However, Lowensohn (1996) reports that non-audit fees were not a significant factor in audit partner motivation to pursue government audits. Accordingly, we have no reason to believe that our subjects viewed the independence of their auditors as impaired because of consulting work.

We note that in our quality model, MGRTIME is not significant using ordinal regression but is significant using OLS. This inconsistency of results implies that the overall influence of MGRTIME

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on perceived audit quality is weak. We also note that, under both ordinal regression and OLS, the coefficients of EXPERT and FIELDW dwarf the MGRTIME coefficient. One interpretation of these findings is that, due to the specialized nature of government auditing, members of the audit team as a whole are sufficiently technically competent that manager involvement in the audit makes little incremental contribution to perceived audit quality.

The finding that B5 is negatively associated with perceived audit quality is interesting, although not wholly unexpected in light of previous government sector research. This result does not indicate that Big 5 audits lack quality, only that Big 5 audits are perceived, on average, to be of lesser quality than those performed by nonBig 5 auditors. This may relate to the prevailing view that large firms are generally not enthusiastic about government auditing, as exemplified by comments such as "That's [Government auditing is] $5-per-hour work. I have better ways to allocate the firm's resources" (Stevens 1981, p. 57). Similarly, an AICPA task force (1987, p. 45) noted, "There is a perception that the CPAs consider government clients secondary to the private sector."

Discussion of Auditee Satisfaction

As with perceived audit quality, we find that several of the audit quality attributes found by Behn et al. (1997) to be associated with auditee satisfaction in the private sector also are operative in the government audit arena, with the expected signs. These include EXPERT, SCHED, MGRTIME, and FIELDW.

Auditor expertise (EXPERT) exerts by far the largest influence on auditee satisfaction. Finance officers, it appears, are impressed by auditors who "know what they are doing." As one would expect, auditors' flexibility in response to governments' scheduling needs (SCHED) is an aspect of audit conduct that increases auditee satisfaction. Audit firm executive involvement (MGRTIME) unambiguously exerts a positive influence on satisfaction.

The conduct of fieldwork (FIELDW) contributes positively to auditee satisfaction. We interpret this result as an indication that finance officers are favorably impressed by audit teams' evaluation of government accounting systems and internal controls. This result perhaps can be viewed as another dimension of auditor expertise.

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In our view, the lack of significance of ATEN in relation to auditee satisfaction is likely to stem from the same factor that renders this variable insignificant in relation to audit quality (that is, the relatively short tenure of most of the auditors in our data).

As noted earlier in the paper, we consider the possibility that government finance officers' duty of accountability makes them more "tolerant" of the exercise of professional skepticism by auditors, such that professional skepticism might not bear on auditee satisfaction. Our results show that this is the case. We observe that SKEPT, though negative, are not significant at conventional levels in the auditee satisfaction model.

We find it revealing that Big 5 audit firms are not associated with auditee satisfaction in our study. This result may stem from the negative perceptions of government work by large firms, as discussed previously. It may also be that government finance officers have elevated expectations of Big 5 auditors, a priori, based on reputation but that these expectations are unfulfilled in practice.

Additional Analysis of Audit Fees

To a great extent, previous government audit fee research finds higher fees associated with Big 5 auditors; moreover, some researchers suggest that audit fees are a surrogate for audit quality (e.g., Copley, 1991). Since we find some evidence of a negative association between Big 5 auditors and perceived audit quality, we investigate the effect that the Big 5 variable has on a model of audit fees developed from data in our sample. We regressed ATEN, the logarithmic transformation of total revenues (LOG_TOT_REV), B5, and the extent to which the audit firm drafted the financial statements (DRAFT) on the natural logarithm of audit fees (LOG_FEE).[13]

Panel A of Table 8 presents the regression model while Panel B presents descriptive statistics for the fee model variables. Panel A reveals that, after controlling for entity size, Big 5 auditors in the sample did in fact charge higher audit fees. Neither ATEN nor DRAFT was significant in the regression. Overall, our study suggests that Big 5 audit firms are neither associated with higher perceived audit quality nor satisfaction compared with other firms, yet command higher audit fees. This finding is consistent with Firth's (1993) suggestion that, at least in some instances, Big 5 firms "trade on

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TABLE 8
Regression Model of Audit Fees
(Dependent Variable Is Natural Logarithm of Audit Fees)
(N = 302)

Panel A				
	Coefficient Estimate	Standard error	t-statistic	p-value*
Constant	4.130	0.511	8.08	0.000
ATEN	-0.001	0.005	-0.04	0.970
LOG_TOTREV	0.354	0.028	12.69	0.000
B5	0.530	0.080	6.58	0.000
DRAFT	0.001	0.001	1.17	0.122
Model F-statistic	75.82			
Probability (F-statistic)	0.000			
Adjusted R^2	0.498			

Panel B			
	Descriptive Statistics for Audit Fee Model Variables		
Variable	Mean	SD	Range
ATEN	7.03 years	5.868	1 - 50 years
Fee	$ 75,371	291,034	$ 5,000 - 5,000,000
Revenues	$ 302,000,000	2,594,135,717	$ 120,300 - 45,000,000,000
Draft	38.22%	42.6%	0 - 100%

Note: * 1-tailed tests, except for B5.

their names" and charge higher fees merely because they can. Further, it calls into question the desirability of engaging Big 5 firms to conduct government audits if suitable alternatives are available.

SUMMARY, LIMITATIONS AND SUGGESTED FUTURE RESEARCH

This paper extends prior research in audit quality and auditee satisfaction to the government sector. We develop independent regression models of perceived audit quality and auditee satisfaction. Regarding perceived audit quality, we find that the following attributes of private-sector audit quality identified by Carcello, Hermanson and McGrath (1992) also apply in the government setting: auditor expertise, attentiveness to auditee scheduling needs, due professional care, conduct of fieldwork, and professional

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skepticism. The evidence regarding the effect of audit-firm manager involvement is less robust. Factors not associated with perceived audit quality are auditor tenure and perceived auditor independence.

Concerning auditee satisfaction, our results indicate that most determinants of auditee satisfaction reported by Behn et al. (1997) for the private sector also are operative in government. The exceptions are auditor tenure, and professional skepticism.

We find no evidence that Big 5 firms are positively associated with perceived audit quality, nor do our results suggest that Big 5 audit firms engender higher auditee satisfaction than do other audit firms. These results are particularly striking since the study replicates the Big 5 audit fee premiums reported by most government audit fee research.

Limitations of the Study

Our findings should be considered in light of the usual limitations of survey research in general (*i.e.,* measurement error, the "halo effect"). Furthermore, we base our independent variables upon prior research and, except for the Big 5 indicator, do not address the possibility of omitted variables.

A specific potential limitation of this study is that we did not consider possible influences of Governmental Accounting Standards Board *Statement No. 34* (GASB 34) [GASB 1999] implementation on our respondents' perceptions. GASB 34, issued in 1999, requires major changes to local government financial reporting, such that implementation probably requires significant interaction between the government and the external auditor.

The effective date of GASB *Statement No. 34* is phased, with larger governments (annual revenues in excess of $100 million) required to implement for fiscal years *beginning* after June 15, 2001 and the smallest governments (annual revenues less than $10 million) allowed to implement changes for fiscal years beginning after June 15, 2003 (GASB 1999). The timing of our data collection was such that the most-recent completed audits–the basis for finance directors' responses–represent fiscal years that ended in 2001. Thus, any GASB 34 implementations in our sample are limited to governments choosing to early-adopt GASB 34. However, it is reasonable to expect that most governments (early-implementers and

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others) had discussed GASB 34 implementation requirements with their auditors by the time we collected our data. Accordingly, we assume that any influences GASB 34 may have on auditee satisfaction and auditees' perceptions of audit quality are embedded in virtually our entire sample and therefore do not introduce bias to the analysis.

Our results also need to be considered in light of possible measurement error surrounding our study variables. Our study is based largely on previously-established measures of auditee satisfaction and audit quality. Carcello, Hermanson and McGrath (1992) developed the factors via factor analysis and Behn et al. (1997) found them to be viable predictors of auditee satisfaction; however, we acknowledge the possibility that our measurements do not fully represent respondent perceptions. Finally, we did not collect data on mandatory audit rotation and non-audit services, so we are not able to further investigate the lack of significance related to ATEN and INDEP, respectively.

Directions for Future Research

We do not find a significant relationship between engagement of Big 5 audit firms and perceptions of higher quality audit work or enhanced auditee satisfaction. A possible explanation for these results is the low emphasis placed on work in this sector by these firms. While this finding may be specific to the government audit market, it warrants further investigation.

It is interesting to note that the variable EXPERT is, by far, the most significant predictor of auditee satisfaction and perceived audit quality in the models tested. This finding suggests that future research should focus on the role of industry specialization or market concentration on audit quality and auditee satisfaction.

NOTES

1. Over 20% of federal quality control reviews conducted in recent years noted audit quality problems (Broadus 2004). These results prompted a group of federal agencies, in conjunction with the Office of Management and Budget, the AICPA, the GAO, and the National State Auditors Association, to institute the National Project to Statistically Measure the Quality of Single Audits.

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2. At the time we collected our data, Andersen (formerly Arthur Andersen) was still in existence and providing audits to private-sector and government entities alike. Accordingly, we refer to the largest group of audit firms as the "Big 5," even though that group has subsequently become the "Big 4."

3. While Governmental Accounting Standards Board Statement No. 34 (GASB 1999) now requires accrual accounting and consolidated government-wide financial statements, government financial statements remain radically different from corporate financial statements.

4. It should be noted that Carcello, Hermanson and McGrath (1992) used a 5-point agree/disagree scale, while Behn et al. (1997) used a 5-point satisfied/dissatisfied scale.

5. We do not employ simultaneous regression in this study because, while perceived audit quality and auditee satisfaction are thought to be related, they are not endogenously modeled in this study. That is, neither appears as an independent variable in the regression model of the other. Indeed, Palmrose (1989) provides an example of modeling closely related constructs (audit fees and audit hours) in which the independent variables are *identical*. However, since neither dependent variable appears as an explanatory variable in the counterpart regression model, Palmrose employs separate, non-simultaneous, regressions.

6. Carcello, Hermanson and McGrath (1992) identified four audit quality factors that we decided not to apply to our study. These are "CPA firm commitment to quality," "involvement of the audit committee," "CPA firm personnel maintain freshness of perspective," and "degree of individual responsibility." The GAO Yellow Book requirements are sufficiently stringent that, in our estimation, only audit firms with a strong commitment to maintaining a government audit practice will in fact perform government audits. That is, a commitment to quality is implied by firms that provide audits to governments. Moreover, we believe that such a commitment largely subsumes the "freshness of perspective" and "individual responsibility" constructs. We exclude the audit committee factor because audit committees historically have been scarce in local governments. One survey revealed that only 18% of municipal respondents had audit committees (Montondon 1995), while a more recent survey (West

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& Berman, 2003) found that 48.1% of cities had advisory or audit committees.

7. Carcello, Hermanson and McGrath (1992) used factor analysis, while Behn et al. (1997) used regression analysis in the prior studies of audit quality and auditee satisfaction. While we adopt many of the independent variables from these prior studies, we believe our methodology improves upon the prior work. First, we measured the independent variables on seven-point scales. Second, recognizing that our data cannot be assumed continuous or equal-interval, we employ ordinal regression analysis. We compare the ordinal regression results with results obtained from OLS in a subsequent footnote.

8. Inspection revealed that the dependent variable responses are skewed to higher scale values (consistent with the notion that auditees are at least somewhat satisfied with the auditors they have engaged). On this basis, it is appropriate to define the link function within the ordinal regression model as "complementary log-log" (SPSS 2003).

9. Many respondents are above the midpoint of 3.5 for both audit quality and audit satisfaction. A closer examination of the respondents who are clearly dissatisfied and believe that they did not receive a high quality audit reveals that they were unhappy with most aspects of the audit. The mean values for all independent variables, except auditor tenure, were noticeably higher for respondents who reported OSAT or HIQUAL greater than or equal to 4.

10. Cox and Snell's R-Square is similar to a multiple R-Square; however, its maximum is often less than 1.0 (Cox & Snell 1989). Nagelkerke's R-Square is a modification of the Cox and Snell coefficient to assure that it can vary from 0 to 1 (Nagelkerke 1991).

11. In the quality model estimated using OLS, manager time is positive and significant, while B5 is negative, but not significant. The satisfaction model estimated using OLS is qualitatively identical to the model estimated using ordinal regression.

12. We are indebted to our anonymous reviewer for suggesting this possibility.

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13. Copley & Doucet (1993) employ a highly parsimonious model of audit fees. They note that while parsimonious models hold the potential to yield biased parameter estimates, the results are suitable if omitted variables are not highly correlated with the independent variable of interest. We control for auditee size (virtually always found to be the single most dominant influence on audit fees). Prior research (e.g., Copley 1989; Johnson, Davies & Freeman, 2002) finds that auditee size is the variable most highly correlated with Big 5 auditors. Since our fee model controls for auditee size, we believe that any problem with our model arising from omitted variables is minimal, such that the Big 5 result can be interpreted in a straightforward manner.

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