Differences in Planning-Phase Analytical Procedures Between Municipal and Commercial Clients: Initial Evidence

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Abstract

Differences between municipalities and businesses suggest possible differences in the application of analytical procedures in audits of each entity type. Data obtained from one-hundred sixty-six practicing auditors supported the expectations that (1) ratio analysis is significantly less likely to be applied and (2) budget-actual comparisons are significantly more likely to be applied in planning municipal audits vis-a-vis commercial audits. Other differences in analytical procedures likely to be applied in the planning phase were noted between public- and private-sector audits.

Introduction

Analytical procedures (APs) have long been recognized as a useful technique in the planning, testing, and review phases of financial statement audits. The American Institute of Certified Public Accountants (AICPA) issued Statement on Auditing Standards (SAS) No. 23 in 1978, which recommended the use of APs and provided guidance to auditors in applying them. Subsequently, SAS No. 56 (1988, AU§ 329) required auditors to apply APs in the planning and review phases of all audit engagements. Considerable research has been performed regarding the use of APs in private-sector auditing (e.g., Hylas and Ashton, 1982; Daroca and Holder, 1985; Kreutzfeldt and Wallace, 1986; Wheeler and Pany, 1990; Ameen and Strawser, 1994; Hirst and Koonce, 1994). However, little is known about the role of APs in governmental audit planning. How APs are applied in governmental audits is an interesting question because differences in (1) financial accounting practices and/or (2) environmental characteristics between governmental units and private-sector entities may cause auditors to apply APs differently in audit planning across engagement types.

This paper reports the results of a survey in which practicing auditors, experienced in both municipal[1] and commercial audits, reported their perceptions of the comparative importance of five categories of APs in the planning phase of each type of engagement. Audit planning was chosen as the focus of the survey because of the central importance of APs for (1) identifying potential audit risk areas and (2) enhancing audit efficiency (Hirst and Koonce, 1994). The results of the survey show noteworthy differences in the

way the respondents ranked these five categories of APs between their commercial and municipal clients.

Analytical Procedures in Audit Planning

Most published discussions of AP application focus on private-sector audit engagements (e.g., Blocher and Willingham, 1985). Winckler and Ward (1984) noted that, in considering the going-concern status of municipalities, auditors should be cognizant of "contrary information" which might be developed through analytical analysis of financial ratios and trends. Otherwise, limited guidance exists for the application of APs for municipal clients specifically.

SAS No. 56 identifies five categories of APs, as follows (AICPA, 1988, AU§ 329.05): (1) Comparisons of client's current-year financial data with prior-year data; (2) Budget-actual comparisons of client's financial data; (3) Review of relationships among client's financial statement elements for conformity with expected patterns; (4) Comparisons of client's financial data with industry financial data; and (5) Comparisons of client's financial data with relevant nonfinancial data. SAS No. 56 requires the use of APs in the planning and review phases of **all** audits, including governmental engagements. The AICPA Audit and Accounting Guide *Audits of State and Local Governmental Units* (AICPA, 1993) identifies analytical procedures as a substantive test available to governmental auditors. The Guide makes no special mention of APs concerning audit planning or review; thus, professional standards do not distinguish between the use of APs on commercial versus municipal audits.

However, differences in the use of planning-phase APs between governmental and commercial engagements seem reasonable given the contrasts between the financial accounting objectives and environmental characteristics of government versus those of private-sector entities. These differences have particular relevance in comparing three types of APs identified by SAS No. 56: (1) ratio analysis; (2) budget-actual comparisons; and (3) industry comparisons in the planning of commercial versus municipal audits.

Differences Between Governments and Commercial Entities and the Performance of APs

Ratio Analysis

SAS No. 56 identifies comparison of relationships among elements of financial statements for conformity with expected patterns (ratio analysis) as a potentially useful AP for audit planning. Daroca and Holder (1985) found that (1) the comparison of relationships of individual financial statement items with financial statement totals and (2) a variety of financial statement ratios were classified by practicing auditors as "frequently applied" or "often used." More recently, Hirst and Koonce (1994), in a series of in-depth interviews with experienced auditors, also reported that ratio analysis was a widely-used procedure for audit planning.

Despite the apparently widespread use of ratio analysis in commercial audit planning, the utility of this type of AP for governmental audit planning is questionable. Ameen and Strawser (1994) found ratio analysis to be used less in government audits than in audits of service industries.[2] This is likely due in part to the relative lack of a clearly defined "bottom line" in the financial operations of general government activities (GASB, 1987). Thus, ratio and trend measures, many of which focus on financial performance (e.g., gross margin, return on sales, etc.) are likely to be less meaningful, and thus less useful, on municipal engagements. Also, inventories and receivables, toward which considerable ratio analysis is directed in business audits (Daroca and Holder, 1985), are often immaterial in government. These considerations suggest research question no. 1:

Are practicing auditors equally likely to compare elements of financial statements to financial statement totals in planning commercial audit engagements and municipal audit engagements?

Budget-Actual Comparisons

A category of AP that auditors may potentially emphasize in municipal engagements is the comparison of budgeted financial data with actual financial data. The governmental accounting and auditing literature has long acknowledged the budget to be a vital part of governmental financial management. For example, the AICPA Audit and Accounting Guide *Audits of State and Local Governmental Units* states (AICPA, 1993, § 6.01): "The roles of the budget and the budgetary process in government differ from their roles in business enterprises and have *far more significance in government than in business enterprises*" (emphasis added). Auditors' comparisons of budgeted versus actual financial information on governmental engagements are likely based partly on the budget's central importance to the overall financial activities of government.

In addition, SAS No. 68, *Compliance Auditing Applicable to Governmental Entities and Other Recipients of Governmental Financial Assistance* (1991, AU § 801), requires auditors to consider the potential effects of laws, including budget laws, on a government's financial statements. In this regard, SAS No. 68 (AU § 801.103) identifies expenditures in excess of budgeted appropriations as a possible required disclosure for governments. This discussion suggests research question no. 2:

Are practicing auditors equally likely to compare budgeted financial data with actual financial data in planning municipal audit engagements and commercial audit engagements?

Comparisons with Industry Data

A third type of AP suggested by SAS No. 56 is the comparison of a client's unaudited account balances with industry information. Daroca and Holder (1985) reported that this procedure is viewed as "infrequently applied" though "moderately applicable" by auditors on commercial engagements, a finding confirmed by Hirst and Koonce (1994). In a private-sector audit, comparisons of client data with industry data are facilitated both by the income-measurement focus of business accounting and the widespread availability of comprehensive industry information (e.g., as compiled by trade associations).

The U.S. Census Bureau compiles considerable government financial data (e.g., *City Government Finances*) which is publicly available. However, a basic characteristic of the governmental environment, the potential for dissimilarities between similarly-designated governments (GASB, 1987), implies limited benefit from comparing a municipal audit client's account balances with "industry" data. This discussion leads to research question No. 3:

Are practicing auditors equally likely to compare client financial data with industry data in planning municipal audit engagements and commercial audit engagements?

Survey Methodology

Overview

Through a mail questionnaire, practicing auditors provided comparative rankings of the likelihood of applicability of the five major categories of APs identified in SAS No. 56 in planning municipal and commercial audits. In addition, respondents provided comparative municipal-commercial audit risk[3] assessments and selected demographic information.

Subjects

Appropriate subjects were auditors with recent experience in both municipal and commercial audit engagements. CPA firm offices with municipal audit clients were identified through review of 183 fiscal 1992 U.S. city Comprehensive Annual Financial Reports (CAFRs) on file at a U.S. university. The CPA firm that audited each city was identified by reviewing the auditor's report in that city's CAFR. The engagement partner, manager, and in-charge assigned to each city's audit were considered to

be the nominal sample for the survey, a total of 549 potential subjects (3 x 183).

The 183 cities whose CAFRs were reviewed to identify their auditors represented 144 individual CPA firms or individual offices of large firms. Requests for participation in the survey were sent to each identified office, addressed to "Engagement Partner, Fiscal 1992 City of [client] Audit."[4] Table 1 presents a frequency distribution, by population size, of the 183 cities in the sample, and a frequency distribution of the CPA firms represented by these cities.

Table 1
Characteristics of the Sample Population

Distribution of Sample Cities by Population Size

Population	Number of Cities
50,000 or less	13
More than 50,000 but £ 100,000	68
More than 100,000 but £ 250,000	58
More than 250,000 but £ 500,000	29
500,000 or more	15
Total	183

Distribution of Questionnaires Mailed by Auditing Firm

Big Six	Number	Percent
Arthur Andersen	10	5.46
Coopers & Lybrand	25	13.66
Deloitte & Touche	26	14.21
Ernst & Young	11	6.01
KPMG Peat Marwick	45	24.59
Price Waterhouse	5	2.73
Subtotal	122	66.67
Non-Big Six	61	33.33
Total	183	100.00

The Questionnaire

To test the research questions, subjects were provided a listing of the five basic categories of APs identified in SAS No. 56: (1) Comparisons of client's current-year financial data with prior-year data; (2) Budget-actual comparisons of client's financial data; (3) Review of relationships among client's financial statement elements for conformity with expected patterns; (4) Comparisons of client's financial data with industry financial data; and (5) Comparisons of client's financial data with relevant nonfinancial data.

Subjects were instructed to rank order the five APs in terms of their likelihood of application in audit planning for municipal clients and for commercial clients. Given the emphasis on efficiency in contemporary audit planning (Hirst and Koonce, 1994), practitioners should apply only the APs that they consider to be useful in audit planning. Thus, the ranking of APs in terms of likelihood of application implies a ranking in terms of usefulness/importance, except in cases where an AP is not performed for lack of data. Separate rankings were elicited for each subject's municipal and commercial clients.

Because this study was exploratory in nature and did not entail differing experimental treatments, the possibility of a presentation order effect on responses was considered to be minimal. Thus, the five categories of APs which subjects were asked to rank appeared in the above order in both the municipal and commercial sections of all questionnaires mailed.

Responses

185 responses were re-

ceived, representing a response rate of about 33% based on the nominal sample of 549. Sixty-six percent of the responses were received within 30 days. A test of these responses versus those received later indicated no significant differences on any experimental variables.

Subjects' AP rankings were scrutinized for apparently careless or frivolous response patterns. One example is identical rankings of APs for both municipal and commercial clients. Only fourteen of the 185 responses (7.6%) showed this pattern. Another potentially questionable pattern is the ranking of APs in the same order as they appeared on the questionnaire (i.e., "1 2 3 4 5"). Nineteen of the 185 responses (10.3%) showed this pattern for municipal-client rankings; fifteen responses (8.1%) did so for commercial-client rankings; however, only two subjects (1.1%) responded with this pattern for both their municipal and commercial clients. These responses were retained for data analysis.

The possibility of collusive responses by subjects from the same office was also considered. In nine cases, different subjects employed in the same office responded with identical AP rankings for municipalities and in seven cases, same-office subjects provided identical rankings for commercial clients. However, only one pair of same-office subjects responded with identical AP rankings for both municipalities and businesses. Further, most of these responses were received on different days, suggesting the effect of possible collusion was minimal. These responses were also retained in the sample. The responses of nineteen subjects who indicated that they had performed no commercial audits within the last three years (and who did not provide commercial AP rankings in some cases) were deleted from further analysis.

The final data set consisted of 166 responses (a response rate of 30.2%). These responses are detailed in Table 2. The 166 respondents averaged 35.4 years in age (s.d. = 8.5), with an average of 141 months' auditing experience (s.d. = 95.9). All subjects reported that they had worked on at least one municipal audit engagement within the past three years; 89 subjects (53%) reported experience with six or more municipal clients during the three-year period.

Analysis and Results

The ordinal response scale used for the analytical procedures rankings violates the interval scale assumption necessary for the use of parametric statistics. In addition, the narrow range of the scale resulted in non-normal sample distributions for some rankings. However, given the large sample size and the relative ease of interpretation, mean differences in rankings were tested with parametric *t*-tests.[5] The results appear in Table 3. This table (1) shows general

Table 2
Summary of Usable Responses

	Partners	Managers	Seniors	Total	Percent
Big Six					
Arthur Andersen	3	3	3	9	5.42
Coopers & Lybrand	11	10	9	30	18.07
Deloitte & Touche	6	7	5	18	10.84
Ernst & Young	2	6	--	8	4.82
KPMG Peat Marwick	14	12	20	46	27.71
Price Waterhouse	2	2	1	5	3.01
Subtotal	38	40	38	116	69.87
Non-Big Six	21	15	14	50	30.13
Total	59	55	52	166	100.00

Table 3
AP Mean Ranks Compared Within and Between Engagement Types

	Municipal Engagements			Commercial Engagements		
Analytical Procedure Category	**Mean**	**S.D.**	**Ordered Ranking**	**Mean**	**S.D.**	**Ordered Ranking**
Budget-actual comparisons of financial data	1.68*	.81	1	3.45	1.17	3**
Comparisons of current-year financial data with prior-year data	1.80*	.97	2	1.19	.50	1
Review of relationships among financial statement elements for conformity with expected patterns	2.71*	.83	3**	2.25	.85	2**
Comparisons of financial data with relevant nonfinancial data	3.93	.96	4**	4.07	1.08	5**
Comparisons of financial data with industry financial data	4.55*	.63	5**	3.56	1.00	4

* Mean rank differs significantly between engagement types ($p < .001$)
** Within engagement type, mean rank is significantly greater than the mean of the next-better ranked procedure ($p < .001$)

consistency with findings of prior private-sector AP research and (2) indicates that practicing auditors generally apply APs differently between municipal and commercial engagements. No differences in rankings were found based on gender, position within the firm, or between firm size (Big Six/nonBig Six). The significance of the results relative to the research questions are discussed next.

Research Question No. 1: Comparison of Relationships Within Financial Statements

Subjects judged the review of relationships among financial statement elements for conformity with expected patterns (i.e., ratio analysis) as significantly less applicable in planning municipal audits than in commercial audits, as shown in Table 3 (2.71 versus 2.25). Thus, research question no. 1 is answered in the negative. This finding is consistent with that of Ameen and Strawser (1994). Significant differences between (1) the Income Statement for commercial clients, and (2) the Statement of Revenues, Expenditures, and Changes in Fund Balance for municipalities may render many income-based ratio analyses commonly applied in commercial engagements less meaningful, and therefore less useful, in the analysis of municipal financial statements. Likewise, inventory- and receivables-based ratio analysis may not represent an important AP in government because these accounts often are not material.

Subjects indicated that ratio analysis was the second most likely AP to be applied in commercial engagements, though this procedure was ranked as significantly less important than current-to-prior year comparisons, as shown in Table 3 (2.25 versus 1.19). This ranking is consistent with Daroca and Holder's (1985) finding that this procedure was both "frequently applicable" and "frequently applied" in commercial audit engagements. It is also generally consistent with Ameen and Strawser's (1994) finding that ratio analysis is likely to be applied on a typical commercial audit engagement.

Research Question No. 2: Budget-Actual Comparisons

As shown in Table 3, subjects assigned a mean rank of 1.68 to budget-actual comparison for municipal audits versus a mean of 3.45 to this AP for their commercial engagements. This result provides a negative response to research

question no. 2: auditors view budget-actual comparisons as more important for audit planning in municipal engagements, as the AICPA Governmental Audit and Accounting Guide and SAS No. 68 suggest should be the case. Budget-actual comparisons in commercial audit planning were ranked third (Table 3). In contrast, for municipal audits, subjects ranked the budget-actual comparison higher in perceived importance than current-to-prior year comparisons, (1.68 versus 1.80), although the difference is not statistically significant.

It is possible that the comparative budget-actual rankings reflect the fact that budget systems are less common in the private sector than in governments, such that formal comparisons of budgeted and actual results are inherently less likely to be performed in planning commercial audits. Daroca and Holder (1985) found such comparisons to be applicable to only about 43% of commercial audit engagements. However, more recent evidence (Hirst and Koonce, 1994) indicates that budget-actual comparisons are common for commercial audit engagement planning, especially for identifying income smoothing-type adjustments made in the last quarter of the client's fiscal year. One large auditing firm's audit manual (Grant Thornton 1992) also indicates that comparisons of actual results to management's plans should be commonplace:

In smaller companies, budgets or formal planning documents often do not exist. However, in even the smallest business, management has expectations and performs some advance planning. Accordingly, [auditors] should always discuss with the client the manner in which current operations or results vary from expectations.

In any event, it is clear that for municipalities the budget-actual comparison is an important AP.

Research Question No. 3: Industry Data Comparisons

Subjects ranked industry data comparisons lower for governments than they did for commercial clients, thus answering research question no. 3 in the negative. This finding suggests that dissimilarities between similarly-designated governments render the industry-data AP largely ineffective for planning municipal audits.

Other Findings

The comparison of current-year financial data with prior-year financial data was ranked as the most important procedure for commercial clients and was the top-ranked AP overall, consistent with prior research. In contrast, while respondents considered current-to-prior year comparisons important for municipal audit planning, they ranked current-to-prior year comparisons significantly lower for municipal versus commercial engagements (1.68 versus 1.19) as shown in Table 3.

Finally, comparison of financial and non-financial data was ranked relatively low in applicability for both municipal and commercial engagements. This is consistent with Hirst and Koonce's (1994) finding that auditors tend not to rely heavily on this procedure at the planning stage of the engagement.

Summary

This paper has presented findings concerning a previously unresearched area of audit practice: the application of analytical procedures in municipal audit engagements. Specifically, the paper reports the results of a survey of whether independent auditors apply analytical procedures differently in planning municipal versus commercial audit engagements. Subjects' ordered rankings of five categories of APs as employed in the planning phase of their commercial engagements were largely consistent with the results of prior research. In contrast, the ordered ranking of APs applicable to municipal audit planning differed from the commercial AP ranking, but in a pattern consistent with expectations, given the financial accounting objectives and environment of local governments. In particular, (1) ratio analysis is less likely to be ap-

plied and (2) budget-actual comparisons are relatively more likely to be applied in planning municipal audits vis-a-vis audits of business entities.

These results should be evaluated in light of certain limitations. The questionnaire responses were likely influenced by the usual limitations of mail survey methodology, including self-selection bias and lack of experimental control. As a result, inferences to the larger population of independent CPAs with municipal audit experience may be limited. The survey employed a relatively brief questionnaire in order to obtain a maximal response rate. Accordingly, the scope of the survey was limited to broad *categories* of APs as applied in the audit planning phase. The study did not address the effect of specific client characteristics, such as population size or the relative importance of Proprietary Fund operations, on the application of APs to governments.

Suggestions for Future Research

Given the importance attributed to APs as a means of (1) helping the auditor identify "areas that may represent specific risks relevant to the audit" (AICPA 1988, AU§ 329.06) and (2) improving the auditor's understanding of client operations, future research should investigate the detailed use of APs in all phases (planning, substantive testing, and final evaluation) of municipal audits. Considering the inherent differences between cities and businesses, the use of ratio analysis in governmental audits merits further research, as does the comparative extent to which APs comprise total hours in each type of audit. Another question that warrants further investigation is whether auditors are primarily concerned with budget-actual comparisons in terms of (1) overall risk assessment due to the budget's central importance to governmental financial operations or (2) legal compliance.

Notes

1. Cities were chosen as the focus for this study because the large number of municipalities relative to other governmental units facilitated sample selection.
2. Ameen and Strawser did not focus on the application of APs in governments. Their study included governments incidentally, as one of several "industry" groups.
3. The question regarding differential risk was included as a response validity check. Since governments have no shareholders and seldom go bankrupt, litigation against governmental auditors is infrequent (Icerman and Hillison 1989). Thus, it is reasonable to expect that subjects would attribute a lower level of risk to municipal audits than they would to audits of businesses. Icerman and Hillison (1989, 52) argue that "competitive forces dictate that auditors consider jointly both audit risk and business risk." It was assumed that practitioners view these risks jointly. Subjects were asked to assess the overall *engagement risk* of their municipal clients compared with the engagement risk of their commercial clients. These assessments were made on a nine-point semantic differential scale anchored on 1, "much less risky," and 9, "much more risky." A rating of 5 was defined as "equally risky." Subjects' responses suggest that they perceived municipal audits to pose less engagement risk than commercial audits. The mean response on the comparative risk scale was 3.80 (s.d. = 1.66). A one-sample *t*-test indicates that this rating is significantly lower than an equal-risk rating of 5 ($t = -8.96$; $p < .001$).
4. The questionnaires were tailored for each CPA firm/office. In order to maximize the likelihood of subject response, each cover letter was signed manually and included a hand-written note expressing appreciation for the requested cooperation. Moreover, the questionnaires were mailed at a time of year during which most subjects were unlikely to be experiencing "busy season" pressures.
5. All *t*-test results were verified using appropriate nonparametric procedures. The results of the nonparametric tests were consistent with the corresponding *t*-tests in all

cases. Nonparametric test results are available from either author upon request.

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