Additional Evidence On The Large Audit-Firm Fee Premium As An Indication Of Auditor Quality

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Abstract

Several studies of the U.S. market for audit services have found evidence of a large audit-firm fee premium. This premium has been interpreted as an indication that large audit firms (typically defined as the "Big Eight," now the "Big Six"), considered as a group, receive higher fees than non-Big Eight firms and thus are perceived to provide higher quality audit services. A common interpretation has been that there is a strong relationship between audit firm size and audit quality. That is, the observed Big Eight fee premium has been interpreted as evidence that this group of large auditors, as a whole, is perceived to provide higher quality audits. Using larger samples than previous studies, this paper decomposes the large auditor fee premium into a separate fee premium effect for each auditor. The results suggest that the observed fee premium is attributable to a subset of large auditors, and therefore it is possible that not all of this group of large audit firms are perceived as offering significantly different audit "products," at least when differential audit fees are used as a measure of product differentiation. In addition, when observed audit fee premiums are related to other proxies for auditor quality, there is confirming evidence that large accounting firms are not perceived as a homogeneous group with respect to audit quality.

Introduction

Several studies have documented the existence of premium audit fees paid to the largest accounting firms in the market for audit services in the United States (e.g., Palmrose, 1986, 1989; Francis and Simon, 1987; Simon and Francis, 1988). The "largest" firms have generally been defined as the "Big Eight" in

these studies (now the "Big Six" after two mergers in 1989). After controlling for auditee size, audit risk, and audit complexity, a significant portion of audit fees appears to be explained by the identity of the auditor. Holding other factors constant, Big Eight firms are found to receive audit fees approximately 15 to 20 percent greater than those received by non-Big Eight auditors in these studies. Moreover, this fee premium appears to exist not just vis-a-vis small local and

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regional auditors but also with respect to other large national and international accounting firms (the so-called "second tier"). This fee premium has generally been interpreted as an indication of product differentiation, i.e., real or perceived differences in auditor quality.

Previous analytical and empirical studies have usually treated the Big Eight (Big Six) as an homogeneous group and have interpreted observed audit fee premiums as indicating product differentiation attributable to this entire group of large auditors.¹ For example, DeAngelo (1981) develops a model in which larger auditing firms will provide higher quality audits due to a "collateral" effect in which large auditors have more to lose by providing low quality audits. In her model there is a monotonic relationship between auditor size and audit quality in which "size alone alters auditors' incentives such that, *ceteris paribus*, larger audit firms supply a higher level of audit quality" (p. 184). Several empirical studies which found that the largest firms as a group received higher fees than other auditors have interpreted this result as support for the auditor size-audit quality hypothesis. For example, Palmrose (1986, p. 108) states that the observed fee premium "supports the argument that the Big Eight designation is a quality surrogate." Other studies which have demonstrated a Big Eight fee premium (e.g., Francis, 1984; Francis and Simon, 1987) have suggested that a size-quality link is an explanation of the results. Several other studies based upon observed auditor choice (e.g., Dopuch and Simunic, 1980, 1982; Simunic and Stein, 1987) have argued that it is likely that the (then) Big Eight as a group are perceived as offering higher quality audits.

Using larger samples than prior studies, this paper attempts to assess whether the observed audit fee premium is due to large firms in general or is attributable to particular firms. A finding that this large-firm premium is a general phenomenon would provide evidence for a direct link between auditor size and quality. A finding that only some of the largest firms receive premium fees would suggest that the link between

auditor size and audit quality is incomplete. The results indicate that the overall fee premium observed in this and previous studies is largely due to a subset of Big Eight firms. This suggests the possibility that only some of the largest accounting firms have achieved a high degree of product differentiation. And, to the extent that premium fees are a proxy for real or perceived audit quality differences, quality may not be as strongly related to audit firm size as some previous studies have suggested. Some confirmation of this conclusion is provided when observed audit fee premiums are related to other surrogates for auditor quality.

The remainder of the paper is organized as follows. The following section discusses the methodology and the sample. Then the empirical results on the Big Eight audit fee premium are presented. The next section relates the observed intra-Big Eight fee differences to other proxy measures of auditor quality. A final section includes a discussion and summary.

Methodology and Sample

The basic research approach follows that of most earlier studies with one primary exception: the decomposition of the Big Eight audit fee premium into a separate effect on audit fees for each Big Eight firm. Most prior studies employed cross-sectional regressions of audit fees on a set of explanatory variables which included an indicator (dummy) variable with a value of one if the auditor was one of the Big Eight and zero otherwise. A positive and significant coefficient for this indicator variable was interpreted as evidence of a general fee premium paid to Big Eight auditors. Because of the fairly small samples used in most of these studies (ranging from 68 in Francis, 1984, to 208 in Francis and Simon, 1987), no attempt was made to assess the individual contribution of each Big Eight firm to this overall effect. The present study uses a much larger sample in order to allow the incorporation of separate indicator variables for each Big Eight auditor. This allows testing of whether the Big Eight audit fee premium is a general

phenomenon or is due to a subset of this group of large accounting firms.

The specific form of the audit fee regression model is similar to that used in Simon and Francis (1988):

$$\text{LOGFEE} = b_0 + b_1 \text{LOGASSETS} + b_2 \text{SQSUBS} + b_3 \text{FOREIGN} + b_4 \text{INVREC} + b_5 \text{OPINION} + b_6 \text{CNGAUD} + b_7 \text{AUDITOR} + u$$

where the dependent variable is the natural logarithm of audit fee and the explanatory variables are:

LOGASSETS = natural logarithm of total assets

SQSUBS = square root of the number of consolidated subsidiaries

FOREIGN = the proportion of foreign subsidiaries to total subsidiaries

INVREC = the proportion of assets in inventories and receivables

OPINION = an indicator variable having a value of one if the audit opinion was qualified

CNGAUD = an indicator variable having a value of one if the audit was an initial engagement following a change in auditors

AUDITOR = a separate indicator variable for each Big Eight firm

u = a residual error term assumed to have the standard properties making OLS regression appropriate.

The first five explanatory variables are considered to be control variables. Based on prior studies (e.g., Simunic, 1980; Palmrose, 1986; Francis and Simon, 1987) these variables control for auditee size, audit risk, and audit complexity and all are expected to be positively related to audit fees. The sixth explanatory variable, CNGAUD, is also a control variable, and based upon previous research (e.g., Simon and Francis, 1988) is expected to be negatively related to audit fees. The experimental variables of primary interest are the AUDITOR dummy

variables with a separate coding for each Big Eight firm. The eight AUDITOR indicator variables test whether each Big Eight firm receives premium fees relative to non-Big Eight auditors.

Data on audit fees were collected by means of questionnaires or by voluntary disclosures of audit fees in proxy statements. Data on the explanatory variables were obtained from annual reports and Forms 10-K. Following earlier studies (e.g., Simunic, 1980; Palmrose, 1986; Francis and Stokes, 1986; Francis and Simon, 1987) the analysis was restricted to client firms with annual revenue of less than \$125 million since it is only in the smaller client segment of the audit services market that Big Eight fee premiums are likely to be observed. The analysis was also restricted to firms in industries other than regulated utilities and financial services since previous studies (Simunic, 1980; Maher et al., 1986; Palmrose, 1989) indicate that the determinants of audit fees are different in these industries.

Results

The number of observations for each Big Eight auditor was considered sufficiently large to estimate separate regressions for each of the years 1983 through 1986. Table 1 summarizes the sample by year and by audit firm. As can be seen, in each year approximately one-third of the audits were performed by non Big Eight firms. In addition, in each year there were at least ten observations for each Big Eight firm. This should allow for a reasonable probability of detecting whether a particular Big Eight firm's audit fees differ significantly from those of non-Big Eight auditors. Table 2 presents the basic results of the cross-sectional regression models which were run in two variations: first with a single indicator variable for a Big Eight auditor and second with a separate indicator variable for each (then) Big Eight auditor.

At least three conclusions are suggested by the results. First, as in previous studies of audit fees the overall model fits well for each of

Table 1
Summary Of Sample By Audit Firm And Year

	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
Number of firms audited by:				
Arthur Andersen	28	56	54	29
Arthur Young	12	21	23	25
Coopers & Lybrand	23	48	44	37
Deloitte Haskins & Sells	14	33	34	29
Ernst & Whinney	16	47	46	27
Peat Marwick	20	50	54	41
Price Waterhouse	15	44	34	21
Touche Ross	<u>18</u>	<u>39</u>	<u>29</u>	<u>18</u>
Total Big Eight	146	338	318	227
Non-Big Eight Firms	<u>73</u>	<u>168</u>	<u>146</u>	<u>94</u>
Total	<u>219</u>	<u>506</u>	<u>464</u>	<u>321</u>

the four years, with values of R^2 between .62 and .75 and significant t-statistics for the control variables in most years. Second, as in previous studies, a single Big Eight dummy variable is statistically significant at the .05 level or better in each year, indicating the existence of a Big Eight audit fee premium when the fee premium is estimated by treating the Big Eight as a single group. Third, in a result not found in previous studies, when separate dummy variables are substituted for the single Big Eight dummy, only about half of these variables are statistically significant at the conventional .05 level. While all but one of the 32 (eight firms x four years) Big Eight indicator variables were positive, only fourteen were significant at the .05 level. This suggests the possibility that the Big Eight fee premium is not a general phenomenon but may be due to specific audit firms.

There is not complete consistency in the year-to-year results for the individual Big Eight firms. For example, in 1983 and 1985 four of the Big Eight indicator variables are significant at the .05 level while in 1984 and 1986, three of the indicators are significant. In addition while the indicators are generally positive, one is negative although not significant (Peat Marwick in 1986). Nonetheless there is a consistent pat-

tern to the results. Two firms (Price Waterhouse and Deloitte Haskins and Sells) appear to receive fees significantly higher than those of non-Big Eight firms at the .05 level in each of the four years, while the indicator variables for three firms (Coopers and Lybrand, Peat Marwick, and Touche Ross) are never significant at the .05 level. Indicator variables for the remaining firms (Arthur Andersen, Arthur Young, and Ernst and Whinney) are significant in some, but not all, years. It therefore appears that in two of the years (1984 and 1986) the observed Big Eight fee premium is due to only two or three of the Big Eight firms, and that when considering the results for all years, three of the Big Eight do not appear to contribute significantly to the overall Big Eight audit fee premium. Moreover, of the 14 significant coefficients eight are attributable to a subset of two Big Eight firms and 13 of the 14 are attributable to a subset of four of the Big Eight firms.

These results do not support a strong monotonic link between audit firm size and perceived auditor quality (as measured by premium fees). Size per se does not appear to be a dominant determinant of quality as measured by fees in that not all of the largest auditors receive premium fees relative to smaller auditors. As a

Table 2
Results Of Estimates Of Indicator Variables For Audit Fee Premiums
 (Panel A, single indicator for Big Eight; Panel B, separate indicator for each Big Eight Firm)

	Year			
	1983	1984	1985	1986
A. Single Big Eight Indicator Variable:	.27**	.18**	.19**	.10*
B. Separate Indicators for Each Big Eight Firm:				
Arthur Andersen	.28*	.24**	.15*	.05
Arthur Young	.00	.13	.31**	.20*
Coopers & Lybrand	.18	.13	.14	.02
Deloitte Haskins & Sells	.43**	.36**	.25**	.21*
Ernst & Whinney	.48**	.10	.14	.13
Peat Marwick	.13	.06	.14	-.01
Price Waterhouse	.38*	.33**	.30**	.28**
Touche Ross	.19	.12	.17	.05

Significance levels: * = .05; ** = .01

partial test of this tentative conclusion, the next section of the paper relates observed audit fee premiums to other surrogates for perceived auditor quality.

Relationship Between Audit Fees and Other Measures of Auditor Quality

The results presented in the previous section of this paper indicate that the Big Eight audit fee premium is not a general phenomenon but is attributable to a subset of Big Eight firms. If these results are correct (rather than due, for example, to omitted variables or other artifacts of the data),³ the observed differential audit fee premiums should be related to other measures of real or perceived differences in auditor quality which are not completely correlated with auditor size. While there are no commonly agreed upon measures of either real or perceived auditor quality, three recent academic studies and a survey in a professional journal provide some plausible proxy measures of perceived auditor quality. If there is a positive relationship between fee premiums and other auditor quality variables, this would reinforce the finding of an intra-Big Eight fee differential presented in the previous

section. It would also suggest, contrary to the explicit or implicit interpretations often found in audit fee studies, that the Big Eight are not regarded by users of audit services as an homogeneous group, but that there is a differential degree of perceived quality among this group of large accounting firms.

Four plausible auditor quality measures were identified from previous literature: underpricing on initial public offerings; frequency of successful lawsuits against auditors; frequency of "errors" in audit opinions; and a ranking of audit firm "quality" from a survey of accounting academics. Each of these measures has been interpreted as related to actual or perceived auditor quality. Often these quality variables have been used to assess a Big Eight/non-Big Eight quality distinction; these variables will be used here to assess whether intra-Big Eight fee differences are related to intra-Big Eight differences on these auditor quality variables.

Underpricing of initial public offerings (IPOs) is the difference between an IPO's offering price and the first bid following public trading of the security. Balvers *et al.* (1989) develop a model in which employing higher quality

auditors for an initial security offering will result in less underpricing due to greater confidence in the accuracy of the IPO client's financial statements. They test this part of their model by assessing whether higher quality auditors (i.e., the Big Eight as a group) are associated with less underpricing than other auditors. The results indicate average underpricing of 7% for IPOs audited by the Big Eight as compared to 10.9% for IPOs audited by non-Big Eight firms.⁴ They also present average underpricing measures for each Big Eight firm. This part of their results will be used as one proxy for auditor "quality" (UNDERPRICING).

Palmrose (1988) demonstrates that Big Eight auditors as a group are less likely to be successfully sued for misleading reports than are non-Big Eight auditors. She interprets this as an indication of higher audit quality for Big Eight auditors. However, several attempts to assess *intra* Big Eight differences on frequency of litigation do not lead to clear results: alternative measures of litigation outcomes within the Big Eight yield different rankings. This study will use what judgmentally seemed the most plausible of her metrics, meritorious litigation scaled by estimated annual revenues (LITIGATION).⁵

A third proxy for audit quality is derived from Mutchler and Williams (1990), who related the concept of audit firm structure (Kinney, 1986) to the frequency of audit opinion "error." Audit opinion error was defined as the frequency with which an auditor either (a) rendered an unqualified opinion for a firm which subsequently became insolvent or (b) gave a "going concern" qualification to a client which did not subsequently become insolvent. The error rate reported in this study for each Big Eight firm will be used as another proxy for auditor quality (ERROR).

An additional proxy for audit firm quality is provided by a *Public Accounting Report* (December, 1985) survey of accounting department chairpersons at U.S. universities. Respondents were asked to rank large firms on a zero to

ten scale on client service, technical reputation, career opportunity, and staff training. The rating reported for technical reputation will be used as the fourth proxy for auditor quality (ACADEMIC).

Since each of these proxies for audit quality may contain noise, a composite variable was constructed as an average of the rankings of the four measures (COMPOSITE). This aggregation of the four auditor quality proxies serves as an overall quality measure and may reduce possible distortion which might be caused by unusual rankings in any of the three original measures.

Each of the above measures, UNDERPRICING, LITIGATION, ERROR, ACADEMIC, and COMPOSITE, was related to the average dummy variable audit fee premium coefficient for each Big Eight firm over the period 1983-1986. The rationale is that if higher audit fees are a reflection of higher actual or perceived auditor quality, there should be a positive association between the observed fee premium and the rankings on the other proxies for auditor quality. This was tested by computing Spearman rank order correlations between the average fee premium and each of the other auditor quality variables.

The results are presented in Table 3 and are consistent with the hypothesized positive relationship between fee premiums and the other quality variables. Of the four individual quality measures (UNDERPRICING, LITIGATION, ERROR, and ACADEMIC), all are positively correlated with the individual Big Eight fee premiums, with LITIGATION significant at $p < .06$ and ACADEMIC significant at $p < .01$. The COMPOSITE measure, which aggregates the others in the hope it might reduce noise, was significant at $p < .02$. Thus it appears that the observed differential Big Eight audit fee premiums are related to other proxy measures of real or perceived auditor quality differences.⁶

Table 3
Ranks On "Auditor Quality" Variables And Correlations With Audit Fee Premiums

Firm	Rank on Variable					
	Fee Premium	Under-pricing ^a	Litigation ^b	Error ^c	Academic ^d	Composite ^e
Arthur Andersen	4	5	6	4	2	4
Arthur Young	3	2	1	6	4.5 ^f	2
Coopers & Lybrand	7	8	5	2	7	6
Deloitte, Haskins and Sells	2	6	4	7	3	5
Ernst & Whinney	5	7	2	3	4.5 ^f	3
Peat Marwick	8	3	7	8	6	7
Price Waterhouse	1	1	3	1	1	1
Touche Ross	6	4	8	5	8	8
Spearman rank-order correlation coefficients with fee premium						
		.38	.60	.24	.81	.76
P-value (one-tail)						
		.18	.06	.29	.01	.02

^aranking from low to high from Balvers et al. (1989)

^branking from low to high from Palmrose (1988)

^cranking from low to high from Mutchler and Williams (1990)

^dranking from *Public Accounting Report* (December, 1985)

^eaverage ranking on a, b, c, d above

^ftied in ranking, listed at average rank

Discussion and Suggestions for Future Research

The use of larger samples than previous studies made it possible to decompose the Big Eight audit fee premium into separate estimates of the premium for each Big Eight auditor. This allowed for a more detailed analysis of this premium than earlier studies. The results indicate that the fee premium is not a general characteristic of all audits performed by the largest firms but is due to a subset of these firms, at least for the period examined.

While the empirical results are reasonably clear-cut, an explanation of the results is not as simple. In general, previous studies have attributed the Big Eight fee premium to "product differentiation," i.e., real or perceived difference in the "quality" of audits performed by Big Eight auditors versus all other auditors. A logical extension of this interpretation, based on the results described in this paper, is to conclude that only a subset of large accounting firms are perceived to

be of "higher quality" than other auditors. Additional tests relating audit fee premiums to other proxy measures of audit quality support this interpretation. While this is certainly a reasonable interpretation of the results, it is somewhat inconsistent with theories that posit a strong monotonic relationship between audit firm size and audit quality. The results obtained here suggest that only certain of the largest audit firms are perceived as higher quality auditors, at least when perceived quality is evidenced by premium audit fees. While an overall fee premium provides some evidence of a relationship between auditor size and audit quality, the fact that not all of the Big Eight receive premium fees suggests that the link between audit firm size and audit quality is not complete. That is, there may be significant dimensions of perceived auditor quality other than audit firm size that are reflected in audit prices.

Future research could extend this analysis by developing other measures of auditor quality. Another area for future research would

be to assess how recent mergers and other changes in the audit services market have affected the relationship between auditor quality and audit fees.

Endnotes

1. An exception was Simunic (1980), who divided the Big Eight into two subgroups: Price Waterhouse and all other Big Eight firms. He found weak evidence that Price Waterhouse, but not other Big Eight firms, received premium fees relative to non-Big Eight auditors.
2. For brevity, Table 2 presents only the results for the experimental variables of primary interest, the auditor identity indicators. Complete regression results including the control variables are available from the authors upon request.
3. In an attempt to assess the robustness of the results with respect to sample and possible omitted variables, several alternative estimates of the fee regression models were estimated. These included random exclusion of subsets of the observations and the incorporation of indicator variables for client industry membership based on two-digit SIC codes. The results were essentially unchanged from those reported here.
4. Beatty (1989) presents a similar analysis and empirical results.
5. The results were essentially unchanged when another of Palmrose's auditor litigation measures (meritorious litigation scaled by estimated number of public clients) was used.
6. In order to assess the extent of "agreement" of the audit fee premium and the other four primary proxies for auditor quality, Kendall's coefficient of concordance was calculated. Each of the measures of auditor quality (average fee premium, UNDERPRICING, LITIGATION, ERROR, ACADEMIC) was treated as a "rater." A high degree of agreement among these "raters" can be interpreted as an indication that all of these variables are

assessing the same underlying phenomena (in this case auditor "quality"). Kendall's coefficient of concordance was significant at the .05 level, indicating considerable agreement among these ratings of auditor quality.

References

1. Balvers, Ronald J., Bill McDonald, and Robert E. Miller, "Underpricing of New Issues and the Choice of Auditor as a Signal of Investment Banker Reputation," *Accounting Review*, Vol. 63, No. 4, pp. 605-622, 1988.
2. Beatty, Randolph P., "Auditor Reputation and the Pricing of Initial Public Offerings," *Accounting Review*, Vol. 64, No. 4, pp. 693-709, 1989.
3. DeAngelo, Linda, "Auditor Size and Audit Quality," *Journal of Accounting and Economics*, Vol. 3, No. 3, pp. 182-199, 1981.
4. Dopuch, Nicholas and Dan Simunic, "The Nature of Competition in the Auditing Profession: A Descriptive and Normative View," in Buckley, J. and F. Weston, eds., *Regulation and the Accounting Profession*, Lifetime Learning Publications, 1980.
5. _____. "Competition in Auditing: An Assessment," in *Symposium on Auditing Research IV*, pp. 401-450, University of Illinois, 1982.
6. Francis, Jere, "The Effect of Audit firm Size on Audit Prices: A Study of the Australian Market," *Journal of Accounting and Economics*, Vol. 6, No. 2, pp. 133-151, 1984.
7. _____, and Daniel T. Simon, "A Test of Audit Pricing in the Small-Client Segment of the U.S. Audit Market," *Accounting Review*, Vol. 62, No.1, pp. 145-157, 1987.
8. _____, and Donald J. Stokes, "Audit Prices, Product Differentiation and Scale Economies: Further Evidence from the Australian Market," *Journal of Accounting Research*, Vol. 24, No. 2, pp. 383-393, 1986.

9. Kinney, William, "Audit Technology and Preferences for Auditing Standards," *Journal of Accounting and Economics*, Vol. 8, No. 1, pp. 78-89, 1986.
10. Maher, Michael W., Amy J. Broman, Robert N. Colson, and Pieter Tiessen, "Pricing of Audit Services: Additional Evidence," Working paper, University of Michigan, 1986.
11. Mutchler, Jane F. and David D. Williams, "The Relationship Between Audit Technology, Client Risk Profiles and the Going-Concern Opinion Decision," *Auditing: A Journal of Practice and Theory*, Vol. 9, No. 3, pp. 39-54, 1990.
12. Palmrose, Zoe Vonna, "Audit Fees and Auditor Size: Further Evidence," *Journal of Accounting Research*, Vol. 24, No. 1, pp. 97-110, 1986.
13. _____, "An Analysis of Auditor Litigation and Audit Service Quality," *Accounting Review*, Vol. 63, No. 1, pp. 57-77, 1988.
14. _____. "The Relation of Audit Contract Type to Audit Fees and Hours," *Accounting Review*, Vol. 64, No. 3, pp. 488-499, 1989.
15. *Public Accounting Report*, "The Professor's Ratings," (December, 1985), pp. 1-4.
16. Simon, Daniel T. and Jere R. Francis, "The Effects of Auditor Change on Audit Fees: Tests of Price Cutting and Price Recovery," *Accounting Review*, Vol. 63, No. 2, pp. 255-269, 1988.
17. Simunic, Dan, "The Pricing of Audit Services: Theory and Evidence," *Journal of Accounting Research*, Vol. 18, No. 1, pp. 161-190, 1980.
18. _____, and Michael Stein, *Product Differentiation in Auditing: A Study of Auditor Choice in the Market for New Issues*, Canadian Certified General Accountants' Research Foundation, 1987.