

Audit Reports for Litigation Loss Contingencies

Dr. Sally M. Schultz, Accounting, SUNY at New Paltz

Abstract

The relationship between the type of audit opinion received by 212 U.S. firms defending pending litigation and auditor, size, leverage, liquidity, and profitability was analyzed using hierarchical loglinear models. Using control and experimental groups which included only firms named as defendants in pending litigation, a model was identified which provided an excellent fit to the data and furnished evidence that size and audit firm alone are sufficient to describe the type of audit opinion received.

Introduction

This study examined auditors' consistency in issuing opinions for U.S. clients facing a contingent loss because of pending litigation. More than a decade ago, The AICPA's Commission on Auditors' Responsibilities argued against the use of qualified (subject to) audit opinions for uncertainties, in part because 'the standards for uncertainties that require qualification are inherently vague and not susceptible to a desirable degree of uniformity in practice' [1978, p. 26]. Although Statement on Auditing Standards No. 58 *Reports on Audited Financial Statements* (SAS No. 58) eliminated the subject to qualification, material uncertainties are still required to be disclosed in the audit report, and evidence about auditor consistency in highlighting these uncertainties continues to be of interest. This research explored how consistent different auditing firms were in their tendency to issue pre-SAS No. 58 'subject to' opinions to firms facing pending litigation, and assessed the impact of the client's size and financial condition on the type of audit opinion received.

The consistency between different audit firms in their use of qualified opinions has been studied by Warren [1975, 1980], Shank and Murdock [1978], and Chow and Rice [1982]. Bell and Tabor [1991], Dopuch, Holthausen, and Leftwich [1987], and Wilkerson [1987] also examined the association between various financial and market variables and the type of audit opinion received by U.S. firms in situations which included loss contingencies. Most studies compared firms receiving clean audit opinions with those receiving various types of qualified opinions, but Wilkerson [1987] argued that any attempt to investigate the economic tradeoffs considered by an auditor in deciding whether to issue a clean or qualified audit report must be based on experimental and comparison samples which faced identical uncertainties. Otherwise, tests of differences in audit opinions

are actually tests of different underlying uncertainties, including the existence of no uncertainty. In the present study, the type of uncertainty was controlled for by limiting the sample firms to those defending pending litigation.

Many of the studies cited above used a logistic regression model to explain the audit opinion decision. A comparison by Stone and Rasp [1991] concluded that logistic regression is preferable to ordinary least squares regression for modeling dichotomous accounting choices, even for small samples. Feinberg [1980, p. 104] noted that a basic problem with logistic regression models is the difficulty they present in determining whether the models provide an adequate fit to the data. Although the need for a set of variables can be assessed by a likelihood ratio test comparing the full model to the model with only an intercept term, an omnibus goodness-of-fit test cannot be carried out for the model as long as some of the predictors are not categorical. Nevertheless, analyses using logistic regression are based on the idea that the model fits the data. Feinberg suggests that when it is convenient to categorize the continuous variables in a logistic regression model, a corresponding hierarchical loglinear model can be constructed whose fit can be assessed. This study illustrates how hierarchical loglinear models can be used for this purpose.

Research Design

Sample Selection

Sample firms were selected by searching the National Automated Accounting Research System (NAARS) for firms that had received a subject to audit opinion for pending litigation and/or disclosed a litigation loss

contingency in a financial statement footnote. Initially, 496 firms were identified by searching the NAARS annual report files for 1981/1982 and 1982/1983. Firms were eliminated from the sample if they had accrued a loss or already settled the lawsuit, were in bankruptcy proceedings or had going concern problems mentioned, or did not have financial statement data available either on the Compustat tapes or in *Moody's Industrial and Over—the—Counter Manuals*. Firms whose footnote included only a blanket statement indicating that they were a defendant in various lawsuits pending in the ordinary course of business were also eliminated. Lawsuits disclosed via such blanket statements were assumed to be less likely to result in a material loss than those mentioned specifically. None of the sample firms using such blanket disclosures received an uncertainty qualification for litigation.

The final sample of 212 firms included 86 with subject to opinions due to pending litigation and 126 with only footnote disclosure of specific pending lawsuits. The initial analysis excluded 27 firms in the banking or finance industry because no current ratio could be computed for them, leaving 185 firms, of which 104 received a clean opinion and 81 received a qualified opinion. These banking firms were included in subsequent analyses which omitted the current ratio.

Variables Considered

According to FASB Statement No. 5, *Accounting for Contingencies*, a loss must be accrued for contingencies which are probable and reasonably estimable. Footnote disclosure is required for all other contingent losses which have at least a reasonable possibility of resulting in a material loss. The Securities and Exchange Commission requires disclosure in the 10—K and 10—Q of all litigation involving a claim for damages in excess of 10% of the current assets of the registrant and its subsidiaries on a consolidated basis.

SAS No. 58 advises the auditor to modify the report when the contingent loss is considered probable although it cannot be estimated or accrued; and to consider whether modification is needed for losses which are more than remote, but less than likely. When litigation contingencies exist, the auditor must use considerable judgment in deciding whether to 'red—flag' the contingent loss in the audit report. Lawyers' opinions will frequently not indicate whether an unfavorable outcome is remote or probable (Barnickol, Ross, Schowalter, and Walters, 1985).

A qualified report can afford the auditor some protection should the auditor later be named in a suit concerning the client firm. St. Pierre and Anderson [1984] found that the majority of suits against auditors were initially motivated by either the client's bankruptcy,

or a significant loss and drop in stock price. Thus, the auditor would be expected to qualify an audit report more readily for a litigation loss contingency if the client was in a weak financial condition.

The variables included to measure the client's financial condition were short—term liquidity (current assets/current liabilities), financial leverage (equity/total debt), and return on assets (net income/total assets at year—end). Firms with higher ratios were expected to have a greater likelihood of receiving an unqualified audit opinion.

The client's size was also hypothesized to affect the auditor's decision, with larger firms expected to be less likely to receive a qualified opinion than smaller firms. In studying litigation disclosures under SFAS No. 5, Fesler and Hagler [1989] found that smaller firms tended to be more faithful in providing satisfactory financial statement forewarning of eventual litigation settlement than larger ones. Information about larger firms is available in the business press, so the auditor may not insist on highlighting contingencies as often as for small firms. It is also possible that the auditor would be less apt to qualify the opinion of a larger client because of the risk of losing a large audit fee. Simunic [1980] found that the client's size alone could explain considerable variation in audit fees.

Because materiality, a significant variable, was not included in the study, it is possible that size may act as a surrogate for materiality. If the expected loss is assumed to be unrelated to the defendant's size, then on average the materiality of the expected loss would be greater for smaller firms than for larger firms with more equity to absorb the cost. The law provides that only compensatory damages, based on the plaintiffs actual loss, are recoverable for suits based on a breach of contract or tort. Such damages should be unrelated to the defendant's ability to pay.

In this study, total assets was used as the measure of the client's size. Summary statistics for size and the financial statement ratios are reported in Table 1.

The audit firm was included to test for the consistency of the audit opinions across auditing firms. The expectation was that there would be significant differences between auditing firms in their tendency to issue a qualified opinion, as both Warren [1980] and Chow and Rice [1982] reported. An industry variable (two digit SIC codes) was not significant in a preliminary analysis, and thus was omitted from subsequent analyses for simplicity.

Statistical Analysis

The data were analyzed using hierarchical loglinear

models. These models describe the relationships between the factors in a multiway contingency table by testing the importance of variable interactions and by forming models to fit the data. The likelihood ratio chi-square statistic signifies the contribution of terms added to the model, and like the total sum of squares in analysis of variance, can be subdivided into interpretable parts that add up to the total.

When one variable is seen as conceptually dependent on the variation in the others, a special case of general loglinear models, the logit model, is appropriate. Logit models are the categorical analogs of ordinary regression models for continuous variables; the criterion analyzed is the log of the odds, or logit, of the expected cell frequencies for the dependent variable. An odds is

the ratio between the frequency (or probability) of being in one category of a variable and the frequency (or probability) of not being in that category. The following formula describes the log of the odds based on the frequency of being in cell ij_1 versus cell ij_2 for a table where C is the dependent variable in a table which also measures A and B .

$$\text{logit} = \ln \frac{F_{ij_1}}{F_{ij_2}} \tag{1}$$

$$= W^C_{i_1} + W^{AC}_{it} + W^{BC}_{jt} + W^{ABC}_{ijt} \tag{2}$$

TABLE 1
Summary Statistics for Continuous Independent Variables:
Means, Medians, Standard Deviations, and t-Statistics for
126 Firms with Qualified Opinions and
86 Firms with Qualified Opinions

<u>Variable</u>	<u>Means</u>		<u>Medians</u>		<u>Standard Deviations</u>		<u>t-Statistics</u>
	<u>Clean</u>	<u>Qualified</u>	<u>Clean</u>	<u>Qualified</u>	<u>Clean</u>	<u>Qualified</u>	<u>(p-value)</u>
Total Assets (in millions) ¹	3851.40	531.63	382.20	94.43	14895.45	1091.70	2.49 (0.01)
Current Assets ÷ Current Liabilities ²	1.86	2.21	1.52	1.68	1.05	1.81	-1.57 (0.12)
Shareholders' Equity ÷ Total Liabilities	1.15	1.82	0.72	0.67	2.24	4.78	-1.21 (0.23)
Net Income ÷ Total Assets (times 100)	4.09	3.27	3.84	3.18	6.17	14.08	0.51 (0.61)

¹The clean opinion group includes the huge preinvestiture AT&T, with total assets exceeding \$148 billion. Excluding AT&T, the average total assets of the clean opinion group is \$2.7 billion with a standard deviation of \$7.4 billion. The difference between this mean and that of the qualified opinion group is significant at $p = .01$ based on a t-statistic of 3.23.

²The current ratio could not be computed for 27 firms in the banking or finance industries. The values for this variable are based on the remaining 185 firms, of which 104 received an unqualified opinion and 81 received a qualified opinion.

The estimated w parameters of the fitted model can be added to compute the odds of being in the first category of the dependent variable for given levels of the independent variables. The sign and size of the interaction parameters are indicators of the direction and magnitude of the effect of the independent variables on the dependent variable.

A shorter notation for describing models uses letters standing for the variables included in the contingency table, and encloses the letters of variables which are hypothesized by the model to be related within brackets. Each set of letters indicates the highest order effect included in the model; lower order effects are assumed to be present. For example, the saturated model in equation 1 would be $[ABC]$. An alternative model which hypothesizes that A is independent of B and C would be $[A] [BC]$, and a model which hypothesizes independence between all three variables would be $[A] [B] [C]$.

Results

Screening for a Model

The modeling process ultimately seeks to find the simplest model which can adequately describe the data. Tests of partial and marginal association were used to screen the independent variables to determine which ones displayed significant interactions with the dependent variable, type of audit opinion. The tests were based on a contingency table formed with the following variables: type of audit opinion, auditor, total assets, current assets/current liabilities, shareholders' equity/total debt, and net income/total assets. The categorical variables were audit opinion with two classes (clean or qualified) and audit firm with nine classes (each of the Big Eight firms and other auditing firms). The remaining continuous variables were divided into discrete categories, with net income/total assets having three categories (less than zero to plus four percent, more than four percent) and the other variables having two categories. Firms with values up to and including the cutpoints constituted one category, and firms with higher values placed in the other category: total assets of \$100 million, current ratio of two—to—one, and equity to debt ratio of one—to—one.

The partial and marginal association test results for all two—way interaction effects involving the opinion variable are reported in Table 2. Both tests indicated that only the interactions between opinion and auditor and opinion and total assets were significant at the .05 level, and should be included in the model. None of the remaining independent variables displays a significant two—way interaction with the opinion variable at the .05 level in either test need not be included in the model. Initiating the search for an acceptable model based on

only those variables which had a significant two—way interaction with audit opinion reduces the contingency table to three dimensions from seven dimensions, considerably simplifying the analysis.

In the next step of the modeling process, the three—dimensional observed contingency table of opinion by auditor by total assets was used to develop and compare alternative models of the auditor's reporting decision. There are four possible logit models (excluding the saturated model) based on these variables. The likelihood ratio and Pearson chi—square statistics related to these models are presented in Table 3, where the models are represented by the highest order effects included in the model (lower order effects are assumed to be present) using general loglinear model notation. Both chi—square statistics can be used to assess the fit of the models, but only the likelihood ratio statistic is additive under partitioning for nested models and can be used to assess the improvement in fit, if any, from adding additional interaction terms.

The null hypothesis tested is different from that used in traditional chi—square tests where a low probability results in rejecting the null hypothesis of independence between the variables. Here, the null hypothesis is that the model fits the data. A high chi—square value relative to the degrees of freedom indicates that there is a low probability that the model fits the data and results in rejecting the null hypothesis. Conversely, a low chi—square value relative to the degrees of freedom indicates there is a high probability the model fits the data, and results in accepting the null hypothesis.

Both statistics indicated that only model 1, which hypothesizes that opinion is independent of auditor and total assets, does not provide an adequate fit to the data. Models 2, 3, and 4 all provide an acceptable fit at the .10 level of significance. The decrease in the likelihood ratio statistic between model 1 and model 2 is significant (10.26 on 1 degree of freedom) as is the decrease between model 3 and model 1 (22.82 on 8 degrees of freedom). The improvement can also be assessed using an analog to the coefficient of determination (R^2), which is computed as:

$$\frac{(G^2_{\text{BASELINE MODEL}}) - (G^2_{\text{ALTERNATIVE MODEL}})}{(G^2_{\text{BASELINE MODEL}})} \quad (3)$$

The R^2 analog measures the proportion of the variability in the data not explained by the baseline model but explained by the alternative model. Using model 1 as the baseline model, the R^2 analog indicates that model 2 explains 33 percent of the variability in model 1, and model 3 explains 72 percent of the variability in model 1. Between these two models, model 3 would be preferred to model 2, since it provides a superior fit

TABLE 2
Partial and Marginal Association Test Results for Two-Way Interactions
Involving the Dependent Variable

<u>Effect</u>	<u>D.F.</u>	<u>Partial Association</u>		<u>Marginal Association</u>	
		<u>Likelihood ratio</u> <u>Chi square</u>	<u>Prob.</u>	<u>Pearson</u> <u>Chi square</u>	<u>Prob.</u>
OPINION * AUDITOR	8.	16.245	.0390	20.572	.0084
OPINION * TA	1.	4.495	.0340	10.287	.0013
OPINION * CACL	1.	.046	.8298	.182	.6693
OPINION * SETL	1.	.001	.9758	.195	.6587
OPINION * NITA	2.	2.092	.3513	.521	.7708

TA = Total Assets
 CACL = Current Assets/Current Liabilities
 SETL = Shareholders' Equity/Total Liabilities
 NITA = Net Income/Total Assets

with the same number of terms. Model 3 hypothesizes that the data can be explained by the two-way interactions between opinion and auditor, and between auditor and total assets.

The choice for the best model was thus between the more parsimonious model 3, and the more complex model 4. The difference in the likelihood-ratio statistic (G^2) between the two models is 5.62 on 1 degree of freedom. This difference, the result of adding the opinion-auditor interaction term, is significant at the .025 level. Using model 3 as the baseline model and model 4 as the alternative model, the R^2 analog indicates that model 4 explains 65 percent of the variability in model 3. These results indicated that model 4 yields a significant improvement in fit over model 3, and was the clear choice for best model.

Evaluation of the Parameters

The final step in analyzing the data was to compute the estimated w parameters for model 4. These parameters were examined to determine the direction and magnitude of the effect of the independent variables on the dependent variable and then used to compute the

odds of receiving an unqualified audit opinion at different levels of the independent variables. Table 4 presents the estimated w parameters for model 4 which describes the log odds of receiving an unqualified versus a qualified audit opinion (O) based on total assets (T) and auditor (A) as follows:

$$\text{logit}_{ij} = \ln \frac{F_{ij \text{ UNQUALIFIED}}}{F_{ij \text{ QUALIFIED}}} = w^O + w^{OT}_i + w^{OA}_j \quad (4)$$

From the signs of the opinion-total assets (OT) interaction effects it was clear that large firms (total assets of more than \$100 million) were positively related to the receipt of an unqualified opinion and small firms (total assets of \$100 million or less) were related to the receipt of a qualified opinion. The signs of the opinion-auditor (OA) interaction effects indicated that after controlling for the effect of size, and the interaction between total assets and auditor, three Big Eight firms—Peat, Marwick, Mitchell; Price Waterhouse; and Touche Ross—were positively associated with the receipt of an unqualified opinion. The remaining audit firms were negatively associated with the receipt of a clean opinion. An examination of the size of the

TABLE 3

**Alternative Logit Models Based on a Three-Dimensional Frequency Table
of Opinion by Total Assets by Auditor**

<u>Model</u>	<u>D.F.</u>	<u>Likelihood Ratio</u>		<u>Pearson</u>	
		<u>Chi-square</u>	<u>Prob.</u>	<u>Chi-square</u>	<u>Prob.</u>
1. [O] [AT]	17.	31.54	0.017	28.88	0.036
2. [OT] [AT]	16.	21.28	0.168	19.46	0.245
3. [OA] [AT]	9.	8.72	0.464	8.52	0.483
4. [OT] [OA] [AT]	8.	3.10	0.928	2.98	0.936

O = Type of audit opinion

A = Auditor

T = Total assets

Note: The null hypothesis tested is different from that used in traditional chi-square tests where a low probability results in rejecting the null hypothesis of independence between the variables. Here, the null hypothesis is that the model fits the data. A high chi-square value relative to the degrees of freedom indicates that there is a low probability that the model fits the data and results in rejecting the null hypothesis. Conversely, a low chi-square value relative to the degrees of freedom indicates there is a high probability the model fits the data, and results in accepting the null hypothesis.

estimated *OA* parameters showed that Price Waterhouse was by far the most likely to issue a clean opinion, whereas Deloitte, Haskins and Sells was slightly more likely than the other firms with negative *OA* parameters to issue a qualified opinion.

The log of the odds of receiving an unqualified versus a qualified audit opinion for a small firm audited by Arthur Andersen is equal to the sum of the opinion effect, plus the *OT* interaction effect, plus the *OA* interaction effect, or -0.398 ($0.371 - 0.373 - 0.396$). Taking the antilog of -0.398 produces the odds of an unqualified opinion. In Table 5 the odds of receiving a clean opinion based on size and auditor are reported.

Based on the firms in this sample, the odds of receiving an unqualified opinion based on size alone (disregarding the *OA* interaction effect) were even (1-to-1) for a smaller firm (total assets of \$100 million or less) and 2-to-1 for a larger firm (total assets of more than \$100 million). It is clear that the addition of the auditor-opinion interaction produces a good deal of variation in the odds, which is most apparent in compar-

ing the three firms with positive opinion-auditor parameters (Touche Ross, Price Waterhouse, and Peat, Marwick, Mitchell) to the remaining firms. Excluding clients of those three firms, the odds of getting an unqualified opinion were fairly consistent across auditors, and range between 1-to-1 and 1.5-to-1 for larger firms (compared to the 2-to-1 odds predicted based on size alone) and between .5-to-1 and .7-to-1 for smaller firms (as opposed to the 1-to-1 odds predicted based on size alone).

Summary and Conclusions

In this study, the factors related to the audit qualification decision for litigation uncertainties were investigated by using a comparison sample of firms which were facing pending litigation, and thus could have been issued a subject to audit opinion, but were not. Hierarchical loglinear models were used to analyze the relationship between the type of audit opinion received for pending litigation and size, financial strength, and auditor. A model was identified which provided an excellent fit to the data and furnished evidence that only

TABLE 4
Estimated w Parameters for the
Model [OT] [OA] [AT]

<u>Term</u>	<u>Parameter</u>
O	
Constant	0.370947
OT Total Assets	
Small (\$100 million or less)	-0.373067
Large (more than \$100 million)	0.373067
OA Auditor	
Arthur Andersen & Co.	-0.396351
Arthur Young & Co.	-0.534589
Coopers & Lybrand	-0.433520
Deloitte, Haskins & Sells	-0.604506
Ernst & Whinney	-0.330702
Peat, Marwick, Mitchell & Co.	0.540980
Price Waterhouse	1.578183
Touche Ross & Co.	0.566142
Other	0.385637

O = Type of Audit Opinion
T = Total Assets
A = Audit firm.

two independent variables—size and audit firm—were sufficient to describe the type of audit opinion received by a firm facing a litigation loss contingency. As predicted, smaller firms were found to be more likely to receive an audit qualification. It may be that auditors were treating small firms differently than large firms, being more likely to note contingencies in their audit reports. Alternately, since materiality was not included as a variable, it is also possible that the size variable proved significant because it was acting as a surrogate for materiality.

Contrary to expectations, this study produced evidence which indicated that financial strength did not significantly influence the auditor's reporting decision for litigation uncertainties. Thus, while the financial statement ratios included in this study are useful in predicting bankruptcy and seem to be relied upon by auditors of firms that may be approaching bankruptcy

[Menon and Schwartz, 1987; Mutchler, 1985], they do not seem to be important in making the reporting decision for firms facing a litigation loss contingency. Dopuch, Holthausen, and Leftwich [1987] also reported results which confirmed their hypothesis that financial variables should have less explanatory power for litigation qualifications than for other types of qualifications.

The results support the hypothesis that audit firms differ in their tendency to issue subject to opinions, which is consistent with the results of Warren [1980] and Chow and Rice [1982]. Chow and Rice [1982] reported that Arthur Young, Touche Ross, and Coopers and Lybrand were significantly related to the receipt of a qualified opinion. The present study also provided evidence that Arthur Young and Coopers and Lybrand were associated with the receipt of an audit qualification; Touche Ross, however, was found to be associated with the receipt of an unqualified opinion. The results of this study also illustrated that five of the Big Eight firms were relatively consistent in their tendency to issue audit qualifications for firms facing pending litigation.

TABLE 5

The Odds of Receiving an Unqualified Versus
a Qualified Audit Opinion

<u>Auditor</u>	<u>Total Assets</u>	
	<u>\$100 million or less</u>	<u>More than \$100 million</u>
Arthur Andersen & Co.	0.7	1.4
Arthur Young & Co.	0.6	1.2
Coopers & Lybrand	0.6	1.4
Deloitte, Haskins & Sells	0.5	1.1
Ernst & Whinney	0.7	1.5
Peat, Marwick, Mitchell & Co.	1.7	3.6
Price Waterhouse	4.8	10.2
Touche Ross & Co.	1.8	3.7
Other	0.7	1.4

Note: The odds are given relative to one, e.g., 1.5 indicates odds of 1.5-to-1.

The implications of this research should be of interest to financial statement users, auditors, researchers, and to those who have debated the subject to opinion's continued existence. Future research is needed to determine whether size itself is significant after the magnitude of the expected loss is controlled for. Future

studies may also clarify the process by which auditors reach a decision on the type of audit report to be issued, and explore why different auditing firms may arrive at different decisions in similar circumstances.

Suggestions for Future Research

A shortcoming of the present study was an inability to measure the materiality of a firm's lawsuits based on publicly available information. A small sample study in which this information could be obtained would improve the ability to assess the relative significance of client size and materiality. An alternative means of gaining evidence about auditor decision making is through behavioral research, and a laboratory study could help shed a different light on the research questions addressed in this study of archival information. ■

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