Predicting Auditor Changes with Qualified Audit Opinions Using Logit Analysis: Revisited

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Our study revisits the qualified audit opinion factor in predicting auditor changes using logit analysis. The empirical test results of logit analysis in the prediction model of auditor change study with qualified audit opinions show that the prediction study performs reasonably well using financial and other data from the Form 10-K report. Even though several data mining approaches have been used recently, the prediction rates are similar to the logit models. The qualified audit opinion variable is significant from this analysis. These results imply that the qualified audit opinions with financial distress factors add significant information value in predicting auditor change.

INTRODUCTION

Audit reports were designed to give signals to financial statement users about a firm's financial conditions by auditors. Qualified audit opinions signal more serious red flags when the audited firms are financially distressed (Fernández-Gámez, García-Lagos, and Sánches-Serrano, 2016).

Previous studies, however, used data mining techniques to study this issue and their overall prediction rates were qualitatively similar to predict auditor changes (Maggina and Tsakianganos, 2011; Fernández-Gámez et al., 2016). There were not many U.S. auditor change prediction studies to examine qualified audit opinion issues previously. Therefore, this article reexamines this issue with current auditor change prediction models using logit analysis. Most data mining tools do not provide each variable's contribution for the overall prediction model. Another reason logit analysis was used was to test the information value of qualified audit opinions. The empirical test results of logit analysis in the prediction model of auditor change study with qualified audit opinions show that the prediction study performs reasonably well using financial and other data from the Form 10-K report. The qualified audit opinion variable is significant from these results. The results imply that the qualified audit opinion with financial distress factors add significant information value in predicting auditor change.

The paper proceeds as follows. The next section discusses relevant prior research. The third section presents the sampling criteria, sources of data, and presents the findings. The last section summarizes and discusses the conclusions of this study, and provides further research avenues.

BACKGROUND AND PRIOR RESEARCH

Chen, Gupta, and Chang (2004) present logistic regression results that document statistical significance of auditor changes and five financial distress variables in predicting bankruptcy. In a similar study, Chen, Yen, and Chang (2009) use a logistic regression model for bankruptcy prediction with a small sample of bankruptcy and non-bankruptcy firms listed on the Taiwanese Stock Exchange and the resulting coefficients on their auditor change variable and on their financial distress index variable are statistically significant.

Based on these prior studies, there is a positive association between bankruptcy and auditor changes. However, this paper's focus is in predicting auditor changes. Hudaib and Cooke (2005) hypothesize that financial distress may influence a firm's decision to change auditors either directly or indirectly. Using a financial ratio-based index or Z-score variable to capture financial distress in their multivariate logistic regression, Hudaib and Cooke (2005) find that the probability of switching auditors increases as financial health declines.

Previous studies examine aspects of auditor changes, but not incorporate a portfolio of financial condition variables. Sundgren and Svanstrom (2014) find out auditor age is related to audit reporting. Dhaliwal, Lamoreaux, Lennox, and Mauler (2015) find out firms with Big-4 auditors have significant influence over auditor selection by management. Recently, Fernández-Gámez et al. (2016) use corporate governance and financial variables to predict qualified audit opinions. Landsman, Nelson, and Rountree (2009) focus on client risk factors and client misalignment characteristics of audit client portfolio management decisions by the top-tier (Big N) accounting firms in pre- and post-Enron periods. This current study is an extension of Kwak, Eldridge, Shi, and Kou (2011), using the same variables to capture financial distress. Sun (2007) proposes that adding industry effect, stock returns, and advanced statistical method may increase the prediction rate. Because bankruptcy is the extreme form of financial distress, most of the variables are those used by Altman (1968) and Ohlson (1980) in their classic bankruptcy prediction studies and by other previous studies. It is assumed that the auditor change decision is made by top management, but the audit committee may also participate in the auditor selection and change process.

Since this study's focus is auditor change prediction with qualified audit opinions, traditional logit model used by Ohlson (1980) will be used for this study. This model allows us to check how each variable contributed to the overall prediction model. Other data mining models may provide similar prediction rates, but it cannot be determined which variables contribute to overall prediction model.

SAMPLE AND EMPIRICAL RESULTS

Sampling Criteria

Audit Analytics was used to identify firms that changed auditors from 2001 to 2006. This time period was selected the impact of *Sarbanes–Oxley* on auditor change could be checked. If firms have had several auditor changes within the test period, the first auditor change was chosen. Of the total initial firms identified, only firms with financial statement information one year prior to the auditor change were included in the 1,842 final experimental observations. Since the treatment firms were not randomly selected, a matched-pair design was applied. The following criteria were imposed on the pair-matched control sample firms: (1) no auditor change, (2) the same industries as the treatment firms (as reflected by first two SIC codes), and (3) comparable size. Size is defined as total assets. Each control firm is matched to a treatment firm in the year with auditor change. The final control firms composed of 1,842 firm observations that have financial statement and auditor information from Compustat and Audit Analytics.

Empirical Results

Table 1 shows the descriptive statistics for firms with auditor changes (Panel A) and without auditor changes (Panel B). First, the mean of qualified auditor opinion (*Qualified*) in firms with auditor changes is much higher than that in firms without auditor change. Next, turning to the measures of liquidity, the

means of Total Liabilities divided by Total Assets (*TL_TA*), indicator variable OENEG equal to 1 if *TL_TA* is greater than one, and Total Current Liabilities divided by Current Assets (*CL_CA*) in auditor change firms are much higher than in non-auditor change firms. Similarly, the mean *WCA_TA* (Working Capital divided by Total Assets) in auditor change firms is much lower than in non-auditor change firms. The results indicate that firms with auditor changes tend to have poorer liquidity.

Relative to non-auditor change firms, auditor change firms have worse ratios of firm profitability. Means of Retained Earnings divided by Total Assets (*RE_TA*), Net Income divided by Total Assets (*NI_TA*), and Earnings before income and taxes divided by Total Assets (*EBIT_TA)* in audit change firms are significantly lower than those in non-auditor change firms. Altman et al.'s (1977) cumulative profitability variable, *RE/TA* (retained earnings/total assets), actually has a negative mean for both groups in this study and is significantly more negative for the audit change firms than firms without qualified audit opinions. This negative mean value for RE/TA is difficult to interpret because one typically expects positive retained earnings, but this results show that auditor change firms are already in trouble financially. In addition, it was found that firms with auditor changes are more likely to be audited by non-big 4 auditors. The growth opportunity (*Growth*) in auditor change firms is much lower than that in non-auditor change firms. Overall, the results in Table 1 suggest that firms with audit changes are significantly different from firms without audit changes in terms of qualified audit opinion, level of financial distress, growth opportunity, and auditor characteristics.

TABLE 1
DESCRIPTIVE STATISTICS

Panel A: firms with auditor change							
Variable	N	Mean	Median	Std Dev	Minimum	Maximum	T-diff
Qualified	1842	0.48	0.00	0.50	0.00	1.00	4.33***
CL_CA	1842	1.51	0.61	4.06	0.03	52.50	3.08***
EBIT_TA	1842	-0.46	-0.03	1.42	-18.97	0.35	-4.67***
FU_TL	1842	-0.43	0.02	2.00	-38.19	3.40	-0.84
INTWO	1842	0.61	1.00	0.49	0.00	1.00	3.89***
NI_TA	1842	-0.64	-0.07	1.95	-31.26	0.38	-4.92***
SIZE	1842	4.94	4.52	2.28	0.02	12.12	2.01
RE_TA	1842	-5.54	-0.50	16.71	-268.83	0.73	-7.40***
TL_TA	1842	0.86	0.52	1.74	0.02	29.44	5.22***
OENEG	1842	0.15	0.00	0.35	0.00	1.00	6.71***
SALE_TA	1842	1.14	0.93	1.09	0.00	9.65	7.98***
MKV_TD	1842	5.01	1.05	27.72	0.00	604.66	-0.60
WCA_TA	1842	-0.04	0.18	1.35	-20.53	0.93	-5.43***
Growth	1842	0.01	0.03	0.50	-3.51	2.28	-4.66***
CHIN	1842	0.01	0.04	0.59	-1.00	1.00	-1.13
B4	1842	0.35	0.00	0.48	0.00	1.00	-29.47***
Andersen	1842	0.18	0.00	0.39	0.00	1.00	12.11***
Audit Fee	1842	0.76	0.82	0.22	0.00	1.00	6.19***

Panel B: firms without auditor change						
Variable	N	Mean	Median	Std Dev	Minimum	Maximum
Qualified	1842	0.40	0.00	0.49	0.00	1.00
CL_CA	1842	1.12	0.50	3.59	0.03	71.56
EBIT_TA	1842	-0.26	0.01	1.13	-18.36	0.35
FU_TL	1842	-0.37	0.07	1.80	-23.68	5.51
INTWO	1842	0.54	1.00	0.50	0.00	1.00
NI_TA	1842	-0.37	-0.02	1.34	-21.29	0.40
SIZE	1842	5.10	4.99	2.15	0.03	12.32
RE_TA	1842	-2.27	-0.21	9.00	-142.98	0.74
TL_TA	1842	0.60	0.43	1.23	0.02	31.90
OENEG	1842	0.08	0.00	0.27	0.00	1.00
SALE_TA	1842	0.89	0.67	0.87	-0.03	10.92
MKV_TD	1842	6.69	1.25	117.02	0.00	3637.32
WCA_TA	1842	0.17	0.23	0.88	-19.59	0.93
Growth	1842	0.08	0.07	0.37	-3.30	2.20
CHIN	1842	0.03	0.04	0.57	-1.00	1.00
B4	1842	0.78	1.00	0.41	0.00	1.00
Andersen	1842	0.05	0.00	0.23	0.00	1.00
Audit Fee	1842	0.71	0.77	0.24	0.00	1.00

Variable Descriptions:

[1] t-value for testing mean differences between bankrupt and non-bankrupt firms

*: $p < 0.10$; **: $p < 0.05$; ***: $p < 0.001$

Variable Descriptions:

Size = Total Assets/Gross Domestic Products;

TL/TA=Total Liabilities/Total Assets (Ohlson (1980) ratio);

WCA/TA=Working Capital/Total Assets (Altman (1968) ratio and (Ohlson (1980) ratio));

CL/CA=Total Current Liabilities/Total Current Assets (Ohlson (1980) ratio);

NI/TA=Net Income/Total Assets (Ohlson (1980) ratio);

FU/TL=Funds from Operations/Total Liabilities (Ohlson (1980) ratio);

INTWO= if Net Income<0 or lag (Net Income) <0 then INTWO=1; else INTWO=0 (Ohlson (1980) dummy variable);

OENEG=if TL/TA>1 then OENEG=1; else OENEG=0 (Ohlson (1980) dummy variable);

CHIN= (Net Income- lag (Net Income))/ [absolute (Net Income) + absolute (lag Net Income)] (Ohlson (1980) ratio);

RE/TA = Retained Earnings/Total Assets (Altman (1968) ratio);

EBIT/TA = Earnings Before Interest and Taxes/Total Assets (Altman (1968) ratio);

MKV/TD = Market Value of Equity/Book Value of Total Debt (Altman (1968) ratio);

SALE/TA = Sales/Total Assets (Altman (1968) ratio);

Audit Fee = Total audit fee divided by total assets.

Table 2 shows the frequency and type of auditor changes. Four types of auditor changes are documented in the table: (1) from Big 4 to Big 4; (2) from non-Big 4 to Big 4; (3) from Big 4 to non-Big 4; (4) from non-Big 4 to non-Big 4. As shown in Table 2, about 61.56% (38.44%) of firms with auditor changes were initially audited by Big 4 (non-Big 4). Among the final sample with audit change, roughly 32% firms changed their auditors from Big 4 to non-Big 4 while 5% firms changed their auditors from non-Big 4 to Big 4. The remaining 63% represents firms switching auditors within the same group (Big 4 to Big 4 and non-Big 4 to non-Big 4).

TABLE 2
TYPES OF AUDITOR CHANGES AND FREQUENCY

	Change to					
	Big Four		Non-Big Four		Total	
Change from	Number	Percentage	Number	Percentage	Number	Percentage
Big Four	538	29.21%	596	32.36%	1134	61.56%
Non-Big Four	105	5.70%	603	32.74%	708	38.44%
Total	643	34.91%	1199	65.09%	1842	100.00%

Table 3 presents the results using Maximum Likelihood Estimates of logit analysis. The study finds that the coefficient on qualified auditor opinion (*Qualified*) is significantly positive, suggesting qualified auditor opinion increases the likelihood of auditor change. Among the financial variables, it was found that firms with lower retained earnings (*RE_TA*) are more likely to have auditor changes. The coefficients for other proxies for financial distress, however, are insignificant. Thus, the other financial distress factors do not add significant information value in predicting auditor change. Finally, the likelihood of auditor changes is positively related to Arthur Andersen (*Andersen*) and negatively related to Big 4 auditors (B4) and growth opportunity (*Growth*), significant at the < .0001 level. The positive coefficient on Arthur Andersen is consistent with the mandatory change as a result of criminal charges relating to its auditing of Enron in 2002. The negative coefficients on *B4* and *Growth* indicate that less growth opportunity and being audited by non-B4 auditors increase the chance of auditor changes.

To explore the impact of SOX on auditor change, an indicator variable, Post, was introduced, set equal to one if auditor change occurs after January 1, 2004 (post SOX period) ; and zero otherwise. The coefficient on the interaction term *Post Qualified* reflects the change in the relation between qualified auditor opinion and auditor change due to the passage of SOX. Interestingly, the results on Table 3 show that the coefficient on *Qualified* is insignificant (0.13 with p- value 0.18) while the coefficient on *Post Qualified* is significantly positive (0.31with p-value of 0.08), indicating firms with qualified auditor opinion are more likely to change their auditors in the post SOX period. In sum, the results show that qualified audit opinion is a contributing factor that leads to auditor change. Most notably, the enactment of SOX strengthens the relation between auditor change and qualified auditor opinion.

The proxies for financial distress are based on the approaches of Altman, Haldeman, and Narayanan (1977) and Ohlson (1980). Among the 13 financial variables, some of them are highly correlated with each other. The high correlation raises the issue of multicollinearity. Although multicollinearity does not decrease the predictive power of the model, the regression coefficients may be biased and, therefore, the explanatory variables that predict auditor change were unable to be determined. For the sake of multicollinearity, a principal component factor analysis was performed. The factor analysis also enabled the financial distress with the common factors extracted from the 13 financial variables to be gauged. Following the traditional rule, all factors with eigenvalues greater than one were retained. This process gives two factors for financial distress. The correlations between the two factors are less than 0.1, suggesting the extracted factors are essentially orthogonal. As shown in Table 4 Panel A, the two factors account for 82 percent of the total variation in explaining auditor change. To interpret the factors, the associations between factors and associated financial variables were examined. Table 4 Panel B shows that factor 1 loadings for OENEG, TL_TA, and WCA_TA are -0.63, -0.87, and 0.93, respectively. Next, it was found that variables EBIT_TA, NI_TA, and FU_TL load strongly on the second factor, with loadings of 0.73, 0.76, and 0.57, respectively. The paper argues factor 1 captures firm liquidity while factor 2 captures firm profitability based on the relationships between factors and associated variables. Table 4 Panel C shows the regression results using the extracted common factors. The study finds that the coefficients on factor 1 and factor 2 are insignificant, suggesting financial distress variables are ineffective in predicting auditor change.

TABLE 3
OVERALL PREDICTION MODEL

Parameter	Model 1 Estimate	p value	Model 2 Estimate	p value
Intercept	0.81	0.00	0.82	0.00
Qualified	0.18	0.03	0.13	0.18
Post			-0.63	<.0001
Post Qualified			0.31	0.08
CL_CA	-0.02	0.23	-0.02	0.24
EBIT_TA	-0.12	0.11	-0.12	0.11
FU_TL	0.03	0.16	0.03	0.18
INTWO	-0.16	0.13	-0.18	0.09
NI_TA	-0.04	0.50	-0.03	0.59
SIZE	-0.02	0.41	-0.01	0.79
RE_TA	-0.01	0.01	-0.01	0.01
TL_TA	-0.03	0.53	-0.03	0.63
OENEG	-0.08	0.63	-0.08	0.63
SALE_TA	0.19	<.0001	0.17	0.00
MKV_TD	0.00	0.08	0.00	0.07
WCA_TA	-0.05	0.48	-0.04	0.58
CHIN	0.02	0.75	-0.01	0.93
Growth	-0.44	<.0001	-0.41	<.0001
B4	-2.27	<.0001	-2.31	<.0001
Andersen	2.19	<.0001	2.12	<.0001
Audit Fee	0.23	0.20	0.24	0.22
Max-rescaled R-Square	0.3464		0.3711	
n	3684		3684	

Consistent to the result in Table 3, the coefficient on qualified auditor opinion (*Qualified*) in Table 4 model 1 is significantly positive. Again, the regression model was rerun including variables *Post* and *Post Qualified.* Qualitatively similar results are presented in Table 4 model 2. Taken together, this factor analysis provides consistent results on the determinants in predicting auditor change.

Table 5 presents the results of auditor change prediction using qualified auditor opinion, financial distress, and other control variables. The overall prediction rates for logit models (Panel A, Panel B, and Panel C) are around 78%. Interestingly, we find the overall prediction rates are not significantly different in models with and without those financial variables (Panel B and Panel C), suggesting financial distress variables do not make incremental contribution to the prediction of auditor change.

We also take account of simultaneity of auditor change. Krishnan, Krishnan, and Stephens (1996) documents the relation between qualified audit opinion and auditor change as a two-way causation. In other words, qualified audit opinion triggers auditor change and the possibility of auditor change also influences auditor opinion. As a result, the causation may be expressed in both directions. To address the potential for simultaneity, we take a three stage least squares (3 SLS) approach. In the first stage, each endogenous variable is regressed on its instrumental variables. In the second stage, the predicted values replace the right side of endogenous variables. The 3 SLS approach enables us to control for correlation cross equations. Simultaneous equations are expressed as follows:

$$Auditor\ Change = \alpha + \beta_{11}Qualified\ Opinion + \beta_{12}Financial\ distress + \beta_{13}Controls + \varepsilon \qquad (1)$$

$$Qualified\ Opinion = \alpha + \lambda_{11}Auditor\ Change + \lambda_{12}Controls + \mu \qquad (2)$$

TABLE 4
FACTOR ANALYSIS: COMBINATION OF ALTMAN'S AND OHLSON'S MODELS

Panel A: Component Factors			
Factor	**Eigenvalue**	**Percentage Explained**	**Cumulative Percentage**
1	3.69	0.57	0.57
2	1.61	0.25	0.82
Panel B: Component loading analysis			
Factor		**Component Loading**	
Factor 1 (Liquidity)			
OENEG		-0.63	
TL_TA		-0.87	
WCA_TA		0.93	
Factor 2 (Profit)			
EBIT_TA		0.73	
NI_TA		0.76	
FU_TL		0.57	

Panel C: Association between extracted factors and the likelihood of auditor change				
	Model 1		**Model 2**	
Parameter	**Estimate**	**p value**	**Estimate**	**p value**
Intercept	0.82	<.0001	0.84	<.0001
Qualified	0.17	0.03	0.11	0.23
Post			-0.67	<.0001
Post Qualified			0.33	0.06
Factor1	-0.02	0.25	-0.02	0.23
Factor2	-0.05	0.12	-0.06	0.15
Growth	-0.36	<.0001	-0.32	<.0001
B4	-2.32	<.0001	-2.32	<.0001
Andersen	2.22	<.0001	2.14	<.0001
Audit Fee	0.25	0.16	0.42	0.13
Max-rescaled R-Square	0.3517		0.3597	
n	3684		3684	

The auditor change equation is essentially the same as the one employed in the main test. Following Krishnan et al. (1996)'s approach, the study controlled for other factors that affect qualified auditor opinion. Dopuch, Holthausen, and Leftwich (1987) document that financial and market variables affect auditors' decisions to issue qualified auditor reports in situations involving uncertainties. Five financial variables are included in equation 2: inventories to assets, receivables to assets, total liabilities to total assets, whether the firm reported a loss, and firm size. Inventories to assets (INV_TA) and receivables to assets (REC_TA) are high-risk accounts that increase auditor loss exposure (Bell and Tabor, 1991). Total liabilities to total assets (TL_TA), whether the firm reported a loss ($LOSS$), and firm size ($SIZE$) are the proxies for financial distress. Dopuch et al. (1987) finds that auditors are more likely to issue qualified opinion when the financial condition of the firm deteriorates. Three market variables are included in equation 2 to predict qualified audit opinion: market beta, standard deviation of stock returns, and market-adjusted returns. Market beta ($BETA$) and residual standard deviation from the market model (STD_RET) are used to capture systematic risk and firm-specific risk. Higher $BETA$ and STD_RET increase the likelihood of qualified audit opinion. Market adjusted returns (E_RET) measure firm performance relative to the market. Industry dummies were also included to control for firm fixed effects.

TABLE 5
PREDICTABILITY RATE

Panel A: Predictability of the logit model using combined 13 financial variables, qualified audit opinion, and control variables				
All Years	**N**	**Number Correct**	**Correct Percent**	**Error Percent**
Type-I	1842	1452	78.83%	21.17%
Type-II	1842	1445	78.45%	21.55%
Overall Prediction Rate			78.64%	21.36%

Panel B: Predictability of the logit model using qualified audit opinion and control variables				
All Years	**N**	**Number Correct**	**Correct Percent**	**Error Percent**
Type-I	1842	1437	78.01%	21.99%
Type-II	1842	1432	77.74%	22.26%
Overall Prediction Rate			77.87%	21.13%

Panel C: Predictability of the logit model using extracted factors and qualified audit opinion				
All Years	**N**	**Number Correct**	**Correct Percent**	**Error Percent**
Type-I	1842	1446	78.50%	21.50%
Type-II	1842	1441	78.23%	21.77%
Overall Prediction Rate			78.37%	21.63%

Table 6 presents the results of three-stage least squares estimation. Panel A in Table 6 shows the results of simultaneous estimates without factor analysis. Consistent to the findings in Table 3, qualified auditor opinion (*Qualified*) in model 1 and the interaction term for *Post Qualified* in model 2 remain significant even after simultaneity is considered. Next, turning to the qualified auditor opinion equation, the coefficient on *Auditor Change* was found to be significantly positive, suggesting a firm who switches auditor is more likely to receive a qualified opinion. In addition, the results indicate that TL_TA is positively correlated with qualified opinion. Such a finding is consistent to the notion that auditors are more cautious for firms with higher leverage. Taken together, these results support a two-way causation between auditor change and qualified opinion. Finally, the simultaneous test using extracted financial distress factors was performed. The qualitative results on Table 6 Panel B are similar to those in Panel A.

TABLE 6
SIMULTANEOUS ESTIMATES OF THE AUDITOR CHANGE
AND THE QUALIFICATION MODELS

Panel A: Simultaneous Estimates without factor analysis				
Dependent Variable: Auditor Change				
	Model 1		Model 2	
Parameter	Estimate	p value	Estimate	p value
Intercept	3.82	0.00	3.79	<.0001
Qualified	1.87	0.01	1.65	0.06
Post			-0.93	0.00
Post Qualified			0.84	0.02
CL_CA	-0.07	0.19	-0.07	0.19
EBIT_TA	-0.12	0.74	-0.11	0.78
FU_TL	-0.05	0.56	-0.05	0.58
INTWO	-0.30	0.22	-0.31	0.24
NI_TA	-0.34	0.38	-0.33	0.38
SIZE	-0.39	0.12	-0.38	0.11
RE_TA	0.03	0.58	0.03	0.59
TL_TA	-0.09	0.86	-0.09	0.85
OENEG	-0.67	0.32	-0.71	0.36
SALE_TA	0.06	0.57	0.07	0.62
MKV_TD	-0.03	0.45	-0.03	0.41
WCA_TA	-0.75	0.03	-0.69	0.04
CHIN	-0.11	0.50	-0.11	0.52
Growth	-0.31	0.29	-0.25	0.22
B4	-2.56	<.0001	-2.57	<.0001
Andersen	2.13	<.0001	2.18	<.0001
Audit Fee	0.18	0.81	0.24	0.84
n	1382		1382	
Dependent Variable: Qualified Auditor Opinion				
	Model 1		Model 2	
Parameter	Estimate	p value	Estimate	p value
Intercept	-3.29	<.0001	-3.28	<.0001
Auditor Change	0.52	0.08	0.52	0.08
SIZE	-0.20	0.12	-0.20	0.12
INV_TA	-0.34	0.11	-0.35	0.12
REC_TA	0.27	0.62	0.27	0.62
TL_TA	1.51	<.0001	1.52	<.0001
LOSS	0.21	0.24	0.21	0.24
BETA	0.00	0.36	0.00	0.37
STD_RET	0.26	0.42	0.28	0.43
E_RET	-0.51	0.68	-0.50	0.68
Industry Dummies	Yes		Yes	
n	1382		1382	

Panel B: Simultaneous Estimates with factor analysis					
Dependent Variable: Auditor Change					
	Model 1		Model 2		
Parameter	Estimate	p value	Estimate	p value	
Intercept	2.78	0.02	2.84	0.03	
Qualified	1.49	0.01	1.12	0.05	
Post			-1.03	0.01	
Post Qualified			1.08	0.02	
Factor1	-0.07	0.19	-0.06	0.15	
Factor2	-0.12	0.16	-0.12	0.16	
Growth	-0.43	0.12	-0.41	0.16	
B4	-3.08	<.0001	-3.12	<.0001	
Andersen	2.15	<.0001	2.11	<.0001	
Audit Fee	0.21	0.86	0.25	0.75	
n	1382		1382		
Dependent Variable: Qualified Auditor Opinion					
	Model 1		Model 2		
Parameter	Estimate	p value	Estimate	p value	
Intercept	-3.21	0.01	-3.23	0.01	
Auditor Change	0.47	0.06	0.49	0.05	
SIZE	-0.18	0.14	-0.18	0.14	
INV_TA	0.36	0.13	0.34	0.11	
REC_TA	0.25	0.70	0.25	0.68	
TL_TA	1.59	<.0001	1.59	<.0001	
LOSS	0.21	0.26	0.21	0.26	
BETA	0.00	0.39	0.00	0.41	
STD_RET	0.24	0.45	0.22	0.47	
E_RET	-0.42	0.75	-0.4	0.76	
Industry Dummies	Yes		Yes		
n	1382		1382		

INV_TA: Inventory divided by total assets;
REC_TA: Receivables divided by total assets;
LOSS: equal to 1 if NI < 0; 0 otherwise else;
BETA: the slope coefficient of the market regression model;
STD_RET: residual standard deviation of the market regression model;
E_RET: stock return minus equally weighted market return.

SUMMARY AND CONCLUSIONS

In this study, a traditional logit model was used to revisit the topic of the information value of a qualified audit opinion in predicting auditor changes. Since qualified audit opinions are designed to give warnings to financial statement users about the audited firm's financial conditions, it is expected that most firms' internal control systems should be better after the implementation of the requirements of the SOX Act. Thus, auditor change prediction models are expected to be more accurate when qualified audit opinions are used as a factor in the prediction model. In addition to the qualified audit opinion, this logit model includes other financial distress variables that prior research has found to be associated with auditor changes. This prediction model that has used logistic regression to study this issue showed that qualified audit opinion does not have additional information value to predict auditor changes. However, if firm characteristics of managers' auditor change motivation are included, it is promising that this model could be improved.

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