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**ARE AUDITORS' GOING-CONCERN EVALUATIONS  
MORE USEFUL AFTER SOX?**

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Key Words: Sarbanes-Oxley Act (SOX), going-concern modifications, bankruptcy, pre-SOX, post-SOX

JEL Classification(s): H5, M4

**Abstract**

Bankruptcy risk is a crucial factor in auditors' decisions whether or not to modify their audit opinion based on the going-concern assumption. SOX required more extensive audit procedures than those required before its passage. More extensive audit procedures should result in more meaningful audit reports. This study examines whether the auditors' going-concern opinion provides more useful incremental information after SOX than before SOX in distinguishing between distressed companies that become bankrupt in the next year and those that do not. We find that an audit opinion variable adds more useful information to bankruptcy prediction models after SOX than

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before SOX. Our findings provide evidence that financial statement users have derived benefits from the costly procedures required under SOX.

## **INTRODUCTION**

A sometimes critical and difficult decision faced by auditors is whether to modify their audit opinions based on going-concern assumptions. Properly assessing bankruptcy risk has been a goal of corporate stakeholders for many years. Auditing standards, including Statement on Auditing Standards (SAS) No. 59 (AICPA 1988), contain requirements and guidelines for auditors. SAS No. 59 requires auditors to evaluate the likelihood that a company will continue in business for the next year after the financial statement date. Substantial doubt as to a company continuing in business requires auditors to include an explanatory paragraph after the opinion paragraph that describes the going-concern problem. Including the explanatory paragraph is commonly referred to as issuing a modified "going-concern" opinion.

The Sarbanes-Oxley Act (SOX) imposed many new requirements on auditing firms including an evaluation of a company's internal control over financial reporting. A motivation for SOX was to restore investor confidence in securities and publicly available financial information. Complying with SOX required much more extensive audit procedures than were previously required. The extra audit work would presumably result in better information provided by auditors.

When considering a going-concern opinion modification, SAS No. 59 suggests conducting analytical procedures (including ratio analysis) and reviewing compliance with the terms of loan and debt agreements. Auditors should evaluate the negative trends in financial ratios and compliance with loan debt requirements. Much previous research has examined what conditions or events lead auditors to modify their opinions due to the going-concern assumption. However, we know of no studies that examined whether going-concern modifications' usefulness in explaining

future bankruptcy significantly improved after SOX compared to before SOX -- a potential benefit from SOX requirements.

This study examines whether auditors' going-concern decisions provide more useful incremental information after SOX than before SOX in explaining companies' bankrupt status in the next year. We limited our analyses to information available in companies' annual financial reports. Our sample included information from annual financial reports issued for 1997 to 1999 as our pre-SOX period and for 2002 to 2006 as our post-SOX period.

We find that auditors' going-concern modification decisions after SOX added more incremental useful information to bankruptcy models than before SOX. These results provide evidence that costly audit procedures required under SOX have provided benefits to financial statement users. The next section more fully discusses the motivation for our study and related prior research. Then, we explain our hypothesis and research methods and present the results of our analyses. The final section contains our conclusions and suggestions for future research.

## **MOTIVATION AND PRIOR RESEARCH**

Many market participants view the auditor's report as a critical component to warn of impending going-concern problems. Many stakeholders tend to view an "audit failure" only as situations where clients become bankrupt within the next financial reporting period, but auditors failed to issue going-concern opinions to them (Blacconiere and DeFond 1997; and Weil 2001). The Sarbanes-Oxley Act (SOX) required much more extensive audit procedures than were previously required and imposed many new requirements on auditing firms. Many company executives, accountants, and others have complained about SOX compliance costs (Foster et al. 2007; Akers et al. 2003). However, extra audit work required by SOX could result in the benefit of better information provided by auditors.

Recent studies including Geiger et al. (2005) and Myers et al. (2009) used going-concern modification predictive models to test the increase in issuance of those modifications after SOX, rather than assessing whether the incremental impact of going-concern modifications on bankruptcy prediction models changed after SOX. In contrast, Shumway (2001), Beaver et al. (2005), and Agarwal and Taffler (2008) assessed bankruptcy prediction models, but did not consider auditors' going-concern modifications in their analyses. Sun (2007) tested the incremental usefulness of going-concern modifications in bankruptcy prediction, but used bankruptcy data from 1991 to 2002.

### **Going-concern Modification Literature**

Many prior studies have examined auditors' going-concern modification decisions in different contexts including Carcello et al. (1995), Behn et al. (2001), Weber and Willenborg (2003), and DeFond et al. (2002). These studies provided evidence that national (Big N) audit firms modified their audit reports due to the going-concern assumption more frequently than non-Big N firms. In contrast, Geiger and Rama (2006) did not find an auditor size effect on going concern opinions in a sample limited to distressed companies. Consequently, we include a control variable for auditor size in our bankruptcy prediction models.

The Sarbanes-Oxley Act of 2002 (SOX) generated research in many areas and led to publications in both practitioner and academic journals. Akers et al. (2003) in *The CPA Journal* suggested that publicity of extreme cases such as Enron and WorldCom have "spurred new laws and regulations, led to increased costs of audit compliance without delivering any improvement in the prediction of bankruptcies." A follow-up article (Bellovary et al. 2006) recommended eliminating the going-concern modification to the audit opinion.

Academic research has indeed addressed the impact of SOX on going-concern modification of auditors' opinions. Geiger et al. (2005) audit opinions for 226 financially stressed firms that

entered bankruptcy from January 2000 to October 16, 2001 (the date Enron admitted to accounting errors) and from January 2002 to December 2003. They also examined bankruptcies from 1991 and 1992. Geiger et al.'s (2005) results indicated that auditors were more likely to issue going-concern modified opinions to subsequently bankrupt companies in the post-December 2001 period than immediately prior to the Enron scandal and around the recessionary period of the early 1990s. Geiger et al. (2005) did not examine going-concern opinions related to companies that did not later enter bankruptcy.

Myers et al. (2009) modified Geiger et al.'s (2005) model and also included financially stressed firms that did not become bankrupt. Myers et al. (2009) focused on whether auditors have become overly conservative in their issuance of going-concern modifications in their audit opinions. They examined periods before and after December 31, 2001 (which proxies for pre- and post- Sarbanes-Oxley Act). Myers et al. (2009, 17) concluded that after 2001, non-Big N auditors became significantly more conservative in their going-concern modification decisions, while going-concern modification decisions of Big N audit firms improved for companies that later became bankrupt and those that remained nonbankrupt.

In a recent study, Feldmann and Read (2010) found that the proportion of going-concern modifications increased sharply in 2002–2003 compared to 2000–2001. However, going-concern modifications declined after 2003, eventually to the pre-Enron level. However, neither Feldman and Read (2010) nor Myers et al. (2009) examined whether the incremental usefulness of the auditor's opinion in predicting bankruptcy significantly increased or decreased after SOX, which is relevant considering the additional cost of SOX compliance.

### **Bankruptcy Prediction Literature**

Many previous bankruptcy prediction studies have used logistic regression models (Lau 1987; Chen and Church 1992;

Hopwood et al. 1994; Ward and Foster 1996; Mutchler et al. 1997; and Foster et al. 1998). Hopwood et al. (1994) used a sample of stressed bankrupt and nonbankrupt firms to develop logistic regression models with seven accounting variables. Distress research by Chen and Church (1992) and Mutchler et al. (1997) found debt defaults to be positively associated with the probability of becoming bankrupt. Consequently, Foster et al. (1998) used Hopwood et al.'s (1994) seven accounting variables and loan default variables to predict bankruptcy and test the incremental value of auditors' going-concern modifications beyond information previously available to the public.

Foster et al.'s (1998) results indicated that debt defaults significantly explained future bankruptcy. They also found that loan default and covenant violations may moderate the impact of going-concern modifications in explaining bankruptcy; going-concern modifications were not useful beyond the other variables included in their model for explaining bankruptcy. Foster et al. (1998) concluded that debt defaults were one of the most useful indicators of bankruptcy risk.

### **Extensions of Previous Research**

Our study extends previous audit policy research by examining whether the incremental usefulness of going-concern modifications in explaining bankruptcy has improved due to SOX. As control variables, we include the variables used by Foster et al. (1998) in our explanatory models. We also added an audit firm variable to control for potential auditor size effects. Recent bankruptcy prediction studies have not included loan default and auditor size variables in their analyses.

## **HYPOTHESIS AND RESEARCH METHODS**

### **Hypothesis**

A main impetus for the Sarbanes-Oxley Act of 2002 was financial fraud perpetrated by publicly traded companies and associated "audit failures". (See Akers et al. 2003, for example.) In light of increased pressure/expectations on auditors, Geiger et al. (2005) and Myers et al. (2009) found that auditors increased the issuance of going-concern modifications after SOX. Thus, based on prior research and justifications for passing SOX, we hypothesize that:

H1: Auditors' going-concern modification decisions add more incremental explanatory power to bankruptcy models after the Sarbanes-Oxley Act than before the Act.

### **Sample Selection**

Because auditors do not consider issuing going-concern opinions unless a firm is under some financial stress, we only include stressed firms in our sample. Even among stressed firms, an auditor's going-concern opinion can reduce the surprise effect caused by bankruptcy announcements (Chen and Church 1996; and Holder-Webb and Wilkins 2000). We use measures of financial stress from previous research (Kida 1980; Mutchler 1985; Hopwood et al. 1994; Mutchler et al. 1997; and Foster et al. 1998). To be included in our sample, companies must meet one of the following criteria: (1) working capital is negative in the current year, (2) a loss from operations in one of the three years prior to the event year, (3) negative retained earnings three years before the event year, or (4) a bottom line loss in one of the last three years before the event year.

To obtain data from comparable periods of economic activity, we include companies that experienced bankruptcy from 1998 to 2000 (report years 1997 to 1999) in our pre SOX data and



companies that experienced bankruptcy from 2003 to 2007 (report years 2002 to 2006) in our post SOX data. Using 2003 bankruptcies as our earliest post SOX year allows us to use 2002 financial statement information. Table 1 summarizes the process followed to obtain our sample.

### Statistical Analyses and Variables

To statistically test whether audit opinion modifications are more significantly associated with bankruptcy after SOX than before SOX while controlling for other factors, we generated logistic regression models. Logistic regression has been used extensively in research with categorical dependent variables (See Foster et al. 1998, for example)

Our dependent variable was a dichotomous measure relating to bankruptcy:

BANKRUPT = 0 if the stressed company did not  
experience bankruptcy, and  
1 if the stressed company did  
experience bankruptcy.

The following independent control variables are based on Foster et al. (1998). The only difference is that we include a variable to control for auditor size effects because earlier research found that the national audit firms modified their audit reports due to the going-concern assumption more than non-national firm (Carcello et al. 1995; Behn et al. 2001; Defond et al. 2002; and Weber and Willenborg 2003).

NITA = net income/total assets;  
CASALES = current assets/sales;  
CACL = current assets/current liabilities;  
CATA = current assets/total assets;  
CASHTA = cash/total assets;  
LTDTA = long-term debt/total assets;  
LSALES = log (sales);  
AUDITOR = 1 if auditor was from one of the Big  
N audit firms and 0 otherwise;

COVVIO = 0 if firm did not violate a loan covenant, 1 if the 10-K or annual report the year before the event year indicated firm violated terms of covenant but did not miss a payment or obtain a favorable debt accommodation; and

LD = 0 if firm did not loan default/accommodate, 1 if the 10-K or annual report the year before the event year indicated firm missed a payment or obtained a favorable debt accommodation (missed payments, received an extension, favorable debt restructuring, etc.).

Data needed to construct the auditor variable and accounting-based variables were obtained from the COMPUSTAT North American Industrial Annual database for the last annual financial statements issued prior to bankruptcy.

The main variable of interest in this study is the interaction between audit opinion and pre- or post-SOX. Thus, the following two variables and their interaction were tested:

OPIN = 0 if company received an auditor's opinion unmodified due to the going-concern assumption, and 1 if received an opinion modified due to the going-concern assumption; and

SOX\_PERIOD = 0 if the data is from the period before Sarbanes-Oxley, and 1 if the data is after Sarbanes-Oxley.

The interaction between audit opinion and SOX (OPIN \*SOX\_PERIOD) is the variable of interest in this study. A significant, positive parameter estimate for OPIN \*SOX\_PERIOD, would indicate that auditors' going-concern modification decisions more accurately reflect companies' future bankruptcy status after

Sarbanes-Oxley than before the Act, thus accepting this study's hypothesis.

## RESULTS FROM ANALYSES

### Logistic Regression Models

Table 2 reports results from the logistic regression models with interaction terms. The first model was run on the full data for the years identified in Table 1. Feldmann and Read (2010) found that the proportion of going-concern modifications increased sharply immediately after SOX, but eventually declined to pre-SOX levels. Consequently, we also report results produced by the model with the post-SOX observations from 2003 and 2004 deleted.

Table 2 shows that the models' results for the control variables are generally consistent with those reported by Foster et al. (1998). Similar to Foster et al., our results suggest that both COVVIO and LD are significantly and positively associated with bankruptcy; bankrupt firms are more likely to have loan covenant violations and/or loan defaults/accommodations than nonbankrupt firms one year before the event. Other significant control variables (at  $p$ -value  $< .05$ ) in our bankruptcy model are NITA, CATA, LTDTA, LSALES, and SOX\_PERIOD. CATA, LTDTA, and LSALES were not significant in the Foster et al. (1998) article, but are significant here. Similar to Geiger and Rama (2006) we did not find a national auditor relationship with distress; the AUDITOR variable is not significant. The significant negative parameter estimate for SOX\_PERIOD indicates that stressed companies were less likely to enter bankruptcy after Sarbanes-Oxley than before. Based on the sample proportions reported earlier, this result is as expected.

The interaction term OPIN\*SOX\_PERIOD tests our hypothesis that the positive relationship between audit opinion and bankruptcy is stronger in the post SOX period. The parameter

estimates for OPIN\*SOX\_PERIOD are positive and significant (at p-values < .05) as expected in analyses with all observations, and the analysis omitting 2003 and 2004 bankruptcies. The positive parameter estimates suggest that auditors are significantly more likely to issue going-concern modifications to future stressed bankrupt firms after SOX than before SOX; auditors distinguished significantly better one year in advance which stressed companies would and would not, go bankrupt post-SOX than they did before SOX. Thus, results for the analyses with observations including both the pre-SOX and post-SOX period are consistent with our hypothesis; auditors' going-concern modification decisions added significantly more incremental explanatory power to the bankruptcy model after SOX than before the Act. H1 is accepted.

### **Models by Period**

Results for this study did differ somewhat from those reported by Foster et al. (1998). The significant positive sign on the parameter estimate for OPIN reported in Table 2 suggests that auditors' going concern opinions were incrementally useful in explaining subsequent bankruptcy even after controlling for loan defaults/accommodations. This result is not consistent with Foster et al. (1998). However, Foster et al.'s sample obviously contained all pre-SOX observations.

The significance on OPIN may result from our sample containing post SOX data. Our results for the OPIN\*SOX\_PERIOD interaction suggests that OPIN is more strongly associated with bankruptcy after SOX than before SOX. The strength of this relationship after SOX may be strong enough to render the variable significant even when pre-SOX data is included in the sample. Consequently, we ran separate regression analyses on the pre SOX data (from 1998 to 2000, 374 observations) and the post-SOX data (from 2003 to 2007, 589 observations). We also looked at only using data from 2005 to 2007 for the post SOX model. Because the results for this model

were similar to analyses with 2003 to 2007 data, we only report results for analyses with the 2003 to 2007 firms.

These models by period results are reported in Table 3. Because the models are run within each period, the SOX\_PERIOD variable and related interactions are no longer relevant. Only the LD\*OPIN interaction is still relevant.

Results show that OPIN is very significant after SOX (p-value < .001), but not significant before SOX (p-value not < .05). These analyses reinforce results reported in Table 2. The OPIN\*SOX\_PERIOD interaction term in Table 2 and the pre-SOX period result for OPIN reported in Table 3 are consistent with the results of Foster et al. (1998). Thus, statistical results suggest that SOX requirements did lead auditors to issue more useful going concern modifications. Therefore, auditors going-concern modifications should help users of financial statements to better predict future bankruptcy among stressed companies.

## CONCLUSION

This study extends prior audit research by testing whether the association between going-concern modifications and future bankruptcy significantly improved after SOX. We incorporate control variables used in an earlier audit study (Foster et al. 1998) and added a control variable for audit firm size. We used logistic regression models to test the relationship between going concern modifications and future bankruptcy before and after SOX.

Our analyses provide evidence that auditors' going-concern modification decisions added significantly more incremental useful information in explaining future bankruptcy after SOX than before SOX. Thus, our results suggest that the auditors were not necessarily just more conservative in their audit opinion modifications after SOX, but they better anticipated future bankruptcy of stressed companies. These analyses support the contention that costly audit procedures required under SOX have provided benefits to financial statement users in the form of more

accurate going-concern modifications. These benefits should be considered in future deliberations of repealing or changing any SOX requirements for auditors.

Unlike some recent bankruptcy prediction studies, (Sun 2007; Beaver et al. 2005; and Shumway 2001) we included only one year lagged data in our models and decided to not employ a hazard model with several years of data. We decided to employ more traditional one year lagged logistic regression models for a couple of reasons. First, this study followed the going-concern/bankruptcy research of Foster et al. (1998). Thus, the same sampling and statistical techniques were used so that any differences found in this study could be attributed to the variable of interest and not be confounded by differing sampling and statistical techniques. Also, only one lagged year was possible to obtain a sample for the post-SOX period.

Second, loan covenant violation and loan default variables were needed because prior research has shown that both are significant in explaining future bankruptcy (Chen and Church 1992; Mutchler et al. 1997; and Foster et al. 1998) and that loan defaults may moderate the usefulness of going concern modifications in explaining future bankruptcy (Foster et al. 1998). However, including loan covenant violation and loan default variables physically limits the number of companies that can be included in a sample because loan default information must be determined by manually examining footnotes to annual financial statements. Addressing the incremental benefit of the going-concern modification with a larger sample and use of a hazard model would provide an extension to the research conducted in this study.

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**Table 1**  
**Sample Selection**

<u>Bankrupt</u>	<u>Post SOX</u>	<u>Pre SOX</u>	<u>Totals</u>
Identified from bankruptcy.com, <i>Wall Street Journal Index</i> , <i>Lexis-Nexis</i> , or <i>Westlaw Business/LIVEDGAR</i>	527	420	
Company in inappropriate SIC or not included in <i>COMPUSTAT</i>	<u>(251)</u>	<u>(183)</u>	
	276	237	
Insufficient information in <i>COMPUSTAT</i> or were unable to check other information in <i>EDGAR</i>	<u>(93)</u>	<u>(102)</u>	
Bankrupt Companies with all variables (used in regression models)	<u>183</u>	<u>135</u>	<u>318</u>
<u>Nonbankrupt</u>	<u>Post SOX</u>	<u>Pre SOX</u>	
Initially identified as potential match	643	488	
Insufficient information in <i>COMPUSTAT</i> or were unable to check other information in <i>EDGAR</i>	<u>(237)</u>	<u>(249)</u>	
Nonbankrupt Companies with all variables (used in regression models)	<u>406</u>	<u>239</u>	<u>645</u>
Totals of final sample	<u>589</u>	<u>374</u>	<u>963</u>

**Table 2**  
**Logistic Regression Results**

<u>Variables</u>	<u>Model Using Full Data</u>		<u>Model with 2003 and 2004 firms dropped</u>	
	Parameter <u>Estimates</u>	<u>Wald <math>\chi^2</math></u>	Parameter <u>Estimates</u>	<u>Wald <math>\chi^2</math></u>
Intercept	-2.97	35.80***	-0.60	1.16
NITA	-0.52	5.40*	-0.55	2.75
CASALES	-0.01	1.36	-0.01	1.06
CACL	-0.20	3.47	-0.18	2.28
CATA	1.10	5.57*	1.42	6.63**
CASHTA	-0.87	1.01	-2.46	4.75*
LTDTA	1.44	19.72***	1.27	11.90***
LSALES	0.41	7.21**	0.38	4.60*
AUDITOR	0.18	0.40	0.25	0.54
COVVIO	1.10	25.72***	0.42	11.15***
LD	0.88	8.76**	0.81	14.35***
OPIN	1.76	14.18***	1.01	21.07***
SOX_PERIOD	-0.69	9.02**	-0.12	0.36
LD*SOX_PERIOD	-0.20	0.3	-0.16	0.66
LD*OPIN	-0.38	1.08	-0.25	1.52
OPIN*SOX_PERIOD	1.27	4.75*	0.43	4.26*
LD*OPIN*SOX_PERIOD	-0.17	0.15	-0.20	0.21
Model -2Log Likelihood	350.75*** (16df)		237.85*** (16df)	

All independent variables and relevant interactions were regressed on a dichotomous nonbankrupt versus bankrupt dependent variable (BANKRUPT). All of the above variables were defined on pages 7 and 8.

The Wald  $\chi^2$  (1 degree of freedom) tests the significance of each individual variable, while the -2Log Likelihood tests the predictive significance of the overall model.

\*\*\* Significant at p-value  $\leq$  .001.      \*\* Significant at p-value  $\leq$  .01.  
\*Significant at p-value  $\leq$  .05.

**Table 3**  
**Logistic Regression Results by Period**

<u>Variables</u>	<u>Panel B: Model on Data before SOX Period</u>		<u>Panel B: Model on Data after SOX Period</u>	
	<u>Parameter Estimates</u>	<u>Wald <math>\chi^2</math></u>	<u>Parameter Estimates</u>	<u>Wald <math>\chi^2</math></u>
Intercept	-0.822	1.58	-4.043	25.86***
NITA	-1.199	5.18*	-0.411	2.69
CASALES	-0.038	0.07	-0.010	1.51
CACL	-0.070	0.25	-0.300	3.36
CATA	1.106	2.81	0.826	1.49
CASHTA	-1.937	1.76	0.314	0.06
LTDTA	0.866	3.74*	2.014	17.11***
LSALES	0.471	4.73*	0.475	4.32*
AUDITOR	0.027	0.01	0.175	0.22
COVVIO	0.347	5.16**	1.487	21.08***
LD	0.948	10.39**	2.264	12.27***
OPIN	0.549	3.44	3.213	48.02***
LD*OPIN	0.328	1.30	-1.711	4.83*
Model -2Log Likelihood	115.659*** (12df)		243.264*** (12df)	

\*\*\* Significant at p-value  $\leq$  .001.      \*\* Significant at p-value  $\leq$  .01.  
\*Significant at p-value  $\leq$  .05.