Recent Changes in the Association between Bankruptcies and Prior Audit Opinions

Marshall A. Geiger, K. Raghunandan, and Dasaratha V. Rama

SUMMARY: The intense legislative and media scrutiny after a series of high-profile corporate failures, coupled with the paradigm shift in the regulation of the auditing profession brought forth by the Sarbanes-Oxley Act, suggests that auditors’ decisions would be more conservative in the period after December 2001. Based on analyses of 226 financially stressed companies that entered bankruptcy during the period from 2000 to 2003, we find that auditors are more likely to issue going-concern modified audit opinions in the period after December 2001. Since the post-December 2001 period coincides with recovery from a recession in the U.S., we also examine prior audit opinions for 93 companies entering bankruptcy in 1991 and 1992. We find that auditors were also more likely to issue prior going-concern modified audit opinions in 2002–03 than in the earlier recession recovery period. Following the technique used in Francis and Krishnan (2002), we document that the increase in going-concern modification rates for bankrupt companies after December 2001 is due to changes in auditor reporting decisions and not solely due to differences in client characteristics between the time periods studied.

Keywords: bankruptcy; going-concern reports.

Data Availability: Contact the authors.

INTRODUCTION

The period since December 2001 has been tumultuous for the auditing profession in the U.S. After a series of congressional hearings beginning in December 2001, the Sarbanes-Oxley Act (SOX 2002) was enacted in July 2002. In light of the hearings and the attendant media focus on the auditing profession, as well as the other high-profile corporate failures in 2001 and in 2002 that facilitated the enactment of SOX, it is reasonable to expect that auditors’ behavior would have been significantly affected by these events beginning in December 2001.

In this paper we examine changes in the likelihood of bankrupt firms having received a prior going-concern modified audit opinion. We argue that auditors became more conservative in their opinion decisions beginning in January 2002 in order to enhance their reputation as a high-quality auditor, reduce the auditor’s litigation risk given the heightened level of investor and public scrutiny...
of the profession, and/or to be proactive in an attempt to reduce the extent of government inter-
vention and legislation imposed on the profession. Motivation for this research comes from: (1) the 
continuing concern of the accounting profession, legislators, and the public regarding early warn-
ings from auditors about pending client failures in the form of modified audit opinions, and (2) the need 
to assess the impact of the changed auditing environment on auditors’ decisions.

Our study focuses on changes in audit opinions following the events of 2001 and 2002 that 
dramatically altered the auditing paradigm in the U.S. The congressional and media spotlight in early 
2002 was almost entirely unfavorable to the auditing profession, and led to significant changes in the 
regulatory and legal framework of auditing. Hence, we hypothesize that auditors’ reporting decisions 
would be more conservative in the period after December 2001, resulting in a higher likelihood that 
bankrupt firms would have received a prior going-concern modified audit opinion.

We examine the prior audit opinions issued for 226 firms that entered into bankruptcy during the 
years 2000 through 2003. We find that, after controlling for financial stress, default status, client 
size, bankruptcy and reporting lags, industry type, and auditor type, auditors were more likely to 
issue going-concern modified audit opinions in the period after December 2001. Since the U.S. 
economy was recovering from a recession in the 2002–03 period, we also compare audit opinions in 
the post-December 2001 period with audit opinions for bankruptcies from an earlier period when the 
U.S. economy was recovering from a recession, namely 1991–92. We find that auditors were more 
likely to issue going-concern modified opinions in the post-December 2001 period than in the earlier 
recession recovery period. Additionally, using the technique discussed in Francis and Krishnan 
(2002), we assess changes in audit opinion decisions as a combination of changes in client character-
istics and changes in auditor reporting strategies. With this approach, we find that a significant part 
of the increase in going-concern modified opinions after December 2001 can be attributed to changes 
in auditor reporting strategies. Overall, our results are consistent with the position that auditors are 
more likely to issue going-concern modified audit opinions in the period after December 2001.

BACKGROUND AND HYPOTHESIS

The Public’s Interest in Going-Concern Reporting

Legislators periodically focus on instances of companies filing for bankruptcy shortly after 
receiving a standard (unmodified) audit opinion, and question the role of auditors in warning the 
U.S. Senate 2002). Legislative interest in this area is also evident from the going-concern reporting 
financial statements of an issuer by an independent public accountant shall include … an evaluation 
of whether there is substantial doubt about the ability of the issuer to continue as a going concern 
during the ensuing fiscal year.” The going-concern reporting provisions of PSLRA (1995) essentially 
codified the existing professional standards at the time into law. However, the fact that Congress 
mandated a specific auditing procedure for all SEC registrant audits for the first time since 1934 by 
elevating going-concern reporting to the status of law is indicative of legislators’ concerns about 
early warning of impending client failures in the form of going-concern modified audit opinions.

There is a renewed interest from legislators, media, and regulators about the early warning 
signals from auditors prior to client bankruptcies. During hearings before the Senate Banking Com-
mittee, a former SEC chairman called for a “mandatory review of all audits when any company files 
for bankruptcy within a defined period of receiving a ‘clean’ audit opinion” (Breeden 2002). News-
papers continue to focus on instances of firms filing for bankruptcy shortly after receiving a clean 
audit opinion (e.g., Babington 2002; Bryan-Low 2002). In response to such concerns about going-
concern reporting, the NASDAQ and AMEX modified their listing standards to require increased 
disclosure when a firm receives a going-concern modified audit opinion (Wall Street Journal 2002a,
Effect of Recent Changes on Going-Concern Modified Audit Opinions

The going-concern opinion decision can be modeled as a two stage process wherein the auditor (1) assesses the probability, \( p \), of client failure and (2) compares the assessed probability of failure with the indifference probability of failure, \( p^* \), for “substantial doubt.” The auditor will issue a going-concern modified opinion when the assessed probability of client failure, \( p \), is higher than the indifference probability, \( p^* \).

There are two types of misclassifications, with associated costs, in the context of audit opinions and bankruptcies (e.g., Hopwood et al. 1994; Carcello et al. 1995, 1997; Raghunandan and Rama 1995). A Type I misclassification occurs when a client receives a going-concern modified opinion from the auditor but subsequently remains viable. In contrast, a Type II misclassification occurs when a company enters bankruptcy but did not receive a prior going-concern modified opinion from the auditor in the period immediately preceding the bankruptcy filing. While there are costs associated with both types of misclassifications to auditors, clients, and financial statement users, the focus of legislators and the public has almost exclusively been on instances of Type II misclassifications. Many previous papers document that less than half of all companies filing for bankruptcy have a prior going-concern modified audit opinion in the immediately preceding financial statements (Altman 1982; Hopwood et al. 1989; McKeown et al. 1991; Raghunandan and Rama 1995; Carcello et al. 1995, 1997).1

Prior studies note that auditors’ perceptions about the misclassification costs are important determinants of audit reporting decisions (Kida 1980; Mutchler 1984) and that misclassification costs must be considered in examining the association between bankruptcies and prior audit opinions (e.g., Hopwood et al. 1994; Raghunandan and Rama 1995). In addition, prior research suggests that some auditors believe the likelihood of losses from litigation is increased if a bankrupt company is not given a prior going-concern modified opinion (Kida 1980; Mutchler 1984).2 Thus, if auditors’ perception about misclassification costs change then the likelihood of going-concern modified opinions will also change.

Let \( C_I \) and \( C_{II} \) represent the auditor’s perceived costs associated with a Type I and Type II reporting misclassification, respectively. It can be shown that the indifference probability \( p^* = 1 / [1 + (C_{II}/C_I)] \) (see, for example, Raghunandan and Rama 1995). Thus, as the ratio of \( C_{II}/C_I \) increases, the threshold for issuing a going-concern modified audit opinion (\( p^* \)) decreases. Hence, as \( C_{II} \) increases or as \( C_I \) decreases, the likelihood of issuing a going-concern modified opinion increases.

The PSLRA (1995) was widely believed to have reduced auditor’s liability, and hence possibly served to reduce auditor conservatism. Consistent with this argument, Francis and Krishnan (2002) and Geiger and Raghunandan (2001, 2002) find that auditors were less likely to issue a going-concern modified audit opinion following the enactment of the PSLRA (1995).

The events of late 2001 and early 2002 have significantly changed the environment of auditing in the U.S. The widespread negative media scrutiny of auditors and the numerous congressional hearings, coupled with legislative changes that seek more stringent regulation of audit firms, can be expected to affect auditors’ decisions. In the post-December 2001 period, auditors have incentives to be more conservative in their opinion decisions so as to enhance their reputation after the unprecedented broad-based media attack on the auditing profession, reduce litigation risk related to “reporting...

---

1 Prior research also finds that only about 10 percent of firms receiving a going-concern modified audit opinion file for bankruptcy within one year (Mutchler and Williams 1990; Nogler 1995).
2 Carcello and Palmrose (1994, 3) examine bankruptcy-related lawsuits against auditors, and find that auditors who had issued modified reports prior to client bankruptcy had “the highest dismissal rate and the lowest payments.”
failures,” and be more proactive to reduce the extent of regulatory intervention, given the widespread and prominent nature of the congressional investigations and the consequent uncertainty related to the nature of the governmental intervention. Alternatively, it is possible that the auditing profession made an effort to self-correct after the reduced conservatism observed in the post-PSLRA period.

Specifically, we argue that auditors’ perceptions about the cost associated with Type II misclassifications would have increased in the post-December 2001 period. Ceteris paribus, this suggests that the ratio of $C_II/C_I$ would be greater in the period after December 2001 than in prior periods and hence would lead to $p^*$ (threshold probability for going-concern modified audit opinion) being lower in the period after December 2001 than in the preceding years. This would result in auditors reporting more conservatively and issuing, after December 2001, going-concern modified audit opinions to clients that are less likely to have received a similar opinion in prior periods. Thus, if $p^*$ (post-December 2001) < $p < p^*$ (pre-December 2001) (where $p$ is the assessed probability of failure for a given client), a going-concern modified audit opinion would have been issued post-December 2001 but not pre-December 2001. This in turn suggests that client bankruptcies without a prior going-concern modified audit opinion will be less likely in the post-December 2001 period compared to the preceding years. Thus, the hypothesis examined in this study is:

$$H_A: \text{ Bankrupt companies are more likely to have received a prior going-concern modified audit opinion after December 2001 than in the immediately preceding period.}$$

METHOD

We begin with all firms that filed for bankruptcy in the years 2000 through 2003. The pre-December 2001 sample includes all firms that enter into bankruptcy for which the audit opinion date is after January 1, 2000 and before October 16, 2001 (we use October 16, 2001 as the cut-off since Enron admitted to accounting errors on that date). The earliest bankruptcy (audit report) date for this group was April 6, 2000 (January 7, 2000). The post-December 2001 period encompasses all bankruptcies for which the audit opinion date is after January 1, 2002. The latest bankruptcy (audit report) date for this group was December 29, 2003 (August 20, 2003). While we exclude the ten bankruptcies with audit opinion date between October 17, 2001 and January 1, 2002, including them in either the pre- or post-December 2001 period does not substantively change the results.

Model

We use a multivariate regression model that includes various client and auditor characteristics as control variables to test our hypothesis. The audit opinion immediately preceding bankruptcy is the dependent variable in our multivariate logistic regression model. The time period ($TIME$), pre- or post-December 2001, is the explanatory variable of interest. Based on prior research (McKeown et al. 1991; Carcello et al. 1995, 1997; Raghunandan and Rama 1995; Geiger and Raghunandan 2001), we use the following as control variables: (1) firm size, (2) bankruptcy probability, (3) default status, (4) reporting lag, and (5) bankruptcy lag. In addition, we also include two other control factors: whether the company was in a risky industry, and audit firm type.5

---

3 Some may argue that the litigation threat faced by the large auditors actually declined after the failure of Andersen. However, our arguments allow for the possibility that the auditing profession reacted to the Andersen failure without an increase in the litigation risk for the auditor since we are concerned with auditor perceptions.

4 Note that it is the audit opinion date that is relevant to classify a bankruptcy into the two time periods. For example, Birmingham Steel Corp. and Metrocall Inc. both entered into bankruptcy on June 3, 2002. However, the last audit opinion date prior to bankruptcy was September 17, 2001 for Birmingham Steel and February 15, 2002 for Metrocall. Hence, the former was included in the pre-December 2001 sample while the latter was included in the post-December 2001 sample.

5 We also examined two other variables: if there was an auditor change in the preceding period and sales growth from the prior period. Neither of these two variables was significant in the model, and the significance of the other variables remained substantively similar to that reported in the paper.
Consistent with prior research, we measure client size \( (LNSL) \) using log of sales.\(^6\) We use the Hopwood et al. (1994) model to calculate the probability of bankruptcy.\(^7\) We classify a company as in default \( (DFT) \) if there is either payment default or technical default of loan covenants.\(^8\) Bankruptcy lag \( (BLAG) \) is measured by the square root of the number of days from the date of the audit opinion date to the bankruptcy date. Reporting lag \( (RLAG) \) is measured by the square root of the number of days from the fiscal year-end to the date of the audit opinion. Following Kasznik and Lev (1995), we include an indicator variable \( (RSKY) \) if the company operated in a risky industry as identified by SIC codes 2833–2836, 3570–3577, 3600–3674, 7372–7379, and 8731–8734. We include a Big 5 indicator variable \( (BIG5) \) to control for audit firm-size effects.

The relationship between the audit opinion prior to bankruptcy and the factors discussed above is examined using a logistic regression to estimate the coefficients in the following model:

\[
GC = b_0 + b_1 \times LNSL + b_2 \times PROB + b_3 \times DFT + b_4 \times BLAG + b_5 \times RLAG + b_6 \times RSKY + b_7 \times BIG5 + b_8 \times TIME
\]

where:
- \( GC \) = 1 if audit opinion is going-concern modified, and 0 otherwise;
- \( LNSL \) = natural log of sales;
- \( PROB \) = probability of bankruptcy;
- \( DFT \) = 1 if the company is in default, and 0 otherwise;
- \( BLAG \) = square root of the number of days from audit opinion date to bankruptcy date;
- \( RLAG \) = square root of the number of days from fiscal year-end to the audit opinion date;
- \( RSKY \) = 1 if operating in a risky industry, and 0 otherwise;
- \( BIG5 \) = 1 if a Big 5 audit firm, and 0 otherwise; and
- \( TIME \) = 1 if audit opinion date is after December 31, 2001, and 0 otherwise.

**DATA**

We obtain a list of public company bankruptcies for the years 2000 through 2003 from New Generation Research Inc., publishers of the yearly *Bankruptcy Almanac*. We obtain the audit-opinion-related data (auditor, opinion type, and audit opinion date) from 10-K filings available from the SEC’s EDGAR database. Relevant financial statement data are taken from Compact Disclosure-SEC database. Since firms in the financial services tend to be unique, consistent with prior research we delete firms in the financial services sectors (SIC = 60 to 69). Consistent with prior research (e.g., McKeown et al. 1991; Mutchler et al. 1997; Geiger and Raghunandan 2001), for firms that had already filed for bankruptcy at the time the audit opinion was issued we use the prior year’s data provided the bankruptcy occurred within a year of the prior year’s audit opinion date.

Companies may sometimes enter into bankruptcy as a strategic reaction to sudden adverse events. Hopwood et al. (1994, 412) note that since “non-stressed, bankrupt companies are likely to have experienced management fraud leading to misstated financial statements … investigations of auditors’ going-concern opinion decisions should be conducted on samples that have been partitioned into stressed and non-stressed categories.” Hence, we restrict the analysis to financially stressed companies. We use the following criteria to define financial stress—namely, the presence of

---

\(^{6}\) Using log of total assets as the size measure yields similar results.

\(^{7}\) Components of the Hopwood et al. (1994) model are net income/total assets, current assets/sales, current assets/current liabilities, current assets/total assets, cash/total assets, long-term debt/total assets, and natural log of sales. Some recent going-concern studies use Zmijewski’s (1984) bankruptcy probability score as a summary measure of financial stress (Carcello et al. 1995; Reynolds and Francis 2000). We use this alternative measure as part of our sensitivity tests and obtain substantively the same results.

\(^{8}\) We also use an alternative measure that focuses only on whether there is a payment default. The results with this more stringent measure are substantively similar to those reported in this paper.
any one of the following measures: (1) negative working capital, (2) negative retained earnings, or (3) bottom line loss.\textsuperscript{9} We are able to obtain relevant financial, default, and audit opinion data for 226 companies that (a) entered into bankruptcy in the years from 2000 to 2003, (b) had SIC codes other than 60–69, (c) had audit opinion dates in the relevant time periods, and (d) exhibited at least one financial stress criterion.

**RESULTS**

Table 1 shows that in the pre-December 2001 period, 48 of the 121 bankrupt companies (40 percent) received a prior going-concern modified audit opinion. In the post-December 2001 period, 73 of the 105 bankrupt companies (70 percent) received a prior going-concern modified audit opinion. A Chi-square test indicates that the difference in going-concern modified opinions in the pre- and post-December 2001 periods is significant (Chi-square = 20.14, p < .001). However, a more comprehensive assessment requires a multivariate analysis that controls for other reporting related factors.

Table 2 provides descriptive data about the sample of bankrupt firms examined in this study partitioned by the pre/post-December 2001 time periods and by whether the prior audit opinion was going-concern modified. We also provide the results from univariate tests (t-test for continuous variables and Chi-square tests for discrete variables) in Table 2.

Comparisons of the going-concern modified and non-going-concern modified firms indicate that there are significant differences (p < .01) on all control variables, except the \textit{RSKY} and \textit{BIG5} indicator variables. As expected, firms receiving a prior going-concern modified audit opinion are in greater financial stress, are smaller, are more likely to be in default, have shorter bankruptcy lags and longer reporting lags.

The results indicate that there are no significant differences in the control variables between the two time periods, except that the post-December 2001 firms exhibit higher average \textit{PROB} scores (p < .01) and are more likely to be in a risky industry (p < .05). It is interesting to note that there is no increase in reporting lag in the post-December 2001 period.\textsuperscript{10} Auditors have expressed concerns that the need for increased conservatism would likely affect the audit process, and lead to longer audit delays and higher audit costs. However, the data indicate that at least for the sample of bankruptcies examined in this study, increased conservatism does not appear to come at the cost of increased audit delay.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Going-concern modified</td>
<td>48 (40%)</td>
<td>73 (70%)</td>
<td>121 (54%)</td>
</tr>
<tr>
<td></td>
<td>Not modified</td>
<td>73 (60%)</td>
<td>32 (30%)</td>
<td>105 (46%)</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>121</td>
<td>105</td>
<td>226</td>
</tr>
</tbody>
</table>

Chi-sq. = 20.14; p < .001.

\textsuperscript{9} Eight companies did not exhibit one of the signs of financial stress and were eliminated. Inclusion of these eight non-stressed bankrupt companies does not alter the results reported. In our sample, there are 2 (10) bankrupt firms in the pre-(post) December 2001 period that had a bottom line loss but did not exhibit any of the other stress signals. If we eliminate these 12 firms, then the results related to the variable of interest (\textit{TIME}) become a little stronger than those reported in the paper.

\textsuperscript{10} In fact, the reporting lag decreases from 83.3 days in the pre-December 2001 period to 75.3 days in the post-December 2001 period; however, the difference is not significant at conventional levels.
TABLE 2
Descriptive Statistics: Bankrupt Firms from 2000 to 2003

Panel A: Continuous Variables: Mean (s.d.) [median]

<table>
<thead>
<tr>
<th>Audit Opinions in 2000 and 2001</th>
<th>Audit Opinions in 2002 and 2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>GC Modified (n = 48)</td>
<td>GC Modified (n = 73)</td>
</tr>
<tr>
<td>Not Modified (n = 73)</td>
<td>Not Modified (n = 32)</td>
</tr>
<tr>
<td>Total (n = 121)</td>
<td>Total (n = 105)</td>
</tr>
<tr>
<td><strong>LNSL</strong></td>
<td><strong>LNSL</strong></td>
</tr>
<tr>
<td>11.06 (2.22)</td>
<td>10.74 (2.95)</td>
</tr>
<tr>
<td>12.03 (2.13)</td>
<td>12.37 (2.30)</td>
</tr>
<tr>
<td>11.64 (2.21)</td>
<td>11.24 (2.86)</td>
</tr>
<tr>
<td>11.73 {12.41}</td>
<td>11.55 {12.43}</td>
</tr>
<tr>
<td>PROB**.##</td>
<td>PROB**.##</td>
</tr>
<tr>
<td>0.62 (0.43)</td>
<td>0.82 (0.34)</td>
</tr>
<tr>
<td>0.37 (0.41)</td>
<td>0.56 (0.44)</td>
</tr>
<tr>
<td>0.47 (0.40)</td>
<td>0.74 (0.39)</td>
</tr>
<tr>
<td>0.95 {0.14}</td>
<td>1.00 {0.72}</td>
</tr>
<tr>
<td><strong>BKTLAG</strong></td>
<td><strong>BKTLAG</strong></td>
</tr>
<tr>
<td>162.1 (92.5)</td>
<td>162.2 (102.1)</td>
</tr>
<tr>
<td>246.8 (83.9)</td>
<td>247.4 (83.4)</td>
</tr>
<tr>
<td>213.2 (96.4)</td>
<td>188.3 (104.1)</td>
</tr>
<tr>
<td>150.0 {273.0}</td>
<td>158.0 {272.0}</td>
</tr>
<tr>
<td><strong>RPTLAG</strong></td>
<td><strong>RPTLAG</strong></td>
</tr>
<tr>
<td>100.4 (38.3)</td>
<td>81.2 (29.0)</td>
</tr>
<tr>
<td>72.1 (38.7)</td>
<td>62.1 (22.9)</td>
</tr>
<tr>
<td>83.3 (40.8)</td>
<td>75.3 (28.6)</td>
</tr>
<tr>
<td>96.0 {69.0}</td>
<td>86.0 {57.0}</td>
</tr>
</tbody>
</table>

Panel B: Discrete Variables

<table>
<thead>
<tr>
<th>Audit Opinions in 2000 and 2001</th>
<th>Audit Opinions in 2002 and 2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>GC Modified (n = 48)</td>
<td>GC Modified (n = 73)</td>
</tr>
<tr>
<td>Not Modified (n = 73)</td>
<td>Not Modified (n = 32)</td>
</tr>
<tr>
<td>Total (n = 121)</td>
<td>Total (n = 105)</td>
</tr>
<tr>
<td><strong>DFT</strong></td>
<td><strong>DFT</strong></td>
</tr>
<tr>
<td>83.3% 31.5% 52.1%</td>
<td>56.2% 15.6% 43.8%</td>
</tr>
<tr>
<td><strong>RSKY</strong></td>
<td><strong>RSKY</strong></td>
</tr>
<tr>
<td>14.6% 13.7% 14.1%</td>
<td>30.1% 21.9% 27.6%</td>
</tr>
<tr>
<td>75.0% 84.9% 81.0%</td>
<td>79.5% 93.8% 83.8%</td>
</tr>
<tr>
<td><strong>BIG5</strong></td>
<td><strong>BIG5</strong></td>
</tr>
</tbody>
</table>

** Indicates a significant difference between the GC modified and nonmodified companies at p < .01.
##, # Indicate significant difference between the two time periods at p < .01 and p < .05, respectively.

Variables are defined as follows:
- **LNSL** = natural log of sales (in thousands of dollars);
- **PROB** = bankruptcy probability score;
- **BKTLAG** = number of days from audit report date to bankruptcy date;
- **RPTLAG** = number of days from fiscal year end to the audit report date;
- **DFT** = 1 if the company is in default, and 0 otherwise;
- **RSKY** = 1 of company operates in a risky industry, and 0 otherwise; and
- **BIG5** = 1 if audit firm was from the Big 5, and 0 otherwise.
Results from the multivariate logistic regression are presented in Table 3. The overall model is significant (Chi-square = 143.4, 8 d.f., p < .001; pseudo-$R^2 = .43$). The coefficients for the following variables are significant at conventional levels: $PROB$, $LNSL$, $DFT$, and $BLAG$. The coefficient for the $TIME$ variable is positive and significant ($p < .01$), indicating that bankrupt companies are more likely to receive a prior going-concern modified opinion in the post-December 2001 period.

**TABLE 3**

Logistic Regression Results: 2000 to 2003 Bankruptcies

Model: $GC = b_0 + b_1^{\ast}LNSL + b_2^{\ast}PROB + b_3^{\ast}DFT + b_4^{\ast}BLAG + b_5^{\ast}RLAG + b_6^{\ast}RSKY + b_7^{\ast}BIG5 + b_8^{\ast}TIME$

<table>
<thead>
<tr>
<th>Variable</th>
<th>Full Sample (n = 226)</th>
<th>Big 5 Audit Firms Only (n = 186)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>2.34 (1.18)</td>
<td>1.40 (0.31)</td>
</tr>
<tr>
<td>$LNSL$</td>
<td>$-0.36^{**}$ (10.14)</td>
<td>$-0.38^{**}$ (9.32)</td>
</tr>
<tr>
<td>$PROB$</td>
<td>$2.29^{**}$ (13.97)</td>
<td>$2.39^{*}$ (10.70)</td>
</tr>
<tr>
<td>$DFT$</td>
<td>$1.93^{**}$ (19.67)</td>
<td>$2.26^{**}$ (19.66)</td>
</tr>
<tr>
<td>$BLAG$</td>
<td>$-0.22^{**}$ (15.24)</td>
<td>$-0.20^{**}$ (11.01)</td>
</tr>
<tr>
<td>$RLAG$</td>
<td>0.20 (2.61)</td>
<td>0.28 (3.23)</td>
</tr>
<tr>
<td>$RSKY$</td>
<td>0.10 (0.03)</td>
<td>0.02 (0.01)</td>
</tr>
<tr>
<td>$BIG5$</td>
<td>$-0.03$ (0.00)</td>
<td></td>
</tr>
<tr>
<td>$TIME$</td>
<td>$1.57^{**}$ (11.72)</td>
<td>$1.77^{**}$ (11.35)</td>
</tr>
<tr>
<td>Model Chi-sq.</td>
<td>143.4$^{**}$</td>
<td>122.7$^{**}$</td>
</tr>
<tr>
<td>[Pseudo $R^2$]</td>
<td>[.43]</td>
<td>[.46]</td>
</tr>
</tbody>
</table>

*$,**$ Indicate $p < .05$ and $p < .01$, respectively. Chi-square values are within parentheses.

Variables are defined as follows:

$LNSL = \text{natural log of sales (in thousands of dollars)}$;

$PROB = \text{bankruptcy probability score}$;

$DFT = 1$ if the company is in default, and 0 otherwise;

$BLAG = \text{square root of the number of days from audit report date to bankruptcy date}$;

$RLAG = \text{square root of the number of days from fiscal year-end to the audit report date}$;

$RSKY = 1$ if company operates in a risky industry, and 0 otherwise;

$BIG5 = 1$ if audit firm was from the Big 5, else 0, and

$TIME = 1$ if audit report date is after January 1, 2002, else 0.

---

11 When examining the correlations between the control variables, we find that the highest correlation is only .32, suggesting that multicollinearity is unlikely to be a problem. This is also confirmed by analyses of variance inflation factors which indicate that the highest variance inflation factor was only 1.48.

12 The same variables are significant in Geiger and Raghunandan (2001).
Audit Firm Size Effect

Many prior studies have documented the existence of differences based on audit firm size in a variety of auditing contexts. It is likely that the loss functions and hence the threshold judgments related to going-concern will vary across audit firms of different sizes. In addition, there are selection and endogeneity issues related to auditor choice that can have an impact on audit reporting. Hence, we perform the following analyses to examine for the existence of differences based on audit firm size. Consistent with prior research, we use membership in the Big 5 (Big 4) as a measure of audit firm size.

First, as noted earlier, we include a BIG5 indicator variable in the regression, but it is not significant. Second, we perform the regression separately on the pre- and post-December 2001 samples, but the BIG5 variable is not significant in either period. Third, we use an interaction term involving BIG5 and TIME in the regression. However, this interaction term is not significant in the regression. Fourth, we perform the analysis for only the subset of bankrupt firms that had a Big 5 auditor. (Since there are only 40 bankrupt firms with a non-Big 5 auditor in our sample, we do not perform the regression for the non-Big 5 firms.) The results for the Big 5 subset are reported in the last column of Table 3, and are very similar to the results when using the full sample. Specifically, the TIME variable continues to remain significant at \( p < .01 \) in the regression. Taken together, these results indicate that there are no significant audit firm-size-related differences in going-concern audit reporting—at least in the context of bankruptcies in the period from 2000 to 2003.

Sensitivity Tests

We performed sensitivity analyses by partitioning the bankrupt sample along the following dimensions: firm size (above or below median) and financial stress (above or below median). In each of the four subsamples formed by the two partitions noted above, the TIME variable continues to remain statistically significant. We also examine if there are differences among the Big 5 firms by including dummy variables for specific audit firms and find that none of the dummy variables is significant. Next, we form five different subsamples by deleting companies with each of the Big 5 audit firms and run the regression using these subsamples; the TIME variable continues to remain significant in each regression, indicating that the results are not being driven by the audit reporting decisions of any one audit firm.

We performed the following date-related sensitivity tests. First, since Enron filed for bankruptcy on December 2, 2001 we use that date as the ending date for the pre-December 2001 period. Second, we use December 2, 2001 (as opposed to January 1, 2002) as the beginning of the post-December 2001 period. Third, we use December 31, 2001 as the ending date for the pre-December 2001 period (while using January 1, 2002 as the beginning of the post-December 2001 period). The significance levels of the TIME variable (as well as the other variables in the regression model) remain substantively similar to that reported in this paper for such alternative time period specifications.

ADDITIONAL ANALYSES

Test of Recessionary Period Effects

The U.S. economy started to deteriorate in 2001, and a recession began in March 2001 (NBER 2001). Consequently, it is possible that the results are confounded with macroeconomic changes since: (1) firms that went bankrupt in 2002 or 2003 may have been in greater financial stress than firms that went bankrupt in 2000 or 2001, (2) auditors may have perceived clients that went bankrupt in 2002 or 2003 to be in a riskier condition than firms that went bankrupt in 2000 or 2001, or (3) financial statement users may rely to a greater extent on the audit opinion as a signal in a time of uncertainty, thereby increasing the likelihood of the going-concern modified audit opinion becoming a self-fulfilling prophecy. Hence, we perform the following additional analyses to rule out alternative explanations that change in economic conditions or client characteristics may be driving the results.
The U.S. economy entered into a recession in July 1990, and officially emerged from the recession in March 1991. Thus, the period from 1991 to 1992 shares similar economic characteristics as the period from 2002 to 2003. In addition, both periods have the same professional reporting regime with respect to the going-concern opinion (namely, SAS No. 59 [AICPA 1988]). However, the period from 1991 to 1992 does not provide the same number of high-profile failures that characterize the period from 2001 to 2003. Therefore, the earlier period (from 1991 to 1992) provides a useful control sample to determine if the observed shift in the association between audit opinions and bankruptcies is a function of macroeconomic effects or the other shocks to the auditing profession that began in December 2001.

Hence, we use an additional sample from an earlier recessionary period to test our hypothesis. We include all bankruptcies from 1991 and 1992 with available data; as before, we exclude firms in SIC codes 60 thorough 69 and those without a financial stress condition. The sample includes 93 bankrupt firms, with 54 percent receiving a prior going-concern modified audit opinion. We use a multivariate regression similar to equation 1, and include bankrupt firms from 1991–92 as the control sample (but delete the pre-December 2001 period firms from the analysis). The results of the logistic regression for the two recessionary periods are presented in Table 4. The overall regression is significant (Chi-square = 102.4, p < .001; pseudo R² = .38). The TIME variable is again significant in the regression, indicating that auditors were more likely to issue prior going-concern modified opinions in the post-December 2001 period than in the earlier recessionary period.

As in Table 3, the last column of Table 4 also presents the results when the analysis is restricted to clients of the Big 5 firms; it is seen that the results for the Big 5 subset are substantively similar to those for the full sample.13 The results strengthen the suggestion that it is not the self-fulfilling prophecy problem that is driving the results in Table 3, and provide evidence that something else is causing auditors to issue a higher rate of going-concern modified reports in the post-December 2001 period than simply being in a recessionary economy.

Changes in Client Characteristics versus Auditors’ Opinion Strategies

Francis and Krishnan (2002) note that analyses of changes in auditors’ propensity to issue going-concern modified opinions must take into consideration the fact that changes may be due to two factors. Specifically, the probability of a going-concern modified audit opinion depends on a vector of client risk characteristics (X) and the weights (β) placed by the auditor to each characteristic (representing the auditor’s reporting strategy for a given level of client risk). Hence, differences in auditors’ propensity to issue modified opinions may be due to changes in either of these two factors (client characteristics or the auditors’ reporting strategies).

Formally, the probability of a GC for client i in year t is given by:

$$P(GC_{it} = 1) = F(X_{it}, \beta_t)$$

where F(·) denotes the distribution function of a logistic variable. Following the approach used by Francis and Krishnan (2002), the change in average predicted probability of a going-concern opinion (ΔP) from 2000 to 2002 is:

$$\Delta P = F(X_{2002}, \hat{\beta}_{2002}) - F(X_{2000}, \hat{\beta}_{2000}).$$
TABLE 4
Logistic Regression Results for Recession Recovery Period Bankruptcies:
1991–92 and 2002–03

Model: \( GC = b_0 + b_1 \ast LNSL + b_2 \ast PROB + b_3 \ast DFT + b_4 \ast BLAG + b_5 \ast RLAG + b_6 \ast RSKY + b_7 \ast BIG5 + b_8 \ast TIME \)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Full Sample (n = 198)</th>
<th>Big 5 Audit Firms Only (n = 171)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>2.69 (1.36)</td>
<td>4.07 (2.53)</td>
</tr>
<tr>
<td>LNSL</td>
<td>−0.37** (9.60)</td>
<td>−0.43** (9.48)</td>
</tr>
<tr>
<td>PROB</td>
<td>3.43** (21.87)</td>
<td>3.69** (19.53)</td>
</tr>
<tr>
<td>DFT</td>
<td>1.86** (16.26)</td>
<td>2.22** (18.02)</td>
</tr>
<tr>
<td>BLAG</td>
<td>−0.21** (11.15)</td>
<td>−0.24** (11.66)</td>
</tr>
<tr>
<td>RLAG</td>
<td>0.07 (0.24)</td>
<td>0.07 (0.27)</td>
</tr>
<tr>
<td>RSKY</td>
<td>−0.71 (1.45)</td>
<td>−0.82 (1.58)</td>
</tr>
<tr>
<td>BIG5</td>
<td>0.67 (0.87)</td>
<td></td>
</tr>
<tr>
<td>TIME</td>
<td>0.95* (3.93)</td>
<td>0.92 (4.10)*</td>
</tr>
<tr>
<td>Model Chi-sq.</td>
<td>102.4** [.38]</td>
<td>123.3 ** [.40]</td>
</tr>
</tbody>
</table>

\( *, ** \) Indicate \( p < .05 \) and \( p < .01 \), respectively.  
Chi-square values are within parentheses.

Variables are defined as follows:

- \( LNSL \) = natural log of sales (in thousands of dollars);
- \( PROB \) = bankruptcy probability score;
- \( DFT \) = 1 if the company is in default, and 0 otherwise;
- \( BLAG \) = square root of the number of days from audit report date to bankruptcy date;
- \( RLAG \) = square root of the number of days from fiscal year-end to the audit report date;
- \( RSKY \) = 1 of company operates in a risky industry, and 0 otherwise;
- \( BIG5 \) = 1 if audit firm was from the Big 5, and 0 otherwise; and
- \( TIME \) = 1 if audit report date is after January 1, 2002, and 0 otherwise.

The overall change above can be decomposed into changes attributable to (1) client characteristics and (2) auditors’ reporting strategies. Let \( P(X_{2002}, \hat{\beta}_{2000}) \) denote the average probability of a going concern in 2002 if the \( \hat{\beta} \)s for 2000 are applied to the 2002 client risk characteristics. Then the change in average probability of a going concern (Equation (3)) can be decomposed as follows:

\[
\]

(4)

The first term in brackets is the change in average probability of a going-concern opinion due to changes in auditors’ reporting strategies from 2000 to 2002 (the \( \hat{\beta} \) vector), when client risk characteristics (the \( X \) vector) are fixed at 2002 levels. The second term in brackets is the change in average
probability due to a change in client risk characteristics (the $X$ vector) from 2000 to 2002, when auditors’ reporting strategies (the $\beta$ vector) are fixed at the 2000 levels.

As in Francis and Krishnan (2002), we estimate the logistic model in Equation (1) separately for each time period, and use these results to compute the average probabilities required to construct the changes in average probabilities in Equation (4). We then test if the changes in average probabilities due to the two components are significantly different from zero.14 The point of such decomposition analysis is to determine if there are changes in going-concern reporting rates after controlling for changes in clientele risk characteristics.

As reported in Table 5, we find that the change in average probability of a bankrupt company getting a going-concern modified opinion from 2000–01 to 2002–03 is 29.85 percent. This can be decomposed as follows: the probability change due to worsening client characteristics represents an 11.79 percent increase, while the probability change due to changes in auditor reporting strategies represents an 18.06 percent increase. Both of these components of change are statistically significant at $p < .01$. Thus, the change in going-concern rates after 2001 is due to both changes in client characteristics and changes in auditor reporting strategies. In particular, increased auditor conservatism accounts for 60 percent (18.06/29.85) of the increased likelihood of a going-concern modified opinion after December 2001.

The data also show that the average probability of a bankrupt firm receiving a prior going-concern modified opinion is 10.30 percent higher for audit reports issued in the post-December 2001 period than in the earlier recession recovery period. Changes in client characteristics account for –0.33 percent, and this component is not statistically significant. In contrast, increased conservatism of auditor reporting strategies accounts for a 10.63 percent change in the likelihood of a bankrupt firm having received a prior going-concern modified audit opinion in the post-December 2001 period.

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Change in Overall Probability (%)</th>
<th>Change in Average Probability (%)</th>
<th>t-statistic</th>
<th>Change in Average Probability (%)</th>
<th>t-statistic</th>
<th>Change in Average Probability (%)</th>
<th>t-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000–01 versus 2002–03</td>
<td>29.85</td>
<td>11.79</td>
<td>7.13**</td>
<td>18.06</td>
<td>11.18**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991–92 versus 2002–03</td>
<td>10.30</td>
<td>–0.33</td>
<td>2.61**</td>
<td>10.63</td>
<td>6.04**</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** Indicates significance at $p < .01$.

14 This method assumes that the significance of the coefficients of the different logistic models remain constant. That is, any differences in the probability of bankruptcy is assigned to either auditor or client differences, but not to differences in model misspecification or changes in the significance of the model’s independent variables. In comparing the models from the three periods, the only difference was that the BIG5 variable was significant for the 1991–92 sample but not the other two periods. However, when we perform the analyses by dropping non-Big 5 clients the inferences from the decomposition analyses remain unchanged.
period compared to the earlier recession recovery period. This empirical evidence reinforces the inference that auditors’ reporting decisions have become more conservative in the period after December 2001.15

**SUMMARY AND CONCLUSIONS**

The accounting profession witnessed significant changes in the period after December 2001. A string of high-profile corporate failures resulted in a series of congressional hearings that portrayed auditors negatively and ultimately led to the enactment of the Sarbanes-Oxley Act. Hence, it is likely that auditors would have become more conservative in their judgments in the period after December 2001 in order to: (1) enhance their reputation, (2) reduce litigation risk, and (3) be proactive to reduce government intervention.

In this paper we examine the association between bankruptcies and prior audit opinions in periods before and after December 2001. We focus on audit opinions for bankrupt firms because of the continuing concern of legislators and the public about the adequacy of early warnings from auditors about pending client failures in the form of modified audit opinions. We examine prior audit opinions for 226 companies that entered into bankruptcy during the period from 2000 to 2003.

Our analysis presents evidence that, in the post-December 2001 period, bankrupt firms were more likely to have received a prior going-concern modified audit opinion. To address the possible confounding effects due to macroeconomic conditions, we also use bankrupt firms from 1991–92 as another control sample. A comparison of prior audit opinions for bankrupt firms from the two recession recovery periods indicates that auditors were more likely to have issued a prior going-concern modified opinion in the post-December 2001 period. Finally, we use the approach suggested by Francis and Krishnan (2002) to decompose the change in probability of receiving a going-concern modified audit opinion into two parts: (1) changes due to client characteristics and (2) changes due to auditor reporting strategies. Such decomposition analyses confirm the finding that, *ceteris paribus*, auditors are more likely to issue a prior going-concern opinion for bankruptcies in the post-December 2001 period.

Our results suggest that there was a significant shift in auditors’ decisions in the post-December 2001 period, and that auditors’ decisions were more conservative in the post-December 2001 period than in prior periods. This is a result that should be of interest to auditors, as well as legislators, standard setters, and the public. The empirical evidence in this paper suggests that there are multiple ways to influence auditor behavior. One way is to change the auditing standards or laws, but another is to have the media and Congress criticize the profession (public pressure to change). SOX is silent about going-concern reporting, but auditor behavior related to going-concern reporting changed in the post-December 2001 period. We believe this change is likely due to the profession’s overall concerns related to regaining a more positive reputation given the heightened media and Congressional attention and the possible threat of further regulation or class-action litigation.

The evidence presented in this paper can also be used to support the perspective that the profession is essentially self-correcting. This in turn suggests that regulators and standard setters (such as the SEC and the PCAOB) should evaluate the extent of the auditing profession’s changed behavior in the post-December 2001 period before promulgating further detailed, prescriptive regulations.

---

15 While not reported in the table, the data also show that the average probability of a bankrupt firm receiving a prior going-concern modified audit opinion declined by 19.54 percent from 1991–92 to the pre-December 2001 period. This decline was due to both significant changes in client characteristics and changes in auditor reporting strategies. These results confirm the findings from prior studies (Francis and Krishnan 2002; Geiger and Raghunandan 2001, 2002) that auditors became less conservative during the 1990s and were less likely to issue going-concern modified audit opinions after the enactment of the Private Securities Litigation Reform Act of 1995 and the Uniform Standards Act of 1998.
To our knowledge, this is the first paper that examines changes in auditor behavior in the post-December 2001 period. An interesting avenue for future research is to examine if there is a post-December 2001 change in auditor behavior in other contexts, such as: (1) client acceptance and retention, (2) extent and mix of audit testing, and (3) audit fees.

We conclude with a discussion of limitations and possible extensions. Our paper focuses only on Type II misclassifications (bankruptcies without a prior going-concern modified opinion). While such audit misclassifications continue to be the focus of legislators and the media, it is also worthwhile to examine if the proportion of Type I misclassifications (going-concern modified opinions for subsequently viable companies) have changed in the post-December 2001 period. Further, in this study we have examined bankruptcies from only two years in the post-December 2001 period. An interesting issue for future research is to examine if the increased propensity to issue going-concern modified audit opinions (or other forms of auditor conservatism) is merely a temporary blip (due to the “bright lights” of the media and legislators in 2002) or a long-lasting effect. Finally, our data show that the increased conservatism of the auditors is not at the expense of increased audit delays; however, our sample is restricted to bankrupt firms. An interesting area for future research is to examine if this pattern (i.e., conservatism not leading to increased audit delay and costs) can also be observed in the general population of firms.

REFERENCES


Recent Changes in the Association between Bankruptcies and Prior Audit Options


Copyright of Auditing is the property of American Accounting Association and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.