Audit Firm Size and Going-Concern Reporting Accuracy

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Abstract
This study examines the association between measures of going-concern reporting accuracy and audit firm size of the companies listed in Tehran Stock Exchange. Prior works have examined the association between auditor size and audit quality, using various proxies for audit quality. Recent work has hypothesized that going-concern reporting accuracy can also measure audit quality. Furthermore, prior research suggests that big audit firms are of higher quality than are smaller firms. However, existing tests for an association between audit firm size and reporting accuracy are indirect and provide different results. Our study extends this line of research by examining whether big audit firms exhibit higher quality reporting by having fewer "audit-reporting errors" in the context of issuing going-concern modified reports. Our analyses examine going-concern reporting errors (unmodified opinions rendered to subsequently bankrupt clients) over an 9 year period. Our findings indicate no association between the size of audit firm and going-concern reporting accuracy.

Keywords: audit quality; audit reporting; going concern; bankruptcy.

Data Availability: All data are publicly available from the sources indicated.

1. INTRODUCTION
Effective auditing is essential for efficient capital markets (Watts and Zimmerman, 1983), and one of the necessary conditions for effective auditing is auditor independence. The auditing literature generally concludes that the audit quality of Big 4 auditors is superior to that of non-Big 4 auditors. DeAngelo (1981) argues that accounting firm size is a proxy for auditor quality, as no single client is important to larger accounting firms and, hence, larger accounting firms are less likely than smaller accounting firms to compromise their independence. Dopuch and Simunic (1980) propose that larger accounting firms provide higher quality services because they have greater reputations to protect. Furthermore, it could be argued that Big 4 firms provide superior audit quality as their sheer size can support more robust training programs, standardized audit methodologies, and more options for appropriate second partner reviews (Lawrence et al, 2011). Hence, larger audit firms are better able to discern when to modify or not modify their opinion for going-concern difficulties of their clients. This greater accuracy would in turn lead to lower going-concern "reporting error" rate.

However, there are also arguments as to why Big 4 and non-Big 4 firms could provide comparable audit quality. First, Big 4 and non-Big 4 firms are held to the same regulatory and professional standards, and thus both types of audit firms must adhere to a reasonable level of quality. Second, as non-Big 4 auditors have superior knowledge of local markets and better relation with their clients, these factors may enable non-Big 4 firms to better detect irregularities. Of course, the converse argument could be made that closer relationships among non-Big 4 accounting firms and their clients could potentially lead to a compromise of independence; however, the net effect of these counteracting forces is unclear. Third, the inability of non-Big 4 firms to obtain affordable insurance coverage may actually increase the audit effort of non-Big 4 firms.
firms relative to Big 4 firms because smaller audit firms cannot obtain a similar level of backing from insurance companies. Finally, CPAs frequently switch between Big 4 and non-Big 4 firms, and knowledge transfers can dilute the potential for one type of audit firm to become superior. Hence, it is not obvious from theory or intuition that Big 4 firms should be superior to non-Big 4 firms (Lawrence et al., 2011).

As the main observable outcome of an audit is the standardized audit report, researchers have used various proxies in an attempt to assess audit quality and, in turn, determine whether a differential in audit quality exists. An extensive branch of audit differentiation research focuses on the quality of the client’s financial statements, in which discretionary accruals are often used as a proxy for audit quality, as they reflect the auditor’s constraint over management’s reporting decisions (Lawrence et al., 2011). Becker et al. (1998) find that Big 4 clients report lower absolute discretionary accruals than non-Big 4 clients. Francis et al. (1999) suggest that Big 4 auditors constrain opportunistic and aggressive reporting because their clients have higher total accruals but lower discretionary accruals. Krishnan (2003) finds a greater association between discretionary accruals and future earnings for Big 4 than for non-Big 4 clients. However, a weakness is that it only partially captures the effectiveness of an audit in constraining earnings management, as discretionary accruals not only reflect management’s opportunism, but also management’s signaling attempts and random noise, as noted by Guay et al. (1996). The valuation literature suggests that Big 4 auditors provide more assurance to the market than non-Big 4 auditors. The underlying intuition for using valuation proxies as a measure of audit quality is due to the fact that if market participants perceive that the Big 4 clients have more credible earnings than those of the non-Big 4 clients then, ceteris paribus, the Big 4 clients should receive a break in their cost-of-equity capital. For example, Khurana and Raman (2004) find that Big 4 clients have a lower ex ante cost of capital than non-Big 4 clients in the U.S.; however, they do not find such a difference in Australia, Canada, or Great Britain. Behn et al. (2008) include analyst forecast accuracy as an audit-quality proxy. They argue that if one type of auditor increases the reporting reliability of earnings in comparison to the other type, then, ceteris paribus, analysts of the superior type’s clients should be able to make more accurate forecasts of future earnings than those analysts of the non-superior type’s clients. In all of the various proxies above, differences between Big 4 and non-Big 4 auditors largely reflect client characteristics and, more specifically, client size (Lawrence et al., 2011). Consequently, we use going-concern reporting accuracy as a proxy of audit quality because it is not reflected by client size and can measure auditors’ independence precisely.

SAS No. 570, the relevant reporting standard with respect to going concern in Iran, requires auditors to evaluate the continued existence of every client for a period of one year from the date of the statements being audited. If, after considering management’s plans and mitigating circumstances, the auditor has substantial doubt about the ability of an entity to continue as a going concern, then the audit opinion should be modified to reflect such uncertainty. Thus, the going-concern assessment is a matter of auditors’ professional judgment, and under SAS No. 570, auditors are required to report based on their knowledge of the client at the time of reporting. If the auditor fails to adequately incorporate relevant information in making this judgment, then error is more likely to occur. However, these “errors” can also arise when an auditor appropriately incorporates all available information but the client’s status changes in the next year due to unforeseeable events. Consequently, from a professional standards perspective, the misclassifications discussed above cannot strictly be considered “reporting errors.” However, clients and financial statement users may certainly perceive these situations to be reporting errors (Geiger and Rama, 2006). Consequently, lower reporting error rate from going-concern modifications is a measurable indicator of higher quality reporting decisions by audit firms.

Prior research on reporting errors has also produced inconsistent results regarding a Big 4 reporting effect. Both Mutchler et al. (1997) and Geiger et al. (2005) examine prior audit reports issued to bankrupt companies and conclude there is no significant Big 4 effect on error rates. In contrast, Geiger et al. (2006) conclude that, compared to non-Big 4 firms, Big 4 firms significantly reduce their issuance of going-concern modifications to bankruptcy clients after the Private Securities Litigation Reform Act, suggesting lower quality reporting for Big 4 firms. However, the Mutchler et al. (1997) study focuses on the effects of mitigating factors on reporting decisions; the Geiger et al. (2005) study focuses on changes in reporting surrounding the Sarbanes-Oxley Act of 2002; and the Geiger et al. (2006) study focuses on reporting changes due to the Private Securities Litigation Reform Act. Accordingly, while prior research generally finds a consistent Big 4 audit quality effect in various contexts, the findings in more recent studies of audit-reporting errors is mixed.
Our study provides a more direct assessment of the possible audit firm size effect on the quality of going-concern report modification decisions. And also our tests were done for the first time in Tehran Stock Exchange.

Ex ante, if a big audit firm exhibits higher quality audit-reporting decisions, we expect that its average reporting error rate over an extended period to be less than that of smaller audit firms. Accordingly, our hypothesis is:

**Hypothesis:** There is an association between the proportion of client bankruptcies with a prior going-concern modified opinion and the size of the audit firms.

### 2. Method

We examine audit reports for a sample of companies listed in Tehran Stock Exchange entering into bankruptcy during the years 2001-2010. Specifically, we examine if the audit report on the financial statements immediately preceding bankruptcy has been modified for going-concern uncertainties. Financial and control data, as well as auditor and audit report information, are obtained or confirmed from CD-SEO, annual reports, and the Rahavard Novin 3 database. Accordingly, we include only firms for which subsequent viability data are available. Consistent with prior research, we delete companies in the banking, other financial, real estate, and regulated industries. Based on these data requirements, our sample consists of 54 companies between 2001 and 2010.

We use a multivariate logistic regression to control for variables associated with auditor reporting. The auditor report immediately preceding bankruptcy is the dependent variable in our model and the audit firm size is the variable of interest in this study.

The control factors used in multivariate logistic regression, based on the prior research (Dopuch et al., 1987; McKelvey et al., 1991; Pourheydari and Koopaeehaji, 2010; Khozintat and Ghasoori, 2005) are company size (SIZE), financial stress (PROB), bankruptcy lag (LAG), operating cash flow (CFO), operating cash flow divided by current liabilities (CFCL), and operating cash flow divided by total liabilities (CFTL). We measure client size (SIZE) using log of total assets (in million rials) from balance sheet, and the financial stress (PROB) using the coefficients given in Pourheydari and Koopaeehaji (2010). Bankruptcy lag (LAG) is the delay, in number of days, from the date of the audit report to bankruptcy filing date. Finally, we use operating cash flow (CFO), operating cash flow divided by current liabilities (CFCL), and operating cash flow divided by total liabilities (CFTL) as the operating cash flow data to predict financial distress.

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

\[
GC_i = \beta_0 + \beta_1 \text{SIZE}_i + \beta_2 \text{PROB}_i + \beta_3 \text{LAG}_i + \beta_4 \text{CFO}_i + \beta_5 \text{CFCL}_i + \beta_6 \text{CFTL}_i + \beta_7 \text{BIG}_i + \varepsilon_i
\]

Where:

- \(GC = 1\) if audit opinion prior to bankruptcy was modified for going-concern, else 0;
- \(\text{SIZE}\) natural log of total assets from balance sheet (in million rials);
- \(\text{PROB}\) probability of bankruptcy calculated from Pourheydari and Koopaeehaji’s (2010) model;
- \(\text{LAG}\) natural log of number of days from audit report date to bankruptcy date;
- \(\text{CFO}\) natural log of operating cash flow (in million rials) from the cashflow statement;
- \(\text{CFCL}\) operating cash flow from the cashflow statement divided by current liabilities from the balance sheet;
- \(\text{CFTL}\) operating cash flow from the cashflow statement divided by total liabilities from the balance sheet; and
- \(\text{BIG}\) 1 if the audit firm was Audit Organization of Iran (as the biggest audit firm in Iran), else 0, based on Hasasiegan and Azinfar (2010).

The list of public company bankruptcies for the years 2001-2010 and the relevant financial statement data was obtained from Compact Disclosure – SEO and the Rahavard Novin 3 database. Of the companies that filed for bankruptcy in the 2001-2010 time period, we were able to obtain financial statement, audit
report data for 54 companies. The 54 companies in our sample came from 18 different industries, and no industry had more than eight observations.

3. RESULTS

Only eleven of the 54 companies had received a going-concern modified opinion in their audit report and the Audit Organization of Iran audit 42 percent (23 out of 54) of the sample. Table 1 provides descriptive data about the sample. As seen in panel B, ten of the 28 correlations among the independent variables are statistically significant, and the highest magnitude of the correlations is .9322.

There was significant difference (p<.05) on only one of the control variables when comparing the subsets of companies with or without a prior going-concern modified opinion. Consequently, we can say that companies receiving a going-concern modified report were smaller companies.

<table>
<thead>
<tr>
<th>Panel A: Statistics</th>
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<tbody>
<tr>
<td>Variables</td>
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<tr>
<td>GC</td>
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<tr>
<td>SIZE</td>
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<td>PROB</td>
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<td>LAG</td>
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<td>CFO</td>
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<td>CFCL</td>
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<td>CFTL</td>
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<td>BIG</td>
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<tr>
<th>Panel B: Correlations</th>
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<tr>
<td>GC</td>
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<td>BIG</td>
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<td>CFTL</td>
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<td>CFCL</td>
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<tr>
<td>CFO</td>
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<tr>
<td>LAG</td>
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<tr>
<td>SIZE</td>
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<td>PROB</td>
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</tbody>
</table>

* Significant at p<.05.

GC= 1 if audit opinion prior to bankruptcy was modified for going-concern, else 0;
SIZE= natural log of total assets from balance sheet (in million rials);
PROB= probability of bankruptcy calculated from Pourheydari and Koopaezahjii's (2010) model;
LAG= natural log of number of days from audit report date to bankruptcy date;
CFO= natural log of operating cash flow (in million rials) from the cashflow statement;
CFCL= operating cash flow from the cashflow statement divided by current liabilities from the balance sheet;
CFTL= operating cash flow from the cashflow statement divided by total liabilities from the balance sheet; and
BIG= 1 if the audit firm was Audit Organization of Iran (as the biggest audit firm in Iran), else 0, based on Hasasieganeh and Azinfar (2010).

Results from the multivariate logistic regression are presented in Table 2. The overall model in significant (Chi-square= 15.27, 7 d.f., p<.05) and the coefficients for all the control factors are in the expected direction except for the CFTL variable, but only one of them (SIZE) is significant at p<.05. The coefficient for BIG variable is negative but is not significant (p=.953), indicating that there is no relation between publishing a going-concern modified audit report and the size of the audit firm. Hence, there is no association between audit firm size and going-concern reporting accuracy of the companies listed in Tehran Stock Exchange. This finding is not consistent with the conclusions of prior analytical research (e.g.,
Geiger and Rama, 2006) but does support the argument espoused by opponents of using audit firm size as an audit quality index and Hasasiegnaneh and Azinfar's (2010) study.

Table 2
Logistic Regression Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coef.</th>
<th>Std. Err.</th>
<th>z</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIG</td>
<td>-.04995</td>
<td>.8522412</td>
<td>-0.06</td>
<td>0.953</td>
</tr>
<tr>
<td>SIZE</td>
<td>-3.24423</td>
<td>1.469843</td>
<td>-2.21</td>
<td>0.027</td>
</tr>
<tr>
<td>CFTL</td>
<td>.0692837</td>
<td>8.891309</td>
<td>0.01</td>
<td>0.994</td>
</tr>
<tr>
<td>CFCL</td>
<td>-.5888751</td>
<td>6.359306</td>
<td>-0.09</td>
<td>0.926</td>
</tr>
<tr>
<td>CFO</td>
<td>-.0645694</td>
<td>.1856534</td>
<td>-0.35</td>
<td>0.728</td>
</tr>
<tr>
<td>LAG</td>
<td>3.247952</td>
<td>16.45644</td>
<td>0.20</td>
<td>0.844</td>
</tr>
<tr>
<td>PROB</td>
<td>.1517459</td>
<td>1.019696</td>
<td>0.15</td>
<td>0.882</td>
</tr>
<tr>
<td>_cons</td>
<td>8.102345</td>
<td>42.97738</td>
<td>0.19</td>
<td>0.850</td>
</tr>
</tbody>
</table>

Model Chi-square = 15.27, 7 d.f., p<.05 ; Pseudo R² = .27

BIG, SIZE, CFTL, CFCL, CFO, LAG, PROB, and GC are defined in Table 1.

4. SUMMARY AND CONCLUSIONS
Legislators and the media often bemoan instances of company failures without a prior warning from the auditor in the form of a going-concern modified audit report. In this paper, we examine the type of “reporting errors” related to going-concern modified audit reports. We test the association between audit firm size and going-concern reporting accuracy of the companies listed in Tehran Stock Exchange. We examine 54 companies filing for bankruptcy over a 9-year period. Our results indicate that over this extended period, Audit Organization of Iran (as a big audit firm) do not have higher going-concern reporting accuracy than other smaller audit firms of Iranian Association of Certified Public Accountants.

Our study is subject to some limitations. First of all, We cannot directly assess the quality of an audit firm’s going-concern report modification decisions, so we rely on surrogate measures (i.e., bankruptcy filings) as an indication of the appropriateness of the decision. The result is a narrowly defined “reporting error.” Additionally, A potential limitation of the study is the method of selection of control variables. While an attempt was made to identify the variables which are related to going-concern issue, our analyses may have omitted variables relevant to going-concern reporting accuracy (e.g., inflation).
References

Audit Organization of Iran (AOI). (2011) The auditor's consideration of an entity's ability to continue as a going-concern. Statement on Auditing Standards. No. 570.


