Section 404 of the Sarbanes-Oxley Act (Section 404) requires public companies to include in annual reports an internal control report by management and auditor attestation of such a report. Further, Auditing Standard No. 2 from the Public Company Accounting Oversight Board (PCAOB 2004) requires the auditor to issue a separate report on the client’s internal controls over financial reporting. The internal control disclosures under Section 404 provide an opportunity to empirically examine the relation between control risk and one of the auditors’ client risk management strategies – namely, resignation – which has not been fully documented because of the lack of publicly available data about internal controls prior to Sarbanes-Oxley. The changed environment facing auditors after Sarbanes-Oxley coupled with reluctance to be associated with too many firms that have internal control problems, makes it more likely auditors would resign from clients with internal control problems and that successor auditors may ultimately be confronted with forensic issues.

Section 404 and the subsequent PCAOB standard have substantially increased the work of both auditors and their clients (Gunderson 2005; SEC 2005). While Section 404 has increased

---

* Abhijit Barua and Clark M. Wheatley are, respectively, Assistant Professor and Associate Professor, both at Florida International University. Yun-Chia Yan is Assistant Professor at University of New Orleans.

1 Among numerous other changes, Sarbanes-Oxley created the PCAOB which now regulates standard setting for audits of Securities and Exchange Commission (SEC) registrants replacing the private sector standard setting under the American Institute of Certified Public Accountants (AICPA). The PCAOB’s operations are qualitatively different from those of the AICPA.
work related to all clients, it is likely that the effect is particularly acute in companies that have a material weakness in internal controls. From the auditor’s perspective, material weaknesses in internal control increase the likelihood that the financial statements will be misstated. This, in turn, implies that the auditor’s effort level has to be significantly increased to lower detection risk to an acceptable level. If the auditor cannot increase the effort level due to capacity constraints (such as a shortage of qualified personnel), the audit risk will be higher. Given fixed manpower resources – and the inability to significantly increase such resources in the short term – rational client risk management strategies for auditors would likely be to raise fees and/or drop clients perceived to be risky. Thus, Gullapalli (2005) notes that due to more work “the Big Four are even rejecting jobs and leaving clients,” and Gunderson (2005) states that “staffing woes are widespread” and have resulted in auditors dropping many existing clients.

There is evidence of more auditor changes subsequent to the passage of Sarbanes-Oxley (Krishnan and Visvanathan 2007), and widespread complaints that because of Section 404, auditors are resigning from many clients with weak internal controls (Plitch and Wei 2004). While resigning from risky clients is a rational response for auditors, SEC officials have cautioned the Big 4 not to use Section 404 as the justification for pruning their client portfolios of clients perceived to be risky. The Chief Accountant of the SEC noted that “I’ve expressed my view to the CEOs of the big [audit] firms that I think it is their responsibility not to run away from the marketplace …, The requirements in the 2002 law should not be a convenient tool for them to manage their business” (Taub 2004). Nevertheless, the risks and costs of maintaining

---

2 We assume that existing personnel at audit firms were fully utilized. Since it takes a significant amount of time to hire and adequately train qualified personnel, the amount of additional manpower that can be devoted to Section 404 work is limited. As noted in the May 2005 submissions of Big 4 audit firms to the SEC roundtable on Section 404, significant time and resources had to be spent even on training existing personnel.
audit relationships with such companies may be greater than some auditors are willing to bear. Given this controversy about auditor resignations and the intervention of regulators on public policy grounds, it is desirable to have empirical, rather than anecdotal, evidence regarding the association between internal control problems and auditor resignations.

RELATED RESEARCH

Krishnan and Krishnan (1997) and Shu (2000) find that client-related risk factors are important elements in the auditor’s client retention (or resignation) decisions. Hence, to the extent that the presence of internal control problems increases the auditor’s client-related risk we can expect a positive association between internal control problems and auditor resignations.\(^3\)

SEC registrants have asserted that, in the post Sarbanes-Oxley period, auditors have discontinued serving many public companies, particularly those perceived to represent unacceptable risk (Plitch and Wei 2004; Gullapalli 2005).\(^4\) If the assertions that audit firms are walking away from clients that are perceived to be risky are true, then auditor resignations should be more likely at firms that disclose internal control problems.

Ashbaugh-Skaife \textit{et al.} (ACK 2007) and Doyle \textit{et al.} (DGM 2007) show that firms making internal control problem disclosures \textit{prior to Section 404} (i.e., disclosures made pursuant to Section 302 of Sarbanes-Oxley) are smaller, financially weaker, have more complex operations and greater accounting risk. This research differs from ACK and DGM in that we

---

\(^3\) Raghunandan and Rama (2006) show that audit fees are substantially higher for firms with material weaknesses in internal controls. While price increases are one form of a defensive reaction by auditors in the presence of internal control problems, auditors may not always be able to use such an option – in some cases, auditors may choose to decline or abandon the engagement.

\(^4\) Auditors have, also, suggested that they have “voluntarily walked away from” many clients because of perceptions of inadequate “commitment to governance or controls” (Bryan-Low 2003; DiPiazza 2004).
examine internal control problems disclosed after Section 404 became effective. ACK also show that auditor resignations are higher prior to disclosures of internal control problems. In contrast, we examine auditor resignations subsequent to the disclosure of internal control problems. Thus, from this perspective, we view auditor resignations as a consequence of the revelation of internal control problems and the forensic issues that may arise.

Recent research suggests that firms with internal control problems have a higher cost of equity capital than firms without such problems, and that the remediation of an internal control deficiency is followed by a significant reduction in the cost of equity capital (Ashbaugh-Skaife et al. 2006; Ogneva et al. 2006). Further, Cheng et al. (2006) find that firms announcing material weaknesses in internal controls suffer significant negative cumulative abnormal returns over short periods surrounding the announcement day. We add to this body of research by providing a different perspective, namely the reaction of auditors to the presence of internal control problems. Prior research (Krishnan and Krishnan 1997; Shu 2000) also suggests that auditors are more likely to resign from clients perceived to be risky. We enhance the body of research on auditor changes by identifying an important factor – namely, internal control problems – associated with auditor resignations.

METHOD

We use the following logistic regression model to examine the association between auditor resignation and internal control problems.

---

5 As noted by ACK (2007), there are important differences between Sections 302 and 404 of Sarbanes-Oxley. Briefly, Section 302 requires management to report on the existence of disclosure control problems as well as material changes in internal controls over financial reporting; Section 404 requires management reporting on and auditor attestation about the status of internal controls over financial reporting.
\[ RESIGN = \alpha + \beta_1 SIZE + \beta_2 Z + \beta_3 SGROWTH + \beta_4 RISKIND + \beta_5 RECINV + \beta_6 VOLATILITY + \]
\[ \beta_7 GC + \beta_8 BIG4 + \beta_9 MW + \varepsilon \]

The variables are defined as follows:

- \( RESIGN \): 1 if the auditor resigned after the initial Section 404 opinion, otherwise 0;
- \( SIZE \): Natural logarithm of total assets;
- \( Z \): Z-score from Zmijewski’s (1984) model;
- \( SGROWTH \): Sales growth measured as \( \frac{Sales_t - Sales_{t-1}}{Sales_{t-1}} \);
- \( RISKIND \): 1 if primary SIC code is 283, 357, 366, 367, or 737, otherwise 0;
- \( RECINV \): Receivable plus inventory scaled by total assets;
- \( VOLATILITY \): Stock volatility (standard deviation of excess return calculated from daily stock returns for at least 150 trading days during the year).
- \( GC \): 1 if the firm received a going-concern opinion, otherwise 0;
- \( BIG4 \): 1 if the firm is audited by one of the Big4, otherwise 0;
- \( MW \): 1 if firm disclosed a material weakness in internal controls, otherwise 0

Our control variables are derived from the results of prior research (Krishnan and Krishnan 1997; Shu 2000). Based on those investigations, we expect auditors to be less likely to resign from large clients and from firms exhibiting growth, so we expect a negative sign on the coefficients for \( SIZE \) and \( SGROWTH \). We expect that auditors are more likely to resign from firms in financial stress, so we expect positive coefficients for \( GC \) and \( Z \). Similarly, we expect auditors to be more likely to resign from firms with increased audit risk or business risk to the auditor, so we expect positive coefficients on \( RECINV, RISKIND \) and \( VOLATILITY \). Finally, if auditors are more likely to resign from firms that disclose internal control problems, the coefficient on \( MW \) should be positive and significant in the regression.
Sample

Using the *AuditAnalytics* database, we obtained all *Section* 404 opinions filed with the SEC as of September 2006. We exclude financial sector firms to be consistent with the majority of prior research in auditing. This is done because financial sector firms have been subject to the internal control reporting requirements of the *Federal Deposit Insurance Corporation Improvement Act* since 1993. We delete 129 amended opinions, 3,059 second year *Section* 404 opinions, 666 opinions for firms in the financial (SIC 60-67) sector (since such firms have unique regulatory and financial characteristics), 174 firms not contained in the *Compustat* database, 79 firms not contained in the *CRSP* database, and 264 firms with missing data items in *Compustat* or *CRSP*. Our final sample is comprised of 2,923 firm observations.

We obtained information about auditor changes that occurred in the period: January 1, 2005 to December 31, 2005 from the *AuditAnalytics* database. We use the auditor change and *Section* 404 opinion dates from *AuditAnalytics* to identify those auditor resignations that occurred subsequent to a *Section* 404 opinion.\(^6\)

RESULTS

Table 1 reports summary data for our sample. Sixteen percent (476) of the 2,923 firms reported one or more material weaknesses in internal control. Auditors resigned from 73 (2.5 percent) of the sample firms after the *Section* 404 opinion, while 233 clients (8.0 percent) dismissed their auditors within the sample period. Firms with internal control problems were

---

\(^6\) All 8-Ks (from the *www.sec.gov* website) were examined for firms with auditor changes that occurred 90 days before or after the *Section* 404 opinion date. Based on these manual checks, we identified four instances where the auditor had given advance notice of resignation and the 8-K indicated that the auditor would resign after the *Section* 404 opinion was issued. We classified such auditor changes as occurring after the *Section* 404 opinion. Deleting these four observations has, however, no impact on any of our inferences.
much more likely to have their auditor resign than firms without an internal control problem (8.4% compared with 1.3%). Further, firms with internal control problems were also more likely to dismiss their auditor than firms without internal control problems (12.2% versus 7.2%).\footnote{Chi-square tests indicate that the differences are significant ($p < .01$).} Since dismissal firms are arguably different from firms with auditor resignations or firms without auditor changes, we restrict our tests to firms that have experienced an auditor resignation or that have had no auditor change.

Table 2 provides descriptive data about the sample. Both T-tests and Wilcoxon tests indicate ($p < .05$) that resignation firms are smaller, in greater financial stress, and have higher volatility than the firms without an auditor change. Chi-square tests indicate that resignation firms are more likely ($p < .05$) to be in risky industries and less likely to have a Big 4 auditor. There are no significant differences between the two groups for the other control variables.

Table 3 reports correlation analyses of the variables used in our model. The upper right (lower left) hand portion of the diagonal presents Spearman (Pearson) correlation coefficients and p-values are presented in the parenthesis. The correlation between $MW$ and $RESIGN$ is positive and highly significant consistent with our hypothesis that auditors are more likely to resign from firms reporting internal control problems. Other correlation coefficients between control variables are in expected directions.\footnote{For example, $SIZE$ is significantly correlated with $Z$, $RISKIND$, $VOLATILITY$ and $BIG4$, where coefficients range from +/-19% to +/-57%. GC and $Z$ are positively correlated. Since all these variables are included in the logistic model, to rule out potential problems relating to multicollinearity we run OLS regression with the basic model and calculate the variance inflation factor (VIF) for each independent variable. None of the VIF factors exceeds 2 suggesting that multicollinearity is not a problem.}

Table 4 presents the results of our regressions. The second column of Table 4 presents results from the logistic regression [base] model discussed above. The coefficient on $SIZE$ is, as expected, negative and significant ($p < .01$). This result indicates that auditors are less likely to
resign from larger clients, even in the presence of increased risk. Also, as expected, the coefficient on $Z$ is significant and positive ($p < .05$). This result indicates that auditors are more likely to resign from financially stressed clients. Finally, consistent with our basic hypothesis, the coefficient on $MW$ is positive and significant ($p < .01$). This result indicates that auditors are, indeed, more likely to resign from clients that have disclosed an internal control problem.

**Additional Analyses**

Auditors do not, however, always resign from clients that disclose material weaknesses in internal controls. If the internal control problems are account-specific, the auditor might not find it necessary to relinquish the client. Instead, the auditor might choose to conduct more tests, and audit around such account-specific material weaknesses (presumably charging higher audit fees).

To further explore this possibility we partition our sample by the type of the internal control weaknesses: entity-level versus application-level. If the internal control problem disclosures refer to any one or more of the following: competency/training of personnel, segregation of duties, information technology/software, disclosure controls, or corporate governance problems (reliability of management, ethical problems, or inadequate audit committee and/or internal auditing), we classify the problem as entity-level. Application–level internal control problems include: accounting documentation, policy and/or procedures related issues, non-routine transaction control issues, year-end adjustment issues, and SEC or other regulatory investigations and/or inquiries. Almost all firms with reported internal control weakness disclosures have application-level problems (95%). This proportion is consistent whether or not the firm noted entity-level problems. In our sample, only 54% (255) of those firms that reported internal control weaknesses, disclose problems that we classify as entity-
level. Ninety-six percent (245) of those firms, however, also disclose application-level weaknesses.

We test this partition by replacing $MW$ in our regression with two dummy indicator variables: $EMW$ (entity-level internal control problem) and $AMW$ (application-level internal control problem). Column three of Table 4 [Type of ICW] presents the results of our regressions. In this test, the coefficients on both $EMW$ and $AMW$ are positive and significant at the $p < .01$ level. This indicates that auditors are more likely to resign from clients disclosing any type of internal control problem rather than differentiating between control issues by type.

Firms disclosing internal control problems under Section 404 may have had those problems prior to the date Section 404 became effective (fiscal years ending on or after November 15, 2004). Section 302 of Sarbanes-Oxley became effective on August 29, 2002. That section requires public disclosure about disclosure controls as well as changes in internal controls. Additionally (as noted by ACK (2007) and DGM (2007)), many firms made public disclosure about the status of internal controls over financial reporting before the effective date of Section 404 in their Section 302 filings with the SEC.

We control for these additional disclosures of internal control weakness by including an indicator variable for such disclosures in our base regression. Column four of Table 4 [Section 302 ICW] presents the results of our regression. The coefficients on both $MW$ and $MW302$ are positive and significant ($p < .01$ and .03 respectively). Thus, after controlling for prior

---

9 Fifty-four percent of the material weakness sample firms (255/476) indicate an entity-level internal control weakness. Auditors resigned from 10.2 percent of entity-level weakness firms and 6.3 percent of application-level weakness firms; the difference is not statistically significant at conventional levels ($p = .13$)

10 We obtained Section 302 disclosure data from DGM (2007). The data are available at http://pages.stern.nyu.edu/~smcvay/research/ICData.html
disclosures made pursuant to Section 302, internal control problem disclosures made under Section 404 are still associated with an increased likelihood of subsequent auditor resignation.

Sensitivity Tests

Fourteen of the 73 resignations in our sample are by non-Big 4 audit firms. When we delete all firm observations with a non-Big 4 auditors, we obtain results substantively identical to those presented in Table 4. Similarly, including financial sector firms in our analyses does not alter our inferences (the internal control weakness variables continue to remain significantly positive ($p < .01$) in each of the three regression models).

Our sample includes 101 (256) firms where an auditor resignation (dismissal) occurred in the two years preceding the initial Section 404 opinion. As in ACK (2007), we find that both resignations and dismissals are associated with the subsequent disclosure of internal control problems.11 As expected, the deletion of such resignation and/or dismissal firms from our sample does not alter our results. As is the case with financial sector firms, the internal control weakness variables continue to remain significantly positive ($p < .01$) in each of the three regression models.

SUMMARY AND CONCLUSIONS

SEC registrants and others have complained that Section 404 of the Sarbanes-Oxley Act imposes significant additional audit work, and that the disclosures that result may result in auditors being more likely to resign from risky clients. In response, SEC officials have cautioned auditors not to “run away from the marketplace.” Taken together, the effects of Section 404

---

11 We also employ a model (based on variables from ACK [2007] and DGM [2007]) to predict the likelihood of a firm disclosing a material weakness in internal control. We then use the predicted probability from that model as a variable in our regression model to explain resignations prior to the Section 404 opinion; this predicted probability variable is significant ($p < .05$) in the regression.
disclosures and the SEC’s caution have important implications for both current and successor auditors.

The internal control data disclosed subsequent to Section 404 enables us to empirically examine the relation between control risk and auditors’ client risk management in the form of resignations. Our analyses employ 2,923 non-financial firms that filed their initial Section 404 opinions with the SEC as of September 2006. We find that auditors resigned from 40 of the 476 firms that reported a material weakness in internal controls. In contrast, auditors resigned from only 33 of the 2,447 firms that received a clean Section 404 opinion. Regression analyses confirm the association between the presence of an internal control problem and auditor resignations, and corroborates anecdotal evidence regarding auditors managing client portfolios by abandoning riskier clients. Finally, the data also provide some empirical grounding for the debate surrounding the impact of Section 404 on the relationship between auditors and their clients.\textsuperscript{12}

In this study we focus only on “accelerated filer” firms that were subject to the requirements of Section 404 in 2004-05. Many smaller firms, which perhaps are more likely to have internal control problems, are therefore excluded from our study. Future research should examine whether the association between internal control problems and auditor resignations are more pronounced at smaller SEC registrants (perhaps using disclosures made pursuant to Section 302) and whether a greater incidence of shareholder litigation is evident.

\textsuperscript{12} Two contemporaneous studies (Elder, \textit{et al.} 2008, and Ettredge \textit{et al.} 2007) find similar results.
REFERENCES


Table 1
Internal Control Weakness Disclosures and Auditor Changes

<table>
<thead>
<tr>
<th>Auditor change status</th>
<th>No material weakness in internal control</th>
<th>Material weakness in internal control</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resignations</td>
<td>33 (1.3%)</td>
<td>40 (8.4%)</td>
<td>73 (2.5%)</td>
</tr>
<tr>
<td>Dismissals</td>
<td>175 (7.2%)</td>
<td>58 (12.2%)</td>
<td>233 (8.0%)</td>
</tr>
<tr>
<td>No auditor change</td>
<td>2,239 (91.5%)</td>
<td>378 (79.4%)</td>
<td>2,617 (89.5%)</td>
</tr>
<tr>
<td>Total</td>
<td>2,447 (100%)</td>
<td>476 (100%)</td>
<td>2,923 (100%)</td>
</tr>
</tbody>
</table>

Note: This table presents the association between the disclosure of internal control problems and types of subsequent auditor changes. Resignations and dismissals are from January 1, 2005 to December 31, 2005.
Table 2
Descriptive Data: Mean (Median) values for Resignation and No Auditor Change Groups

<table>
<thead>
<tr>
<th>Variable</th>
<th>Auditor Resignation (n = 73)</th>
<th>No Auditor Change (n = 2,617)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Median</td>
</tr>
<tr>
<td>SIZE</td>
<td>5.72</td>
<td>5.34</td>
</tr>
<tr>
<td>Z</td>
<td>-1.47</td>
<td>-1.70</td>
</tr>
<tr>
<td>SGROWTH</td>
<td>0.25</td>
<td>0.13</td>
</tr>
<tr>
<td>RISKIND</td>
<td>0.40</td>
<td>0.00</td>
</tr>
<tr>
<td>RECINV</td>
<td>0.25</td>
<td>0.15</td>
</tr>
<tr>
<td>VOLATILITY</td>
<td>0.03</td>
<td>0.03</td>
</tr>
<tr>
<td>GC</td>
<td>0.03</td>
<td>0.00</td>
</tr>
<tr>
<td>BIG4</td>
<td>0.81</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Note:
Variables are defined as follows:
SIZE = Natural logarithm of total assets;
Z = Z-score from Zmijewski’s (1984) model;
SGROWTH = Sales growth measured as (Salest - Salest-1)/Salest-1;
RISKIND = 1 if primary SIC code is 283, 357, 366, 367, or 737, otherwise 0;
RECINV = Receivable plus inventory scaled by total assets;
VOLATILITY = Stock volatility (standard deviation of excess return calculated from daily stock returns for at least 150 trading days during the year);
GC = 1 if the firm received a going-concern opinion, otherwise 0;
BIG4 = 1 if the firm is audited by one of the Big Four, otherwise 0.
Table 3
Correlation Analyses

<table>
<thead>
<tr>
<th>Variable</th>
<th>RESIGN</th>
<th>SIZE</th>
<th>Z</th>
<th>SGROWTH</th>
<th>RISKIND</th>
<th>RECVIN</th>
<th>VOLATILITY</th>
<th>GC</th>
<th>BIG4</th>
<th>MW</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESIGN</td>
<td>1</td>
<td>-0.09 (&lt;.01)</td>
<td>0.02 (0.24)</td>
<td>-0.02 (0.40)</td>
<td>0.05 (0.01)</td>
<td>-0.03 (0.17)</td>
<td>0.1 (&lt;.01)</td>
<td>0.02 (0.26)</td>
<td>-0.07 (0.00)</td>
<td>0.18 (&lt;.01)</td>
</tr>
<tr>
<td>SIZE</td>
<td>-0.08 (&lt;.01)</td>
<td>1</td>
<td>0.31 (0.77)</td>
<td>-0.06 (0.00)</td>
<td>-0.28 (&lt;.01)</td>
<td>-0.05 (0.01)</td>
<td>-0.6 (&lt;.01)</td>
<td>-0.05 (0.02)</td>
<td>0.26 (&lt;.01)</td>
<td>-0.09 (&lt;.01)</td>
</tr>
<tr>
<td>Z</td>
<td>0.05 (0.01)</td>
<td>0.19 (&lt;.01)</td>
<td>1</td>
<td>-0.15 (&lt;.01)</td>
<td>-0.15 (&lt;.01)</td>
<td>-0.17 (&lt;.01)</td>
<td>-0.1 (&lt;.01)</td>
<td>0.12 (&lt;.01)</td>
<td>0.08 (&lt;.01)</td>
<td>0.06 (0.00)</td>
</tr>
<tr>
<td>SGROWTH</td>
<td>0.00 (0.95)</td>
<td>-0.10 (&lt;.01)</td>
<td>-0.01 (0.77)</td>
<td>1</td>
<td>0.03 (0.09)</td>
<td>0.13 (0.01)</td>
<td>0.1 (&lt;.01)</td>
<td>-0.05 (0.01)</td>
<td>-0.02 (0.42)</td>
<td>-0.07 (0.00)</td>
</tr>
<tr>
<td>RISKIND</td>
<td>0.05 (0.01)</td>
<td>-0.27 (&lt;.01)</td>
<td>-0.07 (0.77)</td>
<td>0.07 (0.00)</td>
<td>1</td>
<td>-0.16 (&lt;.01)</td>
<td>0.4 (&lt;.01)</td>
<td>0.04 (0.04)</td>
<td>-0.01 (0.73)</td>
<td>0.01 (0.49)</td>
</tr>
<tr>
<td>RECVIN</td>
<td>-0.01 (0.50)</td>
<td>-0.06 (0.00)</td>
<td>-0.12 (0.22)</td>
<td>0.02 (0.00)</td>
<td>-0.18 (&lt;.01)</td>
<td>1</td>
<td>0.0 (0.10)</td>
<td>-0.05 (0.01)</td>
<td>-0.06 (0.00)</td>
<td>0.04 (0.05)</td>
</tr>
<tr>
<td>VOLATILITY</td>
<td>0.10 (&lt;.01)</td>
<td>-0.57 (&lt;.01)</td>
<td>0.07 (0.00)</td>
<td>0.11 (&lt;.01)</td>
<td>0.38 (&lt;.01)</td>
<td>0.00 (0.85)</td>
<td>1</td>
<td>0.12 (&lt;.01)</td>
<td>-0.13 (&lt;.01)</td>
<td>0.16 (&lt;.01)</td>
</tr>
<tr>
<td>GC</td>
<td>0.02 (0.26)</td>
<td>-0.06 (0.00)</td>
<td>0.18 (&lt;.01)</td>
<td>-0.03 (0.11)</td>
<td>0.04 (0.04)</td>
<td>-0.05 (0.01)</td>
<td>0.23 (&lt;.01)</td>
<td>1</td>
<td>0.02 (0.25)</td>
<td>0.07 (0.00)</td>
</tr>
<tr>
<td>BIG4</td>
<td>-0.07 (0.00)</td>
<td>0.25 (0.00)</td>
<td>0.05 (0.00)</td>
<td>-0.06 (0.00)</td>
<td>-0.01 (0.73)</td>
<td>-0.08 (&lt;.01)</td>
<td>-0.13 (&lt;.01)</td>
<td>0.02 (0.25)</td>
<td>1</td>
<td>-0.04 (0.02)</td>
</tr>
<tr>
<td>MW</td>
<td>0.18 (&lt;.01)</td>
<td>-0.09 (&lt;.01)</td>
<td>0.06 (0.00)</td>
<td>-0.03 (0.13)</td>
<td>0.01 (0.49)</td>
<td>0.03 (0.07)</td>
<td>0.16 (&lt;.01)</td>
<td>0.07 (0.00)</td>
<td>-0.04 (0.02)</td>
<td>1</td>
</tr>
</tbody>
</table>

Note: The upper right hand portion of the diagonal presents Spearman correlation coefficients and the lower left hand portion of the diagonal presents Pearson correlation coefficients. P-values are in parentheses.

Variables are defined as follows:
SIZE = Natural logarithm of total assets;
Z = Z-score from Žmijewski’s (1984) model;
SGROWTH = Sales growth measured as (Sales_t – Sales_{t-1})/Sales_{t-1};
RISKIND = 1 if primary SIC code is 283, 357, 366, 367, or 737, otherwise 0;
RECVIN = Receivable plus inventory scaled by total assets;
VOLATILITY = Stock volatility (standard deviation of excess return calculated from daily stock returns for at least 150 trading days during the year);
GC = 1 if the firm received a going-concern opinion, otherwise 0;
BIG4 = 1 if the firm is audited by one of the Big Four, otherwise 0;
MW = 1 if disclosed a material weakness in internal controls, otherwise 0.
Table 4  
Logistic Regression Coefficients (p-values)  

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Base Model</th>
<th>Type of ICW</th>
<th>Section 404 302 ICW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-2.60 (.01)</td>
<td>-2.61 (&lt; .01)</td>
<td>-2.62 (&lt; .01)</td>
</tr>
<tr>
<td>SIZE</td>
<td>-0.24 (.01)</td>
<td>-0.25 (.01)</td>
<td>-0.25 (.01)</td>
</tr>
<tr>
<td>Z</td>
<td>0.13 (.05)</td>
<td>0.12 (.05)</td>
<td>0.13 (.05)</td>
</tr>
<tr>
<td>SGROWTH</td>
<td>-0.09 (.58)</td>
<td>-0.09 (.58)</td>
<td>-0.08 (.63)</td>
</tr>
<tr>
<td>RISKIND</td>
<td>0.29 (.28)</td>
<td>0.27 (.33)</td>
<td>0.29 (.29)</td>
</tr>
<tr>
<td>RECPAY</td>
<td>-0.38 (.52)</td>
<td>-0.37 (.53)</td>
<td>-0.37 (.53)</td>
</tr>
<tr>
<td>VOLATILITY</td>
<td>7.89 (.47)</td>
<td>7.51 (.49)</td>
<td>6.78 (.54)</td>
</tr>
<tr>
<td>GC</td>
<td>-0.75 (.37)</td>
<td>-0.75 (.37)</td>
<td>-0.77 (.36)</td>
</tr>
<tr>
<td>BIG4</td>
<td>-0.05 (.88)</td>
<td>-0.02 (.96)</td>
<td>-0.05 (.89)</td>
</tr>
<tr>
<td>MW</td>
<td>1.86 (&lt; .01)</td>
<td></td>
<td>1.18 (&lt; .01)</td>
</tr>
<tr>
<td>EMW</td>
<td></td>
<td>2.01 (&lt; .01)</td>
<td></td>
</tr>
<tr>
<td>AMW</td>
<td></td>
<td>1.65 (&lt; .01)</td>
<td></td>
</tr>
<tr>
<td>MW302</td>
<td></td>
<td></td>
<td>0.87 (.03)</td>
</tr>
<tr>
<td>Model’s Likelihood ratio (p-value)</td>
<td>93.3 (&lt;.01)</td>
<td>94.8 (&lt;.01)</td>
<td>88.0 (&lt;.01)</td>
</tr>
<tr>
<td>Model’s Pseudo R-sq.</td>
<td>0.12</td>
<td>0.13</td>
<td>0.13</td>
</tr>
</tbody>
</table>

Note: This table provides the results from logistic regression models that seek to explain auditor resignations in terms of firm characteristics. Variables are defined as follows: 

- $MW = 1$ if disclosed a material weakness in internal controls, otherwise 0; 
- $EMW = 1$ if the internal control problem is entity-level, otherwise 0; 
- $AMW = 1$ if the internal control problem is application-level, otherwise 0; 
- $MW302 = 1$ if firm reported material weakness pursuant to Section 302 disclosures, otherwise 0.

All other variables are defined as in Table 2.

The opinions of the authors are not necessarily those of Louisiana State University, the E.J. Ourso College of business, the LSU Accounting Department, Roosevelt University, the Senior Editor, or the Editor.