Auditor Resignation and Risk Factors

Aloke (Al) Ghosh**

and

Charles Y. Tang

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**Corresponding author:
Zicklin School of Business
Baruch College, City University of New York
One Bernard Baruch Way, Box B12-225
New York, NY 10010
Phone: 646.312.3184
E-mail: Aloke.Ghosh@baruch.cuny.edu

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Synopsis:

Although litigation risk is considered as a leading explanation for auditor resignations, audit and business risks might also trigger resignations. Because the three risk factors are not mutually exclusive, we examine their relevance and incremental importance using measures from the pre- and post-resignation periods. Using summary indices from the pre-resignation period, we find that all the three ex-ante risk indices are incrementally important for resignations, especially when the predecessor auditor is Big 4. Because the ex-ante risk factors are prone to measurement errors, and they are less likely to capture auditor's proprietary information about the client, we analyze data from the post-resignation period when the auditor's proprietary information is likely to become publicly known. We find that within a three-year period following an auditor's resignation, clients are more likely to be: (1) involved in class-action lawsuits (ex-post litigation risk), (2) have internal control problems (ex-post audit risk), and (3) delisted from a national stock exchange (ex-post business risk). Our research demonstrates that auditors consider all three risk factors, and not just litigation risk, in resignation decisions.

Keywords: auditor resignations; litigation risk; audit risk; business risk

Data availability: Data are available from public sources identified in the text

Auditor Resignations and Risk Factors

INTRODUCTION

Litigation risk is often considered as a dominant explanation for auditor resignations.[1] However, the results from a recent study by Catanach et al. (2011) suggest that business risk might be another competing explanation for resignations. Audit risk is a third plausible explanation for auditor resignations. Because the three risk factors are not mutually exclusive, it is ambiguous whether they are incrementally important as competing explanations for auditor resignations. Further, although prior studies claim that litigation risk is the dominant explanation, we are not aware of any study that evaluates the relative importance of the three risk factors by considering them simultaneously.

In this study, we examine the relevance and incremental importance of the three competing risk-based explanations for auditor resignations using information from the pre- and post-resignation periods. We construct ex-ante summary indices for litigation-, business-, audit-risk using information one year prior to auditor resignations. We then evaluate the incremental importance of the three indices in precipitating auditor resignations. One limitation of relying on ex-ante risk measures is that they are noisy estimates of the auditors proprietary information about the client's 'hidden risk' because market participants cannot observe the auditor's private information.

A key innovation of our study is that we analyze client-related outcomes from the post-resignation period which are less susceptible to measurement errors because auditor's proprietary information about client's hidden risk is likely to be revealed over the post-resignation period. Drawing on the Bockus and Gigler (1998) analytical model of auditor resignations, we identify three distinct client-related adverse outcomes from the post-

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[1]For example, Landsman et al. (2009), Rama and Read (2006), Bedard and Johnstone (2004), Choi et al. (2004), Shu (2000), Krishnan and Krishnan (1997), Simunic and Stein (1996).

resignation period. First, auditors are frequently included as defendants in shareholder class-action lawsuits (Stice 1991, Sullivan 1992, Palmrose 1988). Therefore, we analyze the incidence of class-action lawsuits from the post-resignation period as an ex-post test of whether auditors resign to limit their litigation risk (ex-post litigation risk proxy).[2] Second, we examine whether clients are more likely to be associated with internal control weaknesses in financial reporting over the post-resignation period (ex-post audit risk proxy). Third, we also investigate whether clients are more likely to be delisted from a stock exchange following resignations (ex-post business risk proxy).

In a recent study, Catanach et al. (2011) also examine whether resignations lead to more frequent delisting when the successor auditor is Big 4 or non-Big 4. Because their analysis is confined to resignations, it is hard to assess whether all auditor switches (dismissal and resignations) are associated with delisting or whether delisting is unique to resignations. We build on the Catanach et al. (2011) by examining the incremental importance of the three risk-based explanations for resignations using client-related outcomes from the post-switching period based on a sample of auditor switches.

Additionally, we consider the size of the predecessor and successor auditor when evaluating the importance of the risk factors because larger auditors with greater exposure to legal liability are more sensitive to risk than smaller auditors (e.g., Simunic and Stein 1996, Lambert 1994). In the Bockus and Gigler (1998) model, larger auditors with more resources are better at detecting hidden risks because they can devote more resources in detecting such risks than smaller auditors. Also, because of greater wealth at risk, larger auditors have greater exposure to legal liability from failing to detect hidden risks than do smaller auditors.

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[2]Although auditors are more concerned about the incidence of auditor lawsuits, it is impossible to directly assess auditors' exposure to lawsuits had they not resigned from a risky engagement (a counter factual case). Because auditors are invariably included in class-action lawsuits, the incidence of class-action lawsuits against the client over the post-resignation period provides an understanding of the legal risks that the auditor would have encountered had they not resigned.

Consequently, larger auditors have both the incentives and ability to detect hidden risks and when they detect that risks are sufficiently high, they resign from the engagement. Thus, resignations by larger auditors signal that engagements have high litigation risk, high audit risk and/or high business risk.

Our results are based on a comprehensive sample of auditor switches between 1999 and 2010 with 1,158 resignations and 4,988 dismissals. Drawing on prior studies (Catanach et al 2011, DeFond and Jiambalvo 1997), we construct three ex-ante risk indices using public information one year prior to the auditor switch. Consistent with the audit risk definition (AS No. 8, PCAOB 2010), audit risk is high for firms managing earnings, for high growth firms, larger firms, those with external financing needs, and for firms with internal control deficiency. Business risk is high for firms with going concern modified reports and those with high bankruptcy or delisting risk (e.g., Johnstone and Bedard 2004). Finally, litigation risk is high for firms with low stock returns, those in high-tech industries (Shu 2000), and firms involved in lawsuits or restatements (Catanach et al. 2011, Palmrose and Scholz 2004).

The univariate results indicate that the three risk factors are all higher (economically and statistically) for the resignation sample relative to the dismissal sample. In our multivariate analysis, when we include the three risk measures in a logistic regression where the dependent variable is one for resignations and zero for dismissals, we find that all three risk measures are positive and statistically significant. Our results suggest that audit, business and litigation risks are incrementally important in explaining auditor resignations. Additionally, when we use Big 4 resignation as a dependent variable, the three risk measures continue to be significant. The economic and statistical significance of *Litigation risk* is much higher in Big 4 resignations than non-Big 4 resignations, which suggests that litigation risk is the most important consideration for Big 4 resignations.

Our ex-post adverse outcome measures are consistent with the ex-ante risk measure results. We find that within a three-year period following a resignation, clients are more likely

to be: (1) involved in securities shareholder class-action lawsuits, (2) report weaknesses in internal control over financial reporting, and (3) delisted from a national stock exchange because of bankruptcy or failure to meet the stock exchange listing requirements. Because we include ex-ante risk indices and various control variables from the pre-resignation period in our regressions, *Resignation* captures the auditor's private information. Thus, our results suggest that auditors have proprietary information about clients' litigation risk, business risk and audit risk and that they resign from engagements when they privately deem such risks to be high. When we incorporate the size of the predecessor auditor, our ex-post results are stronger when the predecessor auditor is a Big 4 than a non-Big 4.

In a recent study, Elliott et al. (2013) document that auditors charge more when engagements are risky. Our study highlights an alternative solution. When risk is sufficiently high, auditors choose to resign because the engagement is deemed unprofitable for reputational and financial reasons. While we concentrate on the size of the predecessor auditor, we extend our analyses by partitioning the sample into four groups based on the size of the predecessor and successor auditors. In most instances, our results indicate that the odds of future adverse outcomes are higher when Big 4 resign from engagements (relative to non-Big 4 or dismissals) regardless of the size of the successor auditor.

We conduct numerous additional tests to examine the robustness of the results. First, because there might be fundamental differences in the resignation and dismissal subsamples, we construct a matched sample whereby each resignation observation is matched to a dismissal observation based on Shu's (2000) litigation measure. Second, we estimate our regressions after including fixed firm effects. Finally, we exclude clients switching from Arthur Andersen in 2002, and we also exclude second tier auditors like Grant Thornton and BDO Seidman from our sample. Our results are robust to these additional sensitivity analyses.

Our study contributes to the auditing literature by documenting that business, audit, and litigation risks are all important considerations in resignation decisions. While prior studies tend

to emphasize litigation risk as a dominant explanation for Big 4 resignations (e.g., Landsman et al. 2009; Shu 2000; Krishnan and Krishnan 1997; Simunic and Stein 1996), our results suggest that non-litigation risks also precipitate auditor resignations. Because much of the information about the auditor's assessment of client risk is private information, ex-post results are likely to provide powerful insights into auditors' assessment of clients' hidden risks at the time of the resignation.

RESIGNATIONS AND RISK FACTORS

Our study develops proxies for risk factors from two distinct time intervals: (1) the pre-resignation or the ex-ante period, and (2) the post-resignation or the ex-post period.

Ex-Ante Risk Factors

For the pre-resignation period, we develop summary indices for litigation-, business-, and audit-risk using public data one year prior to the resignation. Because each of the risk factors has been individually examined in prior research, the task of developing individual ex-ante risk indices is relatively straight forward.

Litigation risk

We identify three sources of litigation risk:

- Decline in stock price
    1. *Stock Return*
- Risky industries
    2. *High-tech*
- Lawsuit risk
    3. *Lawsuit*
    4. *Restatement*

Prior studies find that the litigation risk increases with a decline in the stock price, for firms in high-tech industries (Shu 2000), for clients involved in class action lawsuits (Palmrose 1988), and firms restating prior period financial statements (Palmrose and Scholz 2004). We classify the population of publicly traded firms in *Compustat* into five quintiles based on annual market adjusted stock return ending with the fiscal year-end one year prior to the switch and those in the lowest quintile have *Stock Return* as 1 and 0 otherwise. *High-tech* is 1 for firms in

the technology industry and 0 otherwise. Using lawsuits data from *Audit Analytics*, we code *Lawsuit* as 1 if a client is involved in a lawsuit and 0 otherwise one year prior to the resignation. *Restatement* is 1 when a firm restates its financial statement one year prior to the resignation and 0 otherwise. *Litigation risk* value lies between 0 and 4.

Audit risk

We identify five key sources of audit risk:

1. *Discretionary Accruals*
2. *Market-to-Book*
3. *Assets*
4. *External Financing*
5. *Internal Control*

Because low earnings quality or aggressive earnings management is typically associated with firms with weak internal controls (Doyle et al. 2007), audit risk is high for firms with low earnings quality. We classify the population of publicly traded firms in *Compustat* into five quintiles based on the absolute value of discretionary accruals computed from the modified Jones (1991) model that additionally controls for performance. Firms in the highest quintile have *Discretionary Accruals* equal 1 and 0 otherwise.

Growth firms face more challenges in establishing and enforcing internal controls than mature firms (Lys and Watts 1994). Similarly, smaller firms with more resource constraints are more prone to internal control problems. We classify the population of publicly traded firms into five quintiles based on market-to-book ratio (market value of equity plus book value of debt to total assets) and total assets. *Market-to-Book* (*Assets*) is 1 when firms are in the highest (lowest) market-to-book ratio (total assets) quintile and 0 otherwise. Also, firms relying on external financing have more incentives to manipulate their financial statements and therefore have higher audit risk. We classify the population of publicly traded firms into five quintiles based on financing, which is defined as the difference between cash received from issuance of new debt and equity (common and preferred) and any cash used to retire existing debt and equity (Richardson and Sloan 2003). *External Financing* is 1 when firms are in the highest financing

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quintile and 0 otherwise. Audit risk is high for firms with ineffective internal control over financial reporting (Caplan 1999). *Internal Controls* is 1 when internal control over financial reporting is considered ineffective (404 filings).

All the five variables are measured one year prior to the resignation and *Audit risk* value lies between 0 and 5.

Business risk

We identify two key sources of business risk:

- Bankruptcy risk
  1. *Going Concern*
  2. *Z-Score*
- Other delisting risk
  3. *Asset Return*

Client's business risk is high for firms that are expected to go bankrupt. *Going Concern* is 1 when an auditor issues a going concern modified report for the fiscal year immediately preceding the switch which is obtained from Audit Opinion file of Audit *Analytics*. We also sort the *Compustat* firms into quintiles based on Altman Z-Score. *Z-Score* is 1 when a firm is in the lowest Altman Z-Score quintile and 0 otherwise. Client's business risk is also high when firms are likely to get delisted because of violations of stock exchange rules or because it might be acquired by another firm. We also use poor performance as a proxy for delisting risk. We classify the population of publicly traded firms into five quintiles based on income before extraordinary items to total assets. *Asset Return* is 1 when a firm is in the lowest quintile and 0 otherwise.

All the variables are measured one year prior to the resignation year. *Business risk* value lies between 0 and 3.

Ex-Post Risk Factors

We draw on the Bockus and Gigler (1998) model to derive adverse outcomes that follow resignations which are consistent with the risk factors (litigation-, business-, and audit-risk). Because any risk index based on public information from the pre-resignation period is unlikely

to fully capture the auditors' private assessment of the client's hidden risk, we underscore the analyses of adverse outcomes from the post-resignation period to provide superior insights into the auditor's assessment of client's hidden risks.

Bockus-Gigler Model

In the Bockus and Gigler (1998) analytical model, the client firm privately knows whether it presents a significant hidden risk to the incumbent auditor where hidden risk is defined as any *adverse* information that the client prefers to hide from the auditor. Unless incumbent auditors detect the hidden risk (e.g., management fraud), they have substantial exposure to added legal liability. The client does not want the incumbent auditor to detect the hidden risk because it must pay a penalty when the auditor detects such hidden risks. In contrast, the incumbent auditor has incentives to detect hidden risks posed by clients because failing to do so the auditor must bear added litigation/reputational costs.

Auditors are better at detecting whether a client presents hidden risks under two types of situations. First, incumbent auditors have an informational advantage over successor auditors in assessing hidden risk because they have access to private information from clients and they have proprietary information from their own audits. Second, auditors with more resources (or "larger" auditors) are better at detecting hidden risks than those with less resources (or "smaller" auditors). Upon detecting that a client poses a significant hidden risk, an incumbent auditor prefers to resign from the engagement.[3] Thus, a fundamental prediction of the Bockus and Gigler (1998) model is:

> "…since auditor resignations occur when the incumbent auditor believes it is relatively likely that the client has a hidden risk, we would expect that the firms whose auditors resign have a higher incidence of <u>adverse outcomes</u> than other firms (emphasis added, p. 204)."

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[3]The auditor chooses to resign rather than increase audit fees to avoid an adverse selection problem. If the incumbent auditor with high legal liability were to increase fees, a cost-conscious client who privately knows about the risk and observes all competing bids from other auditors would switch auditors when a successor auditor bids less. The only ones remaining with the incumbent auditor would be those with excessively high risk and decide not to switch. Thus, increasing fees when risks are sufficiently high hurts the incumbent auditor because they are left with risky clients.

Based on their model, we identify the following three adverse outcomes that follow resignations.

Post-Resignation Lawsuits: Litigation Risk

We rely on the incidence of securities shareholder class action lawsuits against clients related to financial reporting matters over the post-resignation period to judge the predecessor auditor's exposure to litigation risk had they not resigned from the engagement.[4] If auditor's resign from an engagement because they question management integrity or they suspect fraud or fraudulent transactions, investors are expected to seek damages for their losses once these infractions are revealed to the market at a future period (Bonner et al. 1998; Francis et al. 1994).

Although the frequency of lawsuits against auditors is another direct measure to assess auditor's litigation risk, our contention is that the incidence of lawsuits against the client is a superior measure to judge the predecessor auditor's exposure to future litigation risk. For instance, investors may not include a smaller successor auditor in their class-action lawsuits because smaller auditors may not have the financial strength to settle claims or pay damages. However, had the larger predecessor auditor not resigned, it is more likely that the predecessor auditor would have been included as a defendant in the lawsuit because of their deep pockets.[5] Therefore, securities class-action lawsuits against the client or management are better indicators of the predecessor auditors' future litigation risk than auditor lawsuits filed against the successor auditor following a resignation.

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[4]A securities class action is a lawsuit brought on behalf of a group of investors who have suffered a financial loss in a stock, bond or investment fund. A loss may result from fraudulent stock manipulation, material false statements, or restatement of previously issued financial statements. Claims usually arise under Rule 10b-5, where the fraud occurred in purchases made on a stock exchange, or under Section 11 of the Securities Act of 1933 where the securities purchased are traceable to a materially false and misleading registration statement (prospectus) filed with the SEC (Johnson et al. 2001; Francis et al. 1994).

Post-Resignation Internal Control Problems: Audit Risk

Depending on whether the underlying action causing the misstatement is intentional or unintentional, *SAS No. 82* distinguishes between fraud and errors. Fraud includes both deliberate misstatement of financial reporting by the client firm and misappropriation of assets. Management with strong intention of perpetrating fraud would prefer weaker internal control over financial reporting so that fraud is not detected. Moreover, regardless of the internal control strengths, they would want to override those controls to ensure that the fraud remains hidden (Caplan 1999). Therefore, larger auditors are more likely to resign from risky engagements when they suspect issues with internal controls or that management might override internal controls regardless of the strength of the control system.[6]

Post-Resignation Delisting: Business Risk

An auditor might also resign from an engagement when faced with high business or financial risk (Johnstone and Bedard 2004; Morgan and Stocken 1998). Business risk increases the auditors' potential litigation costs regardless of whether there is an audit failure. Also, when business risk is high because client firms' continued survival and well-being are in question, auditors deem such engagements as unprofitable (Bell et al. 2001). Therefore, auditors are expected to resign from engagements with high business risk.

A direct proxy for client's business risk is that it ceases to exist as a publicly traded firm which automatically terminates the need for an auditor-client relationship from a mandated perspective. Because of the exposure to potential litigation costs when a client is delisted from a stock exchange (e.g., bankruptcy or liquidation), and since these costs are higher for larger auditors, we expect larger auditors to resign more frequently when business risk is high.

METHODOLOGY

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[6] Auditors might respond to higher levels of control risk by increasing audit fees because greater audit effort is required to maintain an acceptable level of audit risk (Hogan and Wilkins 2008). We propose an alternative solution that, when control risk is sufficiently high, auditors choose to resign from risky engagements rather than increase audit fees.

Ex-Ante Risk and Resignations

Our objective is to analyze whether these three ex-ante risk measures are incrementally (jointly and incrementally) important, and their relative importance, in auditor resignation decisions. Therefore, we estimate the following logistic regression

$$Resignation = \beta_0 + \beta_1 Litigation\ risk + \beta_2 Audit\ risk + \beta_3 Business\ risk + \varepsilon \qquad (1)$$

where the dependent variable is *Resignation* which equals one when the predecessor auditor resigns from an engagement and 0 otherwise. The main variables are *Litigation risk*, *Audit risk* and *Business risk* (as defined previously). If auditors consider all types of risk factors in resignation decisions, β_1, β_2, and β_3 are expected to be positive. We also estimate equation (1) by replacing *Resignation* with *Resignation$_{B4}$* which equals 1 when a Big 4 auditor resigns.

Ex-Post Risk: Adverse Outcomes and Resignations

In the second part of our analyses, we directly examine adverse outcomes following auditor resignations. We use the following parsimonious regression model to test the relationship between auditor resignations and future adverse outcomes while controlling for the pre-switch information environment.

$$Adverse\ outcomes_{j,1to3} = \beta_0 + \beta_1 Resignation_0 + \beta_2 Acquisition_{-1} + \beta_3 Leverage_{-1} + \beta_4 Size_{-1} + \beta_5 Growth_{-1} + \beta_6 Market\text{-}to\text{-}book_{-1} + \beta_7 Return\text{-}on\text{-}assets_{-1} + \beta_8 Litigation\ risk_{-1} + \beta_9 Audit\ risk_{-1} + \beta_{10} Business\ risk_{-1} + \beta_{11} Adverse\ outcome_k + \beta_{12} Adverse\ outcome_l + \Sigma Industry/Year\ fixed\ effects + \varepsilon \qquad (2)$$

We measure *Adverse outcomes* using distinct constructs: (1) Class-action lawsuits (*Lawsuits*), which equals one when a firm is a defendant in a class-action lawsuit for violation of securities laws anytime within 3 years subsequent to a switch (t=+1 to +3), and 0 otherwise (litigation risk proxy), (2) *Internal control* equals one when a firm reports ineffective internal control over financial reporting anytime within 3 years subsequent to a switch, and 0 otherwise (audit risk proxy), and (3) *Delisting* equals one when a firm is delisted from a stock exchange other than merger/acquisition within 3 years subsequent to a switch, and 0 otherwise (business risk proxy).

Consistent with prior studies, we include several control variables that are associated with adverse outcomes but are also likely to be associated with auditor switches (i.e., resignations or dismissals).[7] We control for *Acquisition*, which equals one when a firm engages in a merger or acquisition and zero otherwise, because client firms are more likely to have financial reporting problems following an acquisition; we include *Leverage* (ratio of the sum of long-term debt and short-term debt to total assets) because highly leveraged firms have incentives to misstate their financial reports; we control for *Size* (logarithm of total assets), *Growth* (percentage change in revenues between the current and the prior year), and *Market-to-book* (market value of equity plus the book value of debt to book value of total assets) because prior research finds that smaller and rapidly growing firms are more likely to develop financial reporting problems; we control for *Return-on-assets* (income before extraordinary items to total assets) because poorly performing firms are more likely to encounter adverse outcomes. All the control variables are measured for the fiscal year immediately prior to the auditor switch to control for the information environment that preceded the switch (i.e., t=-1).

We additionally include the three ex-ante risk factors that are correlated with auditor resignations. Because the ex-ante risk measures might also predict future adverse outcomes, it is critical to control for these factors before drawing any inferences about the information content of auditor resignation decisions. Finally, because the future adverse outcomes (j, k, l) may be correlated, we control for the other two outcomes (k, l) when we analyze a particular adverse outcome (j).

The main variable *Resignation* equals one when an auditor resigns which is the year of the switch (t=0). Because we control for the pre-resignation information and the ex-ante risk factors, *Resignation* captures auditors' private information regarding the client's hidden risk.

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[7]See for example, Abbott et al. (2004), Kinney et al. (2004), Khurana and Raman (2004), Palmrose and Scholz (2004), Heninger (2001), Johnson et al. (2001), Shu (2000), Lys and Watts (1994), Carcello and Palmrose (1994), Francis et al. (1994), DeFond and Jiambalvo (1991).

To test whether resignations by larger (smaller) auditors are associated with increased risks, we replace *Resignation with Resignation$_{B4}$ (Resignation$_{NB4}$)* to analyze the effects of Big 4 (non-Big 4) resignation on future adverse outcomes.[8]

DATA

Sample Selection and Descriptive Statistics

We collect data on auditor switches (resignations and dismissals) from *Audit Analytics* (AA) database covering all SEC registrants reporting changes in the external auditor between 1999 and 2010. From this initial sample, we delete 1,238 auditor changes because of audit firm mergers or because the audit firm was banned from providing external audit services. We then identify whether the auditor resigned or was dismissed from the auditor change 8-K filings. This sample selection procedure results in 19,158 observations from the combined data sources. We obtain accounting and stock data from *Compustat* and *CRSP*. Because many firms listed in AA are not included in *Compustat* and *CRSP*, after merging all three databases (AA, *Compustat* and *CRSP*), our sample reduces to 7,732 observations.[9] Additionally, to remove the effect of extreme observations, we delete the top and bottom one percent of the financial ratios including *Leverage, Growth, Market-to-book,* and *Return-on-assets*. Our final sample includes 6,146 auditor changes, of which 1,158 are resignations and the remaining 4,988 cases auditor dismissals.

Data on the effectiveness of internal control over financial reporting are collected from *Internal Control Effectiveness (SOX 404)* file. When we merge the auditor change file with the internal control file, we find that 299 companies from our sample report ineffective internal

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[8] We also include 4 indicator variables that incorporate the size of the predecessor and successor auditors (*Resignation$_{B4toB4}$, Resignation$_{NB4toNB4}$, Resignation$_{B4toNB4}$, Resignation$_{NB4toB4}$*).

[9] While the AA database includes information mostly about large publicly traded companies, it also includes information about management investment companies (Trust/Fund), small business issuers, privately held companies, foreign private issuers, and wholly owned subsidiaries which are not covered in *Compustat*. Therefore, we lose about 11,426 observations when we match AA with *Compustat* and *CRSP*.

controls. We search the *Audit Legal* file from AA to obtain the names of client firms who are named as defendant in class-action lawsuits under the security law for financial reporting related matters (i.e., lawsuits related to accounting malpractices, financial reporting issues, or security law). We find a total 252 legal cases filed against our sample firms.

Table 1 reports the descriptive statistics (mean and median) for auditor dismissal (*Dismissal*) and auditor resignations (*Resignation*) samples. We also report the mean/median difference between the two sub-samples. Compared to the *Dismissal* sample, a typical firm is considerably smaller for the *Resignation* sample. The average merger and acquisition activity for the *Dismissal* sample is higher than the *Resignation* sample (0.13 versus 0.11). The mean *Leverage* is higher for the *Resignation* sample. Although resignation firms have lower mean and median growth in revenues (*Growth*), the mean and median *Market-to-book* ratio (proxy for future growth opportunities) is much higher. A typical firm in the *Resignation* sample is much less profitable as measured using *Return-on-Assets*. Finally, the proportion of larger (*Big 4*) auditors is higher for the *Dismissal* sample.

EMPIRICAL RESULTS

Ex-Ante Risk Measures and Resignations

Panel A of Table 2 lists the determinants of the three risk measures (*Litigation risk*, *Audit risk* and *Business risk*). In Panel B of Table 2, we report the mean values for the three ex-ante risk factors for resignation and dismissal subsamples. Our results indicate that all the three ex-ante risk factor scores are larger for the resignation sample compared to the dismissal sample which is consistent with auditors resigning when all three risks are deemed high. The mean *Litigation risk* is 0.44 for the dismissal sample, but the corresponding number for the resignation sample is 0.53 which suggests that litigation risk is higher for the resignation sample by about 20%. The difference in *Litigation risk* between the two subsamples is statistically significant. Similarly, *Audit risk* is 0.87 for the dismissal sample, but the corresponding number for the resignation sample is 1.15 which suggests that audit risk is

higher for the resignation sample by about 32%. The difference in *Audit risk* between the two subsamples is statistically significant. Finally, *Business risk* is 0.79 for the dismissal sample, but the corresponding number for the resignation sample is 1.25 which suggests that business risk is higher for the resignation sample by about 60%.

In Table 3 we report the logistic regression results that examine whether the three ex-ante risk indices are incrementally important in explaining resignation. In Model 1, we estimate a logistic regression of *Resignation* on *Litigation risk*, *Audit risk*, and *Business risk*. We find that all *Litigation risk* (0.1076, χ^2=3.67), *Audit risk* (0.0861, χ^2=4.80), and *Business risk* (0.3290, χ^2=95.99) are all positive significant at the 5% level. Our results suggest that all the three risk factors are incrementally important in explaining auditor resignations. Thus, auditors consider all risk factors, and not just litigation risk, in their resignation decisions.

In Model 2, when we additionally include Shu's (2000) litigation risk measure (*Litigation risk$_{Shu}$*), the number of observations reduces to 3,329 because of missing values in estimating Shu's model. The three ex-ante risk indices remain highly significant as in Model 1. However, the coefficient on *Litigation risk$_{Shu}$* is not significant which may be because of the high correlation between *Litigation risk$_{Shu}$* and *Litigation risk* (ρ=0.26). When we drop *Litigation risk* from Model 2, in untabulated results, we find that the coefficient on *Litigation risk$_{Shu}$* is positive and significant. In Model 3, we use *Resignation$_{B4}$* as the dependent variable. All the three risk indices remain highly significant as in the previous models. The coefficient on *Litigation risk* increases from 0.2030 in Model 2 to 0.3902 in Model 3, which is also the largest coefficient among the three risk factors. These results indicate that litigation risk in the most important risk factor in Big 4 resignations.

Overall, our results based on publicly available information from the pre-switching period indicate that all the three risk factors (litigation-, business-, and audit-risk) play an

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important role in precipitating auditor resignations. Litigation risk is the most important criterion in determining Big 4 resignations followed by business risk and then by audit risk.

Ex-Post Risk and Resignations

Post-Resignation Class-Action Lawsuits

Table 4 presents the results on the relationship between auditor resignations and class-action lawsuits from the post resignation period, which is our proxy for the predecessor auditors' exposure to litigation had they not resigned from an engagement. The univariate results from Panel A of Table 4 indicate that the frequency of future class-action lawsuits is 5.90% for *Resignation* and 5.26% for *Dismissal*. This difference is even larger (around 3.2% and significant) when a Big 4 auditor resigns from an engagement. Thus, the likelihood of a future lawsuit when a Big 4 auditor resigns from an engagement is about 63% higher than all other cases (dismissals and non-Big4 resignations). The frequency of future lawsuits is also significantly higher when a non-Big 4 auditor resigns from an engagement.

In Panel B we estimate Equation (2) using a logistic regression where the bivariate dependent variable *Lawsuits* equals one when a client firm is a defendant in a class-action lawsuit anytime within 3 years subsequent to an auditor switch, and 0 otherwise. In Model (1), the coefficient on *Resignation* (β_1) is positive and significant (0.1744; χ^2=4.11). In Model 2, we replace *Resignation* with *Resignation$_{B4}$* and *Resignation$_{NB4}$*, the coefficients on *Resignation$_{B4}$* (β_1) is positive and weakly significant (0.1803; χ^2=3.03) while that on *Resignation$_{NB4}$* (β_2) is insignificant (0.1645; χ^2=1.61). In Model 3, when we include four indicator variables that incorporate the size of the predecessor and successor auditors, none of four resignation indicator variables is statistically significant at 5% level.

Because our regression model controls for the pre-switching information environment (i.e., ex-ante measures of litigation risk, audit risk, and business risk) and any delisting or internal control problems in the post resignation period, *Resignation* captures auditor's

proprietary information about the clients' hidden expected litigation risk. Our results suggest that there is little information content in resignation decisions with regard to future litigation risk because much of the pre-switching information environment including *Audit risk* (ex-ante measure of audit risk) and ex-post measures of audit risk and business risk (*Internal control* and *Delisting*) are highly effective in predicting future litigation risk. Thus, even though auditor might resign from engagements with excessively high litigation risk, much of this information is captured based on public information and there is no new information about future litigation risk based on resignation decisions.

Post-Resignation Internal Control Problems

Table 5 presents the results on the relationship between auditor resignations and clients having ineffective internal control over financial reporting for the post-resignation period, our proxy for the predecessor auditors' exposure to future audit risk had they not resigned from an engagement. The univariate results from Panel A of Table 5 indicate that the frequency of future class-action lawsuits is 45.26% for the resignation sample and 29.64% for dismissal sample. The difference in the frequency of future internal control inefficiencies between the two samples (15.62%) is highly statistically significant. Thus, the likelihood of a client developing future problems with internal control over financial reporting is about 54% higher when an auditor resigns from an engagement compared to when an auditor is dismissed. This difference is very similar when a Big 4 (17.12%) or a non-Big 4 auditor (14.25%) resigns from an engagement.

In Panel B we estimate Equation (2) using a logistic regression where the bivariate dependent variable *Internal control* equals 1 equals when a firm reports ineffective internal control over financial reporting anytime within 3 years subsequent to an auditor switch, and 0 otherwise. In Model 1, the coefficient on *Resignation* (β_1) is positive and significant (0.2992; χ^2=39.04). In Model 2, we replace *Resignation* with *Resignation$_{B4}$* and *Resignation$_{NB4}$*, the

coefficients on $Resignation_{B4}$ (β_1) and $Resignation_{NB4}$ (β_2) are both positive and significant (0.3188; χ^2=24.07 and 0.2811; χ^2=19.87). Untabulated test results indicate that the coefficient on $Resignation_{B4}$ is significantly larger than that on $Resignation_{NB4}$ (i.e., $\beta_1 > \beta_2$.). Thus, Big 4 resignations lead to more internal control problems than non-Big 4 resignations. In Model 3, we include four indicator variables that incorporate the size of the predecessor and successor auditors. We find that of all the four resignation indicator variables are statistically insignificant at the 5% level.

Because our regression model controls for the pre-switching information environment and future delisting or future incidence of lawsuits, $Resignation$ captures auditor's proprietary information about clients' hidden future audit risk. Our results are consistent with auditors resigning from an engagement when they deem the client as being excessively high audit risk because of internal control issues which is incrementally important to the pre-resignation information environment, to any future incidence of lawsuits or to future delisting. Our results suggest that audit risk concerns are even more important when the predecessor auditor is Big 4.

Post-Resignation Delisting

Table 6 presents the results on the relationship between auditor resignations and clients being delisted from the stock exchange in the post resignation period because of (1) liquidation, (2) bankruptcy, (3) failure to meet minimum price, number of shareholders, financial or asset requirements, or (4) corporate governance violation, which is our proxy for the predecessor auditors' exposure to future business risk had they not resigned from an engagement. The univariate results from Panel A of Table 6 indicate that the likelihood of a future stock exchange delisting is 10.83% for the resignation sample and 6.62% for dismissal sample. The difference in the frequency of future lawsuits between the two samples (4.21%) is highly statistically significant. This difference is even larger when a Big 4 (5.12%) resigns

from an engagement. Our results suggest that a Big 4 resignation increases the odds of a future delisting by about 77%. In contrast, the likelihood of a future delisting is the smallest when a non-Big 4 auditor resigns.

In Panel B we estimate Equation (2) using a logistic regression where the bivariate dependent variable *Delisted* equals 1 when a firm is delisted from the stock exchange within 3 years subsequent to an auditor switch, and 0 otherwise. In Model (1), the coefficient on *Resignation* (β_1) is positive and significant (0.3185; $\chi^2=22.87$). In Model 2, we replace *Resignation* with *Resignation$_{B4}$* and *Resignation$_{NB4}$*, the coefficients on *Resignation$_{B4}$* (β_1) and *Resignation$_{NB4}$* (β_2) are both positive and significant (0.3640; $\chi^2=17.58$ and 0.2706; $\chi^2=9.12$). Untabulated test results indicate that the coefficient on *Resignation$_{B4}$* is significantly larger than that on *Resignation$_{NB4}$* (i.e., $\beta_1>\beta_2$.). Thus, while Big 4 and non-Big 4 resignations lead to more frequent future delisting, the probability of a future delisting is even higher when a Big 4 auditor resigns from an engagement. In Model 3, we include four indicator variables that incorporate the size of the predecessor and successor auditors. We find that of the four resignation indicator variables, only the coefficients on *Resignation$_{B4toNB4}$* and *Resignation$_{NB4toNB4}$* are statistically significant, the other two indicator variables are insignificant.

Because our regression model controls for the pre-switching information environment and future internal control problems or future incidence of lawsuits, *Resignation* captures auditor's proprietary information about clients' hidden future business risk which becomes public information over the post-switching period when a client gets delisted. Our results are consistent with auditors resigning from an engagement when they deem the client as being unprofitable because of high business risk which is incrementally important to the pre-resignation information environment, any future incidence of lawsuits or to any future internal control problems. Our results suggest that business risk concerns are even more important when the predecessor auditor is Big 4.

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Sensitivity Analysis

Matched Sample

We use a dismissal sample as comparative group for the resignation sample. However, there might be differences in the two subsamples which we fail to capture in our analyses. Therefore, we also construct a matched sample to analyze the resignation sample as follows. For each resignation observation, we find a matched dismissal observation that has the closest litigation risk value based on Shu's (2000) measure. Because we match without replacement, our procedure matches a unique dismissal observation to each resignation observation. Using this matching procedure, we are able to find 512 uniquely matched pairs.

When we use this matched sample as our comparative group for the resignation sample, we get consistent results. For instance, in our ex-ante tests, we find that *Business risk* and *Audit risk* are both positive and highly significant (0.4267; χ^2=24.62 and 0.3094; χ^2=17.40). These coefficients are much larger in magnitude than those in Table 3 which increases our confidence in our conclusion that business risk and audit risk are incrementally important considerations in resignation decisions. The coefficient on *Litigation risk* is insignificant which is expected because the sample is constructed based on Shu's litigation risk measure which fully incorporates any difference in litigation risk between the resignation and dismissal sub-samples and therefore allows us to focus on potential differences in business and audit risks.

Fixed Firm Effects

One concern in cross-sectional studies is that the association between the variables of interest and the dependent variable could be attributable to correlated omitted variables. Himmelberg et al. (1999) argue that the inclusion of fixed firm effects largely addresses the concern because this form of specification controls for all firm-specific omitted variables. Therefore, we replicate all the results after including fixed firm effects in each specification. We find that the reported results are not affected when we include fixed firm effects.

Arthur Andersen and Second Tier Auditors

When we exclude Arthur Andersen's clients switching auditors in 2002 to eliminate client-auditor realignments from the demise of Andersen, the empirical results are similar to those reported in the result section. When we also exclude second tier auditors such as Grant Thornton and BDO Seidman among the non-Big 4 due to the increasing visibility of the second tier auditors, the results and conclusions remain unchanged.

CONCLUSIONS

Our objective is to examine the incremental importance of litigation risk, audit risk and business risk as competing risk-based explanations in auditor resignation decisions using data from the pre- and post-resignation periods. We construct ex-ante summary risk indices using public information one year prior to the resignation and then examine their relative and incremental importance. More importantly, we provide added evidence on the risk factors using client-related adverse outcomes from the post-resignation period. Drawing on the Bockus and Gigler (1998) model, we examine whether resignations lead to: (1) more frequent future shareholder class-action lawsuits (future litigation risk proxy), (2) clients reporting problems with internal control over financial reporting (future audit risk proxy, and (3) more frequent delisting of the client from the stock exchange (future business risk proxy). In our post-resignation analyses, we include the ex-ante risk indices and other control variables from the pre-resignation period which allows us to isolate auditor's proprietary information about the client's hidden risk that might have precipitated the resignation.

Based on a comprehensive sample of auditor switches between 1999 and 2010, we find that all the three ex-ante risk factors are incrementally important in explaining auditor resignations. Although audit and business risk are important determinants, litigation risk is the most important factor for Big 4 resignations. The evidence from the post-switching period provides corroborating results. We find that within a three-year period following a resignation, clients are more likely to be: (1) involved in class-action lawsuits, (2) report weaknesses in

internal control over financial reporting, and (3) delisted from a national stock exchange. These results tend to be stronger when the predecessor resigning auditor is Big 4.

Our study adds to our understanding of the importance of the different risk factors in auditor resignations. Our results support the argument all three risk factors, and not just litigation risk, are important in resignation decisions. Finally, by analyzing the association between resignations and post-resignation outcomes while controlling for the pre-resignation public information, we are able to extract the auditors' private information about the type of hidden risks which might have led to the resignation decisions.

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TABLE 1
Descriptive Statistics

	Dismissal		Resignation		Differences	
	Mean	**Median**	**Mean**	**Median**	**Mean**	**Median**
Observations	4,988		1,158			
Assets (million dollars)	1,161	113	484	32	677***	81***
Acquisition	0.1263	0.0000	0.1079	0.0000	0.0184***	0.0000
Leverage	0.3758	0.1909	0.4749	0.1891	-0.0991***	0.0018
Growth	0.2912	0.0524	0.2829	0.0330	0.0083***	0.0194***
Market-to-Book	3.0078	1.0598	4.4024	1.2257	-1.3947***	-0.1659***
Return-on-Assets	-0.3176	0.0024	-0.6302	-0.1022	0.3125***	0.1047***
Big 4	0.6195	1	0.4784	0	0.1411	1***

The tests of the mean (median) differences between dismissal and resignation are based on t-values (Wilcoxon two-sample Z-tests). Variable definitions are as follows.

Assets	=	The book value of total assets (in million dollars);
Acquisition	=	An indicator variable which equals one when a firm engages in a merger or acquisition and zero otherwise;
Leverage	=	The ratio of the sum of long-term debt and short-term debt to total assets;
Growth	=	The percentage change in revenues between the current and the prior year;
Market-to-Book	=	The ratio of the sum of the market value of equity plus the book value of debt divided by the book value of total assets;
Return-on-Assets	=	Income before extraordinary items to total assets;
Big 4	=	An indicator variable that equals one if the auditor is Big 4 and zero otherwise.

*** indicates significance at the 1% level.

TABLE 2
Ex-Ante Risk Metrics

Panel A: Ex-Ante Risk Scores

	Ex-ante Risk Scores
Litigation risk	
• *Stock Return*	1
• *High-tech*	1
• *Number of Lawsuits*	1
• *Restatement*	1
Total Score	0 – 4
Audit risk	
• *Discretionary Accruals*	1
• *Market-to-Book*	1
• *Assets*	1
• *External Financing*	1
• *Internal Control*	1
Total Score	0 – 5
Business risk	
• *Going Concern*	1
• *Z-score*	1
• *Asset Return*	1
Total Score	0 – 3

Panel B: Differences in Ex-Ante Risk Scores between Resignation and Dismissal

Variable	Dismissal		Resignation		Difference	*t*-value
	N	Mean	N	Mean		
Litigation risk	4,988	0.4389	1,158	0.5328	-0.0940	1.23***
Audit risk	4,988	0.8771	1,158	1.1546	-0.2775	1.10**
Business risk	4,988	0.7871	1,158	1.2504	-0.4633	1.24***

Litigation Risk score is based on five variables: (1) *Stock Return* is 1 if a firm is the lowest quintile and 0 otherwise, (2) *High-tech* is 1 for firms in the technology industry and 0 otherwise, (3) *Lawsuit* if a client is involved in a lawsuit and 0 otherwise, (4) *Restatement* is 1 when a firm restates its prior period financial statements, otherwise 0. *Litigation risk* value lies between 0 and 4. *Audit risk* score is based on five variables (1) *Discretionary Accruals* is 1 if an observation is in the top quintile and 0 otherwise, where quintiles are based on absolute discretionary accruals (2) *Market-to-Book* ratio is 1 if an observation is in the top quintile and 0 otherwise, where *Market-to-Book* is the ratio of the market value of equity plus the book value of debt to the book value of total assets, (3) *Assets* is 1 if an observation is in the top quintile of and 0 otherwise, where *Assets* is book value of total assets (4) *External Financing* is 1 if an observation is in the top financing quintile and 0 otherwise, where financing is the difference between cash received from issuance of new debt and equity and any cash used to retire existing debt and equity, (5) *Internal Control* is 1 when a firm reports ineffective internal controls. *Audit risk* score lies between 0 and 5. *Business Risk* score is based on three variables: (1) *Going Concern* is 1 when an auditor issues a going concern modified report, and 0 otherwise, (2) *Z-Score* is 1 if a firm is in the lowest Altman Z-score quintile, and 0 otherwise, and (3) *Asset Return* is 1 if a firm is in the lowest return on assets quintile. *Business risk* score lies between 0 and 3. All the variables are measured for the fiscal year immediately preceding the auditor switch.
***, and ** indicate significance at the 1% and 5% level, respectively.

TABLE 3
Ex-Ante Summary Risk Indices and Auditor Resignations

Dependent Variable	Resignation		Resignation$_{B4}$
	Model 1	**Model 2**	Model 3
Observations	6,146	3,329	3,329
Adjusted R^2 (%)	0.1339	0.1947	0.2012
Intercept	-2.1335 (88.93)***	-2.7586 (29.57)***	-3.4656 (22.09)***
Litigation risk	0.1076 (3.67)**	0.2030 (6.49)***	0.3903 (19.18)***
Audit risk	0.0861 (4.80)**	0.1667 (8.87)***	0.1498 (5.31)**
Business risk	0.329 (95.99)***	0.4036 (46.67)***	0.3231 (22.57)***
Litigation risk$_{Shu}$	-	-0.0382 (0.64)	0.052 (0.86)
Industry fixed effects	Included	Included	Included
Year fixed effects	Included	Included	Included

Variable definitions are as follows:

Resignation	=	An indicator variable which equals 1 when an auditor resigns and 0 otherwise;
Resignation$_{B4}$		An indicator variable which equals one when a Big 4 predecessor auditor resigns from an engagement and 0 otherwise;
Litigation risk	=	An ex-ante metric for litigation risk based on four variables defined in Table 2;
Audit risk	=	An ex-ante metric for audit risk based on five variables defined in Table 2;
Business risk	=	An ex-ante metric for business risk based on three variables defined in Table 2;
Litigation risk$_{Shu}$	=	Litigation risk computed using the Shu (2000) model.

***, and ** indicate significance at 1% and 5% level, respectively.

TABLE 4
Auditor Resignations and Future Class-Action Lawsuits

Panel A: Frequency of Future Lawsuits

	Resignation		Dismissal		Difference	
	Obs	Mean	Obs	Mean	Mean	t-Value
Resignation	1034	0.0590	4410	0.0526	0.0064	(0.79)
Resignation$_{B4}$	494	0.0850	4410	0.0526	0.0324	(2.49)**
Resignation$_{NB4}$	540	0.0352	4410	0.0526	0.0174	(2.02)**

Panel B: Logistic Regressions

	Model 1		Model 2		Model 3	
Observations	5,444		5,444		5,444	
Adjusted R^2 (%)	0.2288		0.2288		0.2294	
Intercept	-2.8803	(163.46)***	-2.8773	(160.67)***	-2.8703	(159.89)***
Resignation	0.1744	(4.11)**				
Resignations$_{B4}$			0.1803	(3.03)*		
Resignation$_{NB4}$			0.1645	(1.61)		
Resignation$_{B4toB4}$					0.3131	(3.82)*
Resignation$_{B4toNB4}$					0.1062	(0.70)
Resignation$_{NB4toB4}$					0.0747	(0.03)
Resignation$_{NB4toNB4}$					0.1698	(1.56)
<u>*Control variables*</u>						
Acquisition	-0.1364	(2.22)	-0.1363	(2.22)	-0.1344	(2.16)
Leverage	-0.0233	(0.04)	-0.0225	(0.04)	-0.0253	(0.05)
Size	0.2117	(113.50)***	0.2113	(110.32)***	0.2099	(107.71)***
Growth	0.1245	(24.09)***	0.1244	(24.05)***	0.1239	(23.87)***
Market-to-book	0.0087	(7.37)***	0.0087	(7.38)***	0.0086	(7.32)***
Return-on-assets	0.1986	(2.74)*	0.1983	(2.73)*	0.2000	(2.77)*
Litigation risk	0.0375	(0.56)	0.0369	(0.54)	0.0377	(0.56)
Audit risk	0.1257	(9.32)***	0.1257	(9.31)***	0.1277	(9.59)***
Business risk	-0.0191	(0.12)	-0.0194	(0.13)	-0.0178	(0.11)
Internal control	0.4589	(43.55)***	0.4587	(43.50)***	0.4591	(43.57)***
Delisting	0.3918	(14.39)***	0.3919	(14.39)***	0.3931	(14.45)***
Industry/Year fixed effects	Included		Included		Included	

The dependent variable *Lawsuit* is 1 when a firm is involved in a lawsuit within three years subsequent to an auditor switch. Subscript B4 (NB4) denotes a Big 4 (non-Big 4) predecessor auditor. Subscript B4toB4 (NB4toNB4) denotes a Big 4 (non-Big 4) predecessor and successor auditors. Subscript B4toNB4 (NB4toB4) denotes a Big 4 (non-Big 4) predecessor auditor and a non-Big 4 (Big 4) successor auditor. Variable definitions are as follows.

Resignation	=	Indicator variable which equals 1 when an auditor resigns and 0 otherwise;
Acquisition	=	Indicator variable which equals 1 for merger or acquisition and 0 otherwise;
Leverage	=	The ratio of the sum of long-term debt and short-term debt to total assets;
Size	=	Logarithm of the book value of total assets (in million dollars);
Growth	=	The percentage change in revenues between the current and the prior year;
Market-to-Book	=	The ratio of the sum of the market value of equity plus the book value of debt divided by the book value of total assets;
Return-on-Assets	=	Income before extraordinary items to total assets;
Litigation risk	=	An ex-ante metric for litigation risk based on four variables defined in Table 2;
Audit risk	=	An ex-ante metric for audit risk based on five variables defined in Table 2;
Business risk	=	An ex-ante metric for business risk based on three variables defined in Table 2;
Internal control	=	An indicator variable which equals 1 when a firm reports a problem in internal control over financial reporting within three years subsequent to an auditor switch;
Delisting	=	An indicator variable which equals 1 when a firm is delisted from a national stock exchange within three years subsequent to an auditor switch.

***, **, and * indicate significance at 1%, 5%, and 10% level, respectively.

TABLE 5
Auditor Resignations and Future Internal Control Problems

Panel A: Frequency of Internal Control Problems

	Resignation		Dismissal		Differences	
	# Obs.	Mean	# Obs.	Mean	Mean	t-Value
Resignation	1034	0.4526	4410	0.2964	0.1562	9.22***
Resignations_{B4}	494	0.4676	4410	0.2964	0.1712	7.29***
Resignation_{NB4}	540	0.4389	4410	0.2964	0.1425	6.35***

Panel B: Logistic Regressions

	Model 1		Model 2		Model 3	
Observations	5,444		5,444		5,444	
Adjusted R^2 (%)	0.1833		0.1834		0.1836	
Intercept	-0.6911	(29.68)***	-0.6856	(28.94***)	-0.6857	(28.93)***
Resignation	0.2992	(39.04)***				
Resignations_{B4}			0.3188	(24.07)***		
Resignation_{NB4}			0.2811	(19.87)***		
Resignation_{B4toB4}					0.3295	(7.41)***
Resignation_{B4toNB4}					0.3148	(17.97)***
Resignation_{NB4toB4}					0.4685	(4.86)**
Resignation_{NB4toNB4}					0.2655	(16.53)***
<u>Control variables</u>						
Acquisition	0.0558	(0.91)	0.0558	(0.91)	0.0560	(0.92)
Leverage	-0.0082	(0.10)	-0.0079	(0.10)	0.0078	(0.10)
Size	0.0089	(0.65)	0.0081	(0.53)	0.0076	(0.46)
Growth	0.0423	(5.63)**	0.0422	(5.62)**	0.0425	(5.71)**
Market-to-book	0.0012	(0.34)	0.0012	(0.35)	0.0012	(0.36)
Return-to-assets	-0.0172	(0.73)	-0.0172	(0.72)	-0.0173	(0.73)
Litigation risk	0.3339	(110.12)***	0.3325	(108.17)***	0.3327	(108.27)***
Audit risk	0.1274	(28.37)***	0.1272	(28.27)***	0.1268	(28.04)***
Business risk	-0.0118	(0.23)	-0.0120	(0.23)	-0.0113	(0.20)
Lawsuit	0.5337	(42.13)***	0.5336	(42.08)***	0.5334	(42.01)***
Delisting	0.0521	(0.53)	0.0517	(0.53)	0.0522	(0.54)
Industry/Year fixed effects	Included		Included		Included	

The dependent variable *Internal Control* is 1 when a firm reports internal control problems within three years subsequent to an auditor switch. Subscript B4 (NB4) denotes a Big 4 (non-Big 4) predecessor auditor. Subscript B4toB4 (NB4toNB4) denotes a Big 4 (non-Big 4) predecessor and successor auditors. Subscript B4toNB4 (NB4toB4) denotes a Big 4 (non-Big 4) predecessor auditor and a non-Big 4 (Big 4) successor auditor. Variable definitions are:

Resignation	=	Indicator variable which equals 1 when an auditor resigns and 0 otherwise;
Acquisition	=	Indicator variable which equals 1 for merger or acquisition and 0 otherwise;
Leverage	=	The ratio of the sum of long-term debt and short-term debt to total assets;
Size	=	Logarithm of the book value of total assets (in million dollars);
Growth	=	The percentage change in revenues between the current and the prior year;
Market-to-Book	=	The ratio of the sum of the market value of equity plus the book value of debt divided by the book value of total assets;
Return-on-Assets	=	Income before extraordinary items to total assets;
Litigation risk	=	An ex-ante metric for litigation risk based on four variables defined in Table 2;
Audit risk	=	An ex-ante metric for audit risk based on five variables defined in Table 2;
Business risk	=	An ex-ante metric for business risk based on three variables defined in Table 2;
Lawsuit	=	An indicator variable which equals 1 when a firm involved in a lawsuit within three years subsequent to an auditor switch;
Delisting	=	An indicator variable which equals 1 when a firm is delisted from a national stock exchange within three years subsequent to an auditor switch.

***, ** indicate significance at 1% and 5% level, respectively.

TABLE 6
Auditor Resignations and Future Delisting

Panel A: Frequency of Delisting

	Resignation		Dismissal		Differences	
	Obs	Mean	Obs	Mean	Mean	t-Value
+-Resignation	1034	0.1083	4410	0.0662	0.0421	4.06***
Resignations$_{B4}$	494	0.1174	4410	0.0662	0.0512	3.42***
Resignation$_{NB4}$	540	0.1000	4410	0.0662	0.0338	2.51***

Panel B: Logistic Regressions

	Model 1		Model 2		Model 3	
Observations	5,444		5,444		5,444	
Adjusted R^2 (%)	0.1022		0.1025		0.1027	
Intercept	-2.1342	(74.70)***	-2.1131	(72.57)***	-2.1170	(72.75)***
Resignation	0.3185	(22.87)***				
Resignations$_{B4}$			0.3640	(17.58)***		
Resignation$_{NB4}$			0.2706	(9.12)***		
Resignation$_{B4toB4}$					0.2724	(2.96)
Resignation$_{B4toNB4}$					0.3982	(16.23)***
Resignation$_{NB4toB4}$					0.1853	(0.34)
Resignation$_{NB4toNB4}$					0.2795	(9.14)***
<u>*Control variables*</u>						
Acquisition	-0.1005	(1.36)	-0.1006	(1.37)	-0.1018	(1.40)
Leverage	-0.2905	(9.84)***	-0.2853	(9.47)***	-0.2849	(9.43)***
Size	-0.0194	(1.41)	-0.0223	(1.78)	-0.0211	(1.59)
Growth	0.0049	(0.03)	0.0046	(0.03)	0.0043	(0.02)
Market-to-book	-0.0262	(6.38)**	-0.0263	(6.45)**	-0.0263	(6.45**
Return-to-assets	0.0661	(1.58)	0.0664	(1.58)	0.0661	(1.56)
Litigation risk	0.1114	(6.29)**	0.1079	(5.83**	0.1070	(5.73)**
Audit risk	0.0763	(4.94)**	0.0760	(4.90)**	0.0758	(4.88)**
Business risk	0.0638	(3.00)*	0.0621	(2.82)*	0.0613	(2.75)*
Lawsuit	0.4190	(16.41)***	0.4192	(16.41***	0.4209	(16.53)***
Internal control	0.0573	(0.90)	0.0569	(0.88)	0.0578	(0.91)
Industry/Year fixed effects	Included		Included		Included	

The dependent variable *Delisting* is 1 when a firm is delisted from a national stock exchange within three years subsequent to an auditor switch. Subscript B4 (NB4) denotes a Big 4 (non-Big 4) predecessor auditor. Subscript B4toB4 (NB4toNB4) denotes a Big 4 (non-Big 4) predecessor and successor auditors. Subscript B4toNB4 (NB4toB4) denotes a Big 4 (non-Big 4) predecessor auditor and a non-Big 4 (Big 4) successor auditor. Variable definitions are:

Resignation	=	Indicator variable which equals 1 when an auditor resigns and 0 otherwise;
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Leverage	=	The ratio of the sum of long-term debt and short-term debt to total assets;
Size	=	Logarithm of the book value of total assets (in million dollars);
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Business risk	=	An ex-ante metric for business risk based on three variables defined in Table 2;
Lawsuit	=	An indicator variable which equals 1 when a firm involved in a lawsuit within three years subsequent to an auditor switch;
Internal control	=	An indicator variable which equals 1 when a firm reports internal control problems within three years subsequent to an auditor switch.

***, ** indicate significance at 1% and 5% level, respectively.