That's What Friends Are For: Audit Quality and Accounting Employee Affiliations with Audit Firms

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ABSTRACT

Non-executive accounting employees are 'affiliated', or alumni, if they previously worked for their companies' audit firms. Using a unique data set consisting of biographical data on over 63,000 accounting employees working at S&P 1500 companies who were previously employed at public accounting firms, we study the effect of alumni affiliations on audit quality. We find companies with a larger proportion of alumni among their accounting employees are significantly less likely to issue financial misstatements, and have lower absolute abnormal accruals. We also divide employees into categories by job rank and find that only lower level accounting employees have positive effects on both measures of audit quality. Our results shed light on the way non-executives accounting employees affect audit quality, and are of practical importance to the hiring of accounting employees by public companies.

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That's What Friends Are For: Audit Quality and Accounting Employee Affiliations with Audit Firms

1. Introduction

Non-executive accounting employees (ranging from lower level accounting employees to upper level managers holding accounting or finance positions) play a significant role in corporate financial reporting.[1] They work with companies' accounting systems every day, interact with auditors throughout the entire audit process, and generate accounting outputs for executives to make various corporate decisions. However, due to the data availability, there is lack of large-sample empirical evidence on whether and how accounting employees affect companies' financial reporting.[2] We try to fill the void in the literature by using a novel dataset to investigate whether the accounting employees' alumni affiliation with the company's current auditor affects audit quality.

Accounting employees are 'affiliated', or alumni, if they previously worked for their companies' current audit firms. The alumni affiliations between executive officers and their auditors have attracted great attention from regulators and researchers. The main concern is that the trust between auditors and alumni at the senior management level could adversely affect auditors' judgment, and decrease auditors' professional skepticism.[3] Responding to such concerns, the Independence Standards Board (ISB) recommends that the audit firm consider whether the audit team is independent of their former colleague (ISB, 2000). Section 206 of the Sarbanes-Oxley Act of 2002 (SOX) requires that CEOs and executives holding accounting or

[1] To abbreviate, we use "accounting employees" to refer to "non-executive accounting employees" hereafter.
[2] Prior studies use survey data to examine the role of internal audit function and find internal audit quality is positively associated with financial reporting quality (Prawitt, Smith and Wood 2009; Lin, Pizzini, Vargus and Bardhan 2011).
[3] Many high-profile corporate scandals, such as Enron, Waste Management, Phar-Mor and HIH Insurance in Australia, reveal that audit quality might be impaired when executives are affiliated with their companies' audit firms through alumni affiliations.

finance positions must not have been employed by their companies' audit firm during the one-year period after their participation in the audit of the company. Consistent with regulators' concerns, some empirical studies find that audit quality is lower when executives are alumni of their auditors (e.g. Menon and Williams 2004; Lennox 2005;).[4] However, while many discussions are focused on executive-auditor alumni relations, little attention has been given to the alumni affiliations between auditors and accounting employees. It is important to examine how such alumni affiliations affect audit quality for the following reasons. First, it is very common for companies to hire employees from public accounting firms (Arlinghaus and Cashell 2001), and companies tend to hire many CPAs from their current audit firms to junior corporate positions (Geiger, Lennox, and North 2008), possibly to benefit from their expertise with the companies' accounting systems. Thus, the alumni affiliations between auditors and their clients' accounting employees are a much more prevalent phenomenon than those between auditors and executives, but how those connections impact audit quality is unknown.

Second, audit team members interact with accounting employees throughout the whole audit process. Similar to executive-auditor affiliations, trust could also exist between audit team members and alumni accounting employees because of their prior affiliation with the audit firm. Such trust could be a double-edged sword. On the one hand, auditors might lower the assessed inherent risk and control risk because of trust in alumni accounting employees' integrity and ability (Menon and Williams 2004).The audit team members may also be too friendly with a former colleague, and thus might be more likely to accept explanations for certain accounting treatments, be reluctant to challenge her assertions, and more willing to adjust audit procedures

[4] There are also studies that fail to find any association between affiliated CFO hires (i.e. CFOs hired directly from the company's audit firm) and accrual quality (Geiger et al. 2005; Geiger and North 2006). See the literature review section for a detailed discussion of prior research.

(Baber, Krishnan, and Zhang 2014; Lennox 2005; Menon and Williams 2004). This reduced professional skepticism could lead to decreased audit quality. On the other hand, the trust between auditors and alumni accounting employees could stimulate discussions, and facilitate information exchange. The better cooperation from accounting employees might help auditors design more effective and efficient audit procedures to detect accounting errors or earnings management, which will increase audit quality. Moreover, if alumni accounting employees identify with alumni auditors, audit quality can also be increased by the deterrent effect of the employee feeling more accountable and working more carefully (Hoffman and Patton 1997). *Ex ante*, it is hard to predict the effect of alumni affiliations between auditors and accounting employees on audit quality, thus the need for empirical investigation.

Our unique data set consists of biographical data on over 63,000 accounting employees working at S&P 1500 companies and who were formerly employed at public accounting firms.[5] We track the movements of employees into industry jobs, so an individual enters our sample if she has an industry job in any of the years 2009 to 2013 and at some previous time worked at a CPA firm. For each company-year, we measure the alumni affiliations between auditors and accounting employees as the proportion of accounting employees in a company who used to work for the current auditor (alumni) relative to the total number of accounting employees in that company who used to work for any public accounting firm. We call this variable the alumni employee rate.[6] We measure audit quality using two proxies that are commonly used in the literature: (1) financial material misstatements, and (2) absolute abnormal accruals (Ashbaugh,

[5] We obtain our data from publicly available employee biographies on professional networking sites. Because all of our accounting employees have previously worked at audit firms, we assume they have similar accounting expertise. The only difference is whether they are from the same audit firm as the company's current auditor. We also limit to employees who have worked for Big 4 firms in the additional analyses.

[6] Although our proxy for alumni connections is based on employees' self-disclosures on professional networking sites, we expect the disclosures are true. We also expect any idiosyncratic use of professional networking sites to be random.

LaFond, and Mayhew 2003; Ettredge, Fuerherm, and Li 2014; Kinney, Palmrose, and Scholz 2004).[7] While material misstatement captures egregious misreporting, abnormal accruals detect within-GAAP manipulation, and both are important for measuring audit quality (DeFond and Zhang 2014). Our results show that the associations between the alumni employee rate and both misstatements and absolute abnormal accruals are significantly negative, suggesting that the stronger the connection between auditors and accounting employees, the better is audit quality. We find that a one standard deviation increase in the alumni rate is associated with 5.5 percent decrease in the likelihood of financial misstatements and a 0.4 percent decrease in absolute abnormal accruals relative to total assets. Since the mean likelihood of misstatement in our sample is 16.7% (a one standard deviation increase in alumni rate reduces the likelihood of misstatement by 32.9%), and mean absolute abnormal accruals are 4.8% of total assets (with a one standard deviation increase in alumni rate reducing this by 8.3%), the effects of alumni employees on audit quality are also economically significant.

We expect the positive effect of alumni affiliation on audit quality is stronger for lower-level accounting employees because they are likely to enhance audit quality given their previous working experience with the auditor, but have few incentives or opportunities to reduce it. To provide additional insights on this, we further break down the aggregate alumni employee rate into three groups based on the employees' job position in the corporate hierarchy. We classify each accounting employee's job position into one of the three groups – upper management, middle management, and professionals. This breakdown shows that, consistent with our expectations, strong alumni affiliations with auditors among lower level accounting employees, who we designate as professionals, have significantly positive effects on audit quality in terms of

[7] We do not use going concern modified audit opinions because of limited variation in our sample of S&P 1500 companies.

both reducing egregious misreporting (misstatements) and within GAAP earnings management (abnormal accruals), while alumni affiliations with auditors among middle management only reduce the likelihood of misstatement and among upper management only marginally restrain earnings management.

One concern is that the employees of auditing firms are more likely to go to companies with sound financial reporting systems. If auditors have private information regarding the financial reporting quality of their clients, self-selection could induce a spurious association between alumni affiliations and audit quality. We address the self-selection problem by examining auditor switches. If auditors self-select into working for their better clients when they move into industry, the association between alumni affiliations and audit quality should not change after the company changes auditors, i.e. the alumni employee rate with previous auditors should continue to be negatively and significantly associated with misstatements and abnormal accruals. The results show that the alumni rate with previous auditors becomes insignificant after the company changes auditors in both the misstatement and accrual models. In addition, the alumni rate with the new auditors is negative and marginally significant in both models. This provides evidence, especially given the small sample of switches, that the association between alumni affiliations and audit quality is unlikely to be driven by self-selection.

We conduct several additional analyses to confirm and extend our main findings. First, accounting employees who have worked at Big 4 firms may have better training and higher ability. We thus focus only on accounting employees who have previously worked at Big 4 firms to have a more homogeneous sample. Our results continue to hold. Second, we find the effect of alumni accounting employees on audit quality is stronger for companies with more complex

financial reporting, higher growth, and higher misstatement risks. Third, our results remain qualitatively the same across several robustness checks.

Our paper contributes to the literature in important ways. First, to the best of our knowledge, this is the first paper that provides large-sample archival evidence on the effect of accounting employees on corporate financial reporting. Prior archival studies generally focus on the impact of financial reporting executives' various characteristics, such as accounting expertise, style, or affiliation with auditors, on financial reporting quality and auditor independence (e.g. Lennox 2005; Bamber et al. 2010; Li et al. 2010). While executives definitely play an essential role in shaping companies' financial reporting practices and auditor relations, accounting employees are also an important group, but how accounting employees affect financial reporting is less known. Relying on survey data, prior studies focus on internal audit function and find internal audit quality is positively associated with financial reporting quality (Prawitt et al. 2009; Lin et al. 2011). We extend this literature by examining accounting employees in a large sample. Specifically, we focus on whether alumni affiliations between companies' auditors and accounting employees impact audit quality, measured by financial misstatements and abnormal accruals. We find that the trust generated from alumni affiliations actually improves audit quality. This result is in contrast to the findings on the effect of executive-auditor alumni affiliations on audit quality, and further illustrates the uniqueness and importance of the effect of accounting employees on the corporate financial reporting process.

Our study also complements prior studies examining the effect of non-executive employees in general on corporate financial reporting. These studies document that non-executive employees in general have a great influence on companies' financial reporting. For instance, earnings-based bonus plans are positively associated with earnings management by

business-unit managers, and non-executive employee stock ownership is negatively associated with corporate risk (Guidry, Leone and Rock 1999; Bova, Kolev, Thomas and Zhang 2015). However, none of these studies examine how various characteristics of non-executive employees affect financial reporting. We focus on a specific group of non-executive employees who are directly involved in corporate financial reporting functions, and use employee-level data to provide initial evidence on how the previous work experience of these employees at the company's current auditor affect audit quality.

Our paper is also of practical use to a corporate audience. While hiring talent from audit firms is a common practice, our results indicate that hiring those from their current auditors can provide tangible benefits to the audit and financial reporting processes and lead to improved audit quality. These results also represent encouraging news about current accounting practice, education and training. First of all, the fact that alumni affiliations between auditors and their clients' accounting employees lead to improved financial reporting quality shows that the accounting profession's emphasis on independence and professional ethics is successfully reflected in the field. The positive impact of audit firm alumni in industry on audit quality also implies that current policy and market infrastructure are doing a good job of transitioning accounting employees, particularly at the professionals level, from public audit into corporate accounting – an important source of talent for financial reporting, and hence for producing information conveyed to capital markets. Further, our results speak to an incremental benefit to audit firms in a sense that audit firm-specific training can go beyond an employee's tenure at the audit firm. Such training could also positively affect audit quality even after the employee leaves the audit firm and joins a company that hires the same audit firm.

The paper proceeds as follows. Our hypotheses are developed in Section II and Section III discusses our research design and sample selection. Results are presented in Section IV. Section V concludes the paper.

2. Literature Review and Hypotheses Development

2.1. Prior literature on alumni affiliations between auditors and executive officers

There are at least two scenarios supporting the argument that alumni affiliations between auditors and executive officers who are in charge of corporate financial reporting could negatively affect audit quality. First, the trust built between auditors and executive officers because of their prior affiliation with the audit firm may lower auditors' professional skepticism, endangering independence. Audit team members might be too friendly with, or respectful of, a former colleague so that they are unwilling to challenge her accounting methods and practices (Lennox 2005; Baber et al. 2014). Audit team members could also lower the assessed inherent risk and control risk because of trust in the former colleague's integrity and ability (Menon and Williams 2004). Second, new financial executives are likely to know details of the audit procedures and techniques employed by their former audit firms which they could use to circumvent otherwise effective audit design, and manipulate earnings with less likelihood of being discovered or corrected.[8] Both auditors' reduced professional skepticism and executives' knowledge of the audit process originating from auditor-executive alumni affiliations could lead to lower audit quality.

Consistent with these arguments, several prior studies provide evidence of impaired audit quality or financial reporting quality due to alumni affiliations. Lennox (2005) uses the

[8] For example, senior management at Phar-Mor Inc. successfully hid accounting fraud because they were formerly employed by the external auditor (Coopers and Lybrand) and so they knew what the auditors were looking for (Buckless et al. 2000).

likelihood of issuing going-concern modified opinions as a proxy for audit quality and find that companies that hire former auditors have a lower incidence of modified audit opinions than do other companies which do not hire former auditors. Menon and Williams (2004) show that companies where executive officers or directors have alumni affiliations with their auditors have greater signed (income-increasing) and absolute discretionary accruals. Baber et al. (2014) find that earnings response coefficients (ERCs) decline following hires of executives recently employed by the company's external auditor. In addition, Lennox and Park (2007) find that companies are less likely to appoint executive officers' former audit firms if audit committees are more independent, consistent with audit committees perceiving auditor-executive officer affiliations to be a potential threat to audit quality (Lennox and Park, 2007).

As mentioned earlier, Section 206 of SOX prohibits companies from hiring accounting and finance executives immediately from their audit engagement team (i.e. revolving door appointments) and requires a mandatory one year cooling off period before a member of an audit engagement team can be employed by the client. Several studies specifically examine the effect of revolving door appointments on earnings management but generally fail to find an association.[9] For instance, Geiger et al. (2005) find no significant difference in the change of absolute discretionary accruals between the revolving door companies and other hiring companies. Dowdell and Krishnan (2004) find that while signed discretionary accruals are higher for companies with revolving door hires, there is no difference in absolute discretionary accruals between revolving door hires and other hires. Geiger et al. (2008) even find positive 3-day cumulative abnormal returns around the announcements of revolving door appointments of accounting and finance executive officers for small companies, and these appointments are not

[9] Although the revolving door hires in SOX refers to the individuals who are hired directly from the company's engagement audit team, empirical studies make no distinction between individuals who worked on the company's engagement team and those who did not.

associated with subsequent discretionary accruals or the receipt of an Accounting and Auditing Enforcement Release (AAER).

In general, when examining executive officer and auditor alumni affiliations, prior studies find negative effects of such connections on audit quality or financial reporting quality. However, such negative effects become insignificant when only focusing on revolving door hires, i.e. hires within one year after the officer leaves the audit firm. Further, all prior studies focus on accounting and finance executive officers, such as CFOs, CAOs, and VPs in finance. We extend prior studies by studying a much broader set of accounting employees.

2.2. Non-executive employees and company's financial reporting

The literature has examined the effect of incentives and the ability of accounting and finance executive officers on companies' financial reporting quality (e.g. Bergstresser and Philippon 2006; Bamber et al. 2010; Li et al. 2010). However, evidence of whether or how accounting employees affect a company's financial reporting is limited. Those studies generally use survey data and focus only on the internal audit function (IAF). For instance, Prawitt et al. (2009) use a composite score based on survey responses from chief audit executives from 218 companies to measure internal audit quality, and find the internal audit quality is negatively associated with earnings management. Lin et al. (2011) rely on firm-level data collected by the Institute of Internal Auditors through their survey for 214 companies, and document a negative association between the disclosure of internal control material weaknesses and the education level of the IAF and various IAF activities.

There are also studies examining the effect of non-executive employees in general on companies' financial reporting. Guidry et al. (1999) use business unit (BU)-level data from a large multinational company and document that BU managers make discretionary accrual

decisions to maximize their short-term bonuses. Based on survey data of Dutch companies, Indjejikian and Matějka (2012) argue that for companies with greater accounting decentralization, local BU managers have more authority to design internal accounting systems or make accounting choices that affect the reported financial results of their local operations, and thus that these companies will rely less on financial measures in determining local managers' bonuses. Guo, Huang, Zhang and Zhou (2015) use the survey data from KLD Research & Analytics, Inc and *Fortune*'s list of best 100 employers to measure employee-friendly policies and find that the more friendly the employee treatment policies are, the lower likelihood of employee-related internal control material weaknesses and unintentional financial reporting errors. There is also evidence suggesting that non-executive employee stock ownership is positively associated with companies' voluntary disclosure and negatively associated with corporate risk (Bova, Dou and Hope 2015; Bova et al. 2015).

In sum, prior studies provide evidence that non-executive employees in general can influence a company's financial reporting quality. However, previous work on the effect of various characteristics of non-executive employees on company financial reporting or audit quality is limited to survey evidence of internal auditors. This study seeks to overcome this issue by using a novel dataset, and examining whether accounting employees who worked at an audit firm that is the company's current auditor affect the conduct of the audit.

2.3. Alumni affiliations between auditors and accounting employees and audit quality

As discussed earlier, there are at least two arguments suggesting that alumni affiliations between auditors and executive officers could negatively affect audit quality. The first is that auditors might reduce their professional skepticism due to trust or a friendly relationship between auditors and alumni executive officers. The second is that executives' detailed knowledge of

audit processes employed by their former audit firms could enable them to circumvent the audit design. Both of these arguments also apply to accounting employees. Nowadays corporate use of stock option plans for non-executive employees is widespread and growing (Core and Guay, 2002), and thus non-executive employees could also receive stock options which link their compensation with stock market performance. In addition, prior studies find that BU managers in a bonus range are more likely to manage earnings upward (Guidry et al. 1999), and BU controllers are more likely to defend the financial reporting done by local managers rather than serving as a corporate watch-dog in preventing misreporting (Maas and Matějka, 2009). Therefore, based on prior studies, it is reasonable to believe that accounting employees also have various incentives that might lead them to engage in earnings management or financial misreporting. The alumni affiliations between auditors and accounting employees could facilitate such misreporting activities due to the two main reasons discussed above. If that is the case, we would expect to observe a negative association between alumni affiliations between auditors and accounting employees and audit quality.

On the other hand, it is probably true that the incentives to manipulate earnings by accounting employees are much smaller compared to executive officers.[10] The alumni affiliations between auditors and accounting employees may actually help improve audit quality for the following reasons. First, the trust and friendly relationships between auditors and alumni accounting employees could ease discussions with audit team members and auditors could get more honest answers on how certain accrual policies, such as valuing and depreciating assets, are

[10] Stock options are a less significant part of compensation for non-executive employees. In addition, when BU managers have considerable authority to make internal accounting choices, their bonus plans are less sensitive to the financial performance of the business-unit (Indjejikian and Matějka 2012).

treated in the corporation or individual business-unit.[11] This better cooperation from accounting employees might help auditors design more effective and efficient audit procedures to detect accounting errors or earnings management, which will increase audit quality. Second, if alumni accounting employees identify with alumni auditors, audit quality can also be increased by the deterrent effect of the employee feeling more accountable (Hoffman and Patton 1997). The increased accountability will lead the accounting employees to work more carefully to avoid the embarrassment of the alumni auditors detecting their mistakes. Moreover, alumni accounting employees possess intimate knowledge of audit techniques, which might assist them to work better with the auditors, thus also helping to improve audit quality. For instance, knowing the specific audit procedures could make the accounting employee better prepared to address the auditor's questions, allowing the auditor to spend less time deciphering immaterial items and focus more on other audit areas where they might discover financial reporting errors. Therefore, *ex ante*, it is hard to predict the effect of accounting employee alumni affiliations with auditors so we state our hypothesis in the null form:

> H1: Audit firm alumni affiliations between auditors and accounting employees have no impact on audit quality.

3. Main Variables, Sample Selection and Model Specification

3.1. Main variables definition

Our main variable of interest is *ALUMNI*, which is the proportion of accounting employees in a company who have previously worked at the company's current audit firm with respect to the total number of accounting employees in that company that have previously

[11] Auditors and alumni accounting employees do not have to have previously known each other or to have worked together to build such trust. All we argue is that the alumni connection could build a bond between the auditor and accounting employees, creating a level of trust. Further, looking at the office level data will significantly restrict our sample because many employees do not report the specific audit offices where they have worked.

worked at any audit firm. By measuring *ALUMNI* as a proportion rather than a pure count of alumni accounting employees, we are able to more effectively measure the effects of alumni employees, standardized across different company sizes.

In order to evaluate the effect of the alumni employee ratio on audit quality, we employ two commonly used audit quality proxies: the likelihood of financial statement material misstatement (*MISSTATE*) and abnormal discretionary accruals (*ACCRUAL*) (e.g. Ashbaugh et al. 2003; Balsam et al. 2003; Francis et al., 2012; Ettredge et al. 2015). As discussed by DeFond and Zhang (2014), because material misstatements and abnormal accruals are at opposite ends of the "egregiousness" spectrum, examining both measures could provide evidence on whether the alumni rate has a large or a small effect on audit quality (DeFond and Zhang 2014). *MISSTATE* equals one if there is a material misstatement in the company's financial statement in year *t* that is revealed by a later restatement announcement based on Audit Analytics database. *ACCRUAL* is performance-matched absolute abnormal accruals calculated based on the Modified Jones model (Dechow, Sloan, and Sweeney 1995; Jones 1991; Kothari, Leone, and Wasley 2005). The process for calculating this measure is outlined below.

Specifically, following the Modified Jones model of Dechow et al. (1995) we define total discretionary accruals (ACC) to be the residuals of the following regression:

$$\frac{ACC_{i,t}}{AvgAT_{i,t,t-1}} = \beta_0\left(\frac{1}{AvgAT_{i,t,t-1}}\right) + \beta_1\left(\frac{\Delta REV_{i,t,t-1} - \Delta REC_{i,t,t-1}}{AvgAT_{i,t,t-1}}\right) + \beta_2\left(\frac{PPE_{i,t}}{AvgAT_{i,t,t-1}}\right) + \beta_3\left(\frac{ROA_{i,t}}{AvgAT_{i,t,t-1}}\right) + e_{i,t}$$

where $AvgAT$, ΔREV, ΔREC, PPE, and ROA represent average total assets, change in revenue, change in receivables, property, plant and equipment, and return on assets, respectively. Each firm-year observation is assigned a return on assets performance-matched with the closest performing firm to theirs in their industry in that particular year (Kothari et al., 2005). Taking the

absolute value of the fitted residuals, we arrive at the performance matched absolute value of abnormal accruals (*ACCRUAL*).

3.2. Sample Selection

Our sample was constructed using S&P 1500 companies with available data over the sample period of 2009 to 2013. We assemble a unique data set consisting of biographical data on over 63,000 workers at S&P 1500 companies who were formerly employed at a top 25 public accounting firm from publicly available professional networking websites.[12] The data logs both the workers' former affiliations and tracks their movements into industry jobs. Namely, an accounting employee appears in our data set if she worked in an industry job in at least one year from 2009 to 2013 and had at some point previously worked for a public accounting firm. Using these relationships, we build a count of the total number of accounting employees in a company who have worked at audit firms before joining the company, as well as those who have previously worked at the company's current audit firms so we are able to calculate the alumni employee ratio (*ALUMNI*). Although we obtain accounting employees' prior work experience from their self-disclosures on professional networking sites, due to the personal costs that may be associated with misrepresentation, we expect that any discrepancies in these disclosures are rare. Further, the number of accounting employees that post their biographical data varies across companies, but we use ratios to try to control for this firm effect. Finally, although not everyone posts her biographical data to a popular professional networking site, we do not expect any such errors to systematically bias our results.

[12] Out of the 25 auditors, we are able to map the following auditors to Compustat: Ernst and Young; Deloitte and Touche; KPMG; PricewaterhouseCoopers; BDO Seidman; Baird, Kurtz and Dobson; Clifton, Gunderson; Crowe Chizek; Grant Thornton; JH Cohn; McGladrey and Pullen; Moss Adams; Plante & Moran; Richard A. Eisner: Arthur Andersen (for possible historical relevance).

Table 1 provides a breakdown of the makeup of our data, drawn from the S&P 1500 from 2009 to 2013. Compustat is the source for our company financial data. As is standard in the literature we drop utilities (SIC 44-49) and financial institutions (SIC 60-64). Our final sample consists of 4,655 firm-years for the misstatement analysis. Due to further data requirements for calculating the abnormal accruals, the final sample is 4,418 for the abnormal accruals-based regressions.

---------- Table 1 here ----------

3.3. Model Specification

To investigate the effect of alumni employee ratio on misstatement and abnormal accruals, we use the following model:

$$\begin{aligned} MISSTATE\ or\ ACCRUAL = {} & \beta_0 + \beta_1 ALUMNI + \beta_2 LNMVE + \beta_3 BKMK + \beta_4 ROA + \beta_5 DEBTASSETS \\ & + \beta_6 CURRENTRAT + \beta_7 OCF + \beta_8 ARIN + \beta_9 SEGNUM + \beta_{10} GROWTH \\ & + \beta_{11} ALUMNI\_CFO + \beta_{12} FORMERBIG4RATE + \beta_{13} TENURE \\ & + \text{Auditor Fixed Effects} + e \end{aligned}$$

As argued by DeFond and Zhang (2014), because high audit quality increases the credibility of the financial statements, audit quality is a component of financial reporting quality. We thus control for variables that could impact companies' financial reporting quality. The first control, *LNMVE*, addresses differences in company size. *LNMVE* is the log of the company's market value of equity based on the closing price of their shares at the end of fiscal year *t*. We expect that large companies have better financial reporting quality, and thus the coefficient on *LNMVE* is expected to be negative.

BKMK is the company's book to market ratio of equity and represents the company's growth opportunities. Based on the results of previous studies (Butler, Leone, and Willenborg 2004; Klein 2002; Menon and Williams 2004) we expect this control to be positively associated

with a company's financial reporting quality, thus the coefficient on *BKMK* is expected to be negative.

The next three controls proxy for the company's financial condition. *ROA*, *DEBTASSETS*, *CURRENTRAT*, and *OCF* are the firm's return on assets, debt to assets ratio, current ratio, and cash flows from operations scaled by total assets, respectively. We would expect financially well performing firms with a higher *ROA*, *CURRENTRAT*, or *OCF* and lower debt ratio to have better financial reporting quality (e.g. Becker, Defond, Jiambalvo, and Subramanyam 1998; Frankel, Johnson, and Nelson 2002; Menon and Williams 2004). Therefore, the coefficient on *ROA*, *CURRENTRAT*, and *OCF* are expected to be negative and the coefficient on *DEBTASSETS* is expected to be positive.

Our next two variables control for the complexity of the company's operations. *ARIN* is the sum of a company's receivables and inventory scaled by total assets. SEGNUM is the log of the number of operating segments that the company reports. We expect the coefficients on these variables to be positive, consistent with Ettredge et al. (2014).

GROWTH is the company's one year growth rate of sales which we use as a proxy for the rate of expansion of the company. We expect growth to be positively related with misstatement and absolute accruals as we would expect rapidly growing companies to be stocking up on working capital in anticipation of growth, and because errors are more likely to occur when companies are expanding rapidly.

ALUMNI_CFO indicates if the company's Chief Financial Officer was formerly affiliated with the company's current auditor. We obtain the biography of the CFO from Bloomberg. We control for the CFO alumni connection with the auditor for two reasons. First, prior studies provide some evidence suggesting that if the CFO is affiliated with the auditor, it may impair

auditor independence (Menon and Williams 2004; Lennox 2005). Second, CFOs may be more likely to hire accounting employees from the same audit firm where she has previously worked. Thus, the association between employee-auditor alumni connection and financial reporting quality may be driven by the impact of alumni affiliations between CFOs and auditors. We expect the coefficient on *ALUMNI_CFO* to be positive.

In order to control for employee ability we include *FORMERBIG4RATE* which is calculated as the proportion of accounting employees at the firm that were formerly affiliated with at least one of the Big 4 firms. Because employees with better ability or prior training are likely to benefit companies' financial reporting process more, we expect the coefficient on *FORMERBIG4RATE* to be negative.

TENURE measures the tenure of the company's current auditor in years. We cap *TENURE* at nine years following Johnson, Khurana, and Reynolds (2002)'s definition of long tenure. We expect a negative relationship between *TENURE* and our dependent variables consistent with Menon and Williams (2004) and Myers, Myers, and Omer (2003).

Lastly, we include auditor fixed effects. This ensures that any heterogeneity in training practices or culture across these dominant firms is accounted for. This is especially important when considering that the accounting employees within our sample are not top executives. Lower and mid-level employees will likely be much more sensitive to audit firm-specific differences with respect to work tendencies and organizational culture in a way that a single Big 4 indicator variable would not capture.

4. Empirical Results

4.1. Descriptive statistics

Table 2 provides descriptive statistics on our sample for the dependent variables, variable of interest and controls. The mean misstatement rate in our sample is 16.7%, and the mean performance-matched absolute abnormal accrual is 0.045. The mean of alumni employee rate (ALUMNI) is 0.227, which suggests that on average 22.7% of the accounting employees have previously worked at the company's current audit firm. In addition, the mean alumni CFO rate is 8.3%, and 78.1% of accounting employees have previous work experience at Big 4 firms.

---------- Table 2 here ----------

4.2. Main regression results

The regression results from our base specification are displayed in Table 3. Column (1) shows the resulting coefficients using financial misstatement (*MISSTATE*) as the dependent variable. Column (2) presents results for performance matched absolute abnormal accruals following the modified Jones model (*ACCRUAL*). In both cases we find statistically significant negative coefficients for our variable of interest (alumni employee rate, *ALUMNI*). For the misstatement regression, the coefficient on *ALUMNI* is significant at the 1% level (two-tailed test). Economically, a one standard deviation increase in alumni rate will decrease the likelihood of financial misstatement by 5.5%. This is economically large because the mean misstatement rate is 16.7% in our sample. The coefficient on *ALUMNI* is significant at the 5% level (two-tailed test) in the accrual model and suggests that a one standard deviation increase in the alumni rate will, on average, decrease performance-matched absolute abnormal accruals by 0.4% of average total assets. Again, this is economically significant as the mean *ACCRUAL* in our sample is 4.8% of total assets.

Both of these results imply that the alumni affiliations between company accounting employees and their current auditors improve audit quality. This is consistent with the argument

that the audit quality enhancing effects of increases in competency from familiarity and trust dominate the negative effects of possible reductions in auditor professional skepticism. Audit quality enhancing effects also appear to mitigate any problematic firm specific knowledge possessed by alumni accounting employees.

For control variables, large companies and companies with large accounts receivable and inventory accounts are less likely to have misstatements. Companies with higher book to market ratios and more segments are more likely to have misstatements. For the accrual model, large companies, companies with higher ROAs and longer tenured auditors have lower abnormal accruals, while companies with higher debt ratio, current ratio, operating cash flows and more segments have larger abnormal accruals. The positive association between the current ratio and abnormal accruals could be due to companies with higher accruals stressing the importance of liquidity, as embodied in a higher current ratio. Interestingly, we find *ALUMNI_CFO* is negatively associated with abnormal accruals, which suggests that the alumni affiliation between a CFO and the current auditor could actually restrain earnings management. We speculate such negative association could be due to the heightened regulatory and litigation environment in the post-SOX era making auditors less likely to impair their independence for companies with alumni CFOs.

---------- Table 3 here ----------

4.3. Accounting employees' job rank analysis

To provide additional insights into how accounting employees affect a company's internal accounting process, we further break down the aggregate alumni employee rate (*ALUMNI*) into groups based on the employees' job position in the corporate hierarchy. We classify each accounting employee's job position into one of three groups – upper management,

middle management, and professionals. Upper management includes positions such as controller, treasurer, and VP of finance. It excludes CFOs since we are interested in non-executive accounting employees and we separately control for the CFO-auditor alumni relationship in the model. Middle management includes positions such as accounting manager, assistant controller, director of financial reporting, and internal audit manager. Professionals are lower level accounting employees, which include positions such as accounting analyst, senior accountant, senior internal auditor and staff accountant.[13]

In this analysis each group has its own employee alumni rate which is labelled as *ALUMNI_H*, *ALUMNI_M*, and *ALUMNI_L* respectively. The numerator is the number of accounting employees in that specific job rank who previously worked at the company's current audit firm, and the denominator is the total number of accounting employees in that specific job rank who previously worked at any audit firm.[14] For instance, the numerator for *ALUMNI_H* is the total number of upper management accounting employees who have worked at the company's current audit firm before, and the denominator for *ALUMNI_H* is the total number of upper management accounting employees who have worked at any audit firm before.

Untabulated descriptive statistics show that the mean of *ALUMNI_H*, *ALUMNI_M*, and *ALUMNI_L* is 21.3%, 22.9% and 26.8%. Table 4 presents the results for our accounting employee job rank analysis. The results show that the accounting employee-auditor alumni connection at the *professionals* level has a significant positive impact on audit quality in both misstatement and abnormal accrual analyses (the coefficients are significantly negative at 5%

[13] We verify our classification with both a former corporate controller from a Fortune 100 company with over 20 years of industry experience and a former audit partner from a Big 4 firm. Some of the job titles are information system related, such as program manager, program analyst, and senior software engineer. We keep those observations in the main analyses because accounting information systems are important to companies' financial reporting. As a robustness check, we drop those observations and our results remain similar.

[14] We use the number of employees in each rank as the denominator because corporate hierarchy structure could be different for each company. For instance, company A's professionals account for 60% of the total accounting employees, while professionals could account for 80% for company B's accounting employees.

level in both models). Economically, a one standard deviation increase in alumni employee rate at the *professionals* level will decrease the likelihood of financial misstatement by 2.6% and decrease the absolute abnormal accruals by 0.3% of average total assets. The alumni affiliations with the auditors for middle level managers also significantly reduce the likelihood of misstatement (the coefficient is significantly negative at 5% level). A one standard deviation increase in alumni employee rate at the middle management level will decrease the likelihood of financial misstatement by 3.1%. Finally, we also find some evidence suggesting the alumni affiliations with the auditors for upper level managers reduce abnormal accruals (the coefficient is negative and marginally significant at 10% level), which is consistent with the finding of alumni CFOs.

These results suggest that the behavior of lower level accounting employees, designated here as professionals, could help prevent/detect both egregious misreporting and within GAAP earnings management. In addition to arguments given above for why affiliated alumni of the audit firm may improve audit quality, there could also be job rank specific characteristics that contribute to the results we observe. Professionals are less likely to be put in a decision intensive position, and so must rely heavily on their training and following accepted procedure. For these less autonomous tasks their prior experience working with the company's auditor will aid them in completing work more effectively and to the standards that the external auditor requires. At the same time, accounting employees at this level likely are not afforded the flexibility to bargain on their company's behalf with respect to accounting treatments, nor do they have the authority to manipulate internal audit procedures in order to circumvent the external auditor's strategy. With these restrictions in place, accounting employees at the professional level have ample opportunity to enhance audit quality given their background, and few opportunities to reduce it.

These results convey good news for modern practice as well. Our findings indicate a net positive impact of audit firm alumni in industry and that current policy and market infrastructure needs no adjustment to the way that accounting employees, particularly at the professionals level, move from public audit into corporate accounting.

---------- Table 4 here ----------

5. Additional Analyses

5.1. Self-selection issue

One concern is that former auditor employees are more likely to go to companies with sound financial reporting systems. If auditors have private information regarding the financial reporting quality of their clients, self-section could induce a spurious association between accounting employee-auditor alumni affiliations and audit quality. We address the self-selection issue by examining auditor changes. If auditors self-select to work for their better clients, the association between accounting employee-auditor alumni affiliations and audit quality should not change after the company switches audit firms.

We obtain auditor change data from Audit Analytics, and examine the financial misstatement and abnormal accruals in one year after the company switches auditors. There are 103 observations for misstatement analysis and 95 for accrual analysis. For these analyses we introduce two new variables of interest to replace our original employee alumni rate. *ALUMNI_OLD* represents the employee alumni rate with the old auditor after an auditor switch has taken place. *ALUMNI_NEW* denotes the employee alumni rate with the new auditor after a switch has taken place. For our main findings to be persuasive we should expect to see that the

effect of the alumni rate with the old auditor becomes insignificant and the effect of the alumni rate with the new auditor begins to emerge after the auditor switch.

Results for our auditor change analyses are displayed in Table 5. From this table we can observe a sharp decline in statistical significance of the alumni rate with the old auditor (*ALUMNI_OLD*) with robust t-statistics of 0.09 and -0.68 for the restatement and accrual regressions respectively. On the other hand, the coefficients on the alumni rate with the new auditor (*ALUMNI_NEW*) are negative as expected. The one-tailed test yields p-values of 0.088 and 0.102 for these coefficients in the misstatement and accrual regressions. Thus, the results in the auditor change analyses help to mitigate the concern that our results are primarily driven by auditors self-select to work at clients with better financial reporting quality.

---------- Table 5 here ----------

5.2. Former employees at Big 4 firms

Accounting employees who have worked at Big 4 firms may have better training and higher ability. To have a more homogeneous sample in terms of employee prior training and ability, we focus on accounting employees who have worked at Big 4 firms before. We recalculate the employee alumni rate (*ALUMNI*) for these employees (i.e. the number of employees who have worked at current Big 4 auditors before divided by the number of employees who have worked at any Big 4 before) and rerun Model (1) for companies employing Big 4 auditors. The new rate is labeled as *ALUMNI_BIG4*.

Table 6 reports both the Model (1) result and the job rank result. The coefficient on *ALUMNI_BIG4* continues to be significantly negative at $p<0.01$ level in both the misstatement and accrual models. The job rank results (untabulated) show that when we limit the sample to Big 4 former employees, only professionals with alumni affiliations with the current Big 4

auditor have a significantly positive impact on audit quality. In general, the results using only former Big 4 auditor employees are consistent with our main finding, and reinforce the important roles played by lower rank accounting employees (professionals) in shaping companies' financial reporting quality and improving audit quality.

---------- Table 6 here ----------

5.3. Cross-sectional analyses

We conduct several cross-sectional analyses to test if our results are more pronounced in certain situations. The first scenario is based on the complexity of a company. More complex companies have more complicated financial reporting processes. If the familiarity and trust between alumni accounting employees and auditors help auditors to design more effective and efficient audit procedures to detect accounting errors or earnings management, we should expect the effect to be greater for more complex companies. We use operating segments to proxy for company complexity and partition the sample by the median number of operating segments. Table 7A displays results. For brevity, we do not report the coefficients on the control variables. The results show that for companies with low operating complexity, the accounting employee alumni rate is only significantly negative in the misstatement model. On the other hand, it is significantly negative in both the misstatement and accrual models for companies with high operating complexity. The difference in the effect of alumni rate on abnormal accruals for less versus more complex companies is also statistically significant (p-value = 0.052). Thus, consistent with our expectations, it seems that more complex companies receive a greater benefit from accounting alumni being formerly affiliated with the external auditor.[15]

[15] Consistent with these results, we also find that firms with a greater number of accounting employees, proxied by the total number of accounting employees that have previous audit firm experience, benefit more from affiliated accounting alumni.

Our second cross-sectional test is based on the growth of a company. Fast growing companies have a tendency to be more volatile in their financial reporting process so we expect to find that the role that affiliated alumni accounting employees play within these companies could be especially valuable. Partitioning our sample by the median revenue growth, we find results consistent across both models that suggest that affiliated alumni have a greater positive impact on audit quality at high growth firms over low growth firms (Table 7B). Specifically, the coefficient on alumni rate is significantly more negative in both misstatement and abnormal accrual models when companies have high growth compared to those having low growth (p-value = 0.001 and 0.024, respectively).

Our third cross-sectional test is based on the leverage of a company. Companies with high leverage are more sensitive to accounting treatments as they need to ensure that they can financially maneuver around debt covenants and other potential difficulties associated with high debt. Prior studies find that restatement firms have higher leverage than matched control firms (Richardson et al., 2003; Burns and Kedia, 2006; Efendi et al.; 2007). If more open discussion and better cooperation between the alumni accounting employees and audit team members lead auditors to understand how certain accounts are treated, the benefit should be more prevalent for highly leveraged companies, where the risk of earnings manipulation is high. Table 7C presents results when partitioning by the median debt-assets ratio. The results show that the employee alumni rate is significantly negative in both the misstatement and accrual models only when the company's debt ratio is high. The difference in the coefficients on *ALUMNI* in the misstatement model for high versus low leverage companies is also statistically significant (p-value = 0.011). These results suggest that companies with higher leverage receive greater benefits from affiliated alumni.

---------- Table 7 here ----------

5.4. Robustness checks

We investigate the robustness of our investigation to alternative measurement choices and specifications in untabulated results, and find qualitatively similar results overall. First, in our main analyses, we weight by the total number of accounting employees who used to work at a public accounting firm in each company year to deal with differences in the size of the workforce across firms. If we instead weight by company size proxied by total assets or use an unweighted regression (i.e. use the raw number of alumni accounting employees for each company year), we find similar results across both measures of audit quality. Second, we investigate whether our results are sensitive to the differences in biographical reporting across companies. We re-estimate the misstatement and accruals models after dropping companies with either the largest (top 10% or 20%) or smallest (bottom 10% or 20%) number of accounting employees who disclose public accounting firm work experience, and our results remain qualitatively the same. This suggests that companies with accounting employees who are particularly likely or unlikely to report their backgrounds on professional networking website are not unduly affecting our results. Finally, we try controlling for various measures of corporate governance obtained from BoardEx, such as the percentage of independent directors, size of the board, and size of the audit committee, and find similar effects for the accruals measure and weaker results for misstatements. We do not include such controls in our main specifications because of a significant loss in sample size due to the governance data requirement.[16]

[16] The sample size drops to 1,536 for the misstatement model, and 1,446 for the accrual model.

6. Conclusion

This paper examines the effect of alumni affiliations between companies' current auditors and non-executive accounting employees on audit quality. We measure audit quality using both material misstatements, which proxy for egregious misreporting, and absolute abnormal accruals, which proxy for within GAAP manipulations (DeFond and Zhang 2014). Using biographical data on over 63,000 accounting employees working at S&P 1500 companies who were previously employed at public accounting firms, we find companies with a larger proportion of auditor alumni among their accounting employees are significantly less likely to have financial material misstatement as well as have lower absolute abnormal accruals. These results suggest that auditor-accounting employee alumni affiliations help improve audit quality. Further analyses on the job rank of accounting employees suggest that alumni rate of lower level accounting employees, who are designated as professionals, significantly reduce both the likelihood of misstatement and abnormal accruals, while alumni rate of middle level managers also helps reduce misstatements and that of upper management marginally restrain abnormal accruals. We conduct auditor change analysis to mitigate the self-selection concern. In addition, we limit our sample to Big 4 alumni and our results remain qualitatively unchanged. We also find the results are stronger for companies with more complex financial reporting, higher growth, and higher misstatement risks.

Our paper provides initial large-sample archival evidence on the association between characteristics of accounting employees and audit quality. It also has important implications for modern practice, in the sense that it indicates a positive effect of audit firm alumni on audit quality. Companies may want to hire accounting employees, particularly at the professionals level, from their current auditors. Future research could examine whether other characteristics of

accounting employees, such as tenure and industry experience, affect companies' financial reporting quality.

References

Arlinghaus, B. P., & Cashell, J. D. (2001). Changing perceptions about public accounting careers. *Ohio CPA Journal, 60*(2), 22-27.

Ashbaugh, H., LaFond, R., & Mayhew, B. W. (2003). Do Nonaudit Services Compromise Auditor Independence? Further Evidence. *The Accounting Review, 78*(3), 611-639.

Baber, W., Krishnan, J., & Zhang, Y. (2014). Investor perceptions of the earnings quality consequences of hiring an affiliated auditor. *Review of Accounting Studies, 19*(1), 69-102.

Balsam, S., Krishnan, J., & Yang, J.S. (2003). Auditor industry specialization and earnings quality. *AUDITING: A Journal of Practice & Theory*, 22(2), 71-97.

Bamber, L.S., Jiang, J., & Wang, I.Y. (2010) What's my style? The influence of top managers on voluntary corporate financial disclosure. *The Accounting Review*, 85(4), 1131-1162.

Becker, C. L., Defond, M. L., Jiambalvo, J., & Subramanyam, K. R. (1998). The effect of audit quality on earnings management. *Contemporary Accounting Research, 15*(1), 1-24.

Bergstresser, D., & Philippon, T. (2006). CEO incentives and earnings management. *Journal of Financial Economics, 80*(3), 511-529.

Bova, F., Dou, Y. & Hope, O.-K. (2015), Employee Ownership and Firm Disclosure. *Contemporary Accounting Research*, 32: 639–673.

Bova, F, Kolev, K.. Thomas, J. & Zhang, F. (2015) Non-Executive Employee Ownership and Corporate Risk. *The Accounting Review*: Vol. 90 (1):. 115-145.

Buckless, F., Glover, S. & Prawitt, D. (2000). Phar-Mor, Inc.: accounting fraud, litigation, and auditor liability. Prentice Hall.

Butler, M., Leone, A. J., & Willenborg, M. (2004). An empirical analysis of auditor reporting and its association with abnormal accruals. *Journal of Accounting and Economics, 37*(2), 139-165.

Core, J., & Guay, W. (2002). Estimating the Value of Employee Stock Option Portfolios and Their Sensitivities to Price and Volatility. *Journal of Accounting Research, 40*(3), 613-630.

Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1995). Detecting Earnings Management. *The Accounting Review, 70*(2), 193-225.

DeFond, M., & Zhang, J. (2014). A review of archival auditing research. *Journal of Accounting and Economics, 58*(2–3), 275-326.

Dowdell, T.D., & Krishnan, J. (2004). Former Audit Firm Personnel as CFOs: Effect on Earnings Management. *Canadian Accounting Perspectives*, 3(1), 117-142.

Ettredge, M., Fuerherm, E. E., & Li, C. (2014). Fee pressure and audit quality. *Accounting, Organizations and Society*, *39*(4), 247-263.

Francis, J. R., & Dechun, W. (2008). The Joint Effect of Investor Protection and Big 4 Audits on Earnings Quality around the World. *Contemporary Accounting Research, 25*(1), 157-191.

Frankel, R. M., Johnson, M. F., & Nelson, K. K. (2002). The Relation between Auditors' Fees for Nonaudit Services and Earnings Management. *The Accounting Review, 77*, 71-105.

Francis, J.R., & Michas, P.N. (2013). The Contagion Effect of Low-Quality Audits. *The Accounting Review*, 88(2), 521-552.

Geiger, M. A., Lennox, C. S., & North, D. S. (2008). The hiring of accounting and finance officers from audit firms: how did the market react? *Review of Accounting Studies*, 13(1), 55-86.

Geiger, M. A., North, D. S., & O'Connell, B. T. (2005). The Auditor-to-Client Revolving Door and Earnings Management. *Journal of Accounting, Auditing & Finance, 20*(1), 1-26.

Guidry, F., Leone, A.J., & Rock, S. (1999). Earnings-based bonus plans and earnings management by business-unit managers. *Journal of Accounting and Economics*, 26(1-3), 113-142.

Guo,J., P. Huang, Y. Zhang, & N. Zhou (2015) The effect of employee treatment policies on internal control weaknesses and financial restatements. *The Accounting Review* . forthcoming.

Hoffman, V. & J. Patton. (1997). Accountability, the dilution effect, and conservatism in auditors' fraud judgments, *Journal of Accounting Research*: 227-237.

Indjejikian, R. J., & Matějka, M. (2012). Accounting Decentralization and Performance Evaluation of Business Unit Managers. *The Accounting Review, 87*(1), 261-290.

Independence Standard Board. (2000). Independence Standard No. 3: Employment and Audit Clients.

Johnson, E., Khurana, I. K., & Reynolds, J. K. (2002). Audit-Firm Tenure and the Quality of Financial Reports*. *Contemporary Accounting Research, 19*(4), 637-660.

Jones, J. J. (1991). Earnings Management During Import Relief Investigations. *Journal of Accounting Research, 29*(2), 193-228.

Kinney, W. R., Palmrose, Z.-V., & Scholz, S. (2004). Auditor Independence, Non-Audit Services, and Restatements: Was the U.S. Government Right?*. *Journal of Accounting Research, 42*(3), 561-588.

Klein, A. (2002). Audit committee, board of director characteristics, and earnings management. *Journal of Accounting and Economics, 33*(3), 375-400.

Kothari, S. P., Leone, A. J., & Wasley, C. E. (2005). Performance matched discretionary accrual measures. *Journal of Accounting and Economics, 39*(1), 163-197.

Lennox, C. (2005). Audit quality and executive officers' affiliations with CPA firms. *Journal of Accounting and Economics, 39*(2), 201-231.

Lennox, C., & Park, C. W. (2007). Audit Firm Appointments, Audit Firm Alumni, and Audit Committee Independence*. *Contemporary Accounting Research, 24*(1), 235-258.

Li, C., Sun, L., & Ettredge, M. (2010). Financial executive qualifications, financial executive turnover, and adverse SOX 404 opinions. *Journal of Accounting and Economics*, 50(1), 93-110.

Lin,S., Pizzini, M., Vargus, M & Bardhan, I.R.(2011).The role of the internal audit function in the disclosure of material weaknesses. *The Accounting Review*, 86 (1): 287–323

Maas, V. S., & Matějka, M. (2009). Balancing the Dual Responsibilities of Business Unit Controllers: Field and Survey Evidence. *The Accounting Review, 84*(4), 1233-1253.

Menon, K., & Williams, D. D. (2004). Former Audit Partners and Abnormal Accruals. *The Accounting Review, 79*(4), 1095-1118.

Myers, J. N., Myers, L. A., & Omer, T. C. (2003). Exploring the Term of the Auditor-Client Relationship and the Quality of Earnings: A Case for Mandatory Auditor Rotation? *The Accounting Review, 78*(3), 779-799.

Prawitt, D. F., Smith, J. L. & Wood, D. A. (2009). Internal audit quality and earnings management, *The Accounting Review* 84, 1255–1280.

Appendix A – Variable Descriptions and Computations

Variables are marked in upper case and italics. Compustat item codes are listed in lower case and italics.

Dependent Variables:

Abbreviation	Calculation	Description
MISSTATE	1 if a restatement was issued pertaining to that year, 0 otherwise	Indicator for if a restatement was issued pertaining to that fiscal year
ACCRUAL		Absolute abnormal accruals under the Modified Jones model performance matched by return on assets.

Variables of Interest:

Abbreviation	Calculation	Description
ALUMNI	$\frac{\text{auditor alumni}}{\text{total audit employees}}$	Number of accounting employees in a company formerly employed at the current auditor as a proportion of total accounting employees in the company formerly employed at any audit firm
ALUMNI _ L		Alumni rate of professionals
ALUMNI _ M		Alumni rate of middle management level audit employees
ALUMNI _ H		Alumni rate of upper management level audit employees

Controls:

Abbreviation	Compustat Data Item Code (blank if variable is not constructed using Compustat data)	Description
LNMVE	$\log(prcc\_f \times csho)$	Log market value of equity
BKMK	$\frac{seq}{prcc\_f \times csho}$	Book value to market value of equity
ROA	ib / at	Return on assets
DEBTASSETS	lt / at	Debt to assets ratio
CURRENTRAT	lct / act	Current ratio • If current assets is missing in Compustat then Cash + Short-term investments + Receivables + Other Current Assets + Inventory is used, Compustat codes: $che + rect + aco + invt$ • If current liabilities is missing in Compustat then Accounts Payable + Other Current Liabilities + Debt in Current Liabilities +

		Income Taxes Payable is used, Compustat codes: $ap + lco + dlc + txp$
OCF	$oancf / at$	Cash flow from operating activities scaled by total assets
ARIN	$(rect + invt) / at$	The sum of receivables and inventory scaled by total assets
SEGNUM		Log of the number of segments that the firm is comprised of
GROWTH	$\frac{sale_t - sale_{t-1}}{sale_{t-1}}$	Growth rate of sales
ALUMNI _CFO	1 if CFO was formerly affiliated with current auditor, 0 otherwise	Indicator of if Chief Financial Officer was formerly affiliated with the firm's current external auditor
FORMERBIG4RATE		The proportion of accounting employees identified to have a former affiliation with at least one of Ernst and Young, Deloitte and Touche, PricewaterhouseCoopers, or KPMG
TENURE	Count variable, +1 if $au_t = au_{t-1}$, reset to 0 if $au_t \neq au_{t-1}$, max of 9	Number of consecutive years that the current auditor has been auditing the firm

Table 1: Sample

Firm-years available in Compustat from 2009-2013	6,257
Utilities	578
Institutions	745
Missing values	279
Firm-years used in analysis	4,655
Observations by year:	
2009	922
2010	934
2011	936
2012	938
2013	925
Firm-years used in analysis	4,655

This table outlines the construction of our sample and the distribution of firm years across the sample period.

Table 2: Descriptive Statistics

Variable	N	Mean	Std. Dev.	25th	50th	75th
MISSTATE	4,655	0.167	0.373	0.000	0.000	0.000
ACCRUAL	4,418	0.045	0.048	0.015	0.057	0.357
ALUMNI	4,655	0.227	0.197	0.100	0.200	0.314
LNMVE	4,655	7.846	1.655	6.792	7.767	8.870
BKMK	4,655	0.516	0.337	0.287	0.452	0.688
ROA	4,655	0.019	1.419	0.017	0.050	0.087
DEBTASSETS	4,655	0.519	0.208	0.382	0.517	0.642
CURRENTRAT	4,655	2.419	1.661	1.370	1.979	2.875
OCF	4,655	0.080	1.324	0.059	0.098	0.142
ARIN	4,653	0.246	0.157	0.123	0.233	0.331
SEGNUM	4,655	1.409	0.715	0.693	1.386	1.946
ALUMNI_CFO	4,655	0.083	0.276	0.000	0.000	0.000
FORMERBIG4RATE	4,655	0.781	0.201	0.696	0.808	0.920
GROWTH	4,655	5.635	20.292	-3.561	4.627	13.226
TENURE	4,655	7.688	2.480	8.000	9.000	9.000

This table presents descriptive statistics on the sample used. The continuous variables are winsorized at the 1st and 99th percentile.

Table 3: Main Results

Variables	Expected Sign	(1) *MISSTATE*	(2) *ACCRUAL*
ALUMNI	?	-0.282***	-0.019**
		(-4.233)	(-2.099)
LNMVE	–	-0.031***	-0.004***
		(-7.914)	(-5.634)
BKMK	–	0.100***	0.004
		(3.307)	(0.820)
ROA	–	-0.080	-0.079***
		(-0.971)	(-2.081)
DEBTASSETS	+	0.027	0.028***
		(0.556)	(3.549)
CURRENTRAT	–	-0.004	0.002***
		(-0.609)	(2.421)
OCF	–	0.088	0.084***
		(1.000)	(2.070)
ARIN	+	-0.143***	0.008
		(-2.722)	(0.947)
SEGNUM	+	0.020**	0.004***
		(1.727)	(2.536)
GROWTH	+	0.001	0.000*
		(1.245)	(1.395)
ALUMNI _CFO	+	-0.035	-0.007**
		(-1.093)	(-2.015)
FORMERBIG4RATE	–	-0.011	0.008
		(-0.178)	(1.222)
TENURE	–	-0.006	-0.001**
		(-1.155)	(-1.944)
Constant		0.308***	0.048***
		(3.793)	(4.092)
Auditor Fixed Effects		controlled	
Observations		4,653	4,418
R-squared		0.093	0.117

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1, significance levels are for two-tailed tests for unsigned and one-tailed for signed variables. This table presents the results of ordinary least squares regressions using robust standard errors and observations are weighted by the total number of accounting employees at the firm. Column (1)'s dependent variable takes the value of 1 if a restatement was later issued for the financial reports of that period and 0 otherwise. The dependent variable for column (2) is the performance matched absolute value of abnormal accruals calculated using the modified Jones model (Dechow et al., 1995; Jones, 1991; Kothari et al., 2005).

Table 4: Rank Analysis Results

Variables	Expected Sign	(1) *MISSTATE*	(2) *ACCRUAL*
ALUMNI _L	?	-0.121**	-0.013**
		(-2.245)	(-2.201)
ALUMNI _M	?	-0.136**	-0.001
		(-2.160)	(-0.108)
ALUMNI _H	?	0.017	-0.009*
		(0.418)	(-1.860)
LNMVE	−	-0.031***	-0.004***
		(-7.192)	(-5.140)
BKMK	−	0.101***	0.005
		(3.056)	(0.893)
ROA	−	-0.109	-0.077**
		(-1.225)	(-1.975)
DEBTASSETS	+	0.017	0.030***
		(0.319)	(3.606)
CURRENTRAT	−	-0.002	0.002**
		(-0.329)	(2.041)
OCF	−	0.119	0.081**
		(1.247)	(1.964)
ARIN	+	-0.171***	0.007
		(-2.998)	(0.838)
SEGNUM	+	0.024*	0.004***
		(1.894)	(2.586)
GROWTH	+	0.001	0.000*
		(1.135)	(1.607)
ALUMNI _CFO	+	-0.037	-0.007**
		(-1.102)	(-1.937)
FORMERBIG4RATE	−	-0.049	0.011*
		(-0.621)	(1.328)
TENURE	−	-0.006	-0.001*
		(-0.961)	(-1.619)
Constant		0.282***	0.042***
		(3.038)	(2.959)
Auditor Fixed Effects		controlled	
Observations		3,139	3,007
R-squared		0.097	0.119

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1, significance levels are for two-tailed tests for unsigned and one-tailed for signed variables.

This table presents the results of ordinary least squares regressions using robust standard errors and observations are weighted by the total number of accounting employees at the firm. Column (1)'s dependent variable takes the value of 1 if a restatement was later issued for the financial reports of that period and 0 otherwise. The dependent variable for column (2) is the performance matched absolute value of abnormal accruals calculated using the modified Jones model (Dechow et al., 1995; Jones, 1991; Kothari et al., 2005).

Table 5: Auditor Change Results

Variables	Expected Sign	(1) *MISSTATE*	(2) *ACCRUAL*
ALUMNI _OLD	?	0.035	-0.048
		(0.088)	(-0.677)
ALUMNI _NEW	–	-0.524*	-0.062
		(-1.361)	(-1.281)
LNMVE	–	-0.014	0.013**
		(-0.518)	(2.001)
BKMK	–	0.263	0.026
		(1.390)	(0.786)
ROA	–	0.043	-0.184*
		(0.088)	(-1.383)
DEBTASSETS	+	-0.384	0.003
		(-1.268)	(0.063)
CURRENTRAT	–	-0.010	-0.003
		(-0.248)	(-0.581)
OCF	–	-0.419	-0.058
		(-0.625)	(-0.429)
ARIN	+	0.716**	-0.216***
		(1.799)	(-3.245)
SEGNUM	+	-0.013	-0.029***
		(-0.158)	(-3.026)
GROWTH	+	-0.002	-0.000
		(-0.580)	(-0.173)
ALUMNI _CFO	+	-0.278**	0.003
		(-1.883)	(0.110)
FORMERBIG4RATE	–	-0.059	0.018
		(-0.219)	(0.437)
Constant		0.421	0.096
		(0.974)	(1.296)
Auditor Fixed Effects		controlled	
Observations		103	95
R-squared		0.396	0.621

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1, significance levels are for two-tailed tests for unsigned and one-tailed for signed variables. This table presents the results of ordinary least squares regressions using robust standard errors and observations are weighted by the total number of accounting employees at the firm. The variables of interest are the former employee rate of the old auditor (*FERATEO*) and the former employee rate of the new auditor (*FERATEN*). Column (1)'s dependent variable takes the value of 1 if a restatement was later issued for the financial reports of that period and 0 otherwise. The dependent variable for column (2) is the performance matched absolute value of abnormal accruals calculated using the modified Jones model (Dechow et al., 1995; Jones, 1991; Kothari et al., 2005).

Table 6: Big 4 Alumni Only Results

Variables	Expected Sign	(1) *MISSTATE*	(2) *ACCRUAL*
*ALUMNI _BIG*4	–	-0.233***	-0.018***
		(-4.309)	(-2.611)
LNMVE	–	-0.031***	-0.004***
		(-7.969)	(-5.642)
BKMK	–	0.100***	0.004
		(3.323)	(0.826)
ROA	–	-0.081	-0.080***
		(-0.977)	(-2.080)
DEBTASSETS	+	0.023	0.028***
		(0.462)	(3.511)
CURRENTRAT	–	-0.004	0.002***
		(-0.617)	(2.397)
OCF	–	0.089	0.084***
		(1.006)	(2.068)
ARIN	+	-0.146***	0.008
		(-2.767)	(0.948)
SEGNUM	+	0.020**	0.004***
		(1.755)	(2.545)
GROWTH	+	0.001	0.000
		(1.240)	(1.387)
ALUMNI _CFO	+	-0.035	-0.006**
		(-1.094)	(-1.999)
FORMERBIG4RATE	–	-0.084	0.004
		(-1.250)	(0.624)
TENURE	–	-0.006	-0.001**
		(-1.158)	(-1.924)
Constant		0.368***	0.050***
		(4.399)	(4.191)
Auditor Fixed Effects		controlled	
Observations		4,551	4,323
R-squared		0.093	0.118

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1, significance levels are for two-tailed tests for unsigned and one-tailed for signed variables. This table presents the results of ordinary least squares regressions using robust standard errors and observations are weighted by the total number of accounting employees at the firm. Column (1)'s dependent variable takes the value of 1 if a restatement was later issued for the financial reports of that period and 0 otherwise. The dependent variable for column (2) is the performance matched absolute value of abnormal accruals calculated using the modified Jones model (Dechow et al., 1995; Jones, 1991; Kothari et al., 2005).

Table 7A: **Results Partitioned by Firm Complexity**

		LOW COMPLEXITY		*HIGH COMPLEXITY*	
	Expected	(1)	(2)	(3)	(4)
VARIABLES	Sign	*MISSTATE*	*ACCRUAL*	*MISSTATE*	*ACCRUAL*
ALUMNI	–	-0.253***	-0.006	-0.345***	-0.022**
		(-2.323)	(-0.507)	(-3.524)	(-1.944)
Control Variables		Included	Included	Included	Included
Observations		2,239	2,226	2,414	2,192
R-squared		0.119	0.115	0.105	0.166

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1, significance levels are for one-tailed tests

This table presents the results of ordinary least squares regressions using robust standard errors and observations are weighted by the total number of accounting employees at the firm. For this table the sample is partitioned by the number of operating segments. Column (1) and (2) show equal or below median firms while column (3) and (4) display results for be firms with an above median number of segments. Column (1) and (3)'s dependent variable takes the value of 1 if a restatement was later issued for the financial reports of that period and 0 otherwise. The dependent variable for column (2) and (4) is the performance matched absolute value of abnormal accruals calculated using the modified Jones model (Dechow, Sloan, & Sweeney, 1995; Jones, 1991; Kothari, Leone, & Wasley, 2005).

Table 7B: Results Partitioned by Firm Growth

		LOW GROWTH		*HIGH GROWTH*	
	Expected	(1)	(2)	(3)	(4)
VARIABLES	Sign	*MISSTATE*	*ACCRUAL*	*MISSTATE*	*ACCRUAL*
ALUMNI	–	-0.247***	-0.012	-0.309***	-0.020***
		(-2.571)	(-0.897)	(-3.113)	(-2.112)
Control Variables		Included	Included	Included	Included
Observations		2,325	2,204	2,328	2,214
R-squared		0.088	0.183	0.121	0.145

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1, significance levels are for one-tailed tests

This table presents the results of ordinary least squares regressions using robust standard errors and observations are weighted by the total number of accounting employees at the firm. For this table the sample is partitioned by median revenue growth. Column (1) and (2) show below or equal to median firms while column (3) and (4) display results for be firms above the median. Column (1) and (3)'s dependent variable takes the value of 1 if a restatement was later issued for the financial reports of that period and 0 otherwise. The dependent variable for column (2) and (4) is the performance matched absolute value of abnormal accruals calculated using the modified Jones model (Dechow, Sloan, & Sweeney, 1995; Jones, 1991; Kothari, Leone, & Wasley, 2005).

Table 7C: **Results Partitioned by Firm Leverage**

		LOW LEVERAGE		*HIGH LEVERAGE*	
	Expected	(1)	(2)	(3)	(4)
VARIABLES	Sign	*MISSTATE*	*ACCRUAL*	*MISSTATE*	*ACCRUAL*
ALUMNI	–	-0.053	-0.007	-0.382***	-0.017*
		(-0.559)	(-0.775)	(-4.016)	(-1.363)
Control Variables		Included	Included	Included	Included
Observations		2,322	2,240	2,331	2,178
R-squared		0.122	0.139	0.106	0.148

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1, significance levels are for one-tailed tests

This table presents the results of ordinary least squares regressions using robust standard errors and observations are weighted by the total number of accounting employees at the firm. For this table the sample is partitioned by the firm leverage, using the debt-assets ratio as a proxy. Column (1) and (2) show below or equal to median firms while column (3) and (4) display results for be firms above the median. Column (1) and (3)'s dependent variable takes the value of 1 if a restatement was later issued for the financial reports of that period and 0 otherwise. The dependent variable for column (2) and (4) is the performance matched absolute value of abnormal accruals calculated using the modified Jones model (Dechow, Sloan, & Sweeney, 1995; Jones, 1991; Kothari, Leone, & Wasley, 2005).