Accounting Restatements and Auditor Accountability

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ABSTRACT

This study investigates auditor changes around restatement announcements and the market reactions to the dismissal of underperforming auditors. We document that 29.4% of auditors turn over surrounding restatement announcements compared with only 8.6% turnover for matched non-restating firms. Looking closer, we find that small auditors are much more likely to be dismissed than their Big 4 counterparts when a restatement occurs. These differences are more pronounced when restatements involve irregularities, with 61.7% turnover for small auditors and only 24.7% turnover for Big 4 firms. This evidence is consistent with the benefits from re-establishing reporting credibility outweighing the lower switching costs for smaller auditors, especially for more damaging restatements. Consistent with this notion, we document that restatement firms announcing the dismissal of their auditors receive a positive stock reaction. This stock price benefit is greatest for small auditor dismissals where the announcement to the initial restatement was more severe (negative). Overall, this evidence is consistent with firms' acting to restore credibility by dismissing underperforming auditors, and informs an ongoing debate on the extent to which the auditor market is adequately self-regulated.

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I. INTRODUCTION

Regulatory concerns over the role of auditors in both preventing restatements and rebuilding investors' trust after prominent reporting failures have led to substantial changes in the auditing industry over the past decade. Similar concerns were recently raised by a European Commission's discussion paper (EC 2010) over the lack of competition in the audit industry and the potential need for additional auditor oversight to reduce the risk of future reporting failures. This study informs these discussions by examining the extent to which the audit market self-regulates. Specifically, we investigate the circumstances under which firms dismiss their auditors as part of the restatement remediation process and the market response to these dismissals.

In their role as monitors, auditors reduce agency costs by mitigating the extent to which managers can exploit their information advantage over investors and report financial results in an opportunistic way (Jensen and Meckling 1976; Ng 1978; Watts and Zimmerman 1983). Investors' beliefs about audit quality influence the expected benefits of the audit (Pittman and Fortin 2004), but investors often have little information to gauge auditor performance beyond the auditor's reputation and the board's periodic decision to renew the auditor's contract. The board also has limited opportunities to evaluate audit quality (DeAngelo 1981; Healy and Lys 1986), but a restatement provides a visible indicator of audit failure to both the board and investors that can create pressure on the board to change auditors.

Although a restatement tarnishes the audit team's reputation and raises concerns about the auditors' ability to monitor future financial reporting, restatements do not necessarily increase auditor turnover uniformly. Investors' concerns will likely vary with the severity of the monitoring failure, and any inclination to replace the auditor will be weighed against the costs of such a change. Switching away from the incumbent auditor is costly in terms of incremental

managerial time and startup fees paid to a new auditor for training and review or re-audit of prior years (Cohen Commission Report 1978; DeAngelo 1981; Beattie and Fearnley 1995). Further, just as executives possess various amounts of firm-specific human capital that make them more or less irreplaceable (Villalonga and Amit 2006; Leone and Liu 2010), auditors have firm-specific knowledge and experience. Hence, changing auditors also means sacrificing any firm-specific expertise and efficiency developed by the incumbent auditor (Myers, Myers, and Omer 2003). So although research (e.g., Farber 2005; Wilson 2008) suggests that governance and personnel changes hasten the restoration of financial reporting credibility after restatements, these switching costs could make auditor turnover less than optimal even in restatement situations.

We compare auditor turnover rates for 1,325 firms with a restatement between 1997 and 2006 to the auditor turnover rates for a matched sample of non-restating firms. Consistent with the univariate results in Srinivasan (2005) and Agrawal and Cooper (2009), we find a significantly higher likelihood of auditor turnover for restating firms (29.4%) than for matched non-restating firms (8.6%) in both univariate and multivariate analysis.

We predict that characteristics of the auditor and of the restatement affect the decision to change auditors surrounding a misstatement. Firms who have selected large auditors are more likely to have larger, more complex operations requiring more audit services (Healy and Lys 1986) and pay a quality premium for a Big 4 auditor capable of providing those services (Francis 1984; Palmrose 1986).[1] If the incumbent auditor is a Big 4 auditor, the firm faces larger potential startup costs to switch and has a limited choice of comparable Big 4 auditors. As such, we hypothesize that switching costs will be higher and thus auditor turnover will be lower for firms with a Big 4 auditor. Consistent with this hypothesis, we find that the probability of auditor

[1] We use "Big 4" throughout the paper to designate Big 4, Big 5, or Big 6 audit firms, depending on the period.

turnover is over three times higher (46.9% for restating firms compared to 13.4% for the control sample) for restating firms when the auditor is a non-Big 4 auditor, compared to only 17.8% higher for Big 4 auditors. The impact of auditor size on the probability of turnover continues to hold after controlling for performance and other factors that affect auditor changes. Overall, the evidence is consistent with Non-Big 4 auditors being more likely than Big 4 auditors to turn over after a restatement.

We also examine whether the type of restatement affects the turnover rates for auditors. The impact of a restatement on a firm's reputation can vary depending on whether the restatement is due to relatively innocuous clerical errors or to fraud resulting in criminal prosecution, bankruptcy, etc. The more severe the restatement, the more concerned investors are about the reporting environment of the firm, and the more important it is for the firm to take actions to restore credibility. Prior research (e.g., Palmrose, Richardson, Scholz 2004) on restatements shows that the market reaction to restatements involving fraud or a deliberate attempt to mislead is considerably more negative than other types of restatements, and the existing evidence on executive and director penalties documents that managers are much more likely to be terminated for misstatements characterized as intentional.[2]

We follow Hennes et al. (2008) and distinguish between restatements involving the more serious irregularities and restatements involving only errors. Based on the existing evidence on the differential repercussions of various types of restatements, we predict that auditor turnover should be higher for restatements caused by accounting irregularities than those caused by errors. However, *a priori* it is unclear that the substantially higher turnover observed for executives will necessarily be mirrored for auditors. First, although a CEO may avoid blame when a restatement

[2] Research finding differential penalties for executives include Desai, Hogan, and Wilkins (2006); Hennes, Leone, and Miller (2008); and Burks (2010), and studies finding differential penalties for outside directors and audit committee members include Farber (2005); Srinivasan (2005); and Arthaud-Day, Certo, Dalton, and Dalton (2006).

is caused by an unintentional error on the part of a low-level accounting clerk, auditors are charged with detecting material misstatements, regardless of origin. Second, boards may consider the increased difficulty auditors face in detecting frauds involving collusion or management overrides of control systems, and this could mitigate the expected difference in penalties between irregularities and errors.

Consistent with boards viewing both errors and irregularities as equal audit failures both indicative of poor auditor performance, we find very little difference in the overall auditor turnover rates for restatements caused by errors (29.4%) versus those caused by irregularities (29.3%). However, after partitioning on auditor size, we find that Non-Big 4 auditors face a much higher turnover rate for irregularity restatements (61.7%) than their Big 4 counterparts (24.7%). After controlling for firm performance and other factors that affect auditor changes, we find that the predicted probability for auditor turnover around irregularities is nearly double for small incumbent auditors than for Big 4 incumbent auditors. Overall, the evidence of higher turnover for smaller audit firms is consistent with the benefits of re-establishing financial reporting credibility outweighing the lower switching costs for smaller auditors when there is an irregularity.

We also examine whether turnover of CEOs and CFOs in the months leading up to the restatement announcement is related to auditor turnover. Focusing on irregularity restatements, we find no evidence that CEO departures have any effect on auditor turnover. However, we find that when the CFO changes just prior to the restatement (within one year) then the predicted probability of an auditor dismissal is nearly nine times more likely for small audit firms than their Big 4 counterparts. This suggests that among firms facing a restatement involving an irregularity, those firms with a non-Big 4 auditor are likely to replace both the CFO and the

auditor but firms with a Big 4 auditor treat the CFO and auditor dismissals as substitutes and may replace only the CFO.

Finally, we examine the market's reaction to the auditor turnover announcement. Prior research investigating the market reaction to voluntary auditor turnover outside the restatement setting finds either insignificant or negative reactions to auditor change announcements.[3] The significant negative reactions are found around auditor resignations or auditor changes with reportable conditions (e.g., disclosed disagreement) and are often attributed to investors' concerns that the auditor change signals heretofore unknown accounting problems or "opinion shopping." In our restatement setting, however, the accounting problems are revealed in a separate restatement announcement, so the market response to the auditor change is not driven by revisions to earnings information. We expect investors to respond positively to the auditor change announcement in the restatement setting if they agree that the board is appropriately terminating a poorly performing auditor.

Our initial univariate results provide no evidence of a significant market reaction around the auditor change announcement for the total restatement sample. However, we find that auditor resignations are associated with a significantly negative (-3.31%) market response and that auditor dismissals are associated with a significantly positive (1.56%) market response. After controlling for performance and other factors that affect auditor changes, we find that positive market reaction is greatest when the restatement was more damaging (as measured by the market reaction at the restatement announcement) and the outgoing auditor is small. This positive

[3] One exception to these insignificant or negative market reaction findings occurs in the unique case of eventual forced auditor changes for ex-Andersen clients after the demise of Arthur Andersen. Here Asthana, Balsam, and Krishnan (2010) find a positive market reaction to more timely auditor change announcements, which is attributed to a reduction in uncertainty about the cost of finding a new auditor.

market reaction is consistent with investor approval of the firm's decision to bear the costs of replacing the auditor in these cases where credibility has been more severely damaged.

In summary, we find that the probability of auditor turnover around restatements is higher for smaller auditors and more severe restatements, and that the market responds positively to these auditor dismissals. Our results inform the on-going debates regarding the role of auditors in financial restatements and the adequacy of the current oversight system. Regulatory concerns in this area have led to substantial changes in the audit environment in the past decade, and the European Commission's recent discussions (EC 2010) regarding the appropriate level of auditor oversight and auditor competition indicate that concerns remain. Our study informs this debate by contributing to the literature on the market's ability to self-regulate when a misstatement occurs. Perhaps more importantly, our study also speaks to concerns raised by the European Commission over the differing level of competition across large and small audit firms by documenting differential consequences to Big 4 and non-Big 4 auditors involved in restatements.

II. BACKGROUND AND RESEARCH QUESTIONS

Our paper contributes to the stream of research focused on auditor changes as well as the research dealing with the consequences of accounting restatements. A broad literature exists on auditor changes outside the restatement setting. For example, prior literature on auditor change examines voluntary auditor changes driven by gradually increasing misalignment between the client and auditor (Johnson and Lys 1990; Shu 2000; Boone and Raman 2001) as well as forced auditor switches after the demise of Arthur Andersen (Barton 2005; Blouin, Grein, and Rountree 2007; Chen and Zhou 2007; Asthana et al. 2010). Similar to the forced auditor turnover studies, our restatement setting offers readily identifiable shocks to the auditor-client relationship that likely trigger a re-evaluation of that auditor-client relationship within a fairly narrow time period.

However, in contrast to the post-Andersen setting that necessitated an audit change in all cases, restatements provide a setting with variation in the degree of audit and reporting failure and less than 100% turnover.

The existing literature on the consequences of accounting restatements is vast and includes examinations of: the market reaction to earnings restatements (Palmrose et al. 2004); restatements and the cost of capital (Hribar and Jenkins 2004); the information content of earnings after restatements (Wilson 2008); restatements and executive turnover (Beneish 1999; Agrawal, Jaffe, and Karpoff 1999; Arthaud-Day et al. 2006; Desai et al. 2006; Hennes et al. 2008; Burks 2010; Leone and Liu 2010); executive stock ownership and incentives to restate earnings (Beneish 1999; Burns and Kedia 2006; Efendi, Srivastava, and Swanson 2007; Burks 2010) and audit committee consequences of restatements (Farber 2005; Srinivasan 2005). We expand this literature by further examining the impact of restatements on auditor turnover.[4]

Despite the importance regulators have placed on auditors' role in restatements, there is limited empirical evidence on the association between material misstatements and auditor turnover. Existing research in this area comments on seemingly higher auditor turnover around restatements (Wallace 2005; Thompson and McCoy 2005) and provides univariate evidence that auditor turnover is higher significantly higher for restating firms than for non-restating firms (Srinivasan 2005; Agrawal and Cooper 2009). We begin our analysis by corroborating these findings in a multivariate setting after controlling for other determinants of auditor turnover, before moving on to our primary tests.[5] Overall, prior literature provides a necessary background

[4] This paper focuses on the ex-post employment consequences to auditors of restatements, but it is worth noting that separate lines of research use auditor characteristics to predict fraudulent reporting ex-ante (Carcello and Nagy 2004a, 2004b; Lennox and Pittman 2010) and examine auditor litigation after fraudulent misstatements (Fuerman and Sawyer (1997); Bonner, Palmrose, and Young 1998; Palmrose and Scholz 2000).

[5] Agrawal and Cooper (2009) also examine the relationship between restatements and auditor turnover in a multivariate setting but find only weak evidence that auditor turnover is higher in restating firms for restatements initiated by the company.

for the research in this study, but does not provide any direct evidence on the determinants of auditor turnover surrounding a restatement or the benefits accruing to firms that dismiss their auditors.

Research Questions

Although it is important to corroborate the association between restatements and auditor turnover in a multivariate setting, it is not the primary focus of our study. This section describes our primary research questions. We begin by examining whether auditor size affects the relationship between auditor changes and restated financial statements. As previously discussed, we expect switching costs to be higher for firms with a Big 4 auditor. Big 4 auditors tend to audit larger clients with relatively more complex organizational structures and operations, requiring a significant initial investment by both auditors and clients in the new auditor's first year. In addition, a client needing the services of a Big 4 auditor only has a few firms to choose from if it is considering a switch, making change potentially more difficult. Further, a Big 4 auditor could switch out the entire local audit team as a slightly less drastic way to regain credibility with the client, but a smaller audit firm is less likely to have sufficient depth to offer this option.[6] Based on these factors, our first formal research question is as follows:

R1: Is auditor turnover more likely for restatement firms with a small auditor then for firms with a Big 4 auditor?

We next consider whether restatements caused by errors versus those caused by suspected irregularities differentially affect the probability of auditor turnover. Hennes et al. (2008) find that the nature of the restatement is an important predictor of CEO/CFO turnover, as restatements involving irregularities significantly increase concerns about firms' reporting credibility. Replacing executives is necessary to restore financial reporting credibility when

[6] We thank a partner at one of the Big 4 for this comment.

irregularities occur. In contrast, when restatements are caused by errors, the CEO/CFO turnover rates approximate the normal turnover rates documented in the literature. Based on this evidence, boards do not appear to view restatements caused by errors to as being egregious enough to warrant replacing the CEO or CFO.

Whether the distinction between errors versus irregularities matters for auditor turnover is less clear. In contrast to CEOs who may avoid blame when a restatement is caused by a low-level error, auditors are responsible for detecting all material accounting misstatements regardless of the cause. This suggests that even though restatements caused by errors are less damaging to the client, the damage to the auditors' reputation for quality may be equal to the damage caused by an irregularity. Boards may also consider the increased difficulty auditors face in detecting frauds involving collusion or management overrides of control systems, and this could mitigate the expected difference in penalties between irregularities and errors. Our second research question is as follows:

R2: Is auditor turnover more likely for restatements classified as irregularities than for restatements classified as errors?

Finally, we consider the market response to auditor change announcements to determine whether investors perceive the dismissal of an underperforming auditor as a step toward restoring credibility. Prior research investigating the market reaction to auditor turnover announcements either finds insignificant reactions (Schwartz and Soo 1995; Johnson and Lys 1990; Klock 1994) or finds that the reaction is negative (Fried and Schiff 1981; Eichenseher, Hagigi, and Shields 1989). This negative reaction is most pronounced in auditor resignations (Wells and Louder 1997; Griffin and Lont 2010) or auditor changes with reportable events (Whisenant, Sankaraguruswamy, and Raghunandan 2003; Beneish, Hopkins, Jansen, and Martin 2005). This evidence is consistent with investors viewing audit changes as a signal of low

earnings quality and discounting reported earnings in their valuation estimates. In our setting, however, the accounting problems are separately revealed in the restatement announcement and the audit failure indicates poor auditor performance. Thus, investors should respond positively to auditor turnover if they view it as the firm appropriately terminating a poorly performing auditor and negatively if they view it at as an unfavorable signal or overly costly action. This leads to our third main research question:

R3: How does the market respond to auditor turnover around a restatement?

In addition to these main research questions, additional links between auditor turnover and executive turnover, as well as, other characteristics of the restatement are discussed in Section IV.

III. SAMPLE AND DESCRIPTIVE DATA

As summarized in Table 2, we begin with 2,705 restatements reported by the GAO (2003; 2006) that were announced between January 1997 and June 2006.[7] We obtain details of each restatement from firms' SEC filings and Lexis-Nexis searches. We eliminate 208 observations that represent multiple announcements of the same restatement. We also find that some of the restatements announced are corrections of earnings announcements only, do not eventually result in a restatement, or are incorrectly included as misstatements (i.e., are legitimate pro forma restatements for mergers or discontinued operations), so we drop 119 additional observations that do not represent misstated 10-Q or 10-K filings.

From the restatement announcements, we note that some restatements reflect clear misapplication of existing GAAP whereas others relate to more ambiguous areas of shifting GAAP. For our primary analysis, we remove 240 restatements related to new clarifications of

[7] Subsample analyses pre- and post-SOX/SAS 99 are discussed in Section V.

GAAP, including restatements related to SAB 101, the SEC's 2005 letter to the AICPA regarding leases, new EITF guidance, etc. We further eliminate 645 firms not covered by Compustat and 148 restatements occurring in 2001 or later where Arthur Andersen had audited the most recent fiscal year, as the incidence of auditor turnover for those clients is a forced 100%. This leaves a preliminary restatement sample of 1345 observations.

We construct a control sample by matching each restatement firm with a control firm that did not experience a restatement during the sample period. At the end of the last fiscal year preceding the restatement announcement, each restatement firm is matched one to one with a non-restatement firm on year, two-digit SIC code, Big 4/Non-Big 4 auditor, and closest total assets. We could not get an appropriate unique match for 20 restatement firms, so the matched sample is reduced to 1325 restatement firms and 1325 control firms with available data. Descriptive statistics for both the restatement firms and the control firms are provided in Table 3.

IV. RESULTS

Turnover Announcement Timing

Figures 1 and 2 plot auditor turnover in the months around the restatement announcements. Figure 1 shows that for both Big 4 and non-Big 4 auditors most of the turnover occurs close to the restatement announcement. Of further interest, Figure 1 provides some visual evidence that small auditors tend to turn over at a higher rate in the months leading up to the restatement announcement, whereas larger auditors tend to turn over at higher rates after the restatement. Figure 2 presents the distribution of turnover events partitioned by the type of restatement. Although there does not appear to be any major differences in the timing of the turnovers for restatements classified as errors or irregularities, turnover appears higher for restatements classified as irregularities in the months immediately surrounding the restatement. Overall, the

figures show both Big 4 and non-Big 4 auditor turnover clustered around both restatements involving errors and restatements involving irregularities.

Univariate Analyses: Auditor Turnover

Table 4 provides summary information about the frequency of auditor turnover around restatement events. In Panel A, we find auditor turnover in 29.4% of restatement firms during the twelve months before and twelve months after a restatement, which is significantly higher than the turnover rate for the control sample. Panel A also reports differences in auditor turnover rates among restatement and control firms by size of audit firm. We find that the turnover rate of 46.9% for restatement firms with Non-Big 4 auditors is significantly higher than the 25.0% turnover rate for restatement firms audited by a Big 4 auditor. The difference in auditor turnover between Big 4 and Non-Big 4 auditors in restatement firms is also significantly larger than the differences between Big 4 and Non-Big 4 auditors in the control sample.

We next test whether auditor turnover rates are different for restatements caused by irregularities versus those caused by errors. In contrast to prior research that documents substantially higher executive turnover for irregularity restatements compared to error restatements, overall auditor turnover rates are virtually identical for the two restatement types. In Panel B, the turnover rate for the error sample is 29.4% versus 29.3% for the irregularity sample. Further, the 0.1% difference between the irregularity and error groups in the restatement sample is not significantly different from the difference of 0.5% observed in the control sample.

Within the restatement sample, Panel C examines the differential effects of errors and irregularities separately for Big 4 and Non-Big 4 audit clients. We find no statistical difference in audit turnover rates across errors and irregularities for Big 4 auditors, but Non-Big 4 audit turnover is substantially higher for irregularity restatements as compared to error restatements.

Specifically, we find that the turnover rate for Non-Big 4 auditors when the restatement is classified as an irregularity is 61.7% as compared to a rate of 43.7% for error restatements. Further, the relative differences between irregularity and error restatements are larger for Non-Big 4 firms than for Big 4 firms.

Multivariate Analyses: Auditor Turnover

The results in Table 4 support our predictions that auditor turnover around restatements is higher for Non-Big 4 auditors, especially when clients of these smaller auditors are involved in an irregularity. Although each restatement firm is matched with a non-restating firm on industry, year, auditor size, and total assets, we also control for other factors in our multivariate analysis that could differ across the groups and impact the likelihood of auditor turnover. All financial statement variables are measured at the last 10-K before the restatement announcement, and all variables discussed below are also defined in Table 1.

Prior research suggests there is an increased likelihood of auditor turnover for firms in financial distress (Schwartz and Menon 1985; Kluger and Shields 1991) or experiencing extreme expansion or contraction (Johnson and Lys 1990), so we include controls for *LEVERAGE* (debt to total assets), *ROA,* and *GROWTH*. We also include controls for short and long auditor tenure, (as defined by Johnson, Khurana, and Reynolds 2002) because prior studies (e.g., Knapp 1991; Iyer and Rama 2004) find that auditor tenure is associated with perceptions of audit quality and could thus influence the board's decision to change auditors. Finally, we include size quintiles based on firms' total assets as firm size may affect the auditor client relationship (Reynolds and Francis 2000).[8] We estimate the following conditional logistic regression for auditor turnover on our matched sample:

[8] Supplemental analyses with additional market-based control measures are discussed in Section V.

$$AUDITOR\_TO = \alpha_0 + \beta_1 RESTATE + \beta_2 NONBIG4 + \beta_3 LEVERAGE + \beta_4 ROA + \beta_5 GROWTH + \beta_6 SHORT\_TENURE + \beta_7 LONG\_TENURE + \beta_8 SIZE\ QUINTILE\ 1 + \beta_9 SIZE\ QUINTILE\ 2 + \beta_{10} SIZE\ QUINTILE\ 4 + \beta_{11} SIZE\ QUINTILE\ 5 + \varepsilon \quad (1)$$

where:

AUDITOR_TO	=	1 if the auditor turned over in the 12 months before or 12 months after the restatement, and 0 otherwise;
RESTATE	=	1 if the firm restated their financial statements, and 0 otherwise;
NONBIG4	=	1 if the firm was not a client of a Big N auditing firm at the time of the restatement, and 0 otherwise;
LEVERAGE	=	Debt (Compustat #9 + #34) / Assets (#6);
ROA	=	Operating income before interest and taxes scaled by assets (Compustat #178 / #6);
GROWTH	=	Change in sales (Compustat #12) from t−2 to t−1 scaled by sales in t−2;
SHORT_TENURE	=	1 if auditor tenure is less than 4 years;
LONG_TENURE	=	1 if auditor tenure is longer than 8 years;
SIZE QUINTILE i	=	Indicator variable for size quintiles based on total assets.

The results from this conditional logistic regression are reported in Table 5. The first column shows that auditor turnover is significantly more likely for restatement firms than for control firms and that Non-Big 4 firms are more likely to turn over than their larger competitors in both the restatement and control sample. In Column 2, we add an interaction between *RESTATE* and *NONBIG4* to allow the odds ratios to differ across groups, and we find that both the main effects and the interaction term are significantly positive. This suggests that the odds of auditor turnover are higher for small auditors in both the restatement and control sample, the odds of auditor turnover are higher for restatement firms than for control firms, and the odds of auditor turnover increase incrementally for non-Big 4 auditors involved in a restatement.

The third column of Table 5 separates *RESTATE* into restatements classified as *ERROR* and *IRREGULARITY*, consistent with Hennes et al. (2008).[9] We find that both *ERROR* and *IRREGULARITY* are significantly associated with higher auditor turnover, but there is no significant difference (untabulated) between the coefficients on *ERROR* and *IRREGULARITY*. In

[9] Alternative measures of restatement severity are included in Table 6 or discussed (untabulated) in Section V.

the final column, we interact *NONBIG4* with *ERROR* and *IRREGULARITY*. The main effects and the interaction terms remain significantly positive. Although the coefficient on *IRREGULARITY*NONBIG4* is larger than on *ERROR*NONBIG4*, the difference is not statistically significant (p-value = 0.225, one-tailed). Thus, there is no evidence in Table 5 of differential impact of restatements related to errors (71% of the total restatement sample) as compared to restatements related to irregularities (29% of the total restatement sample) for small auditors.

In Table 6 we focus exclusively on the restatement sample, controlling for the firm-level factors included in Equation 1 as well as additional characteristics of the restatements. First, we add an indicator variable (*AUDITOR_INIT*) if the GAO classifies the restatement as auditor-initiated because prior literature (e.g., Hribar and Jenkins 2004; Arthaud-Day et al. 2006; Desai et al. 2006; Agrawal and Cooper 2009) hypothesizes that the disclosed initiator of the restatement is related to the expected consequences of the restatement. We also control for whether the restatement involves an audited annual financial statement (*ANNUAL*) rather than only reviewed quarterly financial statements and for restatements involving merger and acquisition accounting (*M&A*) that may have involved multiple audit teams or audit firms. Finally, we add controls for income-increasing restatements (*RESTATE_POS*) and restatements related to improper revenue recognition (*REV_REC*). These characteristics that have been used in prior literature (e.g., Agrawal and Chadha 2005; Wilson 2008; Burks 2010) to capture aspects of the severity of the restatement. We estimate the following logistic regression for auditor turnover on our restatement sample:

$$\begin{aligned} AUDITOR\_TO = {} & \alpha_0 + \beta_1 IRREGULARITY + \beta_2 NONBIG4 + \beta_3 IRREGULARITY*NONBIG4 + \\ & \beta_4 AUDITOR\_INT + \beta_5 ANNUAL + \beta_6 RESTATE\_POS + \beta_7 M\&A + \beta_8 REV\_REC + \\ & \beta_9 LEVERAGE + \beta_{10} ROA + \beta_{11} GROWTH + \beta_{12} SHORT\_TENURE + \\ & \beta_{13} LONG\_TENURE + \beta_{14} SIZE\ QUINTILE\ 1 + \beta_{14} SIZE\ QUINTILE\ 2 + \\ & \beta_{15} SIZE\ QUINTILE\ 4 + \beta_{16} SIZE\ QUINTILE\ 5 + \varepsilon \end{aligned} \quad (2)$$

where,

AUDITOR_TO	=	1 if the auditor turned over in the 12 months before or 12 months after the restatement, and 0 otherwise;
IRREGULARITY	=	1 if the restatement is classified as an irregularity by Hennes et al. (2008), and 0 otherwise;
NONBIG4	=	1 if the firm was not a client of a Big N auditing firm at the time of the restatement, and 0 otherwise;
AUDITOR_INIT	=	1 if the GAO classifies the restatement as auditor-initiated, and 0 otherwise;
ANNUAL	=	1 if the restatement amends a 10-K filing, and 0 otherwise;
RESTATE_POS	=	1 if the restatement is income-increasing, and 0 otherwise;[10]
M&A	=	1 if the GAO classifies any part of the restatement as being related to improper acquisition or merger accounting, and 0 otherwise;
REV_REC	=	1 if the GAO classifies any part of the restatement as being related to revenue recognition, and 0 otherwise;
LEVERAGE	=	Debt (Compustat #9 + #34) / Assets (#6);
ROA	=	Operating income before interest and taxes scaled by assets (Compustat #178 / #6);
GROWTH	=	Change in sales (Compustat #12) from t−2 to t−1 scaled by sales in t−2;
SHORT_TENURE	=	1 if auditor tenure is less than 4 years;
LONG_TENURE	=	1 if auditor tenure is longer than 8 years;
SIZE QUINTILE i	=	Indicator variable for size quintiles based on total assets.

Column 1 of Table 6 reports the logistic regression results for Equation 2. Consistent with our earlier results, the significantly positive coefficient on *NONBIG4* suggests that auditor turnover is more likely to occur when the restatement firm has a Non-Big 4 auditor. We do not find any statistically significant evidence of a differential probability of turnover for Big 4 auditors for irregularity restatements versus error restatements, but the significantly positive coefficient on *IRREGULARITY*NONBIG4* provides evidence that the odds of auditor turnover increase incrementally for Non-Big 4 auditors when the restatement is due to an irregularity versus an error. Based on the coefficients in Column 1, auditor turnover is nearly twice as likely

[10] We thank Gennaro Bernile for data regarding the income statement effect of the GAO restatements.

when there is an irregularity and an incumbent is a small auditor than when the restatement is related to an irregularity and the incumbent auditor is one of the Big 4.[11]

Looking at the control variables, Column 1 of Table 6 shows that restatements initiated by the auditor are more likely to be associated with auditor turnover. This is consistent with the evidence in Hribar and Jenkins (2004) and Desai et al. (2006) that restatements disclosed as being auditor-initiated have more severe repercussions than those disclosed as having been initiated by other parties. The coefficients on short and long auditor tenure are also positive and at least weakly significant, consistent with auditor turnover being more likely for both very short and very long auditor-client relationships (as compared to the baseline group with tenure of 4-8 years). Among the other control variables, only firm growth is significantly related to auditor turnover.

In the previous tests, we have included all auditor changes as instances of auditor turnover. Our research questions, however, are based on firms acting to replace auditors rather than auditors voluntarily withdrawing from the engagement. If firms act to replace small auditors in irregularity settings as a mean of restoring financial reporting credibility, then our results should be driven by the subset of auditor turnovers that are forced by the firm rather than any turnovers resulting from voluntary auditor resignations. So for each observed auditor turnover around a restatement, we review the 8-K Disclosure Item titled "Changes in Registrant's Certifying Accountants" and classify the turnovers as resignations or dismissals.[12]

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[11] Evaluated at the mean for each coefficient, the predicted probability of auditor turnover when there is an irregularity associated with a small audit firm is 52.3% compared to a predicted probability of only 27.1% when there is an irregularity associated with a Big 4 firm.

[12] For example, American Physicians Services Group made the following disclosure "On July 8, 2002, we terminated the appointment of KPMG LLP..." which would be classified as a dismissal. The auditor change announcements are generally clearly indicative of either a firm-initiated dismissal or an auditor-initiated resignation, but it is important to note that there is potential for noise in this classification if the press release language is negotiated between the firm and the departing auditor.

The second column in Table 6 repeats the regression in Equation 2 as a multinomial logistic regression with separate coefficients for the likelihood of auditor resignation and the likelihood of auditor dismissal. The coefficient on the interaction *IRREGULARITY*NONBIG4* remains positive and significant for auditor dismissals (but not for auditor resignations), which is consistent with the firm being more likely to replace small auditors in irregularity settings. The results for the control variables previously discussed continue to hold for auditor dismissals. Additionally, Column 2 also provides evidence that restatements of 10-Ks (*ANNUAL*) as opposed to restatements of only 10-Qs are also positively associated with the likelihood of auditor dismissals.

Overall, the results from Table 6 suggest that firms are more likely to dismiss small auditors when there has been an irregularity. Prior research (e.g., Agrawal et al. 1999; Desai et al. 2006; Hennes et al. 2008) has documented that firms are also more likely to experience executive turnover when there has been an irregularity/fraud. As such, we next investigate whether auditor dismissals are substitutes or complements to executive terminations. The results for these tests are reported in Table 7.

Focusing only on the irregularity sample, Table 7 repeats the regression in Equation 2 with additional variables indicating whether there is a change in either the CEO (*CEO_TURN_BEF_RES*) or the CFO (*CFO_TURN_BEF_RES*) in the year leading up to the restatement announcement. Similar to Table 6, Column 1 of Table 7 presents the results of the logistic regression with all auditor turnovers as the dependent variable and Column 2 presents the results of the multinomial logistic regression distinguishing between auditor resignation and auditor dismissals. Since the results are comparable for the combined auditor turnover and dismissals only, we limit our discussion to the auditor dismissals in Column 2.

Overall, there is no evidence of an association between recent CEO turnover and auditor dismissal either for small or large auditors. For CFOs, however, we find that recent CFO turnover is significantly negatively related to the likelihood that a Big 4 auditor will be dismissed, but significantly positively related to the likelihood that a non-Big 4 auditor will be dismissed. For firms with both an irregularity and recent CFO turnover, the predicted probability (using the estimated coefficients at the mean of each variable) of a non-Big 4 auditor turnover is 53.6% compared to a predicted probability for a Big 4 auditor of only 6.0%. This suggests that among firms facing a restatement involving an irregularity, those firms with a non-Big 4 auditor are likely to replace both the CFO and the auditor, but firms with a Big 4 auditor treat the CFO and auditor dismissals as substitutes.

Univariate and Multivariate Analyses: Market Reaction to Auditor Turnover

Table 8 explores the market's reaction to the auditor turnover announcement. In contrast to the insignificant or negative market reactions predicted in prior auditor change studies, the restatement setting offers a unique opportunity to capture a positive market reaction to an auditor change announcement. Specifically, if restating firms dismiss their auditor as part of a strategy of restoring financial reporting credibility, we predict a positive market reaction corresponding to the decreased risk profile of the firm. Stockholders are most likely to see positive benefits in replacing the auditor when the restatement is more severe and the incumbent auditor is small (due to the lower switching costs and multiple comparable competitors for small auditors).

Panel A reports mean and median cumulative abnormal returns over the five day window centered on any auditor turnovers in our restatement sample. Consistent with prior literature, we find insignificant market reactions for all auditor turnovers combined and a significantly negative market reaction (-3.31%) for the subsample of turnovers disclosed as resignations. As predicted,

we also find a significant positive market reaction (1.56%) to the auditor dismissal announcement. This unique positive market response to the auditor change announcement is consistent with investors' approving of the firm's decision to replace an underperforming auditor. In order to rule out the possibility that these positive dismissal results are driven by performance or other factors that affect auditor changes we examine the following OLS regression:

$$CAR_{(-2,+2)} = \alpha_0 + \beta_1 DISMISSED + \beta_2 AUDITOR\_INT + \beta_3 ANNUAL + \beta_4 RESTATE\_POS + \beta_5 M\&A + \beta_6 REV\_REC + \beta_7 LEVERAGE + \beta_8 ROA + \beta_9 GROWTH + \beta_{10} SHORT\_TENURE + \beta_{11} LONG\_TENURE + \beta_{12} SIZE + \varepsilon \quad (3a)$$

$CAR_{(-2, +2)}$	=	Firm's cumulative abnormal returns from two trading days prior to the auditor turnover announcement through two trading days after the announcement, where expected returns are the CRSP value-weighted returns inclusive of dividends
DISMISSED	=	1 if the firm was not a client of a Big N auditing firm at the time of the restatement, and 0 otherwise;
AUDITOR_INIT	=	1 if the GAO classifies the restatement as auditor-initiated, and 0 otherwise;
ANNUAL	=	1 if the restatement amends a 10-K filing, and 0 otherwise;
RESTATE_POS	=	1 if the restatement is income-increasing, and 0 otherwise;
M&A	=	1 if the GAO classifies any part of the restatement as being related to improper acquisition or merger accounting, and 0 otherwise;
REV_REC	=	1 if the GAO classifies any part of the restatement as being related to revenue recognition, and 0 otherwise;
LEVERAGE	=	Debt (Compustat #9 + #34)/Assets (#6);
ROA	=	Operating income before interest and taxes scaled by assets (Compustat #178 / #6);
GROWTH	=	Change in sales (Compustat #12) from t−2 to t−1 scaled by sales in t−2;
SHORT_TENURE	=	1 if auditor tenure is less than 4 years;
LONG_TENURE	=	1 if auditor tenure is longer than 8 years;
SIZE	=	Total Assets of the firm (Compustat #6)

The results are presented in Panel B. Consistent with the univariate results reported in Panel A, we find a positive and significant coefficient on *DISMISSED* indicating that the reaction to dismissal announcements is significantly more positive than resignation announcements.

As we are interested in auditor turnovers instigated by the client firm, we further examine the market reaction to auditor dismissals around restatements with the following OLS regression:

$$CAR_{(-2,+2)} = \alpha_0 + \beta_1 NONBIG4 + \beta_2 RESTATE\_CAR + \beta_3 RESTATE\_CAR*NONBIG4 + \beta_4 AUDITOR\_INT + \beta_5 ANNUAL + \beta_6 RESTATE\_POS + \beta_7 M\&A + \beta_8 REV\_REC + \beta_9 LEVERAGE + \beta_{10} ROA + \beta_{11} GROWTH + \beta_{12} SHORT\_TENURE + \beta_{13} LONG\_TENURE + \beta_{14} SIZE + \varepsilon \quad (3b)$$

where the following variables have been added to Equation 3a.

NONBIG4	=	1 if the firm was not a client of a Big N auditing firm at the time of the restatement, and 0 otherwise;
RESTATE_CAR	=	Firm's cumulative abnormal return from seven trading days prior to the restatement announcement through seven trading days after the announcement, where expected returns are the CRSP value-weighted returns inclusive of dividends.

The results of this regression are presented in Column 1 of Panel C. We find that the cumulative abnormal return around the restatement announcement (*RESTATE_CAR*) is negatively related to the market reaction at the auditor turnover announcement. This implies that the worse the restatement (and thus the more negative the market response is to the restatement), the better the market response to the auditor dismissal. The significantly negative coefficient on *RESTATE_CAR*NONBIG4* suggests that this inverse relationship is even more pronounced when the auditor in question is small. This is consistent with the positive market reaction to auditor dismissals around restatements being driven by those cases where the restatement is particularly damaging and there is a greater need to restore confidence in the reporting process.

Column 2 repeats the regression in Equation 3b with additional variables for recently announced CEO (*CEO_TURN_BEF_ATO)* and CFO (*CFO_TURN_BEF_ATO)* turnovers. The auditor dismissal sample is further restricted to irregularity restatements where we have hand-collected executive turnover information. Despite the limited sample size, we find weak evidence of a negative association between recent CFO turnover and the market reaction to the auditor turnover. This is consistent with the previous CFO turnover announcement pre-empting some of

the positive reaction to the auditor dismissal announcement.[13] However, given the small sample size, any generalizations are limited.

Overall, the unique setting used in Table 8 (dismissals of auditors around restatements) provides a unique opportunity to observe a positive market reaction to auditor turnover announcements. This positive market reaction is most pronounced for the dismissal of small audit firms where the restatement was perceived as more damaging (i.e., more negative CAR around restatement announcement).

V. SUPPLEMENTAL ANALYSES

Auditor Turnover By Time Period

It is possible that the passage of Sarbanes-Oxley along with flurry of accounting scandals increased the pressure on firms to replace an auditor when a restatement takes place. We examine the auditor turnover rates by year in Table 9, and we find a slight, but insignificant, increase in the auditor turnover rates between 1997-2000 and 2003-2006. Consistent with the expanded responsibilities to plan and perform an audit in a manner that would detect intentional misstatements brought on by the 2002 passage of SAS 99, we also examine whether the consequences to auditors associated with irregularities could increase in the later period as compared to errors. Differences in auditor turnover across time between error and irregularities restatements are reported in Panels A and B of Table 9. We fail to find any evidence of changes on auditor turnover rates across groups.

Panels C and D of Table 9 report audit turnover by time period. Given the time-consuming requirements from Sarbanes-Oxley and ex-Andersen clients to be absorbed by the remaining four

[13] Specifically, recall that in earlier tests we found that irregularity firms with small auditors are more likely to replace both the CFO and the auditor than irregularity firms with Big 4 incumbent auditors. Since the replacement of both the CFO and the small auditor are likely actions designed to restore financial reporting creditability, any positive market reaction around the small auditor dismissal may be partially pre-empted by an earlier CFO turnover announcement.

large audit firms, Ghosh and Pawlewicz (2008) argue that the Big 4 likely became more selective in the latter years of our sample. These increased standards for clients could suggest reduced Big 4 auditor dismissals around restatements as it becomes more difficult to engage a suitable replacement auditor. We examine this question in Panels C and D of Table 9, but we find little difference in the turnover rates for either Big 4 or non-Big 4 auditors separately. Overall, the results from Table 9 provide little evidence of changing patterns of auditor turnover across our sample time period, suggesting that the results documented in this paper are not specific to either the pre- or post-SOX/SAS 99 periods.

Additional Controls and Alternative Measures

We employ a matched sample in Tables 5 to control for normal auditor turnover unrelated to restatements. The control firms are matched with a non-restating firm on industry, year, auditor size, and closest total assets, and we include additional controls in all regressions for leverage, return on assets, growth, and auditor tenure. However, as we acknowledge in Section IV, it is difficult to perfectly control for all factors that could lead to auditor turnover even absent a restatement. In addition to the results presented, we also repeat all tests in Tables 5 and 6 (untabulated) including additional control variables for the firm's market to book ratio (measured at the date of the end of the last fiscal year before the restatement), stock price performance over the year preceding the restatement ($CAR_{(-240, -8)}$), and stock price volatility (measured as the standard deviation of daily returns) over the same period. Requiring CRSP coverage for both the restatement and control firms in each pair reduces our primary sample by several hundred firms. Despite substantial reduction in sample size, our results after including these additional control variables are generally comparable or slightly weaker, but our inferences are unaffected.

In the tabulated results, we follow Johnson, Khurana, and Reynolds (2002) in creating groupings for auditor tenure (short, medium, long tenure). All results are quantitatively similar if we replace our two tenure indicators (*SHORT_TENURE* and *LONG_TENURE*) with a single continuous measure of auditor tenure.

In our primary results, we follow Hennes et al. (2008) and use the error versus irregularity partition as our primary measure of restatement severity (although we also control for income-increasing restatements and restatements involving revenue recognition). In untabulated results, we repeat all tests in Tables 5 and 6 using the firm's cumulative abnormal returns around the restatement announcement ($CAR_{(-7, +7)}$) as an alternative measure of restatement severity. As noted above, requiring returns data substantially reduces our original sample. As expected, in the reduced sample some results are weaker, but our overall inferences are unchanged.

VI. CONCLUSION

The literature investigating the consequences of restatements has grown substantially over the past several years. This study extends that literature by examining auditor changes around restatement announcements and the market reactions to the dismissal of underperforming auditors. We corroborate prior research by documenting a higher likelihood of auditor turnover for restating firms than for matched non-restating firms in both univariate and multivariate tests. Combined, this evidence is consistent with both executives and the auditor facing substantial consequences around restatements. Looking closer, we document that small auditors tend to turn over at much higher rates than their Big 4 competitors. Further, these small auditors are also incrementally more likely to turn over around restatements where an accounting irregularity is involved rather than an error. These findings are consistent with firms being most likely to

change auditors to regain credibility when the financial statement failure involved intentional malfeasance and the auditor involved is smaller.

We also document that despite substantial switching costs associated with moving to a new auditor, the market responds positively to auditor dismissals by restatement firms. This positive market response is notable as the auditor turnover literature generally shows a negative or insignificant reaction to auditor turnover in more general settings. We contend that the positive market reaction documented in our setting is due to restatements being an extreme case of visible poor auditor performance where the benefits of auditor dismissal outweigh the switching costs. As such, the market rewards firms acting to restore credibility by dismissing underperforming auditors.

Our results inform the on-going debates regarding the appropriate level of oversight necessary to establish trust and market confidence in the audit process and the degree of competition amongst audit firms. Specifically, our study contributes to the literature on the market's ability to self-regulate when a misstatement occurs. Perhaps more importantly, our study also speaks to concerns raised by the European Commission over the differing level of competition across large and small audit firms by documenting differential consequences to Big 4 and non-Big4 auditors involved in restatements.

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TABLE 1

Variable Definitions (Alphabetical Order)

Variable Name	Definition
ANNUAL	is equal to one if the firm restated a 10-K, and 0 if the firm restated only 10-Qs.
AUDITOR_INIT	is equal to one if the restatement is auditor initiated, and 0 otherwise.
AUDITOR_TO	is equal to one if an auditor change occurred in the twelve months before or twelve months after the restatement announcement.
CEO_TURN_BEF_ATO	is equal to one if the CEO turned over anytime in the year prior to the restatement announcement but before the audit turnover announcement, and 0 otherwise.
CFO_TURN_BEF_ATO	is equal to one if the CFO turned over anytime in the year prior to the restatement announcement but before the audit turnover announcement, and 0 otherwise.
CEO_TURN_BEF_RES	is equal to one if the CEO turned over in the year prior to the restatement announcement, and 0 otherwise.
CFO_TURN_BEF_RES	is equal to one if the CFO turned over in the year prior to the restatement announcement, and 0 otherwise.
DISMISSED	is equal to one if 8-K disclosure item titled "Changes in Registrant's Certifying Accountants" indicates the auditor was dismissed, and 0 otherwise.
ERROR	is equal to one if the restatement is classified as an error using the classification scheme in Hennes, Leone, Miller (2008), and 0 otherwise.
GROWTH	is the change in sales (Compustat #12) from t−2 to t−1 scaled by sales in t−2.
IRREGULARITY	is equal to one if the restatement is classified as an irregularity using the classification scheme in Hennes, Leone, Miller (2008), and 0 otherwise.
LEVERAGE	is debt scaled by total assets (Compustat (#9 + #34) / #6).
LONG_TENURE	is equal to one if auditor is more than eight years, and zero otherwise.
M&A	is equal to one if any part of the restatement is due to improper acquisition or merger accounting, and 0 otherwise.
NONBIG4	is equal to one if the firm was not a client of a Big 4 (Big 4, 5, or 6) depending on the period) auditing firm at the time of the restatement, and 0 otherwise.
RESTATE	is equal to one if firm restated their financial statements, and zero otherwise.
RESTATE_CAR	is the firm's cumulative abnormal return from two trading days prior to the restatement announcement through two trading days after the announcement, where expected returns are the CRSP value-weighted returns inclusive of dividends.
RESTATE_POS	is equal to one if the restatement was income increasing, and 0 otherwise.
REV_REC	is equal to one if the GAO classifies any part of the restatement as being related to revenue recognition, and 0 otherwise.
ROA	is operating income before interest and taxes scaled by assets (Compustat #178 / #6).
SALES	is net sales (Compustat #12).
SIZE (ASSETS)	is total assets (Compustat #6).
SIZE QUINTILES_i	are indicator variables for quintiles based on total assets (Compustat #6).
SHORT_TENURE	is equal to one if auditor tenure is less than four years, and zero otherwise.
TENURE	is the auditor's tenure in years.

Notes: All financial statement variables are measured at the date of the last 10-K before the restatement announcement.

TABLE 2
Sample Selection

		Observations
Combined GAO Database		2705
Less duplicate announcements for one restatement	-208	2497
Less restatements not involving a 10-Q/10-K misstatement	-119	2378
Less restatements related to clarifications of GAAP	-240	2138
Less firms not covered by Compustat	-645	1493
Less firms audited by Arthur Andersen after 2000	-148	1345
Less firms without adequate match	-20	1325
Total Restatement Sample		1325
Plus Control Sample		1325
Total Sample		2650

Notes: The sample selection procedures are discussed further in Section III. We construct a control sample by matching each restatement firm with a control firm that did not experience a restatement during the sample period. At the end of the last fiscal year preceding the restatement announcement, each restatement firm is matched one to one with a non-restatement firm on year, two-digit SIC code, Big 4/Non-Big 4 auditor, and closest total assets.

TABLE 3
Descriptive Statistics

	Restatement Sample				Control Sample			
	N	**Mean**	**Median**	**Std**	**N**	**Mean**	**Median**	**Std**
SALES	1325	1,790	139	5,891	1325	1,562	162	5,216
GROWTH	1325	34.5%	10.0%	127.1%	1325	44.2%**	10.7%	160.8%
SIZE (ASSETS)	1325	3,469	219	13,856	1325	3,336	210	14,072
ROA	1325	-13.4%	0.4%	42.2%	1325	-8.0%***	1.6%###	36.1%
NONBIG4	1325	19.8%	0.0%	39.8%	1325	22.5%**	0.0%##	41.8%
LEVERAGE	1325	27.1%	20.4%	27.3%	1325	26.4%	19.8%	27.2%
TENURE	1325	7.2	5.0	6.8	1325	6.3***	4.0 ###	6.2
Restatement Characteristics								
AUDITOR_INIT	1325	10.5%						
M&A	1325	6.0%						
RESTATE_POS	1325	26.2%						
REV_REC	1325	30.3%						
ANNUAL	1325	71.2%						

Notes: This table provides descriptive statistics for both the restatement and control samples. Variable definitions are provided in Table 1. Details of the sample selection procedure for restatement firms and control firms are provided in Table 2. Variables listed above are generally those reported in the year prior to the restatement (not restated. Restatement characteristics are only available for firms in the restatement sample.

***, **, * indicate t-tests of mean differences between restatement and control groups significant at $p < 0.01$, 0.05, and 0.10, respectively. ###, ##, # indicate Wilcoxin signed-rank tests across groups significant at $p < 0.01$, 0.05, and 0.10, respectively.

As mentioned above, variables are generally those reported in the year prior to the restatement (not restated). Whether or not the Compustat values are the initially reported amounts or the restated amounts depends on the timing of the restatements. If, for example, a firm with fiscal-year end of December 31, 2005 files a 10-K in March 2006 but later amends that filing prior to Compustat's next 'cut' of the database, say November 2006, then Compustat uses the November 2006 data and ignores the original filing (in March 2006). In these cases, the data reported in this table are the restated figures. If, on the other hand, a company amends a prior year after Compustat's next "cut" of the data, the restated information will appear in Compustat's special restatement variables. In these cases, our descriptive statistics will not include the restated amounts.

TABLE 4
Turnover Frequency

Panel A: Big 4 versus Non-Big 4 and Restatement Firms versus Control Firms

	Total		Big 4		Non-Big 4		
	N	Turnover %	N	Turnover %	N	Turnover %	Differences
Restatement	1325	29.4	1063	25.0	262	46.9	-21.9***
Control Sample	1325	8.6	1027	7.2	298	13.4	-6.2***
Differences	2650	20.8***	2090	17.8***	560	33.5***	-15.7***

Panel B: Errors versus Irregularities and Restatement Firms versus Control Firms

	Total		Errors		Irregularities		
	N	Turnover %	N	Turnover %	N	Turnover %	Differences
Restatement	1325	29.4	946	29.4	379	29.3	0.1
Control Sample	1325	8.6	946	8.5	379	9.0	-0.5
Differences	2650	20.8***	1892	20.9***	758	20.3***	0.6

Panel C: Errors versus Irregularities and Big 4 versus Non-Big 4 within Restatements

	Total		Errors		Irregularities		
	N	Turnover %	N	Turnover %	N	Turnover %	Differences
Big 4	1063	25.0	731	25.2	332	24.7	0.5
Non-Big 4	262	46.9	215	43.7	47	61.7	-18.0**
Differences	1325	-21.9***	946	-18.5***	379	-37.0***	18.5***

Notes: This table presents auditor turnover frequencies for various subsamples. Details of the sample selection procedure for restatement firms and control firms are provided in Table 2. This table shows audit turnover rates over the twelve months before or twelve months after the restatement. Big 4 (Non-Big 4) indicates firms that were (not) a client of a Big 4 (Big 4, Big 5, or Big 6 depending on the period) auditing firm at the time of the restatement. Restatement and control firms were matched based on the auditor of record on the last 10-K filed before the restatement. Irregularities and errors are based on the classification scheme in Hennes, Leone, Miller (2008).

*** and ** indicate p-values of less than 1% or 5%, respectively, for t-tests of difference in turnover means.

TABLE 5

Logistic Regression: Restatements versus Control Sample

	Pred. Sign	Model 1	Model 2	Model 3	Model 4
RESTATE	+	1.77***	1.48***		
		(135.98)	(79.08)		
ERROR	+			1.75***	1.46***
				(103.79)	(59.71)
IRREGULARITY	+			1.84***	1.55***
				(45.93)	(29.39)
NONBIG4	+	1.35***	1.02***	1.36***	1.03***
		(19.18)	(9.62)	(19.23)	(9.69)
RESTATE*NONBIG4	+		1.49***		
			(8.77)		
ERROR*NONBIG4	+				1.41***
					(6.31)
IRREGULARITY*NONBIG4	+				1.77**
					(2.71)
LEVERAGE	+	0.43	0.61*	0.43	0.61*
		(1.20)	(2.04)	(1.20)	(2.03)
ROA	-	-0.21	-0.15	-0.21	-0.15
		(0.55)	(0.19)	(0.54)	(0.18)
GROWTH	+	0.03	0.03	0.03	0.04
		(0.33)	(0.27)	(0.35)	(0.30)
SHORT_TENURE	+	0.02	0.03	0.02	0.04
		(0.01)	(0.02)	(0.01)	(0.02)
LONG_TENURE	+	0.15	0.14	0.15	0.14
		(0.32)	(0.29)	(0.31)	(0.29)
Size Quintile 1	+	-0.56	0.21	-0.52	0.27
		(0.01)	(0.01)	(0.09)	(0.02)
Size Quintile 2	+	-1.18	-0.87	-1.16	-0.86
		(0.26)	(0.41)	(0.73)	(0.39)
Size Quintile 4	-	0.79	0.84	0.78	0.84
		(0.29)	(0.39)	(0.29)	(0.40)
Size Quintile 5	-	0.53	0.73	0.53	0.73
		(0.09)	(0.18)	(0.09)	(0.18)
Psuedo-R2 (%)		40.81%	42.90%	40.83%	42.95%
Log Likelihood		220.91	232.76	221.01	233.01
N		2650	2650	2650	2650

Notes: This table reports the conditional logistic regression results from variations of Equation 1 with auditor turnover as the dependent variable. Variable definitions are provided in Table 1. Details of the sample selection procedure for restatement firms and control firms are provided in Table 2. Pseudo-R^2 is the Nagelkerke (1991) Pseudo-R^2. Chi-square statistics are reported in parentheses below each coefficient and ***, **, and * indicate p-values less than 1%, 5%, and 10%, respectively (p-values are reported as one-tailed when the sign is predicted).

TABLE 6

Logistic Regression: Restatements Only

	Pred. Sign	(1) All Turnovers	(2) Resigned	(2) Dismissed
INTERCEPT		-1.35***	-2.28***	-1.87***
		(40.72)	(54.24)	(54.65)
IRREGULARITY	+	0.06	0.30	-0.06
		(0.15)	(1.44)	(0.08)
NONBIG4	+	0.37**	0.63***	0.22
		(3.87)	(5.63)	(1.05)
IRREGULARITY*NONBIG4	+	0.71**	0.26	0.95**
		(3.58)	(0.26)	(5.12)
AUDITOR_INIT	+	0.60***	0.34	0.73***
		(9.79)	(1.36)	(11.42)
ANNUAL	+	0.18	-0.09	0.33**
		(1.56)	(0.19)	(3.77)
RESTATE_POS	-	-0.03	0.14	-0.13
		(0.05)	(0.47)	(0.56)
M&A	-	0.13	-0.09	0.06
		(0.00)	(0.04)	(0.04)
REV_REC	+	-0.17	0.12	-0.34
		(1.38)	(0.30)	(3.79)
LEVERAGE	+	0.38	0.26	0.45
		(2.54)	(0.54)	(2.71)
ROA	-	-0.17	-0.33**	-0.04
		(1.12)	(2.72)	(0.05)
GROWTH	+	0.09**	0.00	0.13**
		(3.26)	(0.00)	(5.95)
SHORT_TENURE	+	0.26**	0.33*	0.23*
		(3.23)	(2.29)	(1.72)
LONG_TENURE	+	0.25*	0.11	0.31*
		(2.25)	(0.18)	(2.60)
Include Size Controls?		Y	Y	Y
Psuedo-R^2 (%)		10.88%	11.44%	
Log Likelihood		105.23	126.57	
N		1325	1325	

Notes: This table reports logistic and multinomial logistic regression results for Equation 2 with Chi-square statistics reported in parentheses below each coefficient. Variable definitions are provided in Table 1. Details of the sample selection procedure for restatement firms are provided in Table 2 for the 1325 restatement observations (933 no turnover, 255 resignations, 137 dismissals). Column 1 shows the logistic regression results with auditor turnover as the dependent variable. Column 2 shows the results from multinomial logistic regression with type of turnover (zero for no turnover, one for resignation turnover, and two for dismissal turnover) as the dependent variable. Pseudo-R^2 is the Nagelkerke (1991) Pseudo-R^2. ***, **, and * represent p-values less than 1%, 5%, and 10%, respectively (p-values are reported as one-tailed when the sign is predicted).

TABLE 7

Auditor Turnover and Executive Turnover

Logistic Regression: Restatements Involving Irregularities Only

	Pred. Sign	(1) All Turnovers	(2) Resigned	(2) Dismissed
INTERCEPT		-1.27***	-2.70***	-1.56***
		(6.76)	(13.74)	(7.24)
NONBIG4	+	0.70	0.54	0.83
		(1.45)	(0.46)	(1.64)
CEO_TURN_BEF_RES	?	0.11	0.03	0.15
		(0.14)	(0.00)	(0.20)
CEO_TURN_BEF_RES *NONBIG4	?	-0.71	-0.51	-0.78
		(0.81)	(0.23)	(0.80)
CFO_TURN_BEF_RES	?	-0.75***	-0.72*	-0.78**
		(6.68)	(2.87)	(4.99)
CFO_TURN_BEF_RES *NONBIG4	?	1.90**	1.50	2.06**
		(6.05)	(2.15)	(5.69)
AUDITOR_INIT	+	0.76**	0.62	0.85**
		(4.04)	(1.38)	(3.69)
ANNUAL	+	0.55*	0.20	0.76**
		(2.60)	(0.19)	(3.24)
RESTATE_POS	-	0.21	0.31	0.16
		(0.37)	(0.39)	(0.17)
M&A	-	-0.03	0.43	-0.25
		(0.00)	(0.26)	(0.11)
REV_REC	+	0.10	0.58	-0.18
		(0.15)	(2.18)	(0.34)
LEVERAGE	+	0.58	0.94	0.42
		(1.08)	(1.36)	(0.41)
ROA	-	-0.03	-0.47	0.41
		(0.01)	(1.11)	(0.68)
GROWTH	+	-0.07	-0.07	-0.08
		(0.33)	(0.22)	(0.28)
SHORT_TENURE	+	-0.29	0.80**	0.03
		(0.99)	(3.29)	(0.00)
LONG_TENURE	+	0.01	0.61	-0.29
		(0.00)	(1.26)	(0.50)
Include Size Controls?		Y	Y	Y
Psuedo-R^2 (%)		19.53%	21.22%	
Log Likelihood		55.87	70.30	
N		379	379	

Notes: This table reports logistic and multinomial logistic regression results after adding executive turnover variables to Equation 2 with Chi-square statistics reported in parentheses below each coefficient. Variable definitions are provided in Table 1. Details of the sample selection procedure for restatement firms are provided in Table 2. The sample for this table is further reduced to 379 irregularity observations (263 no turnover, 42 resignations, 69 dismissals) after eliminating the restatements classified as errors. Column 1 shows the logistic regression results with auditor turnover as the dependent variable. Column 2 shows the results from multinomial logistic regression with type of turnover (zero for no turnover, one for resignation turnover, and two for dismissal turnover) as the dependent variable. Pseudo-R^2 is the Nagelkerke (1991) Pseudo-R^2. ***, **, * represent p-values less than 1%, 5%, and 10%, respectively (p-values are reported as one-tailed when the sign is predicted).

Table 8

Analysis of Audit Turnover Announcement Returns

Panel A – Univariate Results

	Pred. Sign	Restatement Sample N	Mean	Median
Combined		259	–0.10%	–0.29%
Auditor Dismissed	+	170	1.56%**	0.65%**
Auditor Resigned	-	89	–3.31%***	–2.43%***
Difference			4.30%***	3.01%***

Panel B – OLS Regressions, All Auditor Turnovers

	Pred. Sign	All Turnovers
INTERCEPT		-0.04*
		(-1.83)
DISMISSED	+	0.04**
		(2.17)
AUDITOR_INIT	?	0.03
		(1.24)
ANNUAL	+	0.04*
		(2.03)
RESTATE_POS	-	-0.01
		(-0.74)
M&A	-	0.03
		(1.05)
REV_REC	+	-0.03
		(-2.03)
LEVERAGE	-	0.02
		(0.66)
ROA	-	0.04
		(1.62)
GROWTH	+	0.00
		(0.68)
SHORT_TENURE	?	-0.01
		(-0.46)
LONG_TENURE	?	0.00
		(0.05)
SIZE	-	-0.00
		(-0.25)
Adjusted - R^2 (%)		5.22%
Model F-Value		2.19**
N		259

Table 8 (continued)

Analysis of Audit Turnover Announcement Returns

Panel C – OLS Regressions, Auditor Dismissals Only

	Pred. Sign	(1) All Dismissals	(2) Irregularity Dismissals
INTERCEPT		-0.04 (-1.45)	-0.14 (-1.40)
NONBIG4	+	-0.03 (-1.01)	-0.12 (-1.21)
RESTATE_CAR	-	-0.13** (-2.34)	-0.13 (-0.83)
RESTATE_CAR*NONBIG4	-	-0.50*** (-3.14)	-0.62* (-1.57)
CEO_TURN_BEF_ATO	?		0.03 (0.45)
CFO_TURN_BEF_ATO	?		-0.10* (-1.47)
AUDITOR_INIT	?	0.03 (1.24)	-0.01 (-0.14)
ANNUAL	+	0.03* (1.52)	0.17** (2.04)
RESTATE_POS	-	-0.00 (-0.12)	-0.00 (-0.02)
M&A	-	0.02 (0.59)	-0.06 (-0.43)
REV_REC	+	-0.03 (-1.33)	-0.10 (-1.72)
LEVERAGE	-	0.04 (1.06)	0.24 (1.91)
ROA	-	0.04 (1.08)	-0.31* (-1.85)
GROWTH	+	0.00 (0.81)	-0.04 (-0.45)
SHORT_TENURE	?	0.02 (1.07)	0.08 (1.26)
LONG_TENURE	?	-0.01 (-0.34)	-0.13 (-1.58)
SIZE (ASSETS)	-	-0.00 (-0.10)	0.00 (0.62)
Adjusted - R^2 (%)		10.13%	26.12%
Model F-Value		2.36***	1.97**
N		170	45

Notes: This table reports the analysis of audit turnover announcement returns. Panel A reports univariate results. Panel B (Panel C) reports OLS regression results from variations of Equation 3A (Equation 3B) with t-statistics reported in parentheses below each coefficient. Auditor turnover occurred 392 times in the restatement sample. That sample is reduced to 259 turnover events after eliminating observations where returns data was unavailable, where stock price was less than a dollar, or where the auditor turnover was announced within seven days of the restatement announcement. Panel C is limited to the 215 turnover events where the auditor was dismissed. Abnormal return, $CAR_{(-2, +2)}$, is the firm's cumulative abnormal return from two trading days prior to the auditor turnover announcement through two trading days after the announcement, where expected returns are the CRSP value-weighted returns inclusive of dividends. ***, **, * represent p-values less than 1%, 5%, and 10%, respectively (p-values are reported as one-tailed when the sign is predicted).

Table 9

Restatements and Turnover over Time

Panel A – Auditor Turnover Year-by-Year: Errors Versus Irregularities

	Errors		Irregularities		Total	
Year	N	Turnover	N	Turnover %	N	Turnover %
1997	43	16.3%	32	34.4%	75	24.0%
1998	43	25.6%	36	27.8%	79	26.6%
1999	71	16.9%	27	33.3%	98	21.4%
2000	68	30.9%	46	19.6%	114	26.3%
2001	53	22.6%	31	19.4%	84	21.4%
2002	75	24.0%	37	16.2%	112	21.4%
2003	95	25.3%	36	25.0%	131	25.2%
2004	161	27.3%	49	20.4%	210	25.7%
2005	229	26.2%	59	25.4%	288	26.0%
2006	108	31.5%	26	38.5%	134	32.8%
Total	946	25.7%	379	25.1%	1325	25.5%

Panel B – Sub-Period Analysis of Auditor Turnover: Errors versus Irregularities

	Errors		Irregularities		Total	
Year	N	Turnover	N	Turnover %	N	Turnover %
1997-2000	225	22.7%	141	28%	366	24.6%
2003-2006	593	27.3%	170	26%	763	27.0%

Panel C – Auditor Turnover Year-by-Year: Big 4 versus Non-Big 4

	Big 4		Non-Big 4		Total	
Year	N	Turnover	N	Turnover %	N	Turnover %
1997	56	19.6%	19	36.8%	75	24.0%
1998	68	22.1%	11	54.5%	79	26.6%
1999	86	20.9%	12	25.0%	98	21.4%
2000	95	18.9%	19	63.2%	114	26.3%
2001	74	18.9%	10	40.0%	84	21.4%
2002	96	15.6%	16	56.3%	112	21.4%
2003	112	20.5%	19	52.6%	131	25.2%
2004	169	21.9%	41	41.5%	210	25.7%
2005	212	21.7%	76	38.2%	288	26.0%
2006	95	31.6%	39	35.9%	134	32.8%
Total	1063	21.4%	262	42.4%	1325	25.5%

Panel D – Sub-Period Analysis of Auditor Turnover: Big 4 versus Non-Big 4

	Big 4		Non-Big4		Total	
Year	N	Turnover	N	Turnover %	N	Turnover %
1997-2000	305	20.3%	61	46%	366	24.6%
2003-2006	588	23.1%	175	40%	763	27.0%

Notes: This table provides audit turnover rates for restatement firms by year based on the date the restatement was announced. Irregularities and errors are based on the classification scheme in Hennes, Leone, Miller (2008). Big 4 (Non-Big 4) includes firms that were (not) a client of a Big 4 (Big 4, Big 5, or Big 6 depending on the period) auditing firm at the time of the restatement.

FIGURE 1 – Auditor Turnover around Restatements: Big 4 versus Non-Big 4

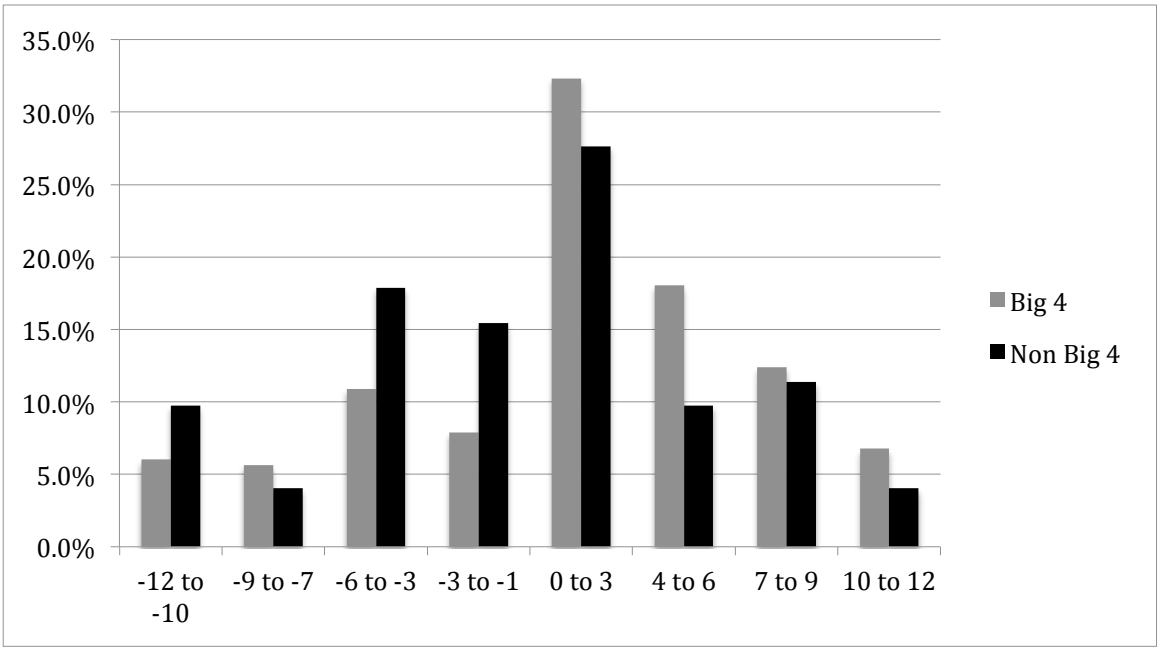
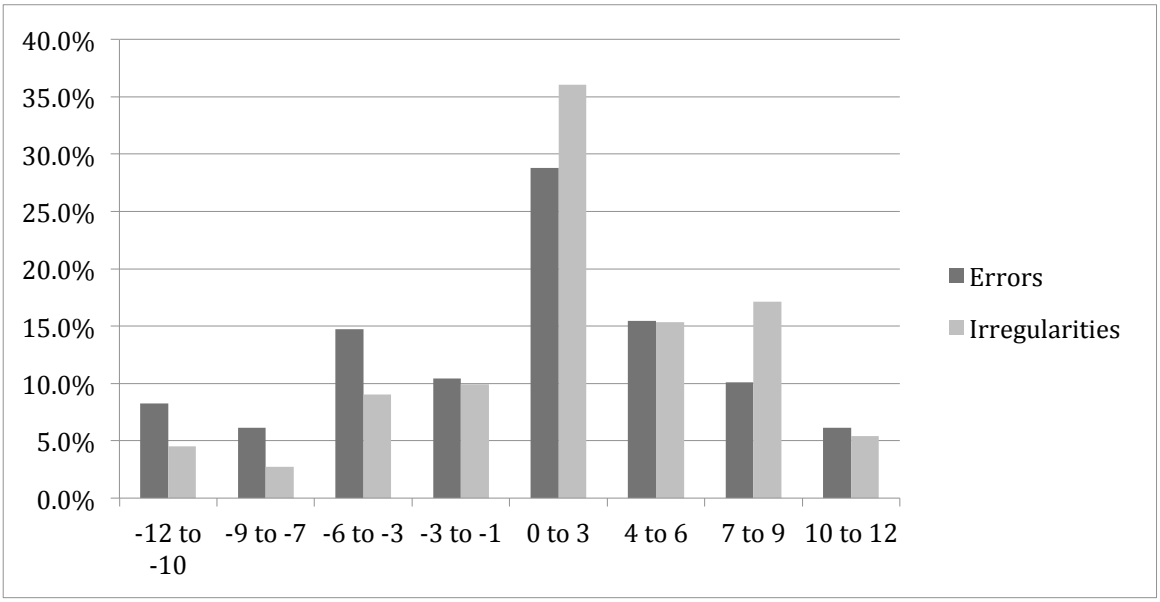


FIGURE 2 – Auditor Turnover around Restatements: Errors versus Irregularities



Notes: For restatement firms with auditor turnover, these figures show the timing of these turnovers in the months around the restatement announcement. Irregularities and errors are based on the classification scheme in Hennes, Leone, Miller (2008). Big 4 (Non-Big4) includes firms that were (not) a client of a Big 4 (Big 4, Big 5, or Big 6 depending on the period) auditing firm at the time of the restatement. Each bin represents the months relative to the restatement month. For example, -12 to -10 represents the percentage of total auditor turnover that occurred from twelve months through ten months prior to the restatement. Note that all bins contain three months except for bin 0-3, which contains the percentage of auditor turnover that occurred in the month of the restatement through three months after the restatement.