

**The Length of Auditor-Client Relationships
and Financial Statement Restatements**

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Abstract

In this study, we examine associations between the length of auditor-client relationships and restatements of financial statements for non-GAAP accounting. We analyze a sample of public companies that announced restatements between January 1995 and October 2001, inclusive, and find that although there is no association between the length of auditor-client relationships and misstatements overall, audit firm tenure is significant for various important subsamples. Specifically, we find that clients are *more likely* to make income-increasing misstatements and to misstate core earnings the *longer* the auditor-client relationship. However, further analyses reveal that misstatements of quarterly, rather than annual, financial statements drive these results. To better understand the relationship between tenure and misstatements, we explore the role of auditor industry specialization and find that it is important, in that our results on the association between tenure and misstatements hold for non-specialist auditors but not for specialist auditors. We also find that although the auditor tenure is not a significant factor in the overall market reaction to restatement announcements, it does appear to play a role in restatement disclosures (in terms of attribution). Furthermore, tenure is important when considering the consequences of restatements, in terms of auditor turnover and market reactions to that turnover.

Keywords: mandatory rotation, auditor tenure, auditor switching, market reaction, financial reporting quality

Data availability: All data used in this study are publicly available.

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1. Introduction

The mandatory rotation of audit firms has long been recommended as a means to improve audit effectiveness and, in turn, improve the quality of financial reporting. Proponents claim that audit effectiveness may suffer as the auditor-client relationship grows because of auditor complacency or because of a loss of professional skepticism due to “over-familiarity.”¹ On the other hand, opponents of mandatory rotation claim that financial reporting problems are more likely to occur early in the auditor-client relationship, when the auditor is less familiar with the client’s business, processes, and risks. Research generally supports concerns that mandatory rotation would diminish financial reporting and audit quality, although some evidence to the contrary exists.

The Sarbanes-Oxley Act (2002) required the Comptroller General to conduct a study of the potential effects of requiring the mandatory rotation of auditors registered under the Act. While the resulting study (GAO 2003) did not recommend imposing mandatory rotation, regulators continue to consider the effect of the length of auditor-client relationships on the quality of financial reporting (e.g., see IOSCO 2005). In addition, institutional investors have focused on this issue and opposed shareholder approval of any audit firm that has been retained by a company for more than five years (Benson 2002), and more recently, mandatory audit firm rotation was suggested as a mechanism to mitigate concentration by the Big 4 audit firms in the market for public companies (Economist 2004). So, despite concerns that mandatory rotation

¹ For example, as early as 1978, the Report of the Commission on Auditors’ Responsibilities (The Cohen Commission) suggested that mandatory rotation might change auditor incentives and bring a “fresh viewpoint” to audit engagements. The authors reasoned that “[s]ince the tenure of the independent auditor would be limited, the auditor’s incentive for resisting pressure from management would be increased” (p. 108).

could diminish the quality of financial reporting, pressures for mandatory auditor rotation continue.

In this paper, we examine the association between the length of auditor-client relationships and restatements of financial statements necessitated because the original statements contained violations of Generally Accepted Accounting Principles (GAAP). Our sample provides a particularly useful setting for addressing the issue of audit effectiveness, and the relation between audit effectiveness and tenure, because it represents identified situations in which the auditor failed to detect client departures from extant accounting standards. In fact, annual audits and quarterly reviews are intended to deter the very misstatements represented by our restatement sample. Furthermore, from a policy perspective, restatements are a major focus of regulator and investor concerns over the quality of auditing and financial reporting (Public Oversight Board 2000; Palmrose and Scholz 2004; Palmrose et al. 2004), and restatements of annual or interim financial statements for non-GAAP accounting are one example of a likely material weakness under the Sarbanes-Oxley Act, Section 404. Therefore, our results provide insights into the relationship between tenure and a phenomenon that has been a motivating factor in recent calls to impose the mandatory rotation of audit firms.

Our main analyses investigate whether the length of the auditor-client relationship is associated with the probability that financial statements are misstated.² We focus on more material misstatements and other important subsamples – serious misstatements, income-increasing misstatements, and misstatements of core earnings – because these are likely to be of

² We analyze a sample of public companies that announced restatements between January 1995 and October 2001, inclusive. We conclude with October 2001 to avoid confounding our analysis with post-Enron events. As discussed in Section 3, we use a matched-pair design where each restatement company is matched on industry, auditor, and size with a control company that did not restate its financial statements during the sample period.

greatest concern to investors and regulators.³ We also distinguish between misstatements of annual (audited) reports and of quarterly (reviewed) reports. We find that although there is no association between the length of auditor-client relationships and misstatements overall, audit firm tenure is significant for various important subsamples. Specifically, we find that clients are *more likely* to make income-increasing misstatements and to misstate core earnings the *longer* the auditor-client relationship. However, further analyses reveal that misstatements of quarterly, rather than annual, financial statements drive these results.

To better understand the relationship between tenure and misstatements, we also investigate whether auditor industry specialization affects the associations between tenure and misstatements described above.⁴ Here, we find that auditor specialization is important, in that our results on the association between tenure and misstatements hold for non-specialist auditors but not for specialist auditors. Specifically, clients retaining specialist auditors are *not* more likely to make income-increasing misstatements, to misstate core earnings, or to misstate quarterly earnings the longer the auditor-client relationship.

Finally, we perform additional analyses to provide insights on other relevant dimensions of the association between tenure and financial statement restatements. First, we investigate market perceptions of auditor tenure by testing whether tenure is associated with market reactions to the announcement of the misstatement. While we find no overall association between auditor tenure and market reactions to restatement announcements, we find that the market reaction to restatements of quarterly reports is less negative when tenure is longer. Next,

³ We define more material misstatements as those that correct reported net income by 5 percent or more, following Kinney et al. (2004). We define serious misstatements as those that correct reported net income by 5 percent or more and that result in Security and Exchange Commission (SEC) Accounting and Auditing Enforcement Releases (AAERs), allegations of fraud, or litigation.

⁴ Whether audit firm industry specialization affects the association between restatements and tenure is important because some argue that mandatory audit firm rotation would encourage smaller firms to develop “pockets of expertise” and, thereby, reduce the concentration of the Big 4 audit firms in the market for public company audits (Economist 2004).

we investigate whether auditor tenure is associated with who discovers the misstatement – the client, the auditor, or the Securities and Exchange Commission (SEC) – and find some evidence that tenure matters in the discovery (or attribution) of restatements. Lastly, we investigate the association between tenure and auditor switching following restatements, and find that auditor dismissals and resignations after restatements of annual financial statements are more likely, the shorter the auditor-client relationship. Furthermore, we find that returns in short windows at the announcement of auditor turnover following restatements are more positive the longer the auditor-client relationship.

In summary, we find that the length of the auditor-client relationship is important when considering the determinants of certain types of restatements (especially quarterly restatements, and restatements for clients not engaging industry specialist auditors) and when considering the consequences (in terms of auditor turnover and market reactions to that turnover) of restatements.

The remaining sections of this paper are organized as follows. Section 2 describes prior research on auditor tenure and financial reporting quality and its relation to our main analyses. Section 3 describes our restatement sample. Section 4 presents our initial results. Section 5 addresses the role of auditor specialization in the relationship between tenure and financial statement restatements and reports the results of our analysis. Section 6 investigates market perceptions of auditor tenure as it relates to restatements, the association between tenure and who discovers the misstatement, and the relationship between tenure and auditor switches following restatements. Section 7 provides concluding comments.

2. Prior literature and our research design

A number of prior studies provide evidence on the effects of tenure by looking at proxies for audit quality. These proxies include discretionary accruals, the cost of debt financing, earnings response coefficients (ERCs), missed going-concern reports, AAERs, auditor litigation, and fraud. These studies generally find little evidence in support of mandatory auditor rotation and many suggest that financial reporting and audit quality are increasing in the length of the auditor-client relationship. For example, studies employing various proxies, such as lawsuits, AAERs, and going-concern reports find that alleged financial reporting violations and audit failures occur more frequently in the early years of auditor tenure (The Cohen Commission 1978; St. Pierre and Anderson 1984; The Treadway Commission 1987; Stice 1991; Beasley et al. 2000; Geiger and Raghunandan 2002; Carcello and Nagy 2004a). Similarly, Johnson et al. (2002) and Myers et al. (2003) use various accruals measures to proxy for accounting and audit quality, and generally find that quality is *increasing* in the length of the auditor-client relationship. Likewise, Ghosh and Moon (2005) report results consistent with the hypothesis that investors and information intermediaries perceive auditor tenure as improving audit quality, based on their analyses of ERCs, stock rankings, and the influence of past earnings on one-year-ahead earnings forecasts. And, although Ghosh and Moon report that the association between debt ratings and reported earnings does not vary with tenure, Mansi et al. (2004) document that investors in noninvestment grade debt require lower rates of return as the length of audit tenure increases.

There are, however, some studies that report results consistent with a *negative* relation between financial reporting and audit quality and auditor tenure. For example, Deis and Giroux (1992) find that longer tenure is associated with reduced audit quality in a setting of school

district audits by small audit firms. Furthermore, based on their experiments with auditor reporting in a laboratory market setting, Dopuch et al. (2001) conclude that mandatory rotation can increase auditor independence either as a stand-alone rule or in conjunction with mandatory retention. Finally, Davis et al. (2002) suggest that longer auditor tenure is associated with the use of discretionary accruals to manage earnings.

Our study is distinct from much of the prior research on auditor tenure that focuses on lower quality or alleged non-GAAP reporting in that, by definition, our sample involves acknowledged, material violations of GAAP – precisely those items that auditors are responsible for identifying and correcting. Extreme discretionary accruals may proxy for poor quality financial reporting, but these accruals may or may not be attributable to violations of GAAP. That is, accruals may exploit gray areas or estimations allowed by GAAP, thus reducing financial reporting quality, but the auditor would not necessarily have the backing of generally accepted auditing standards (GAAS) and GAAP if (s)he were to require a change in reporting (Nelson et al. 2002). Similarly, missed going concern reports, ERCs, and the cost of debt do not reflect on the accuracy of the accounting used to prepare the financial statements.

Some of our analyses focus on “serious” misstatements (i.e., those that involve AAERs, litigation, or fraud) because they arguably impose the greatest costs on investors and companies. For example, Palmrose et al. (2004) show that restatements involving fraud are associated with more negative market reactions than are those without fraud. Furthermore, in addition to litigation and AAERs imposing costs on companies and other defendants, the fact that litigation was filed and/or SEC enforcement actions occurred are, in themselves, indications that the characteristics or consequences of the restatement were considered more serious. Even so, because our restatement sample includes, but is not limited to, companies with AAERs,

litigation, or fraud, we posit that the results of analyses using our sample are informative relative to studies using these samples. These events can occur even when a company's accounting is materially accurate (which may be more likely in the case of litigation). Moreover, our analyses of serious misstatements yield results that differ from those in prior studies in that when we *do* find significant associations between tenure and misstatements, the relationship is positive, while prior studies indicate a negative association.

We also consider whether the probability of restating financial statements varies with auditor tenure based on the directional effect of the misstatements on reported income (i.e., based on whether misstatements are income-increasing or non-income-increasing). These analyses recognize that auditors, investors, and regulators are differentially concerned about misstatements that increase current-period income versus those that decrease it. This presumption relies, in part, on stances taken by regulators when considering the issue of materiality. For example, SEC staff determined that “if accounting practices were intentionally misleading ‘to impart a sense of *increased* earnings power,’ ... ‘then by definition amounts involved would be considered material’ ” [italics added] (Maremont and Weil 2003). Furthermore, according to SEC Staff Accounting Bulletin (SAB) 99, while auditors and their clients must consider both qualitative and quantitative characteristics when assessing the materiality of proposed adjustments, the guidance for doing so makes adjustments that decrease current-period income seem more likely. Finally, auditors are more likely to require clients to make adjustments that decrease current-period income and waive adjustments that increase current-period income (Nelson et al. 2002), and market reactions to restatements that decrease income are larger than are market reactions to restatements that increase income (Palmrose et al. 2004).

We also partition our sample based on whether the misstatements affect core earnings. We make this distinction because core and non-core items have different effects on valuation and are not equally predictable. To the extent that non-core earnings are transitory, theory suggests that they are irrelevant for predicting future earnings and play no information role for predicting future dividends (Ohlson 1999). That is, core earnings are more important to financial statement users because they consist of primary operating earnings that are related to the main purpose of the business. These earnings are considered to be persistent or sustainable into future periods, and are fundamentally linked to the expected future prospects of the company (Penman 2001, 383). Empirically, core earnings are more value-relevant than are transitory earnings (Collins et al. 1997; Bradshaw and Sloan 2002; Bhattacharya et al. 2003). Furthermore, prior research suggests that restatements of core earnings have a greater effect on stock prices than do restatements of non-core earnings (Turner et al. 2001; Anderson and Yohn 2002; Palmrose et al. 2004), suggesting that investors understand the differential persistence (and importance) of core and non-core earnings. Moreover, restatements of core earnings components are associated with litigation against restating companies and their auditors while restatements of non-core earnings are not (Palmrose and Scholz 2004).

Finally, we extend our analyses by exploring the distinction between annual (audited) and quarterly-only (reviewed) misstatements. We define annual misstatements as those that include at least one misstated 10-K, and quarterly-only misstatements as those that involve only 10-Qs. Although auditor effort and responsibility differ between the two, auditors are involved in the issuance of both types of reports, and the length of tenure may affect the likelihood of quarterly versus annual misstatements differently. Furthermore, we believe that analyses related to both misstatement types are important because investors and regulators are presumably concerned

about both. For example, the market reaction to restatement announcements does not differ for annual versus quarterly misstatements (Palmrose et al. 2004), and the GAO (2003) and Financial Executives International (FEI) (Moriarty and Livingston 2001) studies of restatements include both types. Also, the Public Company Accounting Oversight Board Auditing Standard No. 2 (2004) defines a material weakness as a “significant deficiency or combination of significant deficiencies, that results in more than a remote likelihood that a material misstatement of the annual *or interim* financial statements will not be prevented or detected” [italics added].

3. Restatement sample

Restatement identification

We identified our restatement sample from public sources including Lexis-Nexis News Library, Lexis Disclosure of other corporate events, and Form 8-Ks on Lexis, using key-word searches for restatements and for specific accounting issues. Key words for our searches relied primarily on phrases linking “restat!” with earnings, results, or income. We supplemented these search results with terms such as “revis!” or “adjust!” and added restatement companies identified in other sources discussing restatements, such as the *Securities Class Action Alert*. We also reviewed each of the companies listed in the General Accounting Office publication on restatements (GAO 2002) as having announced restatements during our sample period.

We define restatements strictly as corrections of financial statements that did not comply with existing GAAP at the time they were filed. Required and routine revisions of prior results, such as the presentation of post-merger results or discontinued operations, are not included in our sample. Misestimates that fall within the bounds of GAAP (and so do not require amended filings) are not included, nor are write-offs or special items unless the accounting for such items

is later discovered to have been initially incorrect. In these cases, we consider the *correction* a restatement, typically of non-core earnings. We further exclude revisions of earnings releases that occur before reports are filed with the SEC and reports of “restated” results that are actually pro-forma presentations used to explain the effects of changes in accounting policies.⁵ The SEC requires that companies file amended financial statements to replace the original reports only when prior results have been misstated, so the filing (or intended filing, for companies going out of business prior to completing their restatements) of amended 10-Ks or 10-Qs with corrected results is an important criterion in our determination of whether a restatement reported in the press (or in the GAO report) was actually a correction of non-GAAP reporting.

Initial restatement sample

Our initial sample consists of 853 companies that announced restatements between January 1995 and October 2001, inclusive. The years affected by these restatements (i.e., the misstated years) range from fiscal 1992 to 2001, inclusive. We restrict our sample to restatements that were announced prior to November 2001, when accounting troubles at Enron and Arthur Andersen LLP’s related problems became public, because it is difficult to determine whether post-Enron restatements were affected by pressures resulting from the publicity surrounding accounting troubles at Enron, the indictment of Andersen and auditor changes for Andersen clients, or discussions leading to the enactment of the Sarbanes-Oxley Act.⁶ More importantly, proposals for the mandatory rotation of auditors resurfaced post-Enron, so we form our sample to exclude those restatements that occurred since proposals for mandatory rotation became the focus of this public policy debate.

⁵ The GAO’s list of restatements includes a number of such items, many which involve companies adopting SEC SAB 101.

⁶ For a review of these events see Chaney and Philipich (2002). Auditor rotation in the period following our sample is investigated by Blouin et al. (2005), who analyze auditor turnover of clients formerly audited by Arthur Andersen, LLP.

Material misstatements and descriptive statistics

Although regulators express concern over the number of restatements, Palmrose and Scholz (2004) and Palmrose et al. (2004) show that there is variation in the severity of the response to restatements, measured both by market reactions to restatement announcements and by other costs such as AAERs and private litigation. We focus on misstatements most likely to be of consequence to investors, and therefore, of greatest concern to regulators.

We define consequential restatements both quantitatively, by the materiality of the effect on net income, and qualitatively, considering AAERs, fraud, and litigation. We begin by defining more material misstatements as those that misstated income by 5 percent or more (following Kinney et al. 2004), and analyze restatements that fall into this category. Of the 853 restatements announced during our sample period, 570 meet this materiality threshold. In order to preserve comparability with our non-restatement (control) companies, we require that information about the restatement companies be available on the 2001 Compustat Merged Industrial file. We eliminate 14 of the 570 because they do not have necessary Compustat data or because we cannot find an appropriate match using the method described in the Matching procedures subsection below. Thus, our matched sample consists of 556 restatement companies and 556 control companies.

Table 1 provides additional descriptive information about characteristics of our initial restatements sample and our material restatements sample. We follow Palmrose and Scholz (2004) and classify restatements based on income statement account types, where revenue, cost of sales, and on-going operating expenses are considered to be core earnings accounts, and non-operating expenses, one-time or special items, merger-related items, and other items are considered to be non-core accounts. The frequency of core accounting issues between our initial

sample (N = 853) and our material restatement sample (N = 556) is nearly identical; 68 percent of restatements affect core earnings accounts in the initial sample and 69 percent of restatements affect core earnings accounts in the material restatements sample. With respect to other restatement characteristics considered in our study, the effect of the misstatement on income is similar between the initial and matched samples, with 72 and 77 percent respectively of the misstatements increasing reported income. Similarly, 54 percent of restatements affected annual reports for the initial sample, while 49 percent of restatements affected annual reports for the material sample. Relative to these two groups, the sample of serious restatements (N = 238) has higher frequencies affecting core earnings (87 percent) and annual reports (60 percent), and increasing income (89 percent).

Insert Table 1

Matching procedures

We identify control companies for the material misstatement companies by finding the company closest to the restatement company in size (as determined by total assets), having the same auditor, and drawn from the same (2-digit Standard Industrial Classification (SIC) code) industry and year in which the misstatement initially occurs. For each restatement and control company, we calculate the length of the auditor-client relationship as of the first year of the misstatement. We follow related literature including Myers et al. (2003) and Mansi et al. (2004) in that we count the number of consecutive years that the client has retained the same auditor since 1980 according to Compustat.⁷

⁷ We code auditor changes attributable to audit firm mergers as a continuation of the prior auditor. To ensure that our decision to follow prior literature and begin counting tenure in 1980 does not significantly affect our results, we reran the analyses calculating tenure from 1974, the first year in which auditor is available on Compustat. All results are robust to this change. Consistent with the approach in Mansi et al. (2004), we also eliminated companies without at least five years of tenure data. Our results are also robust to this change. Still, tenure is measured with error because Compustat codes do not consistently track all smaller auditors and are not available prior to the time

4. Results

Regression model

We run logistic regressions, where the dependent variable is an indicator for whether or not the company restated. The independent variable of interest is tenure, measured as described previously. We control for company age, size, leverage, whether the company is profitable, and whether the company has undergone a merger or acquisition during the year.

We include age as a control variable because analyses reveal that younger companies are more likely to misstate financial statements (see Table 2) and because auditor tenure and company age are significantly positively correlated.⁸ Although we match our restatement and control companies on size as measured by assets, we include an additional size-related control variable based on sales. The inclusion of this variable recognizes that assets and sales need not similarly measure size. We include leverage and an indicator for whether the company is profitable because we suspect that, at least for some subsamples of misstatements, companies with higher leverage and loss companies have greater incentives to misstate financial reports. Furthermore, prior research finds that restatement companies tend to be less profitable and have higher leverage than non-restating companies (Kinney and McDaniel 1989; DeFond and Jiambalvo 1991). We include an indicator variable for merger and acquisition activity because prior literature suggests that managers have incentives to manage earnings prior to these events (Erickson and Wang 1999), because Kinney et al. (2004) find that the likelihood of restatement increases with acquisitions, and because as subsequently shown (Table 2, Panel B) the Kinney et al. (2004) findings hold for our sample. Thus, we expect a negative coefficient on age and on the

the company reports publicly. We tested a sample of our tenure measures against original documents (8-Ks and 10-Ks) and do not believe that measurement issues affect the results of our tests.

⁸ The Pearson correlation coefficient for age and tenure in our sample is 72 percent ($p = .0001$).

profitability indicator, a positive coefficient on leverage and on the merger and acquisition indicator, and have no expectations regarding the sign of the coefficient on size.

Our main regression model is as follows:⁹

$$Restatement_t = \beta_0 + \beta_1 Tenure_t + \beta_2 Age_t + \beta_3 Size_t + \beta_4 Leverage_t + \beta_5 Profitable_t + \beta_6 Merger_t + \varepsilon_t \quad (1)$$

where Restatement = 1 if the company restates its financial statements, and 0 otherwise

Tenure = the number of consecutive years since 1980 that the company has retained the auditor¹⁰

Age = the number of years for which sales was reported in Compustat since 1980¹⁰

Size = the natural log of Sales

Leverage = Total Liabilities / Total Assets

Profitable = 1 if earnings corrected for the misstatement was greater than \$0, and 0 otherwise

Merger = 1 if the Compustat footnotes indicate a merger or acquisition in the year, and 0 otherwise¹¹

To control for industry, auditor, and (asset) size, we use a matched-pair design as in Bowen et al. (1981) and Stice (1991).¹²

⁹ We note that audit fees and non-audit fees are omitted in our analyses. Although Kinney et al. (2004) find some association between actual fees and restatements, Raghunandan et al. (2003) find no significant association between their fees measures (unexpected fees) and restatements, and Antle et al. (2002) find that tenure is not significant in regressions using various fees measures for U.S. companies. Importantly, fees data are unavailable for the majority of observations in our sample.

¹⁰ We also reran our analyses taking the natural log of tenure and taking the natural log of age. All results are robust to these changes. Even so, age is measured with error, as companies do not appear on Compustat until they are already public.

¹¹ We follow Collins and Hribar (2002) and Myers et al. (2003) and use Compustat footnote code 1 to identify firms undergoing mergers and acquisitions in the year.

¹² Here, we randomly assign each of the pairs to one of two groups. For the first group, we assign the dependent variable a value of zero and subtract the independent variables for the restatement companies from the independent variables for the matched control companies. For the second group, we assign the dependent variable a value of one and subtract the independent variables for the matched control companies from the independent variables for the sample companies. We then run the logistic regression using the differenced measures.

Descriptive statistics

Table 2, Panel A presents descriptive statistics for the 556 material restatement companies in our sample and for companies listed on Compustat. Compustat data is presented as of 1999, a representative year during our sample period. We find that Compustat companies are significantly larger, older, and have longer auditor tenure than our sample companies. Furthermore, Compustat companies are slightly less levered, are significantly less likely to undergo a merger or acquisition in the year, record significantly larger sales revenue, and are significantly more likely to be profitable than are our sample companies. Not reported in the table, we also find that 95 percent of our sample companies have Big Five auditors compared to 80 percent of the 1999 Compustat population.

Insert Table 2

Table 2, Panel B presents descriptive statistics for our sample companies and for the 556 matched control companies. By construction, the book value of assets is very similar for the restatement and control companies, with the median restatement company reporting \$94 million in assets in the first year of misstatement and the median control company reporting \$88 million in assets in the same year. While company age is slightly greater for the control companies, auditor tenure is not significantly different between the two groups. The median auditor tenure is four years for both groups, while the median age is 6 (6.5) years for the sample (control) companies. The mean ratio of liabilities to assets is not significantly different but the median sample company is more highly leveraged than the median control company. The strongest differences between the two groups are the percentage involved in a merger or acquisition during the year and the percentage that are profitable. Forty-two percent of our sample companies are involved in a merger or acquisition during the year versus 25 percent of control companies, and

36 percent of our sample companies are profitable in the first year of the misstatement versus 60 percent of the control companies. Mean and median sales are not significantly different between the two groups.

Multivariate results

When we run the analyses on our entire sample of restatements (results not tabulated), we find that Tenure is not significant, but when we consider income-increasing misstatements separately from those that decrease income, and misstatements of core earnings items separately from those that affect only non-core earnings items, we find that Tenure can be significantly associated with these misstatements.

Results for income-increasing material misstatements and material misstatements that affect core earnings are presented in Models 1 and 2 of Table 3, Panel A. Here, we find that the coefficient estimate on Tenure is significant and positive in the income-increasing partition, indicating that longer tenure is associated with a greater incidence of income-increasing material misstatements, but Tenure is not significant in the core earnings partition.

Insert Table 3

Results for the control variables are the same in both columns. The coefficients for Age and Profitable are significant and negative, revealing that older companies and companies that are profitable are less likely to misstate earnings. The coefficients for Size and Merger are significant and positive, revealing that larger companies and those with merger and acquisition activity are more likely to misstate earnings.

We next partition the sample into restatements affecting annual (audited) reports (Model 3) and those affecting only quarterly reports (Model 4). Tenure is not significant in either partition. Results for the control variables are the same as discussed above for annual

restatements and similar for quarterly-only restatements except that the coefficient for leverage is positive and significant and the age coefficient is not.¹³

In Panel B (Table 3), we further restrict our criteria for consequential restatements, and require that, in addition to having a material effect on income, the misstatements also involve fraud and/or litigation. We classify misstatements as fraud-related when the company reports that “fraud” or “irregularities” are responsible for the misstatement or when criminal charges are filed against the company or its officers. We also include misstatements in this group if an AAER was eventually issued in the matter. (Note that there is a great deal of overlap among these groups.) Of our restatement sample, 238 are serious. Results of the regression models reveal that tenure is positive and significant when serious misstatements increase income (211 observations, Model 1), affect core earnings (206 observations, Model 2), or affect quarterly-only reports (95 observations, Model 4). Tenure is not significant, however, for misstatements of annual results (143 observations, Model 3).¹⁴

In summary, our regression analyses find a significant association between tenure and the incidence of restatements only when the misstatements increase income or affect core earnings. Our analyses further reveal that this association is due to misstatements of quarterly, but not annual, reports. This suggests that auditors might consider exercising greater professional skepticism or performing more rigorous procedures when performing quarterly reviews on longer-standing clients.

¹³ Further analyses of the intersections (not tabulated) of these partitions reveal that the positive relationship between tenure and the incidence of restatement holds for income-increasing restatements that affect quarterly-only results and for income-increasing restatements that affect core earnings, but Tenure is not significant in any other sub-category. For example, Tenure is not significant for income-increasing restatements that affect annual results or for income-increasing restatements that affect non-core earnings.

¹⁴ The direction and significance of the control variables is very similar to results discussed previously, and again, tenure is not significant for income-decreasing or non-core misstatements or for the entire group of serious misstatements. Further analyses of the income-increasing and core categories reveal that the positive relationship between tenure and income-increasing or core earnings misstatements exists for quarterly, but not annual, reports.

To better understand the relationship between tenure and restatements, we next consider the role of industry specialization. Here, we investigate whether specialization affects the association between the length of the auditor-client relationship and the propensity to misstate financial statements.

5. The role of auditor specialization

Literature on specialization

A substantial body of literature addresses the effects of audit industry specialization and generally finds systematic differences between clients of industry specialists versus non-industry specialists. For example, Balsam et al. (2003) document higher ERCs for clients of industry-specialist auditors, and Carcello and Nagy (2004b) find a negative relationship between industry specialization and financial statement fraud, suggesting the industry specialists are associated with higher earnings quality. Furthermore, Behn et al (1997) document a positive association between client satisfaction and industry specialization and suggest that industry experts offer clients more detailed knowledge of GAAP, and Dunn and Mayhew (2004) find that clients with industry-specialist auditors provide enhanced disclosures. Finally, behavioral evidence suggests that specialists perform more efficient audits (Owhoso et al. 2002; Hammersley 2005).

Although it is not possible to measure industry specialization directly, a number of measures appear in the extant literature (Gramling and Stone 2001). The most popular are based on the proportion of two-digit SIC industry sales audited by each firm (Palmrose 1986; Dunn and Mayhew 2004), or some cutoff based on this proportion (DeFond 1992; Craswell et al. 1995; Dunn and Mayhew 2004), or the proportion of assets audited (Hogan and Jeter 1999; Mayhew and Wilkins 2003).

Specialization analysis and results

We form our specialization proxy using the method in Dunn and Mayhew (2004). Specifically, we form industries based on 2-digit SIC codes and sum revenues for each industry. Next, we calculate the proportion of each industry's revenues that is audited by each auditor in each sample year. We form an indicator variable (Specialist), set to 1 when an auditor audits at least 20 percent of the industry revenues, and set to 0 otherwise. Note that in our prior analyses, we identified matched control firms for each sample firm matching on size, industry, and auditor. In this section, we still match on size and industry, but in order to form the specialization variable, we require at least some variation between the auditor for the sample firm and the auditor for the control firm.¹⁵ When we remove auditor from our list of matching requirements, we gain three additional observations (for which we could not initially match on auditor). To investigate whether the association between the length of the auditor-client relationship and misstatements differs between specialist and non-specialist auditors, we add the specialization indicator variable and an interaction of specialization and tenure (Specialist*Tenure) to our logistic regression model.¹⁶ The results for the material restatements sample and for the serious restatements sample appear in Table 4, in Panels A and B, respectively.

Insert Table 4

¹⁵ That is, we do not require that the sample and matched control firm be audited by the same auditor, nor do we require that they not be audited by the same auditor. Rather, we match only on size and industry. Analysis reveals that 37 percent of our sample and matched control firms are audited by the same auditor using these criteria for matching.

¹⁶ We also replicate analyses in Table 3 with this sample (not matched on auditor) to see how sensitive our results are to the matching procedure. Among material restatements, Tenure is significant and positive for income-increasing, core, and quarterly-only misstatements. On the other hand, among serious restatements, Tenure is no longer significant for the income-increasing and core partitions, but remains significant for quarterly misstatements. Thus, when considering the results under both matching procedures, in at least some cases, Tenure is significant for misstatements of income-increasing, core, and quarterly misstatements, but is never significant for misstatements of annual results.

Before discussing these results, we note (as explained in the prior footnote) that Tenure is significant and positive for all models other than Model 3 (which contains annual misstatements only) when we replicate our analyses in Table 3, Panel A using this new set of matched pairs (not matched on auditor). Therefore, without specialization in the models, we find that material misstatements that increase income, affect core earnings, or affect quarterly reports are more likely the longer the auditor-client relationship (but untabulated analyses reveal that it is the quarterly misstatements which drive the income-increasing and core results).

Adding the specialization indicator and the interaction in Table 4 allows us to consider the role played by specialists. When we add the interaction to the model, the coefficient on Tenure describes the relation between the length of the auditor-client relationship and misstatements for those clients not audited by specialist auditors, while the joint test on the Tenure and the interaction of Specialist and Tenure describes the relation between the length of the auditor-client relationship and misstatements for those clients audited by specialists auditors. The significant coefficients on Tenure in Models 1, 2, and 4, reveal that material misstatements that increase income, affect core earnings, and affect quarterly reports *are* more likely for clients of non-specialist auditors the longer the auditor-client relationship. However, the insignificant results on the joint-test on Tenure and Specialist*Tenure reveal that the relationship between tenure and material misstatements differs for those clients with specialist auditors. Specifically, specialist auditors are *not* more likely to miss material misstatements that increase income, affect core earnings, or affect quarterly reports the longer the auditor-client relationship. Therefore, we find that specialization plays an important role in moderating the relationship between tenure and

material misstatements: while non-specialist auditors are more likely to miss certain material misstatements as tenure grows, specialist auditors are not.¹⁷

Similarly, in Table 4, Panel B we present the results for serious restatements. Again, we find that clients of non-specialist auditors are more likely to make serious misstatements that increase income, affect core earnings, or affect quarterly reports the longer the auditor-client relationship. However, specialist auditors are not more likely to miss serious misstatements that increase income, affect core earnings, or affect quarterly reports the longer the auditor-client relationship. Therefore, we find that while non-specialist auditors are more likely to miss certain serious misstatements as tenure grows, specialist auditors are not.¹⁸

To ensure that our results on the effect of specialization are not influenced by the specialization measure used in our analyses, we form two additional specialization measures – defining a specialist as that audit firm with the largest market share in terms of sales, and then defining a specialist based on the percentage of industry assets audited (as in Hogan and Jeter (1999) and Mayhew and Wilkins (2003)). Our results on tenure for non-specialist auditors are robust except that when we define specialization based on assets, we do not find that income-increasing misstatements are more likely with longer tenure for clients with non-specialist auditors. Our results on tenure for specialist auditors are robust except that when we define the

¹⁷ Note that Specialist is significantly positive ($p = 0.055$) for Model 4. This suggests that specialist auditors are more likely to miss material misstatements when they affect the quarterly, but not annual, reports than are non-specialist auditors. However, note that specialist auditors are not more likely to miss these misstatements if they are serious. For this group of misstatements, the coefficient on Specialist is not significant (see Model 4 in Panel B, $p = 0.249$).

¹⁸ Not reported in the tables, we find that the coefficients on Tenure and on the joint test are not significant for the entire material misstatement sample. Furthermore, we find that the coefficient on Tenure is positive and significant ($p = 0.0470$) for the entire serious misstatements sample, but the joint test is not significant ($p = 0.4995$). Therefore, non-specialist auditors are more likely to miss those misstatements that are serious the longer the auditor-client relationship, but specialist auditors are not.

industry specialist based on assets, we find that quarterly-only misstatements are more likely with longer tenure for clients with specialist auditors (as well as for clients with non-specialist auditors).

In summary, our analyses reveal that the relationships in Table 3, between certain types of misstatements and auditor tenure, are largely driven by that group of companies whose auditors are not classified as specialists.

6. Additional analyses

In this section, we perform three additional analyses to further our understanding of the relationship between tenure and restatements. First, we investigate market perceptions of auditor tenure as it relates to restatements. Next, we investigate the association between tenure and who discovers the misstatement. Last, we consider the relationship between tenure and auditor switches following restatements, as well as the market reaction to these switches.

The association between tenure and market reactions to misstatement announcements

We investigate whether investors view misstatements more negatively the longer the auditor-client relationship. That is, we investigate whether the market reaction at the announcement of a misstatement is associated with the length of the auditor-client relationship. We limit our analyses to those observations where the auditor at the time of the misstated report(s) remains as the client's auditor through the time the restatement is announced. We limit our sample in this way because the market reaction to the short tenure of a new auditor may be confounded with the fact that the new auditor was not associated with the revealed misstatement. Of our 556 material misstatements, 490 satisfy this criterion. (However, our results are robust to

including all those observations where the auditor changes between the misstatement and its announcement.)

Because investors are more likely to be aware of and concerned about auditor tenure at the time of the announcement (rather than at the time of the initial misstatement), we perform our analyses using tenure at the time of the announcement. The two measures are highly correlated at .999 ($p < 0.0001$). We regress this measure on the cumulative abnormal returns in the days [0, +1] announcement window, and control for company and restatement characteristics as in Palmrose et al. (2004). In addition to Tenure, our model includes indicator variables for fraud (Fraud), the party identifying the need for the restatement (Auditor, SEC, or Company), whether the restatement involved core earnings accounts (Core Earnings), the change in reported income scaled by assets (Inc Chg/Assets), the number of account groups affected by the misstatement (Acc't Groups), the number of years restated (Years Restated), and variables which interact size and leverage with the income change variable (Size Interact. and Debt Interact.). If market participants view longer tenure as problematic, incremental to other company and restatement characteristics, the coefficient on tenure will be negative. However, if longer tenure alleviates concerns or if market participants are more troubled by misstatements which occur early in the auditor-client relationship, then the coefficient on tenure will be positive.

Necessary data are available for 441 observations. We apply the model to the same partitions used previously and present our results in Table 5. The overall model is significant in all partitions, and results are similar to those reported in Palmrose et al. (2004).¹⁹ We find that Tenure is significant (positive) only for the quarterly misstatements partition (and is not significant in the overall material sample (not tabulated)). However, when we apply the model

¹⁹ Specifically, restatements with fraud and those attributed to the auditor and to the company are associated with more negative returns. Unlike Palmrose et al. (2004), however, the effect on income is not significant using this sample of material restatements.

to the serious sample (not tabulated), Tenure is not significant in any partition. Lastly, as a robustness test on our tenure measure, we rerun the analyses using our original measure of tenure (at the time of the misstatement) and find that the results are very similar to those reported in Table 5. In summary, our results suggest that investors do not view longer tenure as incrementally problematic when restatements are announced, and may alleviate investor concerns in the case of material misstatements of quarterly statements.

Insert Table 5

The association between tenure and the party discovering the need to restate

Results in Table 5 *do* show that the market reaction is usually significantly more negative when the restatement is attributed to the auditor. Palmrose et al. (2004) also report this result. They speculate, and find supporting evidence, that this is because investors use attribution to the auditor as a proxy for greater materiality when information about the income effect is not presented in the restatement announcement. Given this, we consider whether the restatements' attribution (to the auditor versus others) is associated with tenure. We also provide descriptive information about tenure for parties commonly attributed with identifying the need for a restatement: the auditor (17 percent of all material misstatements), the company (27 percent), jointly to the auditor and company (5 percent), the SEC (16 percent), and unknown (35 percent).²⁰

As mentioned above, 66 companies (12 percent of the material sample) switched auditors between the initial misstatement and the restatement announcement. Mean auditor tenure at the time of the restatement announcement for these companies for all attribution categories is less

²⁰ There is no requirement that the discovery of a misstatement be attributed to any party. Approximately 65 percent of our material sample companies provide attribution information (but some judgment is involved in the classification). An example of a typical joint attribution is: "After consultation with our auditor, the company has determined that a restatement is necessary."

than one year. Restatements in this switching group are significantly more likely to be attributed to the auditor (36 percent) than in the non-switching group (20 percent, Pearson Chi-square p-value = 0003). Thus, it appears that auditors *not* associated with the initial misstatement are more likely to be attributed with identifying the need for a restatement. However, it is unclear whether this result indicates new auditors are more likely to discover a misstatement or to require a correction or both. Furthermore, it may be that attribution disclosures differ for new auditors.

Table 6 provides tenure means for the 490 non-switching companies by attribution category for each of our usual partitions. It reveals that for income-increasing, core earnings, and annual partitions (and for our overall sample, not tabulated), mean tenure for auditor-attributed restatements is shorter, ranging from 6.2 to 6.6 years, than for restatements attributed to other parties. However, restatements attributed jointly to the auditor and company have the *longest* mean tenure, ranging from 9.4 to 10.5 years. Tenure for SEC-attributed restatements also tends to be long, ranging from 9.1 to 10.2 years. Differences across these means are significant. As in our previous analyses, quarterly restatements are the exception. Here, auditor tenure is slightly shorter for SEC-attributed restatements than for auditor-attributed restatements (6.7 versus 6.9 years), but differences across means are not significant. Results are similar for the serious sample.

Insert Table 6

In summary, our analysis of restatement attribution suggests that new auditors (unassociated with the initial misstatement) are more likely to be named as identifying the need for a restatement than are continuing auditors. Furthermore, among continuing auditors, when the auditor is named as the sole party identifying the need for a restatement, the auditor-client relationship tends to be shorter than when other parties are so named. These findings could lend

some support to arguments for mandatory auditor rotation if the purpose of mandatory rotation is to detect and expose prior misstatements. However, they do not suggest that the propensity to misstate earnings would decrease with mandatory rotation. Moreover, they could be interpreted as indicating that disclosure strategy (with respect to the attribution of revealed misstatements) differs as the length of the auditor-client relationship grows.

The association between tenure and auditor switches following misstatements

Finally, we investigate the association between tenure and certain consequences of revealed misstatements. Namely, we investigate the association between tenure and auditor switching subsequent to restatement announcements, as well as the association between tenure and the market reaction to these switches.

Within the material sample, 180 (32 percent) of the companies switched auditors in the two years following the restatement announcement. Overall, the mean tenure for the switching companies is significantly shorter than for those not switching during this period (5.1 versus 6.7 years, p -value = 0.001). Of the 180 switches, 50 (28 percent) are due to auditor resignations, and tenure is significantly shorter when the auditor resigned versus when the client dismissed the auditor (3.8 versus 5.6 years, p -value < 0.0001). These results are consistent in all our partitions, again with the exception of quarterly-only restatements, where the difference between the tenure of dismissal and resignation clients is not significant (p -value = 0.435).

This evidence indicates that auditor-client relationships of relatively shorter duration at the time of the misstatement are more likely to end in the two years following its revelation. Moreover, if the misstatements involve annual reports, the auditor is more likely to resign the shorter the relationship. Results are similar for the serious sample, although differences in tenure

are somewhat less significant and resignations are somewhat more prevalent (35 percent of all switches are resignations, versus 28 percent noted above).

We also investigate whether the market reaction to auditor changes following financial statement misstatements is associated with the length of the auditor-client relationship. We consider tenure at the time of the misstatement and at the time of the auditor switch. Although our previous analysis of announcement returns indicates that there is generally not an incremental market response to tenure at the time of the restatement announcement, news of an auditor change may focus investor (or media) attention on the prior length of the auditor-client relationship.

If investors are concerned that tenure plays a role in financial reporting and audit quality, then we expect that market reactions to auditor switches following restatements will be more positive the longer the auditor-client relationship. Of the 180 companies with material misstatements that switch auditors within two years of the restatement announcement, 123 have data available to calculate 2-day market-adjusted returns on the day of that auditor switch is announced and the day following (i.e., in the $[0, +1]$ window). We regress the market-adjusted return on years of tenure, and measure tenure at the time of the misstatement in Table 7, Panel A and at the time of the auditor switch in Table 7, Panel B. Consistent with our expectations, we find that the coefficient on Tenure is significant and positive, suggesting that investors view auditor switches following restatements more positively the longer the auditor-client relationship. Thus, our results suggest that investors view limited auditor tenure positively, at least in the case where clients have issued financial statements that violate GAAP.

Insert Table 7

7. Conclusions and implications

In this paper, we analyze a sample of public companies that announced restatements between January 1995 and October 2001. Our analyses focus on misstatements most likely to be of consequence to investors and regulators – more material misstatements, serious misstatements, income-increasing misstatements, and misstatements of core earnings. Our primary analyses use a matched-pair design where each of 556 restatement companies (with more material misstatements) is matched on industry, auditor, and size with a control company that did not restate its financial statements during the sample period.

While we find no association overall between the length of auditor-client relationships and misstatements, we do find that clients are *more likely* to make income-increasing misstatements and to misstate core earnings the *longer* the auditor-client relationship. Further analyses reveal that misstatements of quarterly, rather than annual, financial statements drive these results. Moreover, we show (using matched pairs no longer matched on auditor) that these associations between tenure and misstatements hold for clients with non-specialist auditors but not for those with specialist auditors.

Even though we document some positive associations between the propensity to misstate financial statements and the length of auditor-client relationships, our results do not support arguments for mandating auditor rotation. Instead, they suggest that extant market mechanisms, such as industry specialization, help to mitigate any decline in auditor incentives to detect or reveal misstatements with the lengthening of an auditor-client relationship. These results also suggest that auditors, and especially non-specialist auditors, should be more aware of the need for professional skepticism when performing quarterly reviews (and should perhaps consider

performing, at interim, selected annual audit procedures) on longer-standing clients, especially related to items that increase quarterly earnings or affect core quarterly earnings components.

Furthermore, to better understand market perceptions and disclosures related to auditor tenure and restatements, we investigate the role of auditor tenure in market reactions to restatement announcements, to voluntary attributions in restatement announcements, and to announcements of auditor switches following restatements. While tenure is not a significant factor in the market reaction to overall restatement announcements, investors do react less negatively to announcements of restatements of quarterly reports the longer the auditor-client relationship.

Our analysis of attribution suggests that new auditors (unassociated with the initial misstatement) are more likely to be named in the restatement announcement as identifying the need for a restatement than are continuing auditors. Among continuing auditors, when the announcement names the auditor as the sole party identifying the need for a restatement, the auditor-client relationship tends to be shorter than when other parties (i.e., the company or SEC) are so named. We do not know whether these attribution results reflect differences in disclosure strategies or in detection and/or exposure of prior misstatements with auditor tenure. However, it may be the former given the evidence (albeit indirect) that market participants do not perceive tenure as important at the time of restatement announcements.

Finally, we report that clients are more likely to engage new auditors and auditors are more likely to resign after restatements of annual financial statements, the shorter the auditor-client relationship. We also show that market reactions to the announcement of auditor turnover following restatements are more positive the longer the auditor-client relationship, so given a

restatement announcement, market participants view changing auditors with longer tenure as good news.

As noted earlier in our paper, our sample period ends prior to the revelation of problems at Enron and to the demise of Arthur Andersen LLP. We make this choice to restrict our analyses of restatements that had already occurred when regulators' attention focused strongly on mandatory auditor rotation. A number of restatements have occurred subsequent to this date (and especially since the enactment of Section 404 of the Sarbanes-Oxley Act). We hope that our study can help to serve as a benchmark for future research addressing whether the factors associated with misstatements and consequences of restatement announcements have changed as a result of this increase in regulatory attention.

References

- Anderson, K. L., and T. L. Yohn. 2002. The effect of 10-K restatements on firm value, information asymmetries, and investors' reliance on earnings. Working paper, Georgetown University.
- Antle, A., E. A. Gordon, G. Narayanamoorthy, and L. Zhou. 2002. The joint determination of audit fees, non-audit fees, and abnormal accruals. Working paper, Yale University.
- Balsam, S., J. Krishnan, and J. G. S. Yang. 2003. Auditor industry specialization and the earnings response coefficient. *Auditing: A Journal of Practice and Theory* 22: 71–97.
- Beasley, M. S., J. V. Carcello, and D. R. Hermanson. 2000. *Fraud-related SEC enforcement actions against auditors: 1987–1997*. New York: American Institute of Certified Public Accountants.
- Behn, B. K., J. V. Carcello, D. R. Hermanson, and R. H. Hermanson. 1997. The determinants of audit client satisfaction among clients of Big 6 firms. *Accounting Horizons* 11: 7–24.
- Benson, M. 2002. Calpers vows action to help prevent accounting schemes. *Wall Street Journal* (February 22).
- Bhattacharya, N. N., E. L. Black, T. E. Christensen, and C. R. Larson. 2003. Assessing the relative informativeness and permanence of pro forma earnings and GAAP operating earnings. *Journal of Accounting and Economics* 36 (1–3): 285–319.
- Blouin, J. L., B. M. Grein, and B. Rountree. 2005. The ultimate form of mandatory auditor rotation: The case of former Arthur Andersen clients. Working paper, University of Pennsylvania – The Wharton School.
- Bowen, R., E. Noreen, and J. Lacey. 1981. Determinants of the corporate decision to capitalize interest. *Journal of Accounting and Economics* 3 (2): 151–79.
- Bradshaw, M. T., and R. G. Sloan. 2002. GAAP versus the street: An empirical assessment of two alternative definitions of earnings. *Journal of Accounting Research* 40 (1): 41–66.
- Carcello, J.V., and A.L. Nagy. 2004a. Audit firm tenure and fraudulent financial reporting. *Auditing: A Journal of Practice & Theory* (forthcoming).
- _____, and _____. 2004b. Client size, auditor specialization and fraudulent financial reporting. *Managerial Auditing Journal* 19: 651–68.
- Chaney, P. K. and K. L. Philipich. 2002. Shredded reputation: The cost of audit failure. *Journal of Accounting Research* 40 (4): 1221–45.

- Collins, D. W., E. L. Maydew, and I. S. Weiss. 1997. Changes in the value-relevance of earnings and book values over the past forty years. *Journal of Accounting and Economics* 24 (1): 39–67.
- _____, and P. Hribar. 2002. Errors in estimating accruals: Implications for empirical research. *Journal of Accounting Research* 40 (1): 105–34.
- Craswell, A. T., J. R. Francis, and S. L. Taylor. 1995. Auditor brand name reputations and industry specializations. *Journal of Accounting and Economics* 20: 297–322.
- Davis, L. R., B. Soo, and G. Trompeter. 2002. Auditor tenure, auditor independence and earnings management. Working paper, Boston College.
- DeFond, M. L. 1992. The association between changes in client firm agency costs and auditor switching. *Auditing: A Journal of Practice and Theory* 11:16–31.
- _____, and J. Jiambalvo. 1991. Incidence and circumstances of accounting errors. *The Accounting Review* 66 (3): 643–55.
- Deis, D. R., and G. A. Giroux. 1992. Determinants of audit quality in the public sector. *The Accounting Review* 67 (3): 462–79.
- Dopuch, N., R. R. King, and R. Schwartz. 2001. An experimental investigation of retention and rotation requirements. *Journal of Accounting Research* 39 (1): 93–117.
- Dunn, K. A., and B. W. Mayhew. 2004. Audit firm industry specialization and client disclosure quality. *Review of Accounting Studies* 9: 35–58.
- Economist. 2004. The future of auditing: Called to account. *The Economist* (November 18).
- Erickson, M. and E. Wang. 1999. Earnings management by acquiring firms in stock for stock mergers. *Journal of Accounting and Economics* 27 (2): 149–76.
- Geiger M., and K. Raghunandan. 2002. Auditor tenure and audit reporting failures. *Auditing: A Journal of Practice and Theory* 21 (1): 67–78.
- General Accounting Office (GAO). 2002. *Financial statement restatements: Trends, market impacts, regulatory responses, and remaining challenges*. GAO-03-138 (October).
- _____. 2003. *Public accounting firms: Required study on the potential effects of mandatory audit firm rotation*. GAO-04-216 (November).
- Ghosh, A., and D. Moon. 2005. Auditor tenure and perceptions of audit quality. *The Accounting Review* 80 (2): 585–612.

- Gramling, A. A. and D. N. Stone. 2001. Audit firm industry expertise: A review and synthesis of the archival literature. *Journal of Accounting Literature* 20: 1–29.
- Hammersley, J. S. 2005. Pattern identification and industry-specialist auditors. Working paper, University of Georgia.
- Hogan, C., and D. C. Jeter. 1999. Industry specialization by auditors. *Auditing: A Journal of Practice and Theory* 72: 67–86.
- IOSCO. 2005. *Strengthening capital markets against financial fraud*. Technical Committee of the International Organization of Securities Commissions (February).
- Johnson, V. E., I. K. Khurana, and J. K. Reynolds. 2002. Audit firm tenure and the quality of financial reports. *Contemporary Accounting Research* 19 (4): 637–60.
- Kinney, W. R., Jr., and L. S. McDaniel. 1989. Characteristics of firms correcting previously reported quarterly earnings. *Journal of Accounting and Economics* 11 (1): 71–93.
- _____, Z-V. Palmrose, and S. Scholz. 2004. Auditor independence, non-audit services, and restatements: Was the government right? *Journal of Accounting Research* 42 (3): 561–88.
- Mansi, S. A., W. F. Maxwell, and D. P. Miller. 2004. Does auditor quality and tenure matter to investors? Evidence from the bond market. *Journal of Accounting Research* 42 (4): 755–93.
- Maremont, M., and J. Weil. 2003. Tyco's accounting woes may not be over yet. *Wall Street Journal Online* (May 5).
- Mayhew, B., and M. Wilkins. 2003. Audit firm industry specialization as a differentiation strategy: Evidence from fees charged to firms going public. *Auditing: A Journal of Practice and Theory* 22: 33–52.
- Moriarty, G. B, and P. B. Livingston. 2001. Quantitative measures of the quality of financial reporting. *Financial Executive* 17 (5): 53–6.
- Myers, J. N., L. A. Myers, and T. C. Omer. 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): 779–99.
- National Commission on Fraudulent Financial Reporting (The Treadway Commission). 1987. *Report of the National Commission on Fraudulent Financial Reporting*. National Commission on Fraudulent Financial Reporting.

- Nelson, M. W., Elliott, J. A., and Tarpley, R. L. 2002. Evidence from auditors about managers' and auditors' earnings management decisions. *The Accounting Review* 77 (Supplement): 175–202.
- Ohlson, J. A. 1999. On transitory earnings. *Review of Accounting Studies* 4 (3–4): 145–62.
- Owhoso, V. E., W. F. Messier, and J. Lynch. 2002. Error detection by industry-specialized teams during sequential audit review. *Journal of Accounting Research* 40: 883–900.
- Palmrose Z.-V. 1986. Audit fees and auditor size: Further evidence. *Journal of Accounting Research*: 97–110.
- _____, V. J. Richardson, and S. Scholz. 2004. Determinants of market reactions to restatement announcements. *Journal of Accounting and Economics* 37 (1): 59–89.
- _____, and S. Scholz. 2004. The accounting causes and legal consequences of non-GAAP reporting: Evidence from restatements. *Contemporary Accounting Research* 21 (1): 1–41.
- Penman, S. H. 2001. *Financial Statement Analysis & Security Valuation*. Boston: McGraw-Hill Irwin.
- Public Company Accounting Oversight Board. 2004. *Auditing Standard No. 2: An audit of internal control over financial reporting performed in conjunction with an audit of financial statements* (Washington, D.C.: PCAOB)
- Public Oversight Board. 2000. *The Panel on Audit Effectiveness: Report and recommendations*. Stamford, CT: Public Oversight Board.
- Raghunandan, K., W. J. Read, and J. S. Whisenant. 2003. Initial evidence on the association between nonaudit fees and restated financial statements. *Accounting Horizons* 17: 223–34.
- Report of the Commission on Auditors' Responsibilities (The Cohen Commission). 1978. *Report, conclusions, and recommendations*. New York: American Institute of Certified Public Accountants.
- St. Pierre, K., and J. A. Anderson. 1984. An analysis of the factors associated with lawsuits against public accountants. *The Accounting Review* 59 (2): 242–63.
- Stice, J. D. 1991. Using financial and market information to identify pre-engagement factors associated with lawsuits against auditors. *The Accounting Review* 66 (3): 516–33.
- Sweeney, A. P. 1994. Debt covenant violations and manager's accounting responses. *Journal of Accounting and Economics* 17 (3): 281–308.

Turner, L., J. R., Dietrich, K. Anderson, and A. J. Bailey. 2001. *Accounting Restatements*. Working paper, Office of Economic Analysis, United States Securities and Exchange Commission.

TABLE 1
 Characteristics of initial and material samples

	Initial sample n = 853		Material sample n = 556		Serious sample n = 238	
	Count	Percent of sample	Count	Percent of sample	Count	Percent of sample
Accounting Issues Involved:						
Core Earnings	581	68	385	69	206	87
Non-core Earnings	272	32	171	31	32	13
Direction of Misstatement:						
Increased Reported Income	609	72	427	77	211	89
Decreased Reported Income	224	26	129	23	27	11
Unknown	20	2				
Type of Financial Statement Restated:						
Quarterly-Only	396	46	284	51	95	40
Annual	457	54	272	49	143	60

TABLE 2
Descriptive statistics

Group	Assets Mean (Median)	Age Mean (Median)	Tenure Mean (Median)	Leverage Mean (Median)	Merger Mean (Median)	Sales Mean (Median)	Profitable Mean (Median)
Panel A: Restatement companies and the Compustat population (1999)							
Sample of restatement companies N = 556	1,007.20 (94.50)	8.72 (6)	6.19 (4)	0.57 (0.54)	0.42 (0)	672.44 (76.94)	0.36 (0)
Compustat population in 1999 N = 9,223	3,148.70 (132.88)	9.76 (8)	6.80 (5)	0.55 (0.56)	0.22 (0)	1,521.50 (101.29)	0.56 (1)
Tests for differences in means (medians)	-2.33*** (-3.40***)	-3.51*** (-4.91***)	-2.38*** (-2.62***)	1.92* (-1.39)	11.17*** (11.10***)	-2.78*** (-2.18**)	-9.44*** (-9.40***)
Panel B: Restatement companies and control companies							
Sample of restatement companies N = 556	1,007.20 (94.50)	8.72 (6)	6.19 (4)	0.57 (0.54)	0.42 (0)	672.44 (76.94)	0.36 (0)
Control companies N = 556	962.42 (88.30)	8.73 (6.5)	6.56 (4)	0.63 (0.49)	0.25 (0)	733.36 (73.42)	0.60 (1)
Tests for differences in means (medians)	0.15 (0.55)	-2.06** (-0.64)	1.03 (1.07)	0.52 (2.64)***	6.00*** (5.91)***	0.34 (0.60)	8.48*** (8.22)***

Notes:

Assets = Total Assets as reported on Compustat

Age = the number of years since 1980 that the company has reported non-missing sales on Compustat

Tenure = the length of the auditor-client relationship as of the first year of the misstatement, found by counting the number of years that the client has had the same auditor since 1980 according to Compustat

Leverage = Total Liabilities / Total Assets

Merger = 1 if the Compustat footnote codes indicate merger and acquisition activity during the year, and 0 otherwise

Sales = Sales as reported on Compustat

Profitable = 1 if earnings corrected for the misstatement was greater than \$0, and 0 otherwise

T-statistics are reported for tests for differences in means and Z-scores are reported for Wilcoxon tests of differences in medians

*** indicates significant at .01, ** indicates significant at .05, * indicates significant at .10

TABLE 3
Logistic regression results

Panel A: Material restatements

	Model 1 Income-Increasing		Model 2 Core Earnings		Model 3 Annual		Model 4 Quarterly-only	
	<u>Coef.</u>	<u>p-value</u>	<u>Coef.</u>	<u>p-value</u>	<u>Coef.</u>	<u>p-value</u>	<u>Coef.</u>	<u>p-value</u>
	Intercept	-0.041	0.720	-0.078	0.510	-0.084	0.546	-0.011
Tenure	0.038	0.068*	0.035	0.108	0.018	0.451	0.017	0.515
Age	-0.029	0.078*	-0.039	0.027**	-0.036	0.062*	0.000	0.994
Size	0.357	<.0001***	0.414	<.0001***	0.272	0.010**	0.259	0.019**
Leverage	-0.046	0.479	-0.033	0.533	-0.254	0.379	0.650	0.015**
Profitable	-1.770	<.0001***	-1.575	<.0001***	-1.471	<.0001***	-1.326	<.0001***
Merger	0.681	0.001***	0.670	0.001***	0.748	0.001***	1.046	<.0001***
Number of pairs	427		385		272		284	
Wald Chi-squared	86.436	<.0001***	72.534	<.0001***	50.757	<.0001***	50.982	<.0001***

Panel B: Serious restatements

	Model 1 Income-Increasing		Model 2 Core Earnings		Model 3 Annual		Model 4 Quarterly-only	
	<u>Coef.</u>	<u>p-value</u>	<u>Coef.</u>	<u>p-value</u>	<u>Coef.</u>	<u>p-value</u>	<u>Coef.</u>	<u>p-value</u>
	Intercept	-0.016	0.928	-0.099	0.585	-0.056	0.798	-0.081
Tenure	0.062	0.056*	0.059	0.077*	0.008	0.830	0.112	0.034**
Age	-0.065	0.014**	-0.064	0.019**	-0.034	0.271	-0.124	0.008***
Size	0.531	0.001***	0.667	0.0001***	0.478	0.016**	0.485	0.083*
Leverage	-0.257	0.432	-0.257	0.441	-0.441	0.312	-0.452	0.488
Profitable	-2.371	<.0001***	-2.351	<.0001***	-2.023	<.0001***	-2.059	<.0001***
Merger	0.808	0.008***	0.788	0.010**	1.040	0.004***	0.690	0.117
Number of pairs	211		206		143		95	
Wald Chi-squared	52.209	<.0001***	51.590	<.0001	37.117	<.0001	23.444	0.001

Notes:

Restatement = 1 if the company restates its financial statements, and 0 otherwise

Tenure = the number of consecutive years since 1980 that the company has retained the auditor

Age = the number of years for which sales was reported in Compustat since 1980

Size = the natural log of Sales

Leverage = Total Liabilities / Total Assets

Profitable = 1 if earnings corrected for the misstatement was greater than \$0, and 0 otherwise

Merger = 1 if the Compustat footnotes indicate a merger or acquisition in the year, and 0 otherwise

*** indicates significant at .01, ** indicates significant at .05, * indicates significant at .10

TABLE 4
Logistic regression results adding auditor specialization

Panel A: Material restatements

	Model 1 Income-Increasing		Model 2 Core Earnings		Model 3 Annual		Model 4 Quarterly-only	
	<u>Coef.</u>	<u>p-value</u>	<u>Coef.</u>	<u>p-value</u>	<u>Coef.</u>	<u>p-value</u>	<u>Coef.</u>	<u>p-value</u>
	Intercept	0.008	0.943	-0.045	0.698	-0.055	0.700	0.038
Tenure	0.042	0.031**	0.042	0.035**	0.006	0.820	0.050	0.034**
Age	-0.044	0.005***	-0.046	0.006***	-0.019	0.319	-0.047	0.022**
Size	0.335	0.000***	0.365	<.0001***	0.238	0.039**	0.314	0.004***
Leverage	-0.190	0.373	-0.070	0.549	-0.870	0.008***	0.323	0.130
Profitable	-1.617	<.0001***	-1.528	<.0001***	-1.648	<.0001***	-1.050	<.0001***
Merger	0.412	0.028**	0.370	0.050*	0.313	0.142	1.253	<.0001***
Specialist	0.043	0.822	0.054	0.792	-0.109	0.670	0.428	0.055*
Specialist*Tenure	-0.030	0.206	-0.026	0.283	-0.031	0.345	0.005	0.850
Number of pairs	430		388		273		286	
Wald Chi-squared	77.630	<.0001***	66.869	<.0001***	50.198	<.0001***	48.103	<.0001***
Wald chi-square test (Tenure + Specialist*Tenure)	0.193	0.660	0.304	0.581	0.499	0.480	2.341	0.126

Panel B: Serious restatements

	Model 1 Income-Increasing		Model 2 Core Earnings		Model 3 Annual		Model 4 Quarterly-only	
	<u>Coef.</u>	<u>p-value</u>	<u>Coef.</u>	<u>p-value</u>	<u>Coef.</u>	<u>p-value</u>	<u>Coef.</u>	<u>p-value</u>
	Intercept	0.115	0.522	-0.003	0.987	-0.001	0.995	0.124
Tenure	0.054	0.077*	0.058	0.064*	0.022	0.597	0.150	0.009***
Age	-0.061	0.012**	-0.055	0.022**	-0.031	0.253	-0.160	0.004***
Size	0.521	0.001***	0.625	0.000***	0.455	0.018**	0.686	0.007***
Leverage	-0.479	0.197	-0.553	0.142	-0.851	0.078*	-0.378	0.485
Profitable	-2.598	<.0001***	-2.668	<.0001***	-2.606	<.0001***	-2.842	<.0001***
Merger	0.586	0.045**	0.661	0.027**	0.711	0.035**	1.317	0.009***
Specialist	-0.128	0.673	-0.193	0.531	-0.551	0.161	0.607	0.249
Specialist*Tenure	-0.084	0.038**	-0.074	0.065*	-0.050	0.307	-0.164	0.078*
Number of pairs	214		209		144		97	
Wald Chi-squared	51.862	<.0001***	50.921	<.0001***	34.927	<.0001***	23.243	0.0031***
Wald chi-square test (Tenure + Specialist*Tenure)	0.405	0.525	0.131	0.718	0.313	0.576	0.020	0.888

See notes Table 3

TABLE 5

Regression results for the market reaction at the announcement of material misstatements

	Model 1		Model 2		Model 3		Model 4	
	Income-Increasing		Core Earnings		Annual		Quarterly-only	
	<u>Coef.</u>	<u>p-value</u>	<u>Coef.</u>	<u>p-value</u>	<u>Coef.</u>	<u>p-value</u>	<u>Coef.</u>	<u>p-value</u>
Constant	-0.010	0.783	-0.027	0.399	0.017	0.760	0.014	0.686
Tenure	0.000	0.847	-0.001	0.755	-0.002	0.426	0.003	0.044**
Fraud	-0.075	0.004***	-0.079	0.003***	-0.113	0.002***	-0.068	0.023**
Attributed to:								
Auditor	-0.081	0.009***	-0.062	0.060*	-0.114	0.013**	-0.048	0.128
SEC	0.019	0.633	0.063	0.191	-0.013	0.758	-0.008	0.849
Company	-0.062	0.017**	-0.054	0.046**	-0.045	0.242	-0.081	0.001***
Core Earnings	-0.033	0.310	n/a		-0.022	0.580	-0.007	0.778
Inc Chg/Assets	-0.039	0.550	-0.012	0.835	-0.054	0.730	0.010	0.844
Acc't Groups	-0.015	0.248	-0.016	0.245	-0.005	0.800	-0.023	0.147
Years Restated	0.003	0.803	-0.005	0.695	-0.008	0.608	-0.117	0.019**
Size Interact.	0.081	0.021**	0.086	0.015**	0.032	0.452	0.069	0.084*
Debt Interact.	-0.485	0.336	-0.648	0.219	-0.317	0.635	0.091	0.846
Adj. R2	0.12		0.11		0.16		0.17	
F-stat./p-value	4.982	0.000***	4.890	0.000***	3.443	0.000***	5.319	0.000***
N	331		304		205		236	

Notes:

Tenure = the length of the auditor-client relationship at the date of the restatement announcement, estimated by counting the number of years that the client has had the same auditor since 1980 according to Compustat and adding the number of years misstated.

Fraud = 1 if companies report irregularities, receive AAERs, or criminal indictments, and 0 otherwise.

Attributed to:

Auditor = 1 if the need for restatement/discovery of the misstatement was attributed to the auditor in press releases or SEC filings, 0 otherwise;

SEC = 1 if the need for restatement/discovery of the misstatement was attributed to the SEC or other regulators in press releases or SEC filings, 0 otherwise;

Company = 1 if the need for restatement/discovery of the misstatement was attributed to the company (management, internal audit, or employees) in the press release or SEC filings, 0 otherwise.

Core Earnings = 1 if revenue, cost of sales, or operating expenses was affected by restatement, 0 otherwise.

Inc Chg/Assets = the change in reported income over the misstated period scaled by total assets.

Acc't Groups = the number of income statement account types affected by restatement (with a maximum of seven).

Years Restated = the number of years restated, where one quarter is .25 years.

Size interaction = natural log of total assets times change in net income/assets.

Debt Interaction = long-term debt/total assets times change in net income/assets.

*** indicates significant at .01, ** indicates significant at .05, * indicates significant at .10

TABLE 6

Tests of mean tenure differences across parties attributed with identifying misstatements

Attributed to:	Income-Increasing		Core Earnings		Annual		Quarterly-only	
	<u>N</u>	<u>Mean Tenure</u>	<u>N</u>	<u>Mean Tenure</u>	<u>N</u>	<u>Mean Tenure</u>	<u>N</u>	<u>Mean Tenure</u>
Auditor	67	6.5	62	6.6	35	6.2	38	6.9
Company	121	7.2	117	7.1	66	7.4	68	7.2
Joint Auditor & Company	23	10.5	26	9.9	15	9.4	12	10.3
SEC	41	9.4	27	9.1	58	10.2	21	6.7
Unknown	121	8.0	106	8.3	63	7.6	114	7.6
Total	373	7.8	338	7.8	237	8.1	253	7.4
One-way ANOVA								
F-statistic (p-value)	3.15	(0.01)***	2.35	(0.05)**	3.80	(0.01)***	0.90	(0.47)

Notes:

*** indicates significant at .01, ** indicates significant at .05, * indicates significant at .10

TABLE 7
Regression of returns on tenure

Panel A: Measuring tenure at the time of the misstatement

	coefficient estimate	p-value
intercept	-0.01359	0.2051
Tenure	0.00084	0.0673 *

Adj R² = 0.0104

Panel B: Measuring tenure at the time of the auditor switch

	coefficient estimate	p-value
intercept	-0.01679	0.1550
Tenure	0.00205	0.0547 *

Adj R² = 0.0212

Notes:

Returns are 2-day market-adjusted returns on the day of that auditor switch is announced and the day following (i.e., in the [0, 1] window)

p-values are two-tailed for the intercept and one-tailed for Tenure

*** indicates significant at .01, ** indicates significant at .05, * indicates significant at .10