

Audit Engagement Review: Evidence from Audit Report Errors

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Abstract

Reviewing the work of the engagement team is a critical aspect of financial statement auditing but is generally unobservable to external stakeholders. This can create challenges for assessing audit quality for individual audit engagements. This study's objective is to introduce and investigate an archival measure that proxies for audit engagement review: audit reports containing errors. We examine audit report errors because the audit report represents the auditor's primary communication with financial statement users and is subject to a rigorous review process. We first provide evidence that typical factors that influence audit engagement review are associated with audit report errors. Specifically, we find that errors are more likely to be present in audit reports when time pressure exists and less likely for clients that are of greater importance. Next, we examine whether our measure for review is associated with audit quality. Results suggest that errors in audit reports are positively associated with financial reporting misstatements (as measured by subsequent out-of-period adjustments). Collectively, our evidence suggests that audit reports containing an error is a suitable archival proxy for (ineffective) audit engagement review.

Keywords: audit quality, audit report, review, SEC Comment Letters, time pressure, typographical error

JEL descriptors: M42 and M48

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1. Introduction

The review process during an audit engagement is unobservable to financial statement users and other external stakeholders, which makes it difficult to assess audit quality. However, according to PCAOB standards Nos. 1015 and 1201, review of the work of the engagement team is a vital part of audit supervision and is the responsibility of the engagement partner and other engagement team members (PCAOB 2018a; PCAOB 2018b). Audit effectiveness is affected by how the engagement team's work is reviewed.¹ Literature supports the importance of the audit review process and its role as a quality control mechanism (Bamber and Bylinski 1982; Solomon 1987; Rich et al. 1997). Nonetheless, prior studies have not provided a measure for audit engagement review that is based on publicly available information. Accordingly, the objective of this study is to introduce and investigate an archival proxy for audit engagement review.

In order to address this study's objective, we utilize audit reports published within 10-Ks because they are the primary means by which an auditor communicates with stakeholders regarding the administration and conclusions of the audit engagement. Further, because audit reports are the key deliverable from the audit process, they are reviewed by multiple levels of an audit engagement team. Anecdotally from private conversations, audit partners intimated that the level of audit report review is at least as rigorous as the level of review of the remainder of the

¹ Relatedly, AS 1201 states: "The objective of the auditor is to supervise the audit engagement, including supervising the work of engagement team members so that the work is performed as directed and supports the conclusions reached." (PCAOB 2018b)

audit engagement.² Therefore, we propose that an audit report containing an error is an observable measure of audit engagement review ineffectiveness.³

We address the research question of whether audit report errors represent ineffective review because of the potential audit quality implications for specific engagements. A challenge with some common audit quality measures is that they are financial reporting outcome variables, and it can be difficult to archivally disentangle the influences of the client's management and their auditor (DeFond and Zhang 2014; Gaynor, Kelton, Mercer, and Yohn 2016). For example, discretionary accruals, just meeting or beating earnings thresholds, and restatements could occur because of the client's financial reporting incentives and/or the auditor's lax monitoring. Relatedly, Christensen, Glover, Omer, and Shelley (2016) survey auditors and investors and conclude that the most crucial determinants of audit quality are auditor characteristics. However, a limitation of many auditor characteristic measures is that they are generally either firm-level (e.g., Big N, national audit industry specialist, PCAOB inspection deficiencies, PCAOB inspection frequency – annual or triennial) or office-level (e.g., office size and MSA audit industry specialist).⁴ In contrast, errors in audit reports embody a measure that is both specific to an audit engagement and an audit engagement team quality/characteristic. Accordingly, audit report errors provide an engagement-specific indication of the quality of the audit performed.

We begin our empirical analysis by investigating the determinants of errors in audit reports. Our sample is comprised of all filers that meet our data requirements and issued audit

² We conducted interviews with several Big Four and second tier audit partners and managers to understand the audit report process and seek their feedback regarding whether errors in audit reports is a reasonable proxy for the effectiveness of audit engagement review. Information about the interviews is included in section 2.

³ Errors refer to expositional errors (e.g., missing requirements of PCAOB AS 3101, incorrect dates, grammar mistakes, misspellings, etc.) in the audit report.

⁴ The recent availability of Form AP data allows researchers to assess audit quality at the partner-level, but there could be variation in audit quality across an audit partner's portfolio of clients based on factors such as the specific engagement team, time pressure, and client importance.

reports for years ended between December 15, 2017 and December 30, 2018 for a total of 1,875 company-year observations (1,148 unique companies). Our analysis includes two types of audit report errors: major and minor errors.⁵ We examine three factors that likely affect the quality of audit engagement review: time pressure (Lambert, Jones, Brazel, and Showalter 2017), client importance (Blankley, Hurtt, and MacGregor 2012), and engagement risk (Nelson 2009). We predict and find that time pressure increases the likelihood that audit reports contain an error. Specifically, we document a negative association between the number of days between when the audit is substantially completed (i.e., audit report date) and the SEC 10-K deadline and both types of errors. We also predict and provide limited support that the likelihood of an audit report containing an error is affected by client importance. We find a significant negative association between audit fees and minor errors. However, we do not find a significant association between our measures of engagement risk and audit report errors. Together, our results suggest that constraints and incentives that likely affect the audit engagement review are associated with errors in audit reports. This provides support that errors in audit reports are a suitable proxy for audit engagement review.

Next, we examine whether audit report errors are associated with audit quality. We predict that errors in audit reports are positively associated with misstatements in the financial statements, which we measure with subsequent restatements, revisions, and out-of-period adjustments related to the concurrent financial statements. We find a positive association between audit report errors and subsequent out-of-period adjustments, but not the more severe

⁵ Major errors refer to errors where the auditor did not follow the requirements or language specified in PCAOB AS 3101 and/or the company amended their 10-K and indicated the original filing contained an audit report error. Minor errors generally are typographical mistakes. Major and minor errors are discussed in detail in section 3 and also listed in Appendix C.

misstatement measures of restatements and revisions. While out-of-period adjustments represent less severe misstatements, managers have incentives to correct prior misstatements with the less prominent method of out-of-period adjustments (Acito, Burks, and Johnson 2009). Because managers can opportunistically use discretion for materiality calculations (Acito, Burks, and Johnson 2019; Thompson 2019) and auditors may have incentives to comply with management's preference for out-of-period adjustment treatment (Christensen, Schmardebeck, and Seidel 2019), out-of-period adjustments are an informative measure of audit quality (Choudhary, Merkley, and Schipper 2019).

To further validate our measure, in additional analysis, we create a partner-specific audit report error rate based on errors identified in our sample. We examine whether this partner-specific error rate is associated with misstatements in the financial statements of the partner's other engagements (not included in our sample). Using this out-of-sample population, we document a positive association between our measure, the partner-specific audit report error rate, and future out-of-period adjustments. Collectively, our findings suggest that errors in audit reports provide an indication of the effectiveness of the audit engagement review, which have implications for audit quality.

We make at least two primary contributions to the literature. First, prior literature suggests that audit engagement review is an integral part of the audit process and significantly influences audit quality (Bamber and Bylinski 1982; Solomon 1987; Rich, Solomon, and Trotman 1997). Further, the PCAOB establishes the importance of review by the engagement partner and the rest of the engagement team in its auditing standards (PCAOB 2018a; PCAOB 2018b). However, the audit engagement review process is unobservable to stakeholders that do not have private information about the administration of the audit. Our proxy provides insight

into the quality of review at different levels of the engagement team because the audit report is reviewed by multiple individuals within the engagement team. Our evidence suggests that audit report errors are an observable signal about the effectiveness of review throughout the entire engagement.

An important aspect of our review proxy is that it is audit engagement-specific, which has implications for evaluating audit quality for individual audits. Prior studies utilize proxies for audit quality that are difficult to disentangle from financial reporting quality (e.g., discretionary accruals, restatements; DeFond and Zhang 2014; Gaynor et al. 2016). Other proxies such as auditor size, auditor specialization, and audit office size are generalized across an audit firm or office. The strength of our proxy (errors in audit reports) is that audit reports are the responsibility of the audit engagement team and, therefore, less confounded by client reporting incentives and/or generalizable to the entire audit firm or office. Furthermore, audit reports are more readily available and accessible than most audit quality proxies.⁶

More broadly, financial statement users have questioned whether the audit report provides valuable information (Gray et al. 2011; Mock et al. 2013). The PCAOB made recent changes to the audit report in an effort to improve its informativeness. However, researchers have questioned the usefulness of the new audit report requirements (e.g., Lennox, Schmidt, and Thompson 2019; Gutierrez, Minutti-Meza, Tatum, and Vulcheva 2018).⁷ Our second contribution is that we provide evidence that an unintended consequence of the expanded audit report requirements is the potential disclosure of information regarding the effectiveness of audit

⁶ For instance, Audit Analytics (2019b) documents that the restatement period averages more than 16 months between original filings and the subsequent non-reliance 8-K filing and discretionary accruals involve industry-based regression analysis.

⁷ Another example is Daugherty, Dickins, Pittman, and Tervo (2020)'s comment letter to the PCAOB post-implementation review of AS 3101 that states: "Third, chief financial officers, audit engagement partners, and audit committee members participating in the process see little, if any, value added by reporting CAMs."

engagement review. Audit reports are a common explanation for amended 10-K filings; however, the occurrence was more frequent after the initial requirements of AS 3101 were effective (Audit Analytics 2020a). In terms of continued generalizability of our measure, it is reasonable to assume that audit report errors will persist now that critical audit matter (CAM) reporting is required. CAM discussions are intended to include language tailored to each specific client, and therefore, cannot be prepared by only using a firm template.

The next section reviews the related literature and develops the hypotheses. Section 3 presents the sample selection and research design. Section 4 discusses the empirical results, Section 5 presents additional analysis, and Section 6 concludes the paper.

2. Related literature and hypothesis development

Audit engagement review

PCAOB Auditing Standards 1201 and 1015 provide guidance related to the responsibilities of both the audit partner in charge of the audit, referred to as the engagement partner, and the rest of the engagement team members with respect to the review of the audit engagement team's work, including the issuance of the audit report. Specifically, Auditing Standard 1201 states, "The engagement partner is responsible for the engagement and its performance. Accordingly, the engagement partner is responsible for *proper supervision of the work of engagement team members* and for compliance with PCAOB standards, including standards regarding using the work of specialists, other auditors, internal auditors, and others who are involved in testing controls (PCAOB 2018b, par. 03, emphasis added)." Additionally, Auditing Standard 1015 explains, "In applying due professional care in accordance with AS 1015, each engagement team member has a responsibility to bring to the attention of appropriate persons, disagreements or concerns the engagement team member might have with respect to

accounting and auditing issues that he or she believes are of significance to the financial statements or the *auditor's report* regardless of how those disagreements or concerns may have arisen (PCAOB 2018a, par. 05, emphasis added).” While the engagement partner is responsible for establishing the appropriate culture for effective supervision and review, the engagement team is also responsible for bringing issues to the attention of the audit partner. Accordingly, the audit supervision and review process is a collective team effort.

Audit engagement review is unobservable to external parties that lack private information regarding how a particular company’s audit is administered. This makes it difficult for companies’ stakeholders to assess audit quality. However, the ability of audit firms to appropriately monitor their audit team members and to effectively review their work in an efficient manner is crucial to the success of the audit. The audit review process has long been considered an important quality control mechanism for the audit process (Bamber and Bylinski 1982; Solomon 1987; Rich et al. 1997).

According to Knechel, Krishnan, Pevzner, Shefchik, and Velury (2013), the audit process is one of four categories of audit quality established in prior literature: inputs, process, outcomes, and context. First, inputs refer to auditors’ knowledge and expertise, incentives and motivation, and professional skepticism. For example, literature provides evidence that auditors with industry specialization are associated with higher-quality audits (Taylor 2000; Low 2004; Hammersley 2006; Maroney and Simnett 2009; Rose-Green, Huang, and Lee 2011; Stephens 2011). Second, the audit process consists of multiple stages which include risk assessment, internal control evaluation, testing, and supervision and review. Throughout each stage of the audit, audit quality is dependent upon the quality of auditor judgement. Auditor judgement has been shown to be negatively affected by audit fee pressure (Gramling 1999; Houston 1999),

client loss risk (Farmer, Rittenberg, and Trompeter 1987; Blay 2005), and incentives to retain clients (Lord 1992; Trompeter 1994; Chang and Hwang 2003) and positively influenced by potential reputation loss, regulatory enforcement, and potential cost of litigation (Nelson 2009).

Specific to review of the work of the engagement team component of the audit process, research provides evidence that there are differences in the quality and types of reviews performed both within the engagement team and between different engagement teams. In their field-based study, Fargher, Mayorga, and Trotman (2005) provide evidence that there are differences in the reviewer's attitude towards detail and this attitude varies based on the individual reviewer style.⁸ Furthermore, research suggests that managers and seniors detect different types of errors more effectively (i.e., conceptual vs. mechanical type errors; Ramsay 1994). Gul, Wu, and Yang (2013) find evidence consistent with individual auditors having an effect on audit quality which can be partially explained by auditor characteristics (e.g., educational background). Additionally, Li, Qi, Tian, and Zhang (2017) document a contagion effect from individual auditors who have performed failed audits. They find that individual auditors involved in failed audits also perform low-quality audits on other audit engagements. Collectively, evidence suggests that individual auditors have different abilities/styles as it relates to review and individual auditors are able to affect audit quality.

Third, audit outcomes are the result, whether product or consequence, of the audit process: restatements, litigation, financial reporting quality (i.e., discretionary accruals), and regulatory reviews of audit firms (i.e., PCAOB inspections). Research finds a negative association between the level of total discretionary accruals, or disaggregated income-increasing

⁸ In our discussion with a retired audit partner, the partner suggested that there are differences in types of partner reviews. Some partners tend to be very detailed oriented while other partners review primarily at a high-level or “big picture” perspective.

accruals, and audit quality including auditor tenure (Myers, Myers, and Omer 2003), Big N auditors (Francis, Maydew, and Sparks 1999; Kim, Chung, and Firth 2003), auditor specialization (Balsam, Krishnan, and Yang 2003; Krishnan 2003), and audit office size (Francis and Yu 2009). Finally, the context of the audit, such as market perceptions of audit quality, audit partner compensation, audit fees, and auditor tenure, are other factors that can affect the audit process and audit outcomes. For example, accounting restatements are negatively associated with different measures for audit quality including auditor industry expertise (Romanus, Maher, and Fleming 2008; Chin and Chi 2009) and auditor tenure (Stanley and DeZoort 2007). While there has been a plethora of research examining the relation between the audit process and audit outcomes, we investigate the construct of audit engagement review in an archival setting, which is an integral part of the audit process but generally unobservable.

In their surveys with audit professionals and investors about their views on audit quality, Christensen et al. (2016, 1648) state, “We find a consensus that auditor characteristics may be the most important determinants of audit quality.” Accordingly, in this study, we identify an audit-specific measure of review quality which is a characteristic of the entire audit team. In particular, we measure the quality of audit review by determining the presence of errors included in the audit report. The audit report is the primary product of the audit process which is strictly the responsibility of the audit team. Additionally, the audit report is prepared and reviewed by several of the audit engagement personnel from the lower level staff auditors to the engagement partner and quality review partner. While errors in the audit report alone may seem immaterial, we propose that errors are an indication that the audit engagement review did not produce the desired effects.

Audit report

The audit report represents auditors' primary communication to financial statement users of their audit reporting decision. The audit reporting decision, also commonly referred to as the audit opinion, is based on auditors' collection and evaluation of sufficient audit evidence that is reliable and relevant to management's financial statement assertions. Once auditors complete their financial statement audit, they determine the appropriate audit report type to communicate their opinion about the financial statements.⁹ The New York Stock Exchange began requiring registrants to include a scope and opinion paragraph in the audit report in 1934. From then until the recent implementation of the PCAOB revised Auditing Standard No. 3101, *The Auditor's Report on an Audit of Financial Statements When the Auditor Expresses an Unqualified Opinion* (PCAOB 2017b), the standard three-paragraph audit report remained substantially unchanged.

While the format of the audit report has remained fairly static, there have been a few changes to wording, structure, and report types. For example, the passages of the Sarbanes-Oxley Act of 2002 produced two key changes to the audit report. First, according to PCAOB Auditing Standard No. 3101, references to generally accepted auditing standards were replaced with references to standards of the PCAOB (PCAOB 2017b). Second, the PCAOB issued Auditing Standard No. 2201 which allows the audit report to include an opinion on the financial statements and an opinion on internal control over financial reporting (PCAOB 2017a). If auditors choose not to include the opinion on internal control over financial reporting in the audit report and instead issue a separate report, then a paragraph is included in the audit report referring to the internal control audit and its related report.

The amount of information included in the audit report and the lack of significant changes have caused some to question whether the previous format of the audit report

⁹ Audit report types for financial statements include unqualified, adverse, qualified, and disclaimer (Church, Davis, and McCracken 2008).

sufficiently communicates valuable information to investors and other financial statement users (Gray et al. 2011; Mock et al. 2013). In general, financial statement users view the standard unqualified opinion as the baseline in which to begin their decision-making process (Asare and Wright 2009; CAQ 2011). Deviations from the baseline expectation of an unqualified audit opinion (i.e., going concern modification, material weaknesses, qualified opinion, etc.) convey negative news and result in negative stock market reactions (Firth 1978; Chow and Rice 1982; Taffler, Lu, and Kausar 2004). However, literature also suggests that the negative stock market reaction begins prior to the issuance of the audit report, which may indicate that the audit report provides limited additional information (Elliot 1982; Dodd, Dopuch, Holthausen, and Leftwich 1984, Czerney, Schmidt, and Thompson 2019).

Audit partners also have a distinct view about the audit report and how stakeholders perceive the report. In order to obtain a better understanding of audit partner perspective on the audit report and the importance of their review, we discussed the audit report review process with audit partners and managers from several Big Four and second-tier audit firms. A representative comment of the interviewees was “My perspective is that the audit report...reports the audit. If the audit report is sloppy then the audit (or at least the perception of the audit) was more likely to be sloppy. The client is paying for the audit but all that most people see is the audit report. I emphasize with my staff that we need to get it right.” Relatedly, there was general agreement that the effectiveness of the audit report review would be at least as effective as the review for the rest of the audit. One of the partners addressed this issue: “The audit report is one of the things that I review most carefully because I want to get it right the first time. It is important to maintain our reputation with current and potential clients.” Another partner indicated that errors in the audit report “signal a lack of attention to detail.” It is clear from our

discussions with current and retired audit partners and managers that they view the report as crucial to communicating not only the results of the audit but also the quality of the audit process (including the review of the work of the engagement team).

In an effort to provide more relevant information about auditors and the audit process, the PCAOB issued a new auditing standard, Auditing Standard 3101, the majority of which is effective for year ends ending on or after December 15, 2017 (PCAOB 2017b). The new standard requires communication of critical audit matters, disclosure of auditor tenure, and other improvements to the standard audit report.¹⁰ The other improvements include a statement that the auditor is required to be independent and changes to the language and form of the standardized auditor's report (PCAOB 2017b). These changes to the report and the renewed focus by auditors on the report due to the changes offers a unique setting to examine audit engagement review. In particular, this study exploits this setting to examine whether errors in the audit report represents ineffective audit engagement review.

Determinants of errors in audit reports

In order to investigate if errors in audit reports are indicative of low-quality audit engagement review, we begin by first examining the determinants of errors. Certain constraints and incentives impact the quality of review. The constraints and incentives may impact the effectiveness of the auditor's review or the audit team's response to the review. Accordingly, we conjecture that these incentives should also be associated with errors in audit reports if errors are an appropriate proxy for audit engagement review. In particular, we examine three potential

¹⁰ Inclusion of critical audit matters in the audit report is required for fiscal years ending on or after June 30, 2019 for large accelerated filers; and on or after December 15, 2020, for all other companies to which the requirements apply (PCAOB 2017b).

incentives and their relation with audit report errors: time pressure, client importance, and engagement risk.

When auditors face time pressure due to a financial reporting deadline, their capacity to engage in effective review is likely diminished. Prior studies using experimental and qualitative research methods provide evidence consistent with time pressure negatively affecting audit and decision quality (e.g., Alderman and Deitrick 1982; Kelley and Margheim 1990; McDaniel 1990; DeZoort and Lord 1997). Additionally, prior literature using archival methodology investigates the relation between resource constraints and audit quality. For example, Lopez and Peters (2012) document that companies audited during busy season have higher discretionary accruals than non-busy season audits. Using auditor workload as a proxy for resource constraints, Bills, Swanquist, and Whited (2016) find an association between increases in auditor workload and lower audit quality. Likewise, Czerney et al. (2019) provide evidence that resource constraints, measured by the concentration of client financial statement deadlines within an audit office, are associated with lower audit quality. Therefore, we expect that time resource constraints for audit engagements will be associated with an increase in audit report errors. Our first hypothesis is formally stated as follows:

HYPOTHESIS 1. *Ceteris paribus, audit engagement time pressure is positively associated with errors in audit reports.*

Auditors also have incentives to maintain good client relations with high profile clients. In general, a client becomes more important to an audit firm in terms of operational profitability and staffing when there is a stronger economic bond (i.e., higher fees; Craswell, Stokes and Laughton 2002; Frankel, Johnson, and Nelson 2002; Chung and Kallapur 2003). Early research, prior to the Sarbanes-Oxley Act of 2002 (SOX), is somewhat mixed. Frankel et al. (2002) provide evidence consistent with audit fees being

negatively associated with earnings management suggesting higher audit fees are indicative of more audit effort. However, Craswell et al. (2002) and Chung and Kallapur (2003) find no association between audit fees and issuing unqualified opinions and abnormal accruals, respectively. In a more recent study using post-SOX data, Blankley, Hurtt, and MacGregor (2012) document a negative association between abnormal audit fees and future restatements which suggests abnormal audit fees reflect more audit effort. Consistent with recent findings, audit firms likely have more incentives to ensure there are no errors in audit reports for important clients. Therefore, we expect client importance to be negatively associated with errors. The second hypothesis is stated as follows:

HYPOTHESIS 2. *Ceteris paribus, audit client importance is negatively associated with errors in audit reports.*

Finally, auditors may be incentivized to increase the effectiveness of their engagement review in an effort to avoid the cost of reputational damage (i.e., engagement risk). Large audit firms (i.e., Big 4) have a greater reputation to protect and furthermore, have a greater investment in technology and training to detect errors (DeAngelo 1981; Shockley 1981; Craswell et al. 2002). For example, Eshleman and Guo (2014) find that Big 4 audit firms are less likely to issue an accounting restatement compared to other audit firms. Relatedly, literature suggests that large audit firms display greater conservatism when issuing audit reports (Francis and Krishnan 1999). Auditor judgement is also positively influenced by potential cost of litigation (Nelson 2009). We anticipate auditors will employ more effective review when the audit has higher engagement risk. Accordingly, we present our third hypothesis:

HYPOTHESIS 3. *Ceteris paribus, audit engagement risk is negatively associated with errors in audit reports.*

Errors in audit reports and audit quality

We next examine the relation between errors and audit quality to investigate if the errors have implications on audit quality. Literature supports the integral role audit engagement review plays in determining the quality of an audit (Bamber and Bylinski 1982; Solomon 1987; Rich et al. 1997). Prior research also provides evidence that individual auditors have different review styles and can affect audit quality (Fargher et al. 2005; Ramsay 1994; Gul et al. 2013). Furthermore, anecdotal evidence from audit partner interviews suggests that the audit report is the primary communication from the audit engagement team informing stakeholders about the audit outcome and is representative of the review of the entire audit. However, it is plausible that the errors are not indicative of audit quality because higher-quality audit reviews emphasize key issues and risks rather than details (Gibbins and Trotman 2002). Nonetheless, we expect that errors in audit reports signal ineffective review during the entire audit engagement and therefore, are an indication of low-quality audits. Our final hypothesis is formally stated as follows:

HYPOTHESIS 4. *Ceteris paribus, errors in audit reports are positively associated with accounting misstatements.*

3. Sample selection and research design

Sample selection

On June 1, 2017, the PCAOB revised AS 3101 “to enhance the relevance and usefulness of the auditor’s report with additional information for investors” (PCAOB 2017c). Other than the critical audit matter requirement, the “New Auditor’s Report” was effective for audits of fiscal years ending on or after December 15, 2017 (PCAOB 2020). These required changes to the report format and disclosures (e.g., auditor tenure) provide us with a unique setting for hypothesis testing. Because it was “the first significant change to the standard form auditor’s report in more than 70 years” (Doty 2017), after the effective date, audit reports are required to

be modified to include company-specific information. Therefore, auditors cannot fully prepare the report using a template and must implement new formatting changes which allows for variance and the potential for errors. Additionally, the audit report is less likely to have been constructed with a “same as last year” approach and therefore should be more likely to reflect the concurrent audit’s review than previous audit reports.

As shown in Table 1, our sample selection process started with all audit reports for companies listed on major stock exchanges (Cao, Chen, and Higgs 2016) with fiscal years ending after December 15, 2017 for a total of 5,863 audit reports. Because audit quality is measured by subsequently identified misstatements, we only extend our sample through December 31, 2018 to allow time for the occurrence of restatements, revisions and out-of-period adjustments. Our final sample is 1,875 company-year observations (1,148 unique companies) after excluding financial and utility companies and observations with missing Compustat or Audit Analytics information.

INSERT TABLE 1 HERE

Determinants of errors in audit reports

We test our first three hypotheses by estimating the following logistical regression model, which contains predicted determinants of an audit report containing an error on the right hand side of the equation:

$$\begin{aligned}
 ERROR = & \beta_0 + \beta_1 \times DAYS_TO_DEADLINE + \beta_2 \times BUSY + \beta_3 \times LN_AUDITFEE \\
 & + \beta_4 \times NON_AUDITFEE + \beta_5 \times BIG_FOUR + \beta_6 \times LITIGATION \\
 & + \gamma_1 \times LN_PUBLIC_CLIENTS + \gamma_2 \times LN_TENURE + \gamma_3 \times SWITCH + \gamma_4 \times LEVERAGE \\
 & + \gamma_5 \times LOSS + \gamma_6 \times ROA + \delta \times FIXED_EFFECTS + \varepsilon
 \end{aligned} \tag{1}$$

Our audit report error measure is an indicator variable equal to one for major errors (*ERROR-MAJOR*), minor errors (*ERROR-MINOR*), or either category (*ERROR-EITHER*); zero otherwise.

To provide ourselves with a framework with what to classify as a major error, we analyzed SEC comment letters to identify matters that the SEC considers substantial enough to be included within a comment letter. Accordingly, we downloaded SEC comment letters for all companies issued between 2013 and 2018 from the “AuditAnalytics Comment Letter” database. Within these files, we searched for “PCAOB” to isolate audit-related comment letters. This resulted in 353 instances where SEC correspondences contain “PCAOB” within the list of issues. See Appendix A for examples of SEC comment letter correspondence related to audit reports, which we consider to be major errors. After reviewing the comment letter correspondence, we concluded that the SEC requires revision to the audit report when the audit report does not include the specified language or requirements of the PCAOB’s reporting standards.¹¹

Minor errors generally are typographical mistakes that we primarily identify by utilizing the default setting of Microsoft’s Spelling and Grammar check (and disregarding errors identified based on company names). To identify other mistakes that could also be classified as minor errors, we read through a random subsample of 25 audit opinions for companies with fiscal years ending on or after December 15, 2017. This allowed us to identify typographical errors that would not be identified by spell check, such as incorrect usage of words or phrases. An example is the improper descriptions of multiple audits when one balance sheet is presented. Other common errors included improper verb-subject agreement (such as “our audits includes”) or indications that the audit opinion had not yet been updated (i.e., included the words “draft” or “pending”). Two researchers (independent from this search process) examined each error to

¹¹ We also consider amended 10-K filings related to the audit report to be a major error.

confirm that it was in fact an error. Appendix B shows examples of major and minor errors and Appendix C provides a comprehensive list of the types of errors that we found by reviewing SEC comment letters (*ERROR-MAJOR*) and our detailed review of a sample of audit reports for typographical errors (*ERROR-MINOR*).

We examine three constraints and incentives that may impact the effectiveness of audit engagement review: time pressure, client importance, and engagement risk. Hypothesis 1 predicts that audit report errors are more likely to occur when auditors experience time pressure for completing the audit. We employ two variables to proxy for time pressure. Our first proxy for time pressure is *DAYS_TO_DEADLINE*, which we calculate as the number of days between when the audit is substantially completed (i.e., audit report date) and the SEC's 10-K deadline based on filing status (Lambert et al. 2017). *DAYS_TO_DEADLINE* is an inverse measure, which means that higher values represent less time pressure. Accordingly, we predict a negative coefficient estimate for β_1 because the review process can be more effective when auditors are not pressured or rushed to meet filing deadlines. The second proxy for time pressure is an indicator variable equal to one whether the audit occurs during busy season (*BUSY*); zero otherwise (Lopez and Peters 2012). Based on Hypothesis 1's prediction, we expect a positive coefficient estimate for β_2 .

The second incentive examined is client importance. Hypothesis 2 predicts that client importance is negatively associated with errors in audit reports. Our first proxy for client importance is *LN_AUDITFEE*, which we calculate as the log of total fees paid to the auditors. Because non-audit service fees can be more profitable than audit fees, client importance can also increase as more non-audit service are provided. We also proxy for client importance with *NON_AUDITFEE*, which is measured as non-audit fees scaled by total fees (Blankley, Hurtt, and

MacGregor 2014). Negative coefficient estimates for β_3 or β_4 would provide support for Hypothesis 2.

The final incentive that we investigate is engagement risk. In Hypothesis 3, we predict that engagement risk is negatively associated with errors in audit reports. We measure engagement risk using two indicator variables: 1) whether or not the auditor is a Big 4 accounting firm (*BIG_FOUR*) and 2) whether or not the client operates within an industry that has a greater propensity for litigation (*LITIGATION*; Craswell et al. 2002; DeFond and Zhang 2014; Francis, Philbrick, and Schipper 1994). Generally speaking, Big 4 accounting firms have higher engagement risk because reputational damage can potentially have more severe ramifications. The auditor also has higher engagement risk for clients that are more likely to result in litigation. Therefore, based on Hypothesis 3's prediction, we expect negative coefficient estimates for β_5 and β_6 .

Equation (1) includes the following auditor-related control variables: the log of the number of public clients audited by the individual office in that year (*LN_PUBLIC_CLIENTS*), the log of the years of auditor tenure (*LN_TENURE*), and an indicator variable equal to one for the initial year of the client-auditor relationship (*SWITCH*; Francis, Michas, and Yu 2013; Myers et al. 2003), zero otherwise. The following standard company-specific control variables are also included in the determinant model: *LEVERAGE*, *LOSS*, and *ROA* (Blankley et al. 2014; Dechow, Ge, Larson, and Sloan 2011; DeFond and Zhang 2014).¹² We also include both year and industry fixed effects (based on Fama-French 12 industry classification).¹³

¹² See Appendix D for detailed variable definitions and related Compustat and Audit Analytics variables.

¹³ See industry classifications at <http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/>. We elected the Fama-French 12 classification due to allow for sufficient degrees of freedom for our sample. However, our results are robust to instead including indicator variables based on two-digit SIC codes (untabulated).

Errors in audit reports and audit quality

The engagement partner is responsible for supervision of the audit team and review of their work for compliance with PCAOB standards, which includes the prescribed language of the auditor's report (AS 1201). Relatedly, partners have financial and career incentives to properly review their entire audit engagements. Because the auditor's report is the primary mode of communication between the auditor and financial statement users, partners are especially motivated to have their audit reports be free from errors, both major and minor errors. Based on our conversations with current and former audit partners and managers, we predict that the presence of errors in an audit report is evidence of less effective review for the audit engagement. To test Hypothesis 4, we investigate the relationship between errors and measures of audit quality with the following model:

$$\begin{aligned} \text{Misstatement} = & \beta_0 + \beta_1 \times \text{ERROR} + \gamma_1 \times \text{ICFR_WEAK} + \gamma_2 \times \text{DACC} + \gamma_3 \times \text{LN_ASSETS} \\ & + \gamma_4 \times \text{LEVERAGE} + \gamma_5 \times \text{LOSS} + \gamma_6 \times \text{ROA} + \gamma_7 \times \text{LITIGATION} \\ & + \gamma_8 \times \text{ACQUISITION} + \gamma_9 \times \text{RESTRUCTURE} + \gamma_{10} \times \text{LN_AGE} \\ & + \delta \times \text{FIXED_EFFECTS} + \epsilon \end{aligned} \quad (2)$$

The dependent variable of model (2) is an indicator variable that equals one when a misstatement is present in the current financial statements and subsequently disclosed. Misstatements can be subsequently corrected in three different ways. Listed in decreasing severity, the first of which are “Big R” restatements of previously issued financial statements which include a concurrent 8-K SEC filing indicating that users should no longer rely on those reports (i.e., non-reliance), second, “little r” revisions of previously issued financial statements are revisions that do not include a non-reliance disclosure, and “out-of-period adjustments” adjust current year results for the cumulative effect of previous misstatements (i.e., correct previously reported misstatements in the current year without changing previously issued

financial statements). While the reporting decision is technically based upon materiality, managers are aware that investor response to misstatements can vary depending on the prominence of the disclosure (Files, Swanson, and Tse 2009) and auditors can affect how misstatements are reported (Keune and Johnstone 2012; Tan and Young 2015).

GAAP allows out-of-period adjustments, which are less prominent than restatements and revisions, to correct past accounting misstatements within the current year financial statements when errors are deemed immaterial by management and the auditor. Acito, Burks and Johnson (2009) discuss managers' incentives to treat misstatements as out-of-period adjustments, which they refer to as "current-period catch-up adjustments," in order to decrease the likelihood of potential negative consequences related to restatements (e.g., future litigation, adverse auditor opinion of internal controls over financial reporting, and reduced compensation). Prior literature suggests that the reporting decision is not always based on simple mathematics. In a follow-up study, Acito et al. (2019) review SEC comment letter correspondence and find that managers exercise discretion in their materiality determination and their "immaterial misstatements" often exceed the conventional five percent of earnings heuristic. In terms of magnitude, Audit Analytics (2020b) recently reported that the largest 2019 out-of-period adjustment was disclosed by Xerox Holdings Corp to correct immaterial errors related to consolidation issues with Fuji Xerox in the previous year which decreased net income by \$110 million. Christensen et al. (2019) find that the out-of-period adjustment reporting treatment is influenced by the auditor's reputation and litigation risks as well as incentives to please important clients. Therefore, while out-of-period adjustments generally represent less severe misstatements in terms of financial statement materiality, they may be informative because discretion can be exercised related to how errors are corrected. Choudhary, Merkley, and Schipper (2019) find that disclosure of

immaterial error corrections is associated with negative stock returns and also predict future financial reporting problems such as restatements and internal control material weaknesses. Accordingly, we use all three measures of subsequently disclosed financial statement misstatements to proxy for audit quality.

The variable of interest in model (2) is *ERROR*, which is an indicator variable equal to one when the auditor's report contains an audit report error, and zero otherwise. A positive and significant coefficient estimate for β_I suggests an increased likelihood of a financial statement misstatement when an error is present in the audit report. This would provide support for Hypothesis 4 that errors are associated with lower audit quality.

The misstatement determinant model includes several control variables that are also included in model (1) and previously defined: *LEVERAGE*, *LOSS*, *ROA*, and *LITIGATION*. A key control variable in model (2) is an indicator variable equal to one when a material weakness in internal control over financial reporting has been identified by management and/or the auditor (*ICFR_WEAK*), and zero otherwise (Doyle, Ge, and McVay 2007). We also include a control variable for discretionary accruals (*DACC*) which is calculated as the residuals from the cross-sectional modified Jones model (Kothari, Leone, and Wasley 2005).¹⁴ The audit client's size, in terms of the logged value of assets (*LN_ASSETS*), was excluded from model (1) because of the variable's high positive correlation with audit fees but is included in model (2). We also include other control variables that can affect misstatements because of their effect on a company's complexity and accounting discretion (Dechow et al. 2011; Lennox and Pittman 2010). These include indicator variables for acquisitions (*ACQUISITION*) and restructuring (*RESTRUCTURE*). We also control for the natural log of the number of years the company has

¹⁴ Our results are consistent if we exclude *DACC* from model (2) (untabulated).

been publicly listed (*LN_AGE*).¹⁵ Consistent with our estimation of model (1), we also include year and industry fixed effects.

4. Results

Descriptive statistics and correlations

Table 2 shows the industry distribution and descriptive statistics for the full sample of 1,875 company-year observations. Table 2, Panel A presents the sample composition separated by Fama French-12 industry classifications. The highest of concentration of company-year observations are in the Healthcare, Medical Equipment and Drugs category (34 percent). The next two industries highly represented in the sample are Business Equipment: Computers, Software, and Electronic Equipment (19 percent) and Other: Mines, Construction, Building Material, Transportation, Hotels, Business Service and Entertainment (15 percent).

Table 2, Panel B presents the descriptive statistics for all of the variables included in our hypothesis testing. In our sample, we find that approximately eight percent of audit reports contain an error (*ERROR-EITHER* mean = 0.082). Audit reports containing major errors occur more frequently (*ERROR-MAJOR* mean = 0.056) than the errors that we identified by our manual review and utilizing Microsoft Word's Spelling and Grammar Check function (*ERROR-MINOR* mean = 0.029). Based on our prediction that audit reports containing errors represent less effective review during an audit, we anticipate that audit report errors are positively associated with time pressure (Hypothesis 1) and negatively associated with client importance (Hypothesis 2) and engagement risk (Hypothesis 3).

¹⁵ We recognize that the addition of explanatory language in the audit report may increase the likelihood that an audit report contains an error. As such, we also control for non-standard audit opinions in models (1) and (2) and obtain quantitatively and qualitatively similar results (untabulated).

Regarding the proxies for time pressure to substantially complete the audit, the average number of days within our sample until the filing deadline is just over ten days (*DAYS_TO_DEADLINE* mean = 10.248) and the vast majority the sample includes busy-season clients (*BUSY* mean = 0.898). We proxy for client importance using the amount of total fees paid to auditors and the proportion of non-audit fees to total fees. Client importance is assumed to be greater with higher values of both the log of audit fees (*LN_AUDITFEE* mean = 13.291) and proportion of non-audit fees, which is about ten percent within our sample (*NON_AUDITFEE* mean = 0.103). Related to our engagement risk proxies, a little less than half of the company-year observations are audited by Big 4 firms (*BIG_FOUR* mean = 0.481) and only a small percentage of the sample are in high-litigation industries (*LITIGATION* mean = 0.068).

In the second analysis, we investigate the relation between errors and measures of audit quality. We use three different indicators that misstatements were present in the financial statements. *BIG_R* represents the most severe misstatements and occur within our sample, but not very often (*BIG_R* mean = 0.012). The other two measures of misstatements within the financial statements occur more frequently within our sample (*little_r* mean = 0.033 and *oop_adjustment* mean = 0.034) than the non-reliance restatements.¹⁶

INSERT TABLE 2 HERE

The correlation matrix is presented in Table 3 and provides univariate evidence related to our hypothesis testing for our measures of time pressure, client importance, and engagement risk. Consistent with the notion that pressure to meet filing deadlines decreases the time spent and/or effectiveness of audit engagement review, we find a negative and significant correlation between *DAYS_TO_DEADLINE* and all three indicator variables for errors (Pearson correlations = -0.05,

¹⁶ Big R restatements being the least common type of error correction is consistent with recent trends documented by Audit Analytics (2019a).

-0.04, and -0.06). We also document negative relations between audit fees and the presence of either error (*ERROR-EITHER*) in audit reports (Pearson correlations = -0.04), which is consistent with better audit engagement review maintaining relationships with clients who pay more fees. We find a negative and statistically significant correlation between Big 4 auditors and major errors (*ERROR-MAJOR*; Pearson correlation = -0.04), but not minor errors.

The correlations between the control variables and audit report errors are generally as expected. For instance, major errors but not minor errors are less likely to occur as auditors have more public clients (Pearson correlation = -0.07). This is consistent with auditors with more public clients having better review related to audit tasks monitored by the SEC but not more general audit procedures. There also is a negative correlation between all errors and auditor tenure (Pearson correlations = -0.05, -0.11, and -0.11), which is consistent with the notion engagement review improves as auditors are farther along the learning curve for understanding their clients.

To examine whether identifying errors is informative for audit quality, we also investigate the relation between audit report errors and indicator variables for misstatements. We use three measures of financial statement misstatements that are subsequently revealed, each of decreasing severity: Big R Restatement, little r revision, and out-of-period adjustment. Out-of-period adjustments (*oop_adjustment*) is correlated with audit reports containing an error (Pearson correlations = 0.04, 0.06, and 0.06), which provides some univariate support for Hypothesis 4.

INSERT TABLE 3 HERE

Determinants of errors in audit reports

Hypothesis 1 through Hypothesis 3 predict that errors are related to time pressure, client importance, and engagement risk based on the notion that the presence of errors within audit reports indicates a lack of review for the audit engagement. As indicated previously, we use three measures of audit report errors: one based on similar major errors that the SEC identified in their comment letters between the years 2013 and 2018 (*ERROR-MAJOR*), one based on grammatical errors discovered by manually reviewing audit reports (*ERROR-MINOR*), and another indicator variable for when either of these errors are present (*ERROR-EITHER*). Table 4 presents the estimated coefficients from equation (1), which models the determinants for audit reports that contain errors. Table 4 contains three sets of columns, one for each of the audit report error measures.

We begin our multivariate analysis by examining whether time pressure is a resource constraint that impacts audit engagement review related to audit reports. Our first measure for time pressure is *DAYS_TO_DEADLINE*. Table 4 reports results that are consistent with Hypothesis 1 for all three measures of errors (-0.019 , $p\text{-value}=0.047$; -0.027 , $p\text{-value}=0.059$; -0.022 , $p\text{-value}=0.012$). The negative coefficient estimates are consistent with audit reports being more likely to contain audit report errors when the audit is completed closer to the Form 10-K deadline. With respect to the economic magnitude of this effect, the odds ratios based on our coefficient estimates suggest that a one standard deviation decrease in the number of days increases the likelihood of an auditor's report containing either error increases by approximately 15 percent (untabulated). We do not find an association between errors and our other measure of time pressure, but that may be due to the lack of variability because the vast majority of the sample are busy season audits (*BUSY* mean = 0.898).

Table 4 documents that only one of our proxies for client importance is significantly associated with audit report errors. The coefficient of -0.389 (p-value = 0.024) for *LN_AUDITFEE* is interpreted as the likelihood of a minor error decreases (increases) as the amount paid to auditor increases (decreases) which provides limited support for Hypothesis 2. This is consistent with more effective review for audit engagements where the client is more important economically, but only for certain types of tasks. We do not find a statistically significant coefficient estimate for *NON_AUDITFEE*, which is consistent with the notion that there is less economic bonding for non-audit services due to restrictions for the services that auditors can provide and maintain compliance with independence rules in the Post-SOX environment (Huang, Raghunandan, and Rama 2009; Blankley et al. 2012). Additionally, we fail to find support for Hypothesis 3. We do not estimate a significant association between the measures of engagement risk (*BIG_FOUR* and *LITIGATION*) and errors in audit reports suggesting that engagement review may not be incrementally affected by engagement risk.

Collectively, the results suggest that errors in audit reports are associated with some constraints and incentives that could affect engagement review. In particular, time pressure plays a significant role in the quality of audit engagement review. The evidence provides sufficient support that the proxy, errors in audit reports, is measuring audit engagement review. Furthermore, the lack of significance associated with engagement risk suggests that errors in audit reports may be capturing an innate individual quality/characteristic of review that is understandably not influenced by macro audit engagement factors.

INSERT TABLE 4 HERE

Errors in audit reports and audit quality

We next examine the relation between errors and audit quality by estimating model (2) for the full sample. We proxy for audit quality using subsequent disclosures of misstatements. The dependent variables in model (2) are indicator variables for each of the ways that misstatements can be corrected (listed in decreasing order of severity): Big R Restatements, little r revisions, and out-of-period adjustments. Table 5 presents results of estimating model (2), which controls for the determinants of subsequently disclosed misstatements. Because the interpretation of the results are similar for individual error categories as the combined measure (i.e., insignificant for Big R and little r and positive and statistically significant for out-of-period adjustments), we tabulate only the composite error measure (*ERROR-EITHER*) for brevity. The coefficient estimates for the control variables are generally as expected. For instance, the variable *ICFR_WEAK* is positive in each column, which is consistent with the expectation that misstatements are more likely to occur when material weaknesses exist in internal control over financial reporting. The coefficient estimate for *LITIGATION* is negative for Big R restatements (−10.556, p-value = 0.00), which is consistent with financial statements being less likely to be restated with a non-reliance disclosure when the issuer operates within an industry that faces greater litigation risk.

The variable of interest in Table 5 is *ERROR-EITHER*, which is an indicator variable equal to one when there is either type of error (major or minor) present in the audit report. We find insignificant coefficient estimates for the two categories of more material misstatements: *BIG_R* (0.605, p-value = 0.403) and *little_r* (−0.670, p-value = 0.291). However, we find a positive association between the presence of an audit report error and a misstatement subsequently disclosed by means of an out-of-period adjustment (1.162, p-value = 0.002), which provides support for Hypothesis 4. These results are consistent with the audit report errors being

informative about audit quality, at least in terms of misstatements that may be immaterial individually but accumulate over time to be large enough to correct and disclose. Our findings suggest that errors in audit reports may be an observable signal about the quality of audit engagement review.

INSERT TABLE 5 HERE

5. Additional analysis

Partner Error Rate

To further validate our measure, we examine whether partners whose audit reports have errors more frequently than the average partner are more likely to issue financial statements containing misstatements. We first calculate a partner-specific error rate (computed as the total audit reports containing errors by partner divided by that partners total number of engagements) within our sample. We create an indicator variable equal to one if the partner error rate exceeds the mean; zero otherwise (*HIGH ERROR-EITHER*). We then identify all of the partners' engagements with fiscal years ending between December 31, 2016 (the first period in which Form AP filings are available) through July 28, 2020 (the most recent available filings) that are not included in our sample. We re-estimate our primary analysis after replacing our current error measures with *HIGH ERROR-EITHER*. Results of this estimation are presented in Table 6. Using this alternate measure of audit engagement review, we find a positive association between partners with high error rates and a misstatement subsequently disclosed by means of an out-of-period adjustment (0.552, p-value = 0.053).¹⁷ This analysis provides additional support that our audit report error rate is capturing partner level review and is generalizable to a larger, out-of-

¹⁷ Our results in Tables 5 and 6 are consistent after controlling for time pressure (*DAYS_TO_DEADLINE*; untabulated).

sample population. Further, we use error rates in audit reports to develop a partner-specific measure of engagement review.

INSERT TABLE 6 HERE

6. Conclusion

The review process is a critical part of audit engagement supervision (Bamber and Bylinski 1982; Solomon 1987; Rich et al. 1997). However, the unobservable nature of engagement review makes it difficult for financial statement users to assess. The objective of this study is to identify and validate a proxy for audit engagement review that is obtainable from publicly available data. Because the audit report is the auditor's primary mode of communicating with financial statement users, the responsibility of the entire audit team, and subject to review by multiple members of the engagement team, we propose that errors in audit reports proxy for ineffective audit engagement review.

In order to provide support for our supposition, we first examine determinants of errors in audit reports. We consider three determinants of audit report errors that are constraints or incentives for effective review: time pressure, client importance, and engagement risk. We find that time pressure and client importance influence errors in the audit report. However, we fail to find support that engagement risk is associated with errors in the audit report. These results suggest that time pressure (client importance) decreases (increases) the effectiveness of audit engagement review.

Next, we examine the association between errors in audit reports and audit quality. We measure audit quality using three measures of financial reporting misstatements: restatements, revisions, and out-of-period adjustments. We find evidence that audit report errors are positively associated with out-of-period adjustments, which suggests that audit report errors can indicate

lower audit quality for the engagement. We also construct a partner-specific error rate based on our sample and find that the measure is positively associated with out-of-period adjustments using an out-of-sample population. Collectively, our findings suggest that errors within audit reports are a suitable proxy for audit engagement review.

APPENDIX A
Examples of SEC Comment Letter Correspondence Related to Audit Reports

Touchpoint Metrics, Inc. (CIK#: 0001535079) File No. 000-54918

<https://www.sec.gov/Archives/edgar/data/1535079/000000000014058617/filename1.pdf>

Report of Independent Registered Public Accounting Firm, page F-1

1. Please confirm whether or not the audit was conducted in accordance with the standards of the Public Company Accounting Oversight Board (United States) and revise the auditors' reports to indicate as such pursuant to PCAOB Auditing Standard No. 1. In this regard, we note that the report refers to "generally accepted auditing standards in the United States of America." In addition, the accountant's report is labeled as "Independent Auditor's Report." The accountant's report should be titled as "Report of the Independent Registered Public Accounting Firm." Also, the financial statements identified as being audited in the opening paragraph should be consistent with the titles of statements included in the filing. Finally, the report is signed by a firm that does not exactly match the registered firm name with the PCAOB. Please explain. Refer to the Illustrative Reports in the Appendix to PCAOB Auditing Standard No. 1. and AU Section 508.08. Please amend your filing to provide an audit report that contains the required language.

Liquid Holdings Group, LLC (CIK#: 0001562594) File No. 333-187859

<https://www.sec.gov/Archives/edgar/data/1562594/000000000013024572/filename1.pdf>

21. Please file an audit report that includes the information required by paragraph 9 of AU Section 508. In this regard, the report lacks the identification of the addressee.

TripAdvisor, Inc. (CIK#: 0001526520) File No. 001-35362

<https://www.sec.gov/Archives/edgar/data/1526520/000000000013020366/filename1.pdf>

Report of Independent Registered Public Accounting Firm, page 63

9. We note that the first paragraph of the audit report does not refer to the Consolidated and Combined Statements of Operations on page 64. Please amend your Form 10-K to include an opinion that references all of the audited financial statements. Refer to AU Section 508.08.

Abbott Laboratories (CIK#: 0000001800) File No. 001-02189

<https://www.sec.gov/Archives/edgar/data/1800/000000000013014680/filename1.pdf>

2. Please have Deloitte & Touche LLP explain to us why their report refers to the "auditing standards" instead of "the standards" of the PCAOB and how their report complies with paragraph 3 of PCAOB Auditing Standard No. 1.

George Risk Industries, Inc. (CIK#: 0000084112) File No. 000-05378

<https://www.sec.gov/Archives/edgar/data/84112/000000000013017592/filename1.pdf>

Independent Auditor's Report, page 13

2. We note that your auditor's report refers to "the auditing standards" of the PCAOB rather than to "the standards" of the PCAOB as is required by the PCAOB's Auditing Standard No. 1. Please explain why the report includes the qualifier "auditing"; and if the reason is a typographical error, please amend the filing to include a corrected audit report.

IEH Corporation (CIK#: 0000050292) File No. 000-05278

<https://www.sec.gov/Archives/edgar/data/50292/000000000013064689/filename1.pdf>

1. We note that the last line of the third paragraph in the audit report on page 34 of Amendment No. 1 to your Form 10-K refers to "U.S. principles generally accepted accounting." Please file a full amendment to your Form 10-K that includes an audit report that refers to "U.S. generally accepted accounting principles" consistent with your correspondence dated November 4, 2013.

Magna International, Inc. (CIK#: 0000749098) File No. 001-11444

<https://www.sec.gov/Archives/edgar/data/749098/000000000016085216/filename1.pdf>

7. We note that both the audit report on the Financial Statements and on Internal Controls over Financial Reporting do not indicate the location of where they were issued. Please amend your filing to include revised audit reports that include this information as required by paragraph 3 of Auditing Standard No. 1 and Rule 2-02(a) of Regulation S-X.

TransUnion Holding Company, Inc. (CIK#: 0001552033) File No. 333-182948

<https://www.sec.gov/Archives/edgar/data/1513514/000000000013024128/filename1.pdf>

1. Please amend to include signed auditors reports as required by Rule 2-02(a)(2) of Regulation S-X. In addition, disclose TransUnion Holding Company, Inc.'s date of inception.

Yangtze River Development Limited (CIK#: 0001487843) File No. 333-209579

<https://www.sec.gov/Archives/edgar/data/1487843/000000000016074728/filename1.pdf>

Item 9A – Controls and Procedures, page 29

9. We note that in response to comment 18 you have elected to revise your financial statements for the accounting error. Given that you have amended your 10-K for this error and previously amended your 10-K for the wrong audit opinion being filed, it would appear that your disclosure controls and procedures and internal control over financial reporting are ineffective. Please amend your 10-K to revise conclusions accordingly.

APPENDIX B

Examples of Major and Minor Errors in Audit Reports

ERROR-MAJOR (missing “Public” in report title)

Bonanza Creek Energy, Inc. (CIK#: 0001509589) Filing Date: 2018-03-15

<https://www.sec.gov/Archives/edgar/data/1509589/000150958918000004/bcei2017123110-k.htm>

Report of Independent Registered Accounting Firm

Board of Directors and Stockholders
Bonanza Creek Energy, Inc.

Opinion on the financial statements

We have audited the accompanying consolidated balance sheet of Bonanza Creek Energy, Inc. (a Delaware corporation) and subsidiaries

ERROR-MAJOR (missing “related notes” in the opinion paragraph)

Jaguar Health, Inc. (CIK#: 0001585608) Filing Date: 2019-04-10

<https://www.sec.gov/Archives/edgar/data/1585608/000155837019002908/jagx-20181231x10k.htm>

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Jaguar Health, Inc. (formerly Jaguar Animal Health, Inc.)(the “Company”) as of December 31, 2018 and 2017, the related consolidated statements of operations, stockholders’ equity (deficit), and cash flows for each of the two years in the period ended December 31, 2018. In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2018 and 2017, and the results of their operations and their cash flows for each of the two years in the period ended December 31, 2018, in conformity with accounting principles generally accepted in the United States of America.

ERROR-MAJOR (missing the signature of the auditor’s firm)

DXP ENTERPRISES INC (CIK#: 0001020710) Filing Date: 2018-03-28

<https://www.sec.gov/Archives/edgar/data/1020710/000114036118015469/form10k.htm>

statements. We believe that our audit provides a reasonable basis for our opinion.

Houston, TX
March 28, 2018

We have served as the Company’s auditor since 2017.

ERROR-MAJOR (missing “Company” in PCAOB)

MOTORCAR PARTS AMERICA INC CIK#: 0000918251 Filing Date: 2018-06-14

<https://www.sec.gov/Archives/edgar/data/918251/000114036118028577/form10k.htm>

We also have audited, in accordance with the standards of the Public Accounting Oversight Board (United States) (PCAOB), the Company’s internal control over financial reporting as of March 31, 2018, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) and our report dated June 14, 2018 expressed an unqualified opinion thereon.

ERROR-MINOR (U.S, instead of U.S.,)

Civeo Corp (CIK#: 0001590584) Filing Date: 2019-02-27

<https://www.sec.gov/Archives/edgar/data/1590584/000159058419000055/cveo-12312018x10k.htm>

We have audited the accompanying consolidated balance sheets of Civeo Corporation (“the Company”) as of December 31, 2018 and 2017, and the related consolidated statements of operations, comprehensive loss, changes in shareholders' equity and cash flows for each of the three years in the period ended December 31, 2018, and the related notes (collectively referred to as the “consolidated financial statements”). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2018, in conformity with U.S. generally accepted accounting principles.

ERROR-MINOR (“audits provides” instead of provide)

Alphatec Holdings, Inc. (CIK#: 0001350653) Filing Date: 2019-03-29

https://www.sec.gov/Archives/edgar/data/1350653/000156459019010183/atec-10k_20181231.htm

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provides a reasonable basis for our opinion.

ERROR-MINOR (Spellcheck: “2017and” instead of “2017 and”)

Teligent, Inc.(CIK#: 0000352998) Filing Date: 2018-03-19

<https://www.sec.gov/Archives/edgar/data/352998/000162828018003357/teligentinc10k12312017.htm>

We have audited the accompanying consolidated balance sheets of Teligent, Inc. and subsidiaries (the "Company") as of December 31, 2017 and 2016, and the related consolidated statements of operations, comprehensive income (loss), stockholders' equity, and cash flows for each of the years in the three-year period ended December 31, 2017and the related notes and schedule II (collectively referred to as the

ERROR-MINOR (Spellcheck: “interal” instead of “internal”)

Genesis Healthcare, Inc. (CIK#: 0001351051) Filing Date: 2019-03-18

<https://www.sec.gov/Archives/edgar/data/1351051/000155837019002231/gen-20181231x10k.htm>

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company’s internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission, and our report dated March 18, 2019 expressed an unqualified opinion on the effectiveness of the Company’s interal control over financial reporting.

APPENDIX C
Error Categories

| |
|--|
| <i>ERROR-MAJOR</i> |
| Correct report title |
| Missing addressee |
| Financial Statements are named in audit report (instead of referencing list - e.g., “financial statements listed in the index”) |
| Financial statement titles match between audit report and 10-K |
| Missing “related notes” in the opinion paragraph |
| Missing opinion paragraph |
| Proper reference to “conformity with the applicable financial reporting framework” |
| Basis of Opinion section includes statement that the audit was conducted in accordance with the standards of the Public Company Accounting Oversight Board (PCAOB). |
| Missing the signature of the auditor’s firm |
| Missing auditor tenure statement containing the year the auditor began serving consecutively as the company’s auditor |
| Missing the city and state (or city and country, in the case of non-U.S. auditors) from which the auditor’s report has been issued |
| Missing the date of the auditor’s report or the date is incorrect. |
| Contained proper PCAOB language or format |
| PCAOB is correctly identified |
| Missing titles for new opinion/format not updated for new auditing standards |
| Other errors indicated by amended 10-K filings |
| |
| <i>ERROR-MINOR</i> |
| Comparative financial statements lists “audit” instead of “audits” when opinion covers two balance sheets. |
| Should be “effective internal control” not “effective control” in unqualified ICFR opinion. |
| Typos not caught by spellcheck include the following words or phrases: draft, U.S, open, pending, “and unqualified opinion”, audits provides, audit provide, audits includes, open quotation marks missing close quotations, incorrect/missing spacing, in the conformity, and repeated phrases such as “have been have been.” |
| Errors caught by spell check (ignoring company names). |

APPENDIX D
Variable definitions

| Variable | Definition (Compustat and Audit Analytics variables listed in parentheses) |
|--------------------------|---|
| <i>ERROR-MAJOR</i> | Indicator variable set equal to 1 when the auditor's report includes any of the errors described in Appendix C for the major error subcategory; set equal to 0 otherwise. |
| <i>ERROR-MINOR</i> | Indicator variable set equal to 1 when the auditor's report includes any of the errors described in Appendix C for the minor error subcategory; set equal to 0 otherwise. |
| <i>ERROR-EITHER</i> | Indicator variable set equal to 1 when <i>ERROR-MAJOR</i> and/or <i>ERROR-MINOR</i> equal 1; set equal to 0 otherwise. |
| <i>DAYS_TO_DEADLINE</i> | The total number of days between the company's 10-K filing date (Source Date) and SEC filing deadline (based on company's filer status and fiscal year-end). |
| <i>BUSY</i> | Indicator variable set equal to 1 when the company has a December fiscal year-end (Year Ended Date); set equal to 0 otherwise. |
| <i>LN_AUDITFEE</i> | Natural logarithm of total audit fees (Audit Fees (\$)). |
| <i>NON_AUDITFEE</i> | Non-audit fees scaled by total fees (Non-Audit Fees (\$) / Total Fees (\$)). |
| <i>BIG_FOUR</i> | Indicator variable set equal to 1 when the auditor is a Big 4 audit firm (i.e., Deloitte, Ernst & Young, KPMG, or PricewaterhouseCoopers based on Auditor Key); set equal to 0 otherwise. |
| <i>LITIGATION</i> | Indicator variable set equal to 1 when the company is within any of the following risk-of-litigation industries (based on SIC code): 2833 – 2836, 3570 – 3577, 3600 – 3674, 5200 – 5961 or 7370; set equal to 0 otherwise. |
| <i>LN_PUBLIC_CLIENTS</i> | Natural logarithm of the total number of public clients (with available fee data in Audit Analytics) by auditor, Metropolitan Statistical Area (MSA), and year. |
| <i>LN_TENURE</i> | Natural logarithm of the number of years between current fiscal-year end and initial audit engagement year (Auditor Since Year). |
| <i>SWITCH</i> | Indicator variable set equal to 1 when the current year audit firm (based on Auditor Key) changed from the prior year; set equal to 0 otherwise. |
| <i>LEVERAGE</i> | Total long-term debt (DLTT) scaled by total assets (AT). |
| <i>LOSS</i> | Indicator variable set equal to 1 when income before extraordinary items (IB) is negative; set equal to 0 otherwise. |
| <i>ROA</i> | Income before extraordinary items (IB) scaled by total assets (AT). |
| <i>BIG_R</i> | Indicator variable set equal to 1 when the company-year financial statements are subsequently restated in conjunction with a 4.02 "non-reliance" 8-K filed with the SEC (non-missing Date of 8-K Item 4.02); set equal to 0 otherwise. |
| <i>little_r</i> | Indicator variable set equal to 1 when the company-year financial statements are subsequently revised (i.e., restated without a 4.02 "non-reliance" 8-K filed with the SEC; missing Date of 8-K Item 4.02); set equal to 0 otherwise. |
| <i>oop_adjustment</i> | Indicator variable set equal to 1 when a misstatement in the company-year financial statements is subsequently revealed through an out-of-period adjustment (per the Audit Analytics Out of Period Adjustments database); set equal to 0 otherwise. |
| <i>ICFR_WEAK</i> | Indicator variable set equal to 1 when a material weakness is disclosed in the current year management assessment and/or the auditor's opinion of the effectiveness of the company's internal control over financial reporting (Internal Control - Number Weaknesses Identified>0); set equal to 0 otherwise. |
| <i>DACC</i> | Discretionary accruals calculated following Kothari, Leone, and Wasley (2005), for firm <i>i</i> in year <i>t</i> . We estimate the regression annually for each industry |

| | |
|--------------------------|--|
| | based on two-digit SIC codes, requiring at least ten observations per industry and excluding firms where the absolute value of total accruals scaled by total assets exceeds 1, following Kothari et al. (2005). |
| <i>LN_ASSETS</i> | Natural logarithm of total assets (AT). |
| <i>ACQUISITION</i> | Indicator variable set equal to 1 when company-year includes acquisition costs (AQC \neq 0); set equal to 0 otherwise. |
| <i>RESTRUCTURE</i> | Indicator variable set equal to 1 when company-year includes restructuring costs (RCP \neq 0); set equal to 0 otherwise. |
| <i>LN_AGE</i> | Natural logarithm of the total number of years (through year <i>t</i>) for which the Company is listed in Compustat. |
| <i>HIGH ERROR-EITHER</i> | Indicator variable set equal to one if the partner has a high audit report error rate (greater than sample mean); set equal to zero otherwise. |

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TABLE 1
Sample selection

| | |
|--|-------------|
| Major exchange filers with fiscal years ending between December 15, 2017 – December 31, 2018 (Audit Analytics Opinion File): | 5,863 |
| Less: Financial and utility company-year observations | (2,148) |
| Missing Compustat data | (1,748) |
| Missing Audit Analytics Accounting Quality Metrics | <u>(92)</u> |
| Total company-year observations | 1,875 |

Table 1 presents our sample selection process.

TABLE 2
Sample Distribution and Descriptive Statistics

Panel A: Sample distribution by industry

| Industry (Fama French 12) | N | % |
|---|----------|----------|
| 1: Consumer Nondurables - Food, Tobacco, Textiles, Apparel, Leather, Toys | 56 | 2.99% |
| 2: Consumer Durables - Cars, TVs, Furniture, Household Appliances | 39 | 2.08% |
| 3: Manufacturing - Machinery, Trucks, Planes, Off Furn, Paper, Com Printing | 157 | 8.37% |
| 4: Oil, Gas, and Coal Extraction and Products | 137 | 7.31% |
| 5: Chemicals and Allied Products | 49 | 2.61% |
| 6: Business Equipment -- Computers, Software, and Electronic Equipment | 355 | 18.93% |
| 7: Telephone and Television Transmission | 49 | 2.61% |
| 8: Utilities | 0 | 0.00% |
| 9: Wholesale, Retail, and Some Services (Laundries, Repair Shops) | 107 | 5.71% |
| 10: Healthcare, Medical Equipment, and Drugs | 646 | 34.45% |
| 11: Finance | 0 | 0.00% |
| 12: Other -- Mines, Constr, BldMt, Trans, Hotels, Bus Serv, Entertainment | 280 | 14.93% |
| | 1875 | 100.00% |

TABLE 2 (continued)
Sample Distribution and Descriptive Statistics

Panel B: Descriptive statistics

| | N | Mean | St. Dev. | Q1 | Median | Q3 |
|--------------------------|----------|-------------|---------------------|-----------|---------------|-----------|
| <i>ERROR-MAJOR</i> | 1,875 | 0.056 | 0.230 | 0.000 | 0.000 | 0.000 |
| <i>ERROR-MINOR</i> | 1,875 | 0.029 | 0.169 | 0.000 | 0.000 | 0.000 |
| <i>ERROR-EITHER</i> | 1,875 | 0.082 | 0.275 | 0.000 | 0.000 | 0.000 |
| <i>DAYS_TO_DEADLINE</i> | 1,875 | 10.248 | 10.102 | 2.000 | 7.000 | 17.000 |
| <i>BUSY</i> | 1,875 | 0.898 | 0.303 | 1.000 | 1.000 | 1.000 |
| <i>LN_AUDITFEE</i> | 1,875 | 13.291 | 0.998 | 12.565 | 13.305 | 13.995 |
| <i>NON_AUDITFEE</i> | 1,875 | 0.103 | 0.122 | 0.000 | 0.058 | 0.168 |
| <i>BIG_FOUR</i> | 1,875 | 0.481 | 0.500 | 0.000 | 0.000 | 1.000 |
| <i>LITIGATION</i> | 1,875 | 0.068 | 0.252 | 0.000 | 0.000 | 0.000 |
| <i>LN_PUBLIC_CLIENTS</i> | 1,875 | 2.497 | 1.090 | 1.792 | 2.485 | 3.332 |
| <i>LN_TENURE</i> | 1,875 | 1.826 | 0.892 | 1.099 | 1.792 | 2.485 |
| <i>SWITCH</i> | 1,875 | 0.079 | 0.271 | 0.000 | 0.000 | 0.000 |
| <i>LEVERAGE</i> | 1,875 | 0.199 | 0.258 | 0.000 | 0.098 | 0.327 |
| <i>LOSS</i> | 1,875 | 0.679 | 0.467 | 0.000 | 1.000 | 1.000 |
| <i>ROA</i> | 1,875 | -0.263 | 0.474 | -0.403 | -0.080 | 0.022 |
| <i>BIG_R</i> | 1,875 | 0.012 | 0.110 | 0.000 | 0.000 | 0.000 |
| <i>little_r</i> | 1,875 | 0.033 | 0.177 | 0.000 | 0.000 | 0.000 |
| <i>oop_adjustment</i> | 1,875 | 0.034 | 0.180 | 0.000 | 0.000 | 0.000 |
| <i>ICFR_WEAK</i> | 1,875 | 0.145 | 0.352 | 0.000 | 0.000 | 0.000 |
| <i>DACC</i> | 1,875 | 0.006 | 0.189 | -0.053 | 0.015 | 0.078 |
| <i>LN_ASSETS</i> | 1,875 | 4.997 | 1.576 | 3.847 | 5.017 | 6.128 |
| <i>ACQUISITION</i> | 1,875 | 0.239 | 0.427 | 0.000 | 0.000 | 0.000 |
| <i>RESTRUCTURE</i> | 1,875 | 0.258 | 0.438 | 0.000 | 0.000 | 1.000 |
| <i>LN_AGE</i> | 1,875 | 2.657 | 0.718 | 2.079 | 2.639 | 3.219 |

Table 2, Panel A presents the sample distribution by industry. See Professor French's website https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/Data_Library/det_12_ind_port.html (last accessed June 24, 2020) for more information about the Fama French 12 industry classification. Panel B presents the descriptive statistics for the full sample. See Appendix D for variable definitions.

TABLE 3
Correlation matrix

| | <u>1</u> | <u>2</u> | <u>3</u> | <u>4</u> | <u>5</u> | <u>6</u> | <u>7</u> | <u>8</u> | <u>9</u> | <u>10</u> | <u>11</u> | <u>12</u> | <u>13</u> | <u>14</u> | <u>15</u> | <u>16</u> | <u>17</u> | <u>18</u> |
|-----------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 1 <i>ERROR-MAJOR</i> | | 0.04 | 0.81 | -0.05 | 0.01 | -0.04 | 0.03 | -0.04 | 0.00 | -0.07 | -0.04 | 0.03 | -0.01 | 0.05 | -0.04 | -0.01 | -0.03 | 0.04 |
| 2 <i>ERROR-MINOR</i> | 0.04 | | 0.58 | -0.05 | 0.00 | -0.03 | -0.01 | -0.03 | 0.00 | 0.00 | -0.10 | 0.11 | 0.03 | 0.04 | -0.02 | 0.04 | 0.00 | 0.06 |
| 3 <i>ERROR-EITHER</i> | 0.81 | 0.58 | | -0.07 | 0.00 | -0.04 | 0.02 | -0.05 | 0.00 | -0.06 | -0.09 | 0.09 | 0.01 | 0.06 | -0.05 | 0.02 | -0.02 | 0.06 |
| 4 <i>DAYS_TO_DEADLINE</i> | -0.05 | -0.04 | -0.06 | | 0.02 | -0.02 | -0.03 | 0.08 | 0.03 | 0.03 | 0.07 | -0.03 | 0.04 | -0.05 | 0.05 | -0.02 | -0.04 | -0.06 |
| 5 <i>BUSY</i> | 0.01 | 0.00 | 0.00 | 0.00 | | 0.08 | 0.02 | 0.10 | 0.03 | 0.09 | -0.07 | -0.01 | 0.07 | 0.11 | -0.13 | 0.02 | -0.07 | 0.01 |
| 6 <i>LN_AUDITFEE</i> | -0.04 | -0.03 | -0.04 | -0.04 | 0.08 | | -0.05 | 0.62 | 0.08 | 0.33 | 0.19 | -0.07 | 0.40 | -0.13 | 0.25 | -0.06 | 0.04 | 0.11 |
| 7 <i>NON_AUDITFEE</i> | 0.03 | -0.02 | 0.01 | -0.02 | -0.01 | -0.14 | | 0.03 | -0.03 | -0.05 | 0.07 | -0.04 | 0.05 | -0.07 | 0.08 | 0.04 | 0.03 | -0.02 |
| 8 <i>BIG_FOUR</i> | -0.04 | -0.03 | -0.05 | 0.04 | 0.10 | 0.61 | -0.02 | | 0.04 | 0.49 | 0.25 | -0.12 | 0.19 | 0.00 | 0.04 | -0.09 | -0.06 | 0.05 |
| 9 <i>LITIGATION</i> | 0.00 | 0.00 | 0.00 | 0.06 | 0.03 | 0.07 | -0.04 | 0.04 | | 0.04 | -0.03 | 0.02 | -0.07 | 0.06 | -0.01 | -0.03 | -0.03 | 0.00 |
| 10 <i>LN_PUBLIC_CLIENTS</i> | -0.07 | 0.00 | -0.06 | 0.01 | 0.09 | 0.32 | -0.07 | 0.48 | 0.03 | | 0.06 | -0.08 | 0.02 | 0.12 | -0.13 | -0.02 | -0.02 | 0.04 |
| 11 <i>LN_TENURE</i> | -0.05 | -0.11 | -0.11 | 0.05 | -0.07 | 0.20 | 0.01 | 0.25 | -0.03 | 0.06 | | -0.35 | 0.12 | -0.13 | 0.14 | -0.01 | 0.00 | -0.02 |
| 12 <i>SWITCH</i> | 0.03 | 0.11 | 0.09 | -0.02 | -0.01 | -0.07 | -0.01 | -0.12 | 0.02 | -0.07 | -0.43 | | -0.01 | 0.02 | 0.00 | 0.04 | 0.01 | 0.02 |
| 13 <i>LEVERAGE</i> | -0.01 | 0.03 | 0.01 | 0.04 | 0.08 | 0.35 | 0.02 | 0.17 | -0.07 | 0.04 | 0.09 | -0.01 | | -0.11 | 0.20 | 0.02 | 0.05 | 0.07 |
| 14 <i>LOSS</i> | 0.05 | 0.04 | 0.06 | -0.04 | 0.11 | -0.13 | -0.07 | 0.00 | 0.06 | 0.12 | -0.12 | 0.02 | -0.05 | | -0.81 | -0.01 | -0.05 | -0.04 |
| 15 <i>ROA</i> | -0.05 | 0.01 | -0.04 | 0.01 | -0.10 | 0.28 | 0.04 | 0.09 | 0.04 | -0.06 | 0.11 | 0.01 | 0.12 | -0.49 | | 0.03 | 0.05 | 0.06 |
| 16 <i>BIG_R</i> | -0.01 | 0.04 | 0.02 | -0.01 | 0.02 | -0.05 | 0.07 | -0.09 | -0.03 | -0.02 | -0.02 | 0.04 | 0.02 | -0.01 | -0.01 | | -0.02 | 0.01 |
| 17 <i>little_r</i> | -0.03 | 0.00 | -0.02 | -0.03 | -0.07 | 0.05 | 0.03 | -0.06 | -0.03 | -0.01 | 0.00 | 0.01 | 0.04 | -0.05 | -0.05 | -0.02 | | 0.02 |
| 18 <i>oop_adjustment</i> | 0.04 | 0.06 | 0.06 | -0.05 | 0.01 | 0.12 | -0.02 | 0.05 | 0.00 | 0.04 | -0.02 | 0.02 | 0.05 | -0.04 | -0.04 | 0.01 | 0.02 | |

Table 3 presents the Spearman (Pearson) correlation coefficients above (below) the diagonal. Bold indicates statistical significance at the 10 percent level or less. See Appendix D for variable definitions.

TABLE 4
Error in Audit Report Determinant Model

| Parameter | Prediction | Pr (ERROR- MAJOR) = 1 | | Pr (ERROR- MINOR) = 1 | | Pr (ERROR -EITHER) = 1 | |
|--------------------------|------------|--------------------------|---------|--------------------------|---------|---------------------------|---------|
| | | (1) Coefficient | p-value | (2) Coefficient | p-value | (3) Coefficient | p-value |
| <i>Intercept</i> | | -2.846 | (0.188) | 1.037 | (0.682) | -1.087 | (0.527) |
| <i>DAYS_TO_DEADLINE</i> | - | -0.019** | (0.047) | -0.027* | (0.059) | -0.022** | (0.012) |
| <i>BUSY</i> | + | 0.032 | (0.467) | 0.206 | (0.337) | 0.129 | (0.346) |
| <i>LN_AUDITFEE</i> | - | 0.062 | (0.356) | -0.389** | (0.024) | -0.070 | (0.300) |
| <i>NON_AUDITFEE</i> | - | 0.738 | (0.197) | -1.292 | (0.134) | -0.031 | (0.484) |
| <i>BIG_FOUR</i> | - | 0.009 | (0.489) | 0.172 | (0.341) | 0.060 | (0.407) |
| <i>LITIGATION</i> | - | -0.192 | (0.369) | -0.549 | (0.182) | -0.328 | (0.237) |
| <i>LN_PUBLIC_CLIENTS</i> | | -0.289*** | (0.005) | 0.165 | (0.355) | -0.159* | (0.083) |
| <i>LN_TENURE</i> | | -0.166 | (0.270) | -0.500*** | (0.010) | -0.283** | (0.020) |
| <i>SWITCH</i> | | 0.087 | (0.814) | 0.746* | (0.076) | 0.441 | (0.116) |
| <i>LEVERAGE</i> | | -0.010 | (0.986) | 1.218** | (0.016) | 0.439 | (0.258) |
| <i>LOSS</i> | | 0.536* | (0.071) | 0.879** | (0.028) | 0.614** | (0.013) |
| <i>ROA</i> | | -0.329 | (0.181) | 0.325 | (0.437) | -0.188 | (0.397) |
| Industry indicators | | Yes | | Yes | | Yes | |
| Year indicators | | Yes | | Yes | | Yes | |
| Observations | | 1,875 | | 1,875 | | 1,875 | |
| Area under ROC Curve | | 0.653 | | 0.789 | | 0.673 | |

Table 4 presents coefficient estimates for the logistical regression analysis where the dependent variable equals 1 for company-year observations with a financial statement audit report that containing an audit report error; 0 otherwise. Reported p-values, which are based on robust standard errors clustered by company, are 1-tailed for hypothesized variables when the coefficient sign is in the predicted direction and 2-tailed for all others. ***, **, * denote significance at the 1, 5, and 10 percent level, respectively. See Appendix D for variable definitions.

TABLE 5
Association between Audit Report Errors and Audit Quality

| Parameter | Pr (<i>BIG_R</i>) = 1 | | Pr (<i>little_r</i>) = 1 | | Pr (<i>oop_adjustment</i>) = 1 | |
|----------------------|-------------------------|---------|----------------------------|---------|----------------------------------|---------|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| | Coefficient | p-value | Coefficient | p-value | Coefficient | p-value |
| <i>Intercept</i> | -1.354 | (0.423) | -3.000*** | (0.001) | -6.847*** | (0.001) |
| <i>ERROR-EITHER</i> | 0.605 | (0.403) | -0.670 | (0.291) | 1.162*** | (0.002) |
| <i>ICFR_WEAK</i> | 2.367*** | (0.001) | 1.034*** | (0.001) | 1.461*** | (0.001) |
| <i>DACC</i> | 1.994 | (0.106) | -0.802 | (0.327) | 0.144 | (0.809) |
| <i>LN_ASSETS</i> | -0.148 | (0.485) | -0.083 | (0.564) | 0.552*** | (0.001) |
| <i>LEVERAGE</i> | -0.027 | (0.973) | 0.432 | (0.452) | -0.365 | (0.547) |
| <i>LOSS</i> | -0.298 | (0.643) | -0.287 | (0.418) | -0.058 | (0.865) |
| <i>ROA</i> | 0.196 | (0.814) | 0.387 | (0.376) | 0.279 | (0.601) |
| <i>LITIGATION</i> | -10.556*** | (0.001) | -0.942 | (0.260) | 0.206 | (0.762) |
| <i>ACQUISITION</i> | -1.030* | (0.070) | 0.531 | (0.115) | 0.164 | (0.624) |
| <i>RESTRUCTURE</i> | -0.311 | (0.650) | 0.406 | (0.221) | -0.546 | (0.115) |
| <i>LN_AGE</i> | -0.827** | (0.043) | 0.132 | (0.552) | 0.195 | (0.313) |
| Industry indicators | Yes | | Yes | | Yes | |
| Year indicators | Yes | | Yes | | Yes | |
| Observations | 1,875 | | 1,875 | | 1,875 | |
| Area under ROC Curve | 0.894 | | 0.745 | | 0.777 | |

Table 5 presents coefficient estimates for the logistical regression analysis where the dependent variable equals 1 for company-year observations with financial statements containing errors that subsequently (within two years) prompt restatement, revision or adjustment of financial reporting; 0 otherwise. (1): *BIG_R* restatements occur when financial statements are restated and a “non-reliance” form 8-K is filed with SEC. (2): *little_r* revisions occur when financial statements are revised (i.e., restated without filing a non-reliance form 8-K with SEC). (3): *oop_adjustment*(s) occur when prior period errors are considered immaterial to the previous periods and are corrected by adjusting the current year financial reporting by the cumulative effect. Reported p-values, which are based on robust standard errors clustered by company, are 2-tailed for all variables. ***, **, * denote significance at the 1, 5, and 10 percent level, respectively. See Appendix D for variable definitions.

TABLE 6
Association between Partner Error Rate and Audit Quality

| Parameter | Prediction | Pr (<i>oop_adjustment</i>) = 1 | |
|--------------------------|------------|----------------------------------|---------|
| | | Coefficient | p-value |
| <i>Intercept</i> | | -5.578*** | (0.000) |
| <i>HIGH ERROR-EITHER</i> | + | 0.552* | (0.053) |
| <i>ICFR_WEAK</i> | | 1.557*** | (0.000) |
| <i>DACC</i> | | -0.923 | (0.276) |
| <i>LN_ASSETS</i> | | 0.380*** | (0.001) |
| <i>LEVERAGE</i> | | -0.314 | (0.593) |
| <i>LOSS</i> | | -0.016 | (0.960) |
| <i>ROA</i> | | 0.132 | (0.779) |
| <i>LITIGATION</i> | | 0.686 | (0.359) |
| <i>ACQUISITION</i> | | 0.188 | (0.484) |
| <i>RESTRUCTURE</i> | | -0.041 | (0.889) |
| <i>LN_AGE</i> | | 0.052 | (0.781) |
| Industry indicators | | Yes | |
| Year indicators | | Yes | |
| Observations | | 2,240 | |
| Area under ROC Curve | | 0.758 | |

Table 6 presents coefficient estimates for the logistical regression analysis where the dependent variable equals 1 for company-year observations (not included in our primary analysis) with financial statements containing errors that subsequently (within two years) prompt an adjustment of financial reporting; 0 otherwise. *oop_adjustment* equals 1 when prior period errors are considered immaterial to the previous periods and are corrected by adjusting the current year financial reporting by the cumulative effect. Reported p-values, which are based on robust standard errors clustered by company, are 1-tailed for hypothesized variable when the coefficient sign is in the predicted direction and 2-tailed for all others. ***, **, * denote significance at the 1, 5, and 10 percent level, respectively. See Appendix D for variable definitions.