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ABNORMAL AUDIT FEES AND AUDIT QUALITY: THE INFLUENCE OF FINANCIAL EXPERTISE IN THE AUDIT COMMITTEE

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Abstract. *The Sarbanes-Oxley Act of 2002 had a major influence on the relationship between auditors and clients, and gave audit committees the responsibility for approving and negotiating audit fees. Even if, in theory, abnormal audit fees should be associated with audit quality, there is not yet a consensus in the literature – which is limited and inconclusive – on the statistical significance of their relationship. Therefore, to fill this research gap, this study examines the association between a firm's audit fees with audit quality, while also assessing the impact of audit committee members' financial expertise on that relationship. Specifically, a large time frame is employed for regression analysis in a sample consisting of 3,599 firm-year observations from 2010 to 2018 in the US market. A two-stage approach is used, where the first model estimates audit fees based on the model's residuals according to prior relevant studies, while the second model uses the aforementioned residuals as the main variable of interest in a logistic regression with the appearance of restatements as the dependent variable. The findings conclude that abnormal audit fees have a negative*

impact on audit quality. Furthermore, financial expertise in the audit committees has a positive impact on audit quality. These findings also conclude that there is no significant relationship between the interaction of abnormal audit fees and financial expertise in the audit committees and audit quality. These results are robust, after having been subject to a robustness check of a different audit quality proxy: discretionary accruals. This is consistent with the economic bonding theory and is in line with prior research.

Keywords: *abnormal audit fees, restatements, audit quality, audit committees, financial expertise, discretionary accruals*

JEL Codes*: G34, F33*

1. Introduction

This study examines whether firms with abnormal audit fees and high financial expertise of audit committee members result in higher audit quality. The research question is as follows: "Does financial expertise in the audit committee influence the relationship between abnormal audit fees and audit quality?" A growing body of accounting literature is studying the association between abnormal audit fees and audit quality (Asthana & Boone, 2012; Blankley et al., 2012; Eshleman & Guo, 2014; Kinney & Libby, 2002; Trompeter, 1994; Kinney et al., 2004; Stanley & DeZoort, 2007). There is great interest from researchers in this relationship because, ex-ante, there is no consensus on whether receiving a higher or lower fee from audit clients will improve or decrease the quality of the audit (Eshlemen & Guo, 2004). Concerning the expected level of service provided, higher fees are associated with greater levels of service, and vice versa. Consequently, lower audit effort resulting from abnormally low fees could eventually lead to a restatement. On the other hand, abnormally high fee levels may impair an auditor's independence through economic bonding to the client. This could, similarly, lead to a restatement (Blankley et al., 2012).

A financial restatement provides an explicit response to material errors or misstatements in prior financial statements. For a restatement to appear, the auditor must have failed in detecting and preventing all material errors during a prior audit. This failure can be attributed to impaired auditor independence because the auditor is economically bound to the client (Blankley et al., 2012). Abnormally high audit fees give a reflection of the level of economic bonding between the auditor and the client. Consequently, greater economic bonding reduces audit quality by impairing auditor independence (Asthana & Boone, 2012).

This study contributes to the literature in several ways. According to prior research, there have been studies on audit fees and audit committees (Abbott et al., 2003) – even research on audit committees and restatements as proxies of audit quality (Abbott et al., 2004). Subsequently, there is prior research about the relationship between abnormal audit fees and audit quality (Eshleman & Guo, 2014). However, there is still no consensus, and there has been no research yet performed, on the relationship between abnormal fees, audit quality, and audit committees. Since prior research implies that audit committees' expertise can reduce the likelihood of financial restatement and thereby increase

audit quality, it is relevant to investigate this relationship (Abbott et al., 2004). Additionally, audit committees are responsible for approving and negotiating fees (Sarbanes-Oxley Act, 2002). Accordingly, with the absence of research performed in this area and the conflicting results, this paper will contribute to the academic literature by filling the relevant research gap, as prior research into the relationship between restatements and audit fees is also limited and inconclusive.

The results show that abnormally high audit fees are significantly negatively related to audit quality, as measured by restatement proxies. However, negative abnormal audit fees have an insignificant effect on audit quality. These results imply that abnormally high audit fees are a significant factor in the context of auditor independence due to economic bonding. Contradictorily, abnormally low audit fees do not lead to lower audit effort. Furthermore, there is a significant positive relationship between audit committee expertise and audit quality. The interaction variables, abnormal audit fees, and financial expertise do not show significance. In our final tests for robustness using an alternative audit quality proxy, there is still no support for the research question.

1. Literature review and hypotheses development

Abnormal audit fees occur when there is a difference between actual audit fees paid to auditors for their audit and expected audit fees. The different controls for normal audit fees that reflect the auditor's effort include costs, litigation risk, and normal profits (Simunic, 1980; Choi et al., 2009).

Positive abnormal audit fees (above normal) give a reflection of the degree of economic bonding between the auditor and the client. Consequently, higher economic bonding impairs auditor independence and negatively affects audit quality (Blankley et al., 2012; Eshleman & Guo, 2014). Based on this proposition, prior research has studied the relationship between audit quality and abnormal audit fees. Following Simunic (1980), the auditor's expected fee charged to the client is determined by the units of audit resources expended, the cost per unit of those resources, and the auditor's expected future losses arising from the engagement (e.g., litigation losses, government penalties). The relationship between audit fees and audit quality is not clear, and abnormal audit fees likely have some influence on the probability of an eventual restatement (Kinney et al., 2004; Blankley et al., 2012).

Respectively, there are two views on the linkage between abnormal audit fees and audit quality (Eshleman & Guo, 2014). The first view is that positive abnormal audit fees are a reflection of bribes or economic rents being earned by the auditors (Kinney & Libby, 2002). The second view states that the fees charged represent the amount of effort put into the audit. In the following sections, we will further elaborate on these two views.

Prior research has found that audit quality declines as positive abnormal audit fees increase. Abnormally high fees may impose an incentive on auditors to allow managers to engage in opportunistic audits, and may impair their independence (Kinney & Libby, 2002). This is in accordance with the economic bonding view of Eshleman and Guo (2014), which describes the notion that abnormally high audit fees are an indication

of attempted bribes, economic rents earned by the auditors, or the economic bond of the auditors with the clients. Krauß et al. (2015) researched the relationship between abnormal audit fees and audit quality in a German market setting. They showed a negative association between abnormal audit fees and audit quality, and indicated that the fee premium is a significant indicator of auditors' independence because of the auditor-client relationship. Choi et al. (2010) also examined whether audit quality is associated with abnormal audit fees. Their results show that abnormal audit fees are negatively associated with audit quality. In accordance with these results, Hribarand et al. (2013) examined the relationship between abnormal audit fees and audit quality. Their results show a negative relationship, and provide evidence that abnormal audit fees are strongly informative in predicting restatements, SEC comment letters, and fraud. Furthermore, Gunn et al. (2019) found evidence that, under Big 4 market concentration, audit fees increase while audit quality decreases, indicating a wealth transfer from shareholders to audit firms which are involved in complex audit tasks but offer audits that are of lower quality. In contrast, DeFond et al. (2002) examined the relationship between abnormal audit fees and audit quality but found no significant result. Their explanation advocates the view that market-based institutional incentives, such as reputation loss and litigation costs, stimulate the auditor's independence and overshadow the economic benefits of higher audit fees.

There is also an alternative explanation from a more economic perspective for the audit quality-abnormal audit fee relationship. The statement that audit fees are negatively related to restatements in the subsequent year seems reasonable. Abnormally low fees paid by the client gives rise to great pressure for auditors to complete audits in the available time frame and achieve profitability. Consequently, this pressure can make audit firms over-reliant on the controls of the clients, and can minimize substantive testing by the auditors (Blankley et al., 2012). On the other hand, an effort view suggests that higher audit fees are symptomatic of greater auditor effort and, therefore, higher-quality audits. Higher audit fees are the outcome of audit firms spending more hours on audits, or audit firms charging an above normal fee because of their status. Consequently, low audit fees are the result of less audit work and lower audit quality. This view is recognized as the effort view (Eshleman & Guo, 2014; Blankley et al., 2012; Higgs & Skantz, 2006). Putting more effort into audits is one way an auditor can respond to firms with a heightened risk of earnings management (Francis & Krishnan, 1999). This view is confirmed by the Public Company Accounting Oversight Board (PCAOB). The PCAOB focuses on firms with low audit fees relative to firms in the same industry to decide which audit firm they will review (Eshleman & Guo, 2014). They assume that firms paying (abnormally) low audit fees to the audit firm will receive low-quality audits. Moreover, Bills et al. (2016) found that both audit firms and quality are higher for members of international accounting networks (large audit firms), linking the quality control brought by international accounting networks with their compensation and audit outcome.[1]

[1] Mao et al. (2017) failed to find consistent evidence that audit quality is higher for member audit firms in China's institutional setting. They argued that China's institutional setting demonstrates weaknesses which overcome the higher audit quality offered by international accounting networks.

As discussed earlier, the effect of abnormal audit fees on audit quality is an empirical issue. Literature shows conflicting research on whether abnormal audit fees are an indication of high effort employed by the auditors (effort view) or an indication that the auditors impair their independence (bonding view), thus suggesting that the relationship between auditors' compensation and audit quality is a relevant empirical issue.

Financial restatements occur when a material inaccuracy is found in a prior financial report issued. Prior research has used restatements as a measure of audit quality. The discovery of a material inaccuracy can have major consequences for companies, stakeholders, and auditors. Restatements reduce the reliability of management disclosure (Hennes et al., 2008) and give an indication of the level of management's internal control system and handling of misstatements. Moreover, external auditors are often held responsible for restatements.

Kinney et al. (2004) observed that restatements represent reporting failures by the client and the auditor. Reporting failures of material misstatements are attributable to auditor independence due to the fact that the client pays the auditor. Feldmann et al. (2009) claimed that higher audit fees implicate a higher perceived audit risk and reduced organizational legitimacy. In the end, the client suffers from reporting failures, but the auditors also suffer from reputational damage and legal liability (DeFond et al., 2002). Thus, whether abnormal fees affect audit quality remains an open empirical question, leading to the following hypothesis:

H1: Abnormal audit fees in the current year are systematically associated with the current year's audit quality

The statement that effective audit committees should contain members who possess financial experience is in line with previous research on audit committee expertise. In general, empirical studies argue that audit committees' expertise in various domains (industry expertise, legal expertise, accounting expertise, etc.) enhances audit quality (Alhababsah & Yekini, 2021; Lisic et al., 2019). Knapp (1987) found that auditors that face a complex auditing issue were less likely to communicate this to audit committees that have low expertise. DeZoort (1998) found that audit committee members who possessed earlier experience in the internal control sector made decisions more similar to auditors than those audit committee members without such experience. DeZoort and Salterio (2001) stated that experienced audit committee members had a higher likelihood of understanding and sympathizing with the risks concerning external auditors.

Prior research suggests that audit committees' expertise can reduce the incidence of financial restatement in different ways. First, the existence of audit committees with at least one member with financial expertise increases the likelihood of understanding the internal audit program and its results (Raghunandan et al., 2001). This warrants systems that are in place to increase the effectiveness of internal control in preventing or detecting restatements. Second, financial expertise permits audit committees' members to better understand auditing issues, risks, and the audit procedures proposed to address these issues and risks (DeZoort & Salterio, 2001; Chen & Komal, 2018). Finally, audit commit-

tee members with expertise are more likely to communicate detected material misstatements to the audit committee and correct them (DeZoort & Salterio, 2001). Abbott et al. (2003) found a positive relationship between audit fees and financial expertise in the audit committee. The same conclusion was also reached by Ghafran and O'Sullivan (2019), who argued that audit committees possessing greater levels of financial expertise are related to higher audit fees and consequently higher audit quality. This indicates that audit committees consisting of at least one financial expert are associated with higher audit fees. This implies that audit committees with financial expertise are better able to reduce the occurrence of financial restatements, and are competent in maintaining solid cohesion between abnormally high fees and restatements. Thus, the above findings and arguments lead to the two following hypothesis:

H2: Financial expertise in the audit committee increases audit quality

3 Research method and design

3.1 Data collection and sample selection

To answer the research question and test the hypotheses, in this study the research is built upon analyzing public data from the US. This data was taken from Wharton Research Data Services, the CRSP-Compustat (merged), ISS, and AuditAnalytics databases, and consisted of 3599 firm-year observations from the 2010 to 2018 period. Data from after the economic recession was used to maintain the most consistent dataset. The dataset on restatements was obtained from AuditAnalytics (Non-Reliance Restatements), the data for abnormal audit fee model was obtained from AuditAnalytics, and the financial information was extracted from CRSP-Compustat. The information about the members in audit committees was downloaded from Institutional Shareholder Services (ISS), the board of directors.

A two-stage approach was used. The first model estimated audit fees based on the residuals, following recent prior studies (Blankley et al., 2012; DeFond et al., 2002; Ghosh & Pawlewicz, 2009; Whisenant et al., 2003; Choi et al., 2010). The second model took the residuals from the model in stage one and included them as an independent variable in a logistic regression, with restatements as the dependent variable.

3.2 Multivariate analysis

For the assessment of H1, Abnormal Audit Fee was used as an independent variable. Abnormal audit fee was estimated as the residual from the audit fee model (Esheleman & Guo, 2014; Hoitash et al., 2007; Choi et al., 2010; Gul et al., 2003; Kinney et al., 2004; Krauß et al., 2014; and Blankley et al., 2012). The residual audit fee reflects the abnormal profits from the audit engagement. To the extent that some factors are unobservable, the residual audit fee, ε, measures abnormal audit profitability. This was done in order to capture the relative profitability of the engagement to the specific audit firm (Asthana &

Boone, 2012). The reasoning behind this is that prior research from Reynolds and Francis (2001) showed that audit quality is best measured at the local office level instead of at the national firm level.

Two separate variables from the audit fee were defined to separately examine the relationship of both positive and negative abnormal audit fees with the dependent and moderating variable (Asthana & Boone, 2012; Eshleman & Guo, 2014). If abnormal audit fees >0, then HIGHABNFEE = abnormal audit fees, and 0 otherwise. If abnormal audit fees <0 then LOWABNFEE = abnormal audit fees, and 0 otherwise. The notion of abnormal audit fees was based on the residuals from the audit fee model below (equation 1).

This model estimated audit fees using an audit fee model adapted from prior studies (Ghosh & Pawlewicz, 2009; Choi et al., 2010; Blankley et al., 2012), with an emphasis on controlling for fee determinants associated with firm risk. Based on these studies, we regressed logged audit fees (LAF) on variables controlling for risk, audit effort, and industry. The following model was thus developed:

$$LAF_{i,t} = ß_0 + ß_1LTA_{i,t} + ß_2CR_{i,t} + ß_3CATA_{i,t} + ß_4ARINV_{i,t} + ß_5ROA_{1i},t + ß_6LOSS+ + ß_7FOREIGN + ß_8MERGER + ß_9BUSY_{i,t} + ß_{10}LEV1_{i,t} + ß_{11}INTANG_{i,t} + \quad (1)$$
$$+ ß_{12}SEG_{i,t} + ß_{13}OPINION_{i,t} + ß_{14}MATWEAK_{i,t-(t-1)} + ß_{15\text{-}27}INDCON_{i,t+\varepsilon i,t}$$

Consistent with prior research, several control variables were included (Simunic 1980; Blankley et al., 2012; DeFond et al., 2002; Ghosh & Pawlewicz, 2009; Whisenant et al., 2003; Choi et al., 2010). To control for audit effort, the model included a size proxy variable (LTA), the presence of mergers (MERGER), the number of business segments (SEG), and the issuance of a going concern opinion (OPINION). To control for audit risk, the current ratio (CR), current assets to total assets ratio (CATA), sum of accounts receivable and inventory divided by total assets (ARINVTA), return on assets (ROA1), loss (LOSS), and ratio of intangible assets to total assets (INTANG) were included. Leverage (LEV) was included to measure the long-term financial structure of the firm. If the firm has a calendar year-end (BUSY), the variable equals 1. If the client receives a material weakness opinion in the current year, the variable MATWEAK equals 1.

The dependent variable in this research was Audit Quality. To proxy for audit quality, the financial restatements factor was used. By using restatements as a proxy for audit quality, the demand of Carcello and Nagy (2004) for a more objective and direct measure of audit quality was addressed. Financial restatements are also a significant factor in reducing the confidence of investors in financial reporting and market efficiency (SEC, 2002).

The moderating variable in this research was Audit Committee Quality, which was defined as the percentage of members with financial expertise in the audit committee. The BRC report from 1999 provides specific properties for professional backgrounds that have a high likelihood of an appropriate level of expertise.

3.3 Economic model

A logistic regression model was used to test the hypotheses, since the dependent variable, restatement, is a binary variable. The residuals from the audit fees model in stage one were taken and included as an independent variable. The final restatement model

consisted of 3,599 observations.[2] Consistent with Romanus et al. (2008), Aier et al. (2005), Blankley et al. (2012), Asthana and Boone (2012), Chin and Chi (2009), and Richardson et al. (2002), the restatement model was formed on the basis of prior research. Romanus et al. (2008) investigated the effect of industry expert auditors on restatements. Aier et al. (2005) investigated whether CFO characteristics are associated with restatements. Blankley et al. (2012) examined the relationship between audit fees and restatements in the years following the Sarbanes-Oxley Act of 2002. The following model was thus developed:

$$REST_{i,t} = ß_0 + ß_1 LOWABNFE_{ei,t} + ß_2 HIGHABNFEE_{i,t} + ß_3 \%EXPERT_{i,t} + ß_4 LTA_{i,t} + ß_5 LEV2_{i,t} + ß_6 MTB_{i,t} + ß_7 ROA2_{i,t} + ß_8 MATWEAK_{i,t+\varepsilon i,t} \quad (2)$$

$$REST_{i,t} = ß_0 + ß_1 LOWABNFEE_{i,t} \times ß_2 \%EXPERT_{i,t} + ß_3 LOWABNFEE_{i,t} + ß_4 \%EXPERT_{i,t} + ß_5 LTA_{i,t} + ß_6 LEV2_{i,t} + ß_7 MTB_{i,t} + ß_8 ROA2_{i,t} + ß_9 MATWEAK_{i,t+\varepsilon i,t} \quad (3)$$

$$REST_{i,t} = ß_0 + ß_1 HIGHABNFEE_{i,t} * ß_2 \%EXPERT_{i,t} + ß_3 HIGHABNFEE_{i,t} + + ß_4 \%EXPERT_{i,t} + ß_5 LTA_{i,t} + ß_6 LEV2_{i,t} + ß_7 MTB_{i,t} + ß_8 ROA2_{i,t} + + ß_9 MATWEAK_{i,t+\varepsilon i,t} \quad (4)$$

where:

REST = 1 if the firms announced a restatement in the next two years, 0 otherwise;

LTA = logarithm of end of year total assets;

LEV2 = total debt divided by total assets;

MTB = market-to-book ratio;

ROA2 = return on assets, net income divided by lagged total assets;

MATWEAK = 1 if the client receives a material weakness opinion in the current year or the next year, 0 otherwise;

LOWABNFEE = Equal to abnormal audit fees estimated from Equation (1) if abnormal audit fees are negative, 0 otherwise;

HIGHABNFEE = Equal to abnormal audit fees estimated from Equation (1) if abnormal audit fees are positive, 0 otherwise;

%EXPERT = percentage of experts in the audit committee; and ε = the error term;

Based on previous research, several control variables on the firm- and industry-level were included in the model. The emphasis was on controlling for fee determinants associated with firm risk, audit effort, and industry (Blankley et al., 2012). The first control variable was on the size of the firm, because it was expected that larger firms experience more scrutiny by regulatory agencies and therefore have better internal control systems. Firm size was proxied by lagged total assets (LTA), and a positive relationship was expected between size and the occurrence of restatements (Richardson et al., 2002). Furthermore, leverage (LEV) – which was included to measure the long-term financial structure of the firm – was controlled for. The market-to-book variable (MTB) controls for the market's perception of future growth, and the natureof the market capital leads to the nature of a restatement (Richardson et al., 2002). Lastly, the presence of the opinion of material weakness (MATWEAK) in the current or next year was included (Feldmann et al., 2009).

[2] Finally, there were 130 observations dropped for merging of the discretionary accruals model. Therefore, the discretionary accruals model consisted of 3,496 observations.

Extreme values of leverage were excluded, namely values higher than one and equal to 0. Moreover, observations with negative equity were deleted to maintain representative market-to-book ratios, and the upper 5 percentiles of the market-to-book ratio were winsorized (Francis et al., 2005). After using a 2-digit sic code, removing the financial firms, and dropping the cases where there were fewer than 20 firms available in an industry-year group, 3,203 observations remained.

3.4 Robustness testing

To corroborate these results, alternative proxies of audit quality were used – namely discretionary accruals. Discretionary accruals are calculated using the modified version of the Jones model (Jones, 1991; Dechow & Dichev, 2002), and are estimated by year and for each industry. Jones (1991) proposed a model that attempts to foresee the effects of changes in a firm's economic circumstances on nondiscretionary accruals. The purpose of the Modified Jones Model is to eliminate the tendency of the Jones Model to measure discretionary accruals with an error when discretion is exercised over revenue recognition.

To measure the effect of abnormal audit fees on discretionary accruals with the moderating effect of audit committee expertise, the following regressions were developed:

$$DACC_{i,t} = ß_0 + ß_1 LOWABNFEE_{i,t} + ß_2 HIGHABNFEE_{i,t} + ß_3 \%EXPERT_{i,t} + \\ + ß_4 LTA_{i,t} + ß_5 LEV2_{i,t} + ß_6 MTB_{i,t} + ß_7 MATWEAK_{i,t} + ß_8 ROA_{i,t} + \\ + ß_9 LOSS_{i,t} + \textit{Industry Fixed Effects} + \varepsilon_{i,t} \quad (5)$$

$$DACC_{i,t} = ß_0 + ß_1 HIGHABNFEE_{i,t} \times ß_2 \%EXPERT_{i,t} + ß_3 HIGHABNFEE_{i,t} + \\ + ß_4 \%EXPERT_{i,t} + ß_5 LTA_{i,t} + ß_6 LEV2_{i,t} + ß_7 MTB_{i,t} + ß_8 MATWEAK_{i,t} + \\ + ß_9 ROA_{i,t} + ß_{10} LOSS_{i,t} + \textit{Industry Fixed Effects} + \varepsilon_{i,t} \quad (6)$$

where:

ADACC = absolute value of discretionary accruals;

LOSS = 1 if the firm incurred a negative net income (loss), 0 otherwise.

The variable LOSS was added to the regression model to control for debt and financial distress (Dechow & Dichev, 2002; Choi et al., 2010). Firms with higher debt ratios have greater incentive to improve earnings to meet specific debt agreements or to avoid bankruptcy (Choi et al., 2010). Therefore, it was expected that the LOSS variable would be positively correlated with discretionary accruals. All variables are described in the Appendix. Financial firms were excluded from analysis, while all variables were winsorized at the 1st and 99th percentiles.

4. Results

4.1 Descriptive statistics

Table 1 represents the descriptive statistics used in the correlation and (logistic) regressions. The descriptive statistics of total members in the audit committees show the total range of options in the sample, namely 1 to 8 members. On average, there were 4 members on the board. The percentage of financial experts in the audit committees

(%EXPERT) shows an array in the descriptive statistics – from the whole committee being financial experts, 1, to no financial experts being present in the audit committee, 0. The mean was above half (57.6%), indicating the whole range of options included in the dataset, which is in line with Davidson et al. (2004) and Romanus et al. (2008). The results of the ABFEE and HIGHABNFEE are in line with prior research on abnormal audit fees (Hoitash et al. 2007; Asthana & Boone, 2012; Blankley et al., 2012; and Krauß et al., 2015). ROA, LEV, Total Assets, and LTA are in line with prior studies (Aier et al., 2005; Hoitash et al., 2007; Asthana & Boone, 2012; Huang et al., 2015; Blankley et al., 2012; Eshleman & Guo, 2014). The mean of the market to book ratio (MBT) is similar to Blankley et al. (2012), but the standard deviation is much smaller than prior research. This ratio depends on how the market and book value compared to each other, and the maximum of the ratio is relatively low. This indicates that the firms are trading high in the market compared to their book values. However, both the mean and standard deviation of MBT from Aier et al. (2005) are comparable. The discretionary accruals (DACC) variable is in line with the results from Gul et al. (2003) and Choi et al. (2010).

By analyzing the rates of occurrence, 117 firms reported a material weakness (MATWEAK), 117 firms incurred a loss (LOSS), and 262 restated their financial statements (REST). Prior research included the restatements in the descriptive statistics instead of a rate of occurrence table, so there is no reference. The descriptive statistics of LOSS are comparable to those of Eshleman and Guo (2014), and the MATWEAK results are the same as from Blankley et al. (2012).

Table 1. *Panel A: descriptive statistics*

Variable	Mean	Min.	Max.	Std. Dev.	N
Total Members	3.8141	1	8	1.0028	3,599
%EXPERT	0.5765	0	1	0.3009	3,599
ABFEE	0.0192	−4.2323	2.2663	0.4243	3,599
HIGHABNFEE	0.1700	0	2.2663	0.2440	3,599
LOWABNFEE	−0.1507	−4.2323	0	0.2630	3,599
LTA	8.0858	4.6602	12.8355	1.4694	3,599
LEV	0.2350	1.60E-07	0.8413	0.1445	3,599
MBT	3.1438	0.1234	11.7445	2.0408	3,599
ROA	0.0564	−0.1726	0.2473	0.0612	3,599
DACC[3]	−0.0059	−0.5323	1.0176	0.2471	3,496

Panel B: rates of occurrence

	0	1	Total
REST	3,337	262	3,599
MATWEAK	3,482	117	3,599
LOSS	2,892	117	3,469

The Pearson correlation matrix for the variables in the restatement regression model is shown in Table 2. The independent variables and control variables have a significant relationship with the dependent variable, as shown in Table 2. The restatement binary variable is significantly positively correlated with HIGHABNFEE and MATWEAK. Second, the restatement binary variable is significantly negatively correlated with %EXPERT, LTA, MBT, and ROA. This shows that there is a linear relationship between the number of restatements and the number of experts in the audit committee, abnormally high fees, the log of total assets, market-to-book ratio, the number of material weaknesses, and return on assets. Table 2 shows that there are no large values of correlation between the independent variables and the control variables. For the moderating variable %EXPERT, there are significant correlations with HIGHABNFEE, LOWABNFEE, LTA, LEV, and MBT. Following Abbott et al. (2003), greater financial expertise of audit committees will lead to enhanced oversight of the management-auditor relationship. The independent variable HIGHABNFEE is significantly correlated with REST, EXPERT, LOWABNFEE, LTA, LEV, MATWEAK, and ROA. The independent variable LOWABNFEE is significantly correlated with EXPERT, HIGHABNFEE, LTA, MBT, MATWEAK, and ROA.

Table 2. *Pearson correlation matrix*

	REST	**%EXPERT**	**HIGHABNFEE**	**LOWABNFEE**	**LTA**	**LEV**	**MBT**	**MATWEAK**	**ROA**
REST	1.0000								
%EXPERT	–0.0279	1.0000							
	0.0942*								
HIGHABNFEE	0.0335	–0.0296	1.0000						
	0.0443**	0.0760*							
LOWABNFEE	0.0006	–0.0425	0.3995	1.0000					
	0.9727	0.0108***	0.0000***						
LTA	–0.0290	0.1181	–0.0803	–0.0241	1.0000				
	0.0824*	0.0000***	0.0000***	0.1485*					
LEV	0.0034	0.0781	–0.0225	–0.0211	0.2412	1.0000			
	0.8372	0.0000***	0.1766*	0.2054	0.0000***				
MBT	–0.0664	0.0416	–0.0188	–0.0318	0.0848	0.1353	1.0000		
	0.0001***	0.0125***	0.2606	0.0564**	0.0000***	0.0000***			
MATWEAK	0.0994	–0.0164	0.0404	–0.0325	–0.0889	0.0070	0.0036	1.0000	
	0.0000***	0.3253	0.0153***	0.0509**	0.0000***	0.6745	0.8269		
ROA	–0.0763	–0.0027	–0.0740	–0.0497	0.0686	–0.2185	0.3604	–0.0742	1.0000
	0.0000***	0.8711	0.0000***	0.0000***	0.0000***	0.0000***	0.0000***	0.0000***	

* / ** / *** significant at p-value 0.10/0.05/0.01 respectively

The outcome of multivariate tests on the sample is reported by estimating logistic regression models of restatements regarding the hypotheses and prior research. The coefficients, significance, and explanatory power of the model will be examined using a sample of 3,599 firm-year observations. Logistic regression was used to generate the coefficients and significance levels, and is presented in Table 3 (Blankley et al., 2012; Kinney et al., 2004). For the sake of comparison, regressions are reported with and without the interaction variables to explain Models (2), (3), and (4), with Equations (2), (3), and (4), respectively. The number of observationsin Models (3) and (4) is lower because LOWABNFEE or HIGHABNFEE were excluded.

The multivariate analysis in Table 3 shows a pseudo R^2 of approximately 2.9%, 3.2%, and 3.1%. This shows that the model explains roughly 3% of the variability of all the variability around the mean that the model should explain. Consistent with Blankley et al. (2012), the model's explanatory power is quite low. This can be due to the low amount of restatements in the sample.[3] However, other prior research shows different Pseudo R^2 results. Romanus et al. (2008) developed a model with a Pseudo R^2 of 20%. This can be explained because their research selected firms with restated financial statements and added a control firm without a restatement. In this way, these models give a sample of firms with and without a restatement, which makes it easier to investigate the difference between these firms.

For the restatement regression, 3 of the 5 control variables are significant (at 1 percent level or better). MATWEAK is significantly positive and ROA and MBT are significantly negative (Blankley et al., 2012; Aier et al., 2005; Hoitash et al., 2007). Thus, firms with more material weaknesses, small return on assets, and lower market-to-book ratio are more likely to have more restatements. Referring to prior research, LTA and LEV also appeared significant (Blankley et al., 2012; Asthana & Boone, 2012).

To test H1 and H2, Equation (2) was ran. The first hypothesis states a systematic effect of abnormally low audit fees on audit quality (a negative or positive effect on the incidence of financial restatement) (Equation 2). Table 3 shows the results of the logistic regression model. The coefficient of LOWABNFEE is not significant in all models, showing no support for H1. This indicates that auditors are able to deliver an appropriate level of audit quality even when the audit fee is abnormally low (Krauß et al., 2015).

Furthermore, these results indicate that abnormally low audit fees do not inevitably lead to a decrease in audit effort (Esheleman & Guo, 2014). DeFond et al. (2002) examined the relationship between abnormal audit fees and audit quality, and also found no significant result. Their explanation advocates the view that market-based institutional incentives, such as reputation loss and litigation costs, stimulate the auditor's independence and overshadow the economic benefits of higher audit fees

Factors influencing the relationship between abnormal audit fees and restatements could be due to the measurement of audit quality. Eshleman and Guo (2014); Krauß et al. (2014); Asthana and Boone (2012); Choi et al. (2010); Hoitash et al. (2007); and Gul et al. (2003) used discretionary accruals as a proxy for audit quality, where this research

[3] The total sample amouted to 3,599 observations, where 262 observations had restatements. Hence, 13.7% of the total sample of firms had a restatement.

used restatements. Furthermore, other research examining financial restatements as a proxy for audit quality used a sample of firms with restated financial statements and assessed a control firm for each company (Romanus et al., 2008; Chin & Chi, 2009; Stanley & DeZoort, 2007). The fact that other research found significant outcomes can indicate that the sample is not suited for the restatement model. Moreover, Asthana and Boone (2012) used a different proxy for abnormal audit fees, namely the actual audit fee less the predicted audit fee, with the difference between those fees deflated by the total fee revenue of the audit firm leading the client's audit. Following Esheleman and Guo (2014), there are some concerns that the residual from the audit fee model may simply be picking up random noise.

The second hypothesis argues that the level of financial expertise in audit committees positively influences audit quality (and therefore decreases the number of restatements). Table 3 shows that %EXPERT is significantly negative in Models (2) and (3), and supports H2. This result is in line with prior research and supports the hypothesis that a higher percentage of financial experts in the audit committees is negatively related to the incidence of a restatement (Abbott et al., 2003; DeZoort & Salterio, 2001).

The relationship between the interaction terms and the dependent variable was further tested, and Equation (3) was ran. These findings suggest that the interaction between abnormal audit fees and the level of financial expertise in the audit committee does not affect the incidence of restatements. These results are presented in Models (3) and (4). Moreover, these results suggest that the level of members with financial expertise in the audit committees increases audit quality. Finally, there is no statistically significant evidence that the interaction between abnormal audit fees and financial expertise affects audit quality.

Table 3. *Multivariate analysis: analysis of restatements, abnormally low and high audit fees, and audit committees*

REST	Model 1	P > z	Model 2	P > z	Model 3	P > z
LTA	−0.0242	0.614	−0.0485	0.519	−0.0094	0.880
LEV	0.1293	0.793	−0.3846	0.588	0.6497	0.345
MBT	−0.1151	0.005***	−0.1003	0.099*	−0.1293	0.022***
MATWEAK	1.1985	0.000***	1.2063	0.001***	1.2451	0.000***
ROA	−2.8998	0.013***	−3.4553	0.045**	−2.2802	0.149*
LOWABNFEE	−0.1667	0.486	0.3712	0.625		
HIGHABNFEE	0.3911	0.130*			1.0180	0.140*
%EXPERT	−0.3242	0.140*	−0.7807	0.118*	0.1662	0.719
LOWABNFEE x EXPERT			−1.0426	0.378		
HIGHABNFEE x EXPERT					−1.2611	0.250
Observations	3599		1686		1919	
Pseudo R^2	0.0296		0.0321		0.0310	

* / ** / *** Denote significance at the 0.10/0.05/0.01 levels, respectively

4.3 Robustness test

A robustness check was conducted to determine if these results are sensitive to other specifications of the underlying quality model. To test the robustness of the models, an alternative proxy for audit quality was introduced. Similar studies, with similar variables, used discretionary accruals as a proxy for audit quality (Eshleman & Guo, 2014; Krauß et al., 2014; Asthana & Boone, 2012; Choi et al., 2010; Hoitash et al., 2007; and Gul et al., 2003). As such, the dependent variable audit quality shall be proxied by discretionary accruals.

For the robustness test, the discretionary accruals model from Jones (1991) was used, along with the creation of a new dependent variable – DACC. Consistent with prior literature, a new control variable was also included – LOSS – to control for debt and financial distress. For the sake of comparison, regressions are reported with and without the interaction variables to explain Models (5) and (6), with Equations (5) and (6), respectively.

The discretionary accruals (DACC) and loss (LOSS) variables are included in the descriptive statistics in Table 4. Due to the merge of datasets for the discretionary accrual model, 130 observations were deleted. Furthermore, the above regressions were ran with REST replaced with a continuous variable – DACC. The results for the robustness test using the Jones model are presented in Table 4. The multivariate analysis shown in Table 4 shows an R^2 of 0.5%. This shows that the model explains roughly 0.5% of the variability of all the variability around the mean that the model should explain. This is even lower than the original model using restatements as the dependent variable.

Table 4. *Multivariate analysis: analysis of restatements, abnormally low and high audit fees, and audit committees*

DACC	Model 4	P > z	Model 5	P > z	Model 6	P > z
LTA	–0.0069	0.020**	–0.0070	0.020**	–0.0069	0.020**
LEV	–0.1897	0.552	–0.0194	0.543	–0.0190	0.550
MBT	0.0009	0.681	0.0009	0.675	0.0009	0.684
MATWEAK	0.0207	0.376	0.0212	0.365	0.0205	0.379
ROA	–0.1395	0.176*	–0.1440	0.162*	–0.1397	0.176*
LOSS	0.0105	0.524	0.0101	0.542	0.0105	0.525
LOWABNFEE	0.0016	0.926	–0.0043	0.911		
HIGHABNFEE	0.0097	0.605			0.0081	0.831
%EXPERT	–0.0125	0.371	–0.0102	0.534	–0.0132	0.434
LOWABNFEE x EXPERT			0.0163	0.785		
HIGHABNFEE x EXPERT					0.0039	0.945
Observations	3,469		1630		1873	
R^2	0.0052		0.0051		0.0052	
Adjusted R^2	0.0026		0.0026		0.0026	

* / ** / *** Denote significance at the 0.10/0.05/0.01 levels, respectively

The new measurement brings changes to the variables. Table 4 displays a significant negative relation with firm size (LTA) at the 10% level. This result is in line with the results of Blankley et al. (2012), Romanus et al. (2008), and Kinney et al. (2004), but does not appear in the restatement model. This means that the difference in measurement method and proxy of audit quality affects the results. The control variable ROA is also significantly negative (Blankley et al., 2012; Aier et al., 2005; Gul et al., 2003; Hoitash et al., 2007), but shows a significantly weaker relationship (ß = −0.1395; p = 0.176) as opposed to the restatement model (ß = −2.8998; p = 0.013). The model does not show any other significant results.

5. Conclusion

Prior research provided three reasons to explain how expertise in audit committees reduces the likelihood of a restatement. First, audit committees with higher levels of financial expertise increase the likelihood of understanding the internal audit program (Raghunandan et al., 2001). This ensures corporate responsibility and increases the operationality of internal controls in the detection of a material misstatement. Second, members with financial expertise better understand audit risks, as well as the procedures to respond to and detect risks (DeZoort & Salterio, 2001). Third, audit committee members with financial expertise are more likely to communicate the detected material misstatements to the audit committee (DeZoort & Salterio, 2001).

This study examined whether firms with abnormal audit fees and the presence of members with high financial expertise in audit committees result in higher audit quality. Prior research failed to find consensus on a significant relationship between abnormal audit fees and audit quality (Kinney et al., 2004; Stanley & DeZoort, 2007; Mitra et al., 2009; Choi et al., 2010; Asthana & Boone, 2012; Blankley et al., 2012). Thus, the effect of abnormal audit fees on audit quality is an empirical issue.

Abnormal audit fees were obtained from the audit fee model by extracting the residuals. The final model takes the positive and negative residuals separately from the audit fee model and includes them as an independent variable in the logistic regression and restatements as a proxy for audit quality. To measure financial expertise in the audit committees, a variable of the percentage of members with financial expertise in the audit committee was created. To measure the effects, a sample of 3,599 firm-year observations from the 2010 to 2018 period was used.

This research was conducted on the basis of two hypotheses. Hypothesis 1 claimed that abnormal audit fees are systematically associated with the quality of audits (i.e., they affect the likelihood of a restatement). For the first hypothesis, no statistically significant relation was detected. This indicates that auditors are able to deliver an appropriate level of audit quality even when the audit fee is abnormally low, and are that a lower audit fee does not necessarily indicate lower audit effort.

Hypothesis 2 suggested that financial expertise in audit committees increases audit quality (and therefore decreases the incidence of a restatement). The regression analysis provided supportive evidence for this hypothesis. A higher percentage of financial ex-

perts in the audit committee is negatively related to the incidence of a restatement, and increases the quality of the audit.

Further analysis examined the effect of the interaction of financial expertise with abnormal audit fees on audit quality. These results demonstrated no statistically significant findings for the interaction of variables with restatements.

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Appendix. Descriptions of variables

TA	Total accruals scaled by lagged assets
ASSETS	Beginning balance of total assets
ΔREV	The change in revenues of the firm scaled by lagged assets
ΔREC	The change in receivables of the firm scaled by lagged assets
PPE	The gross property, plant, and equipment of the firm scaled by lagged assets
LAF	The logarithm of audit fees
LTA	The logarithm of the end of year total assets
CR	Current assets divided by current liabilities
CATA	Current assets divided by total assets
ARINVTA	Sum of accounts receivable and inventory divided by total assets
ROA1	Earnings before interest and taxes divided by total assets
LOSS	1 if the firm incurred a negative net income (loss), 0 otherwise
MERGER	1 if the firm reported the impact of a merger or acquisition on net income, 0 otherwise
BUSY	1 if a company's fiscal year is December 31st, 0 otherwise
LEV1	Long-term debt divided by total assets
INTANG	Ratio of intangible asset to total assets
SEG	Logarithm of number of business segments
OPINION	1 if the auditor issues a going concern audit opinion, 0 otherwise
MATWEAK	1 if the client receives a material weakness opinion in the current year or the next year, 0 otherwise
REST	1 if the financial statements were restated, 0 otherwise
LEV2	Total debt divided by total assets
MTB	Market-to-book ratio
ROA2	Return on assets, net income divided by lagged total assets
ABFEE	The residuals from the abnormal audit fee model
LOWABNFEE	Equal to ABFEE if ABFEE is less than 0, 0 otherwise
HIGHABNFEE	Equal to ABFEE if ABFEE is higher than 0, 0 otherwise
%EXPERT	Percentage of members in the audit committee with financial expertise