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The differential impact of distracted auditors in managing portfolio of financially distressed audit clients on audit quality: the role of professional skepticism

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Abstract

This study hypothesizes that distracted auditors affect audit quality. As a result of resources scarcity, auditors pay more attention to financially distressed audit clients rather than non-financially distressed audit clients at the same audit client portfolio which eventually leads to differences in audit quality. In this context, earnings restatement of audit clients is used as a distraction event of auditors. Distracted auditor is measured by the percentage of the audit fees of financially distressed audit clients to total audit fees and audit quality is proxied by total accruals. The data is obtained from firms listed on the US stock market over eleven years between 2010 and 2020. The results indicate that financially distressed audit clients of distracted auditors receive higher audit quality than non-financially distressed audit clients of the same audit client portfolio. Further analysis suggests that this difference in audit quality between financially distressed audit clients and non-financially distressed audit clients decreases with skeptical auditors. This study introduces a new comprehensive approach to measure professional skepticism using KAMs disclosure. The results are robust to different measurements of distracted auditors, audit quality and professional skepticism. Overall, the empirical analyses suggest that distracted auditors have a decreasing differential impact on audit quality by professional skepticism.

Keywords Distracted auditors, Distraction events, Earnings restatement, Audit quality, Total accruals, Professional skepticism

Introduction

A distracted auditor is a common disorder characterized by distraction events due to practical constraints of auditing profession. For instance, during busy seasons, auditors imbalance allocating limited resources between all audit clients to deliver audit reports of all audit engagements in a timely manner [27]. More specifically, this accords with psychological observations, which shows

strong evidence of performance deterioration when work is overloaded as a result of anxiety of missing deadlines [18]. These practical constraints such as time pressure, limited resources and work overload at audit office are the leading causes of audit quality decrease. Distractions in auditing arise, however, when an attempt is made to implement the audits of an audit client portfolio that has financially distressed audit clients. When audit process is implemented with financially distressed audit clients, significant difference in allocating time and effort between audit clients at the same audit client portfolio is detected. Auditors would pay particular attention to these financially distressed audit clients than other audit clients of the same client portfolio. Time constraint and limited

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resources pressure have been identified as major contributing factors for the decline of auditing balance between the financially distressed audit clients and other audit clients. A possible explanation for these results may be the lack of adequate time and resources to audit office which can result in workload imbalance in the portfolio of audit clients [14]. It is therefore likely that such expositions induce distracted auditors.

One major practical issue of PCAOB, that has dominated the field of auditing for many years, concerns audit quality [32]. Audit quality is an important factor in maintaining auditing profession and auditors' reputation against litigation loss [11, 43]. The value of audit quality suggests that audit clients bear higher audit fees to ensure reliable audit effort [6]. The fact that audit offices are mostly restricted with resources constraints, especially in the case of audit offices with portfolio of diverse clients. Therefore, audit offices allocate a significant percentage of available resources to financially distressed audit clients. Consequently, auditors could be distracted to other audit clients to the extent that audit quality might be achieved differently between financially distressed audit clients and other audit clients. Therefore, there might be some evidence that distracted auditor may affect audit quality.

Deterioration in audit quality could be explained by inherent quality defects of auditors themselves. This study focuses on the claim that distracted auditors induce lower audit quality and has limitation of providing a comprehensive review of all factors that could impair audit quality. By employing qualitative models of distracted auditors, this study attempts to illuminate other factors that might affect the audit quality. In this study, based on the concept of resources scarcity, it is hypothesized that auditors fail to consider the differing categories of audit clients in managing portfolio of financially distressed audit clients. More specifically, auditors tend to focus more on audit clients who experienced restatements rather than other audit clients at the same audit clients portfolio. This imbalance of workload in the audit office is the leading cause of distracted auditors. Hence, the author sets out the hypothesis that audit offices endure lower audit quality when auditors are distracted. In order to identify distraction events, this study uses restatement as indication of financially distressed audit clients which leads auditors to imbalance workload between audit clients at the same audit client portfolio. It is expected that financially distressed audit clients of distracted auditors receive higher audit quality than non-financially distressed audit clients of the same audit client portfolio.

Auditing profession synthesizes general qualities with statutory qualifications. In the US system, auditors are considered to be professionals according to

whether they have Chartered Accountant in terms of Chartered Accountant Act, 1949. On the other hand, in spite of many qualifications about the role of auditor are obtained, this profession also has a number of serious qualities of auditors themselves. Auditors' qualities consider whether auditors work well on cross-border issues of auditing. Auditors' qualities, such as professional skepticism, show the personal skeptical qualities of auditor his/herself in all aspect of auditing processes (e.g., audit planning, collecting and evaluating evidence and audit reporting). Professional skepticism is the use of personal qualities of auditors, and it is not limited to conclude whether management is fully honest or not honest ([31], Sect. 230). For example, auditors conduct a series of semi-structured interviews of audit client's managers and employees with skeptical attitude to evaluate their responses. In the end, professional skepticism is selected as a measurement tool used by the management to indicate whether the activities of audit clients are in accordance with financial reporting standards. Traditionally, it has been argued that firms with financial distresses are more likely to engage in earnings management to achieve managerial incentives (e.g., manipulate income, meet expectations of financial analysts and increase compensations of top management) [23]. The fact that auditors reconsider risk assessment and use professional skepticism in the case of financially distressed audit clients. The higher level of auditing procedures has been required to alien with higher level of professional skepticism. Such practices are essential because financially distressed audit clients are more likely to misstate earnings [30]. In further analysis, this study intends to determine the extent to which professional skepticism affects distracted auditors and whether audit quality is enhanced by the role of skeptical auditor. Professional skepticism is considered to be one of the most important determinants of audit quality. Professional skepticism is defined by IAASB [19] as *"An attitude that includes a questioning mind, being alert to conditions which may indicate possible misstatement due to error or fraud, and a critical assessment of evidence."* The earlier conjecture is further examined in this study using professional skepticism. It is hypothesized that the differential impact on audit quality between financially distressed audit clients and non-financially distressed audit clients at the same audit client portfolio decreases with skeptical auditors. The results show that the differential impact of distracted auditors on audit quality is decreased with professional skepticism.

Auditors provide stakeholders with in-depth analysis with information about the truth and fairness of all material aspects in financial statements [3]. What is known about distracted auditors is largely based upon empirical studies that investigate how auditors allocate their

limited resources to audit client portfolio. In this study, distracted auditors have been investigated in different ways than previous literature. First, the analysis of distracted auditors undertaken here has extended by examining the role of professional skepticism. Prior literature has been mostly restricted to limited comparisons of distracted auditors and audit quality. Second, researchers have not treated audit client portfolio management in much detail. In this study, the total sample is divided into two groups on the basis of whether audit client is financially distressed or not.

Distracted auditors are used as exogenous so that other factors which might affect audit quality remain constant. More specifically, in this study distracted auditors have been measured using the percentage of audit fees for each financially distressed audit client in the audit client portfolio to total audit fees. Financially distressed audit clients are identified using a strategy developed in prior literature. For instance, the study of Hadjigavriel and Hansen [14] uses a non-accounting lawsuit as indication of distraction events. This study follows Hadjigavriel and Hansen [14]; however, it uses earnings restatement of audit client as an indication of distraction event for auditors. The following notes highlight points of relevance of using earnings restatement as an indication of distraction event for audit office. First, earnings restatement results due to audit clients rather than auditors themselves or externalities. Second, audit office pays more attention of time and resources to audit clients who experienced earnings restatement than other clients at the same audit client portfolio [24]. These earnings restatements may explain the relatively time and resources pressure in audit office which can result in auditor distractions. The issue of audit clients with restatements would receive considerable critical attention from audit office. Audit clients who matched the selection criteria of earnings restatement are identified in the empirical part of this study to capture the case of distracted auditors and examine the impact on audit quality. This study uses a difference-in-difference strategy to analyze the relationship between distracted auditors and audit quality. Further, skeptical auditors need to be investigated to establish synthetic understanding of such relationships.

Based on this set of conjectures, this study examines the impact of distracted auditors on audit quality. Further investigation into the role of professional skepticism is developed to examine more closely the links between distracted auditors, audit quality and professional skepticism. In most recent studies, distracted auditors have been measured at audit office level in the way of measuring the percentage of audit fees of financially distressed audit clients to the total audit fees for the entire audit client portfolio of audit office [14, 21]. Data is collected

using a sample of US firms over eleven years from 2010 to 2020. Many audit offices pay particular attention in auditing financially distressed audit clients than other audit clients at the same audit client portfolio. It is hypothesized that there is difference of audit quality of distracted auditors between financially distressed audit clients and other audit clients at the same audit client portfolio. Financially distressed audit clients with a distractor auditor receive higher audit quality than other audit clients at the same audit client portfolio. The findings of the empirical analysis are consistent with these conjectures that distracted auditor affects audit quality. However, following Hadjigavriel and Hansen [14], these conjectures must be applied with caution. There are two likely causes for concern here: First, the observed change in audit quality could not be attributed to distracted auditors. For instance, the cases of earnings restatement are likely to become more common in auditing profession; therefore, auditors are prepared according to the procedure used in similar cases of distracting events. More specifically, auditors from Big4 could maximize and optimize allocating limited resources between financially distressed and non-financially distressed audit clients [24]. In contrast to the hypotheses of this study, however, these recent arguments have been summarized and considered during the empirical study. In addition to the robustness check in which the study uses a different measure of audit quality. Second, it has been observed that auditing has three separable levels of audit practicing: auditor level, audit team level and audit office level. Therefore, distraction events are set at the audit team level rather than audit office level. For instance, a notable example of distraction event is earnings restatement, thereby, such distraction is at audit team level. However, auditors consider themselves responsible for audit planning and all audit procedures. In case of financially distressed audit clients with earnings restatement, auditor distractions are related to the audit team level not audit office level. However, prior studies have stated that the auditor distraction is at audit office level. This study uses data about audit fees (audit office level) to measure distracted auditors (audit team level). As it is believed that audit team is generally seen as a factor strongly related to audit office [14]. In addition, to overcome such concern, the author includes a set of variables in the empirical model of this study to control audit office characteristics which reflects both audit team level and audit office level.

The results obtained from the empirical analysis confirm previous assumptions into this area of auditing which links distracted auditors and audit quality. This study uses total accruals as a measure of audit quality. The empirical findings show distracted auditors with earnings restatements audit clients have higher audit

quality. Comparing the two results of financially distressed audit clients and other audit clients, it can be seen that distracted auditors are paying particular attention to audit clients with earnings restatements rather than other audit clients. Both results of the main empirical models and robustness tests indicate higher value of the coefficient estimates of distracted auditor for financially distressed audit client than non-financially distressed audit of (0.035) and (0.016), respectively. In further analysis, it is now necessary to explain the role of professional skepticism on the relationship between distracted auditors and audit quality. The results show the coefficient estimates of distracted auditors and professional skepticism for financially distressed audit client and non-financially distressed audit are (0.031) and (0.021), respectively. Comparing the two results, it can be seen that the differential impact on audit quality of distracted auditors between financially distressed audit clients and non-financially distressed audit clients (the two groups) is decreased with skeptical auditors. The observed increase in audit fees of financially distressed audit clients could be attributed to distracted auditors. On the other hand, non-financially distressed audit clients received a lower level of audit quality as measured by total accruals. Audit quality arises, however, when an attempt is made to accede professional skepticism into the analysis. The results indicate that the differential impact on audit quality of distracted auditors decreases with skeptical auditors. In future investigations, it might be possible to use different events of auditing distractions (e.g., audit clients with IPO) and different measures of audit quality (e.g., identify internal control weaknesses). However, the results are robust with different measures of distracted auditors, audit quality and professional skepticism. In addition, the current investigation was limited by audit firm level, and it is not specifically designed to evaluate factors related to audit partner. Future research will be useful to conduct a comprehensive framework of auditing process including the role of audit partner.

In recent years, the literature which has been published on distracted auditors finds that limited resources in audit office and providing non-audit services are main causes of decrease in audit quality. Other studies have considered the relationship between professional skepticism and audit quality and find a direct impact of skeptical auditor on audit quality. The present study makes several noteworthy contributions to prior literature in auditing in several ways. First, the findings enhance the understanding of a new determinant of audit quality which is concerned with distracted auditor. A possible explanation is that audit distractions are a result of having financially distressed audit clients at audit client portfolio and resources constraints at audit office. However,

auditors allocate more resources for auditing financially distressed audit clients than non-financially distressed audit clients at the same audit client portfolio. Second, the present study provides additional evidence with respect to the role of professional skepticism in shaping the relationship between distracted auditors and audit quality that the differential impact on audit quality of distracted auditors between financially distressed audit clients and non-financially distressed audit clients at the same audit client portfolio decreases with skeptical auditors. Third, the findings of this study have a number of important implications for future practice for auditors, audit clients, regulators: (i) auditors should consider distraction events in audit planning and risk assessment. (ii) Audit clients should bear in mind the busyness and workload at audit office. (iii) Regulators should take audit distraction events into account when issuing new audit standard. A key policy should therefore be to plan for the long-term managing audit client portfolio and how auditors allocate their limited recourse between audit clients at the same portfolio. Fourth, this study introduces a new comprehensive approach to measure professional skepticism depending on a holistic view of financial reporting [i.e., KAMs disclosure (Key Audit Matters)] which is not limited to earning reporting (i.e., earning adjustments).

The paper proceeds as follows: Sect. "Literature review and hypotheses development" provides literature review and develops research hypotheses. Sect. "Research methodology" defines data, provides descriptive statistics for the final sample and Sect. "Empirical models" develops empirical models. Sect. "Empirical results" provides empirical results, Sect. "Robustness tests" provides robustness tests, and Sect. "Discussion" discusses the implications of the findings. Finally, Sect. "Conclusion" concludes and suggests future research.

Literature review and hypotheses development

Much of the current literature in auditing pays particular attention to investigating the effect of auditor characteristics and/or audit office characteristics on audit quality [2]. The present study provides additional evidence with respect to distracted auditors and audit quality and how this relationship could be shaped with the role of professional skepticism. However, PCAOB [32] has a major concern with this kind of distracted auditor that could affect and undermine audit quality. Distress periods of audit client evolve work and time pressure for auditors which could induce lower audit quality [18]. The auditing distraction caused by audit clients over distressed periods has been tested in this study. Further investigation is developed about the role of professional skepticism to better understanding of a different perception of distracted auditors.

Distracted auditors and audit quality

A considerable amount of literature which has been published on audit quality finds a lower level of audit quality achieved when auditors are distracted with non-audit services. Similarly, strong evidence of lower audit quality is found when auditors are specialized on industries with high industry-specific risk and or industry which is affected by natural disasters [1, 7, 24]. There is further evidence to suggest that lower audit quality is induced during busy seasons, work and time pressure at audit office [18]. A number of studies have consistently shown that auditors' resources constraints would affect audit clients in several aspects. More recently, literature has emerged that scholars are supporting findings about that workload pressure affects audit quality in terms of audit fees, audit report lag and total number of audit clients in audit client portfolio. Salehi et al. [39] highlight the need to break the link between auditor education, audit client satisfaction and audit quality. In another stream of studies, some authors have suggested that similar level of audit quality is achieved for audit clients who belong to the same audit client portfolio due to contagion effect [12]. More recent arguments about distracted auditors and audit quality have been examined by Ittonen et al. [21] and Hadjigavriel and Hansen [14]. Ittonen et al. [21] draw the attention to distinctive categories of distracted auditors often observed in audit fees and audit delays. Hadjigavriel and Hansen [14] consider distraction event as whether audit office is located at the same city of audit client or at different city. A study such as that conducted by Jiang et al. [24] shows that with distracted auditors there is a decline in financial reporting quality of clients who are exposed to natural disaster than other clients. In the same vein, Beardsley et al. [1] note that non-audit services could result in decreasing audit quality as the auditors are distracted by non-audit services. A similar perspective has been adopted by Cassell et al. [7] who argue that industry specialist auditor imbalances resources allocation between audit clients due to resources constraints and assign more resources for audit clients of industry with high risk. In a groundbreaking survey of auditors, in 1978 Rhode is able to show that approximately half of those surveyed auditors reported that due to their engagement and time constraints, audit teams compromise audit quality. The study of Heo et al. [18] confirms previous findings and contributes additional evidence suggests that during busy seasons at audit office, it is observed decline in audit quality measured by restatement and total accruals. Many scholars list distraction events of auditing as the major motivations of managerial opportunistic behavior, such as manipulating earnings for meeting and/or beating analysts' forecasts. On other word, during financial distressed periods,

managers engage in opportunistic behavior to manipulate earnings and maximum their benefits [27] or to increase stock price [35] or to hoard bad news announcements [3]. However, such findings tend to overlook the fact that auditors pay close attention to the audit clients who are financially distressed. Auditors increase the amount of evidence collected and tests conducted of financially distressed audit clients [30].

The possible interference of audit quality deterioration could be ruled out by the US SEC (the US Securities and Exchange Commission) through reducing the lag time of listed firms to publish audited financial reports [44]. Such time constraint could result in reducing audit quality. Empirical evidence suggests that during busy seasons with SEC timeline pressure, auditors would tend to fail in obtaining and evaluating audit evidence probability and fail in conducting reliable number of tests, which eventually could affect audit quality [26]. A compliance perspective has been adopted by PCAOB to urge auditors to critically examine the truth and fairness of all material aspects in financial reports [34]. Another stream of literature investigates the impact of auditor characteristics on audit quality. The study Gul et al. [13] find that audit partner has two primary impacts (i.e., statistically and economic impacts) on audit quality. Recent cases also support the hypothesis that there is an impact of audit client characteristics and/or auditor characteristics on audit quality such as financial position of audit client [9], auditing work overload [42] and audit tenure [10].

Based on conjectures of having audit client portfolio of financially distressed audit clients and non-financially distressed audit clients with the fact of resources constraints auditors might be distracted. Thus, distracted auditors pay particular attention to audit clients who are financially distressed than non-financially distressed of the same portfolio which eventually affects audit quality. Independent tests are carried out on the financially distressed audit clients and non-financially distressed audit clients of the same portfolio. It is therefore likely that such connections exist between distracted auditors and audit quality. It can thus be hypothesized that:

H₁ Financially distressed audit clients of distracted auditors receive higher audit quality than non-financially distressed audit clients of the same audit client portfolio.

Distracted auditors, audit quality and professional skepticism
Consequences found to be resulting from professional skepticism have been explored in several studies. Ying et al. [45] show how, in the surveys conducted by the US SEC, fraud detection is mainly concerned with the skeptical attitude of external auditors. Over half of the sample (60%) of fraud cases is of auditors with less skeptical

Table 1 Sample Selection

Selections c=Criteria	Excluded observations	Remaining observations
Initial sample from audit analytics	–	59,169
Excluding missing data about financial and/or audit information	27,580	31,589
Excluding audit offices with one audit client during a fiscal year	37	31,552
Excluding audit clients with negative market value	1775	29,777
Excluding audit client portfolio with no earnings restatements	1043	28,734
Excluding audit clients with regulated industry (1,541 utilities and 26,451 financial institutions)	27,992	
Final sample	–	742

attitude. A possible explanation for these results may be the lack of adequate qualities of auditors (e.g., professional skepticism). Professional commitment and working for public interest are major areas of interest within the field of auditing profession. According to PCAOB [32], ethical behavior of auditors is an important factor in maintaining professional skepticism. Blix et al. [4] suggest that a strong link may exist between professional commitment and professional skepticism which can give rise to audit quality. Previous research has indicated that various auditor independence's indicators (e.g., professional skepticism) have a positive impact on audit quality [4]. A strong relationship between professional skepticism, auditor reputation and audit quality has been reported in prior literature [25, 41]. Salehi et al. [40] indicate that organizational justice has a positive impact on professional skepticism. In addition, Mardijuwono and Subianto [28] indicate that various professional skepticism indicators have a positive impact on audit quality. A recent study by Masita et al. [29] involves professional skepticism to competence and independence to investigate the significant impact on audit quality. The results indicate that there is a significant positive correlation between professional skepticism and audit quality. On the other hand, Bowlin et al. [5] find a negative impact of auditor rotation on audit quality when auditors are skeptic. The decrease in audit quality is caused by auditor rotation, whereas rotated auditors have a less skeptical attitude. He et al. [15] provide an important evidence of the impact of the number of years of auditing profession on professional skepticism.

From the previous discussion, it seems that professional skepticism of the link between distracted auditors and audit quality framework is questionable. Prior scholars highlight the fact that professional skepticism contributes to audit quality. On the other hand, in spite of much knowledge about the role of professional skepticism in maintaining audit quality, it is important to ask about the emerging role of professional skepticism in the

context of distracted auditors and audit quality. It can thus be hypothesized that:

H₂ The differential impact on audit quality of distracted auditors between financially distressed audit clients and non-financially distressed audit clients at the same audit client portfolio decreases with skeptical auditors.

Research methodology

Sample selection

The data is obtained from firms listed on the US stock market over eleven years between 2010 and 2020. Financial data is obtained from Compustat and audit data is obtained from audit analytics. Following the approach of Chang et al. [8], the sample selection criteria of this study are as follows: First, audit clients with missing data about financial and/or audit information are excluded from the final sample. Second: audit clients with negative market value are omitted. Third: audit clients with regulated industry are removed from the final sample (i.e., utilities and financial institutions¹). Fourth, audit client portfolio with no earnings restatements. Fifth, audit offices with one audit client during a fiscal year are excluded. The final sample consists of 742 firm-year observation taken from 202 audit clients which is audited by 11 audit offices; see Table 1 of sample selection.

Variables measurement

Dependent variable: (audit quality)

In broad term, audit quality can be defined as a tool that is used by management to confirm the compliance of financial activities with financial standards and company rules. The measurement of audit quality can be discussed under three approaches: output indicators, input indicators and other indicators. Generally, the output indicators refer to the external factors that could affect audit

¹ SIC codes from 4900 to 4999 and SIC codes from 6000 to 6999.

quality from outside the audit office, for instance, total accruals and AAER (Accounting and Auditing Enforcement Release). However, input indicators show the internal determinants of audit quality that rise internally from the audit office (e.g., Big N and audit tenure) [36]. Drawing on an extensive range of audit quality measurements, this study sets out the approach in which audit quality is measured based on outputs indicators (i.e., total accruals). The major objective of this study is to investigate the impact of distracted auditors on audit quality. The attention has focused on the provision of external distraction on auditors; therefore, the output indicators of audit quality are used to measure audit quality at the empirical model and the robustness test. Likely step for the audit quality's proxy should be constructed to estimate total accruals, see model (1). Total accruals equal net income before extraordinary items and discontinued operations minus net cash flow.

$$Accruals_{ijt} = \sum_i^n NetIncome_{ijt} - CashFlow_{ijt} \quad (1)$$

where $Accruals_{ijt}$ is total accruals, $NetIncome_{ijt}$ is net income before extraordinary items and discontinued operations, and $CashFlow_{ijt}$ is net cashflow from operations.

Independent variables (distracted auditors and professional skepticism)

To date limited methods have been developed and introduced to measure distracted auditor. This study uses the percentage of audit fees for each audit client who has financial distress in the portfolio of audit clients to total audit fees. Previous research has indicated that audit fees are considered as indicators of audit effort. This measurement approach is developed based on the notion that the most important limitation at audit office lies in the fact that audit office has limited resources which can lead to paying more attention to financially distressed audit clients. This can eventually result in receiving higher fees from financially distressed audit clients than other audit clients at the same audit portfolio. Following prior literature of Robinson et al. [38] in investigating the audit-client relationship, this study uses audit fees to measure distracted auditors. More specifically, the measurement approach of distracted auditors taken in this study is a constructive methodology based on the percentage of audit fees received from financially distressed audit client to total audit fees. While a variety of definitions of the term financially distressed audit client have been suggested in prior literature (e.g., receiving non-accounting-related lawsuits by [14]), this study uses the definition of earnings restatements. The issue of earnings restatement has received considerable critical attention. Prior

literature provides evidence of a clear impact of earnings restatement on stockholders, auditors, executives and financial analysts. More specifically, the consequences of earnings restatement have been the subject of intense debate within the scholar community in auditing. For instance, earnings restatement is considered as the major cause of auditor dismissals and leads to an increase in audit fees [16]. This could be attributed to the fact that auditors may endure higher levels of risk and uncertainty. Consequently, earnings restatement plays a significant critical role in audit planning and audit risk assessment. Therefore, distracted auditors can be measured using the percentage of audit fees of audit clients with earnings restatement to the total audit fees, see model (2).

$$Distracted_Auditors_{ijt} = \sum_i^n \frac{FD_Audit\ Fees_{ijt}}{T_Audit\ Fees_{jt}} \quad (2)$$

where $Distracted_Auditors_{ijt}$ is distracted auditors, $FD_AuditFees_{ijt}$ is audit fees of financially distressed audit client, and $T_AuditFees_{jt}$ is the total audit fees. To measure distracted auditors, the total sample is subdivided into two groups. The first group represents the audit clients who experienced earnings restatement during the year of analysis, while the second group has audit clients with no earnings restatement during the same year of analysis (non-financially distressed audit clients). As can be seen from formula (2), the distracted auditor reported the ratio of audit fees of the first group of the study sample to the total audit fees received by audit office during the year of analysis.

Professional skepticism is an important factor in auditing financial statements. Professional auditing institutions (e.g., IFAC) require auditors to have significant levels of skeptical attitude. Prior studies have noted the importance of professional skepticism in audit planning and audit risk assessment. More specifically, in the US SEC comprehensive investigation into fraud lawsuits it is found that one of the most significant reasons of fraud is the lack of adequate professional skepticism to disclose about material misstatements in the audit report [33]. A variety of measurements of professional skepticism have been suggested in the prior literature of auditing. The measurement of professional skepticism is linked to earnings adjustments that are required by auditors [17]. Prior to commencing with this measure of professional skepticism, technical clearance is obtained from the main limitation to apply earnings adjustments as a proxy in this study. The author challenges the widely used measure of professional skepticism that the main weakness of earnings adjustments proxy is the failure to address how auditors may be skeptical in some issues rather than earnings. The current study is not specifically designed

to evaluate factors related to earnings only but the entire financial reporting.

IAASB [20] has provided a new release of auditing standard with the new requirements (ISA no. 701).² This audit standard provides a new understanding of disclosing requirements in audit report of key audit matters (KAMs disclosure). Audit reports will almost certainly become more informative with such new requirements of auditors. Therefore, the auditors are required to disclose about areas of material misstatement and managerial judgements during the audited period (see [3]). In the same vein of IAASB [20], the author introduces a measure to consider whether professional skepticism function well on cross-border issues such as areas of material misstatement and auditor opinion regarding managers' judgements and material transactions during the audited period which are disclosed in audit report, more specifically in KAMs paragraph. In the end, the KAMs disclosure is selected as the measurement tool for professional skepticism in this study. Following Reid et al. [37] and Bedeir [3] in measuring KAMs disclosure, this study measures professional skepticism ($Skept_{ijt}$) as indicator variable takes value of one if auditor discloses about KAMs in the audit report and takes value of zero otherwise.

Control variables

Prior literature in auditing observes significant relationships between the characteristics of audit office and audit client on one side and audit quality on the other side. This study has considered the relationship between audit client and audit office. It could conceivably be that the control for this relationship is inconclusive and includes variables related to audit client characteristics and audit office characteristics. Thus, the author considers the fact that audit client characteristics and audit office characteristics contribute to the relationship between distracted auditors and audit quality. Following Ittonen et al. [21] and Hadjigavriel and Hansen [14], this study includes two sets of controls. First set of variables to control over audit client characteristics includes: book to market value (BM_{ijt}), audit client size ($Client_Size_{ijt}$), loss ($Loss_{ijt}$), growth in sales ($Sale_Growth_{ijt}$), growth in PPE investment (PPE_Growth_{ijt}), financial leverage (Lev_{ijt}), liquidity (Liq_{ijt}), return on assets (ROA_{ijt}), cash flow from operations (OCF_{ijt}), merger and acquisition ($M\&A_{ijt}$) and Altman Zscore (Z_score_{ijt}). Second set of variables to control over audit office characteristics includes: audit office size ($Audit_Size_{ijt}$), number

Table 2 Descriptive Statistics

Variable	Mean	SD	Mean	SD
	Financially distressed audit clients		Non-financially distressed audit clients	
<i>Main variables</i>				
AQ_{ijt}	0.314	2.500	0.034	0.171
$Distracted_Auditors_{jt}$	0.010	0.133	0.052	0.050
$Skept_{ijt}$	0.000	1.011	0.000	1.002
<i>Control variables_A</i>				
BM_{ijt}	0.589	0.645	0.607	0.649
$Client_Size_{ijt}$	5.390	1.810	6.075	1.836
$Loss_{ijt}$	0.383	0.480	0.308	0.456
$Sale_Growth_{ijt}$	0.153	0.598	0.143	0.532
PPE_Growth_{ijt}	0.159	0.648	0.154	0.609
Lev_{ijt}	0.531	0.302	0.564	0.064
Liq_{ijt}	3.227	3.286	2.589	2.478
ROA_{ijt}	0.069	0.299	0.095	0.248
OCF_{ijt}	0.052	0.163	0.047	0.168
$M\&A_{ijt}$	0.334	0.468	0.378	0.481
Z_score_{ijt}	1.441	3.465	1.684	2.859
<i>Control variables_B</i>				
$Audit_Size_{ijt}$	16.235	1.709	16.456	1.666
$No_Clients_{ijt}$	0.332	0.466	0.378	0.480
$Busy_Season_{ijt}$	0.688	0.452	0.682	0.444
$Audit_Tenure_{ijt}$	0.816	0.273	0.714	0.360
$Audit_Lag_{ijt}$	4.111	0.354	4.104	0.345
Big_4_{ijt}	0.252	0.431	0.244	0.427

of clients ($No_Clients_{ijt}$), busy season ($Busy_Season_{ijt}$), audit tenure ($Audit_Tenure_{ijt}$), audit lag ($Audit_Lag_{ijt}$) and Big4 (Big_4_{ijt}) (see Appendix A for all variables definitions and measurements). Table 2 presents descriptive statistics for all variables of the final sample divided into two groups of financially distressed audit clients and non-financially distressed audit clients. It is important to bear in mind the possible multicollinearity between independent variables. Therefore, the correlation between main variables is checked, Appendix C shows the coefficient estimates of Pearson correlation. The result of the correlational analysis reveals low correlations among distracted auditors, professional skepticism and the two sets of control variables. It is therefore likely that such concern between independent variables do not exist.

Empirical models

Based on the concept of resources scarcity, auditors who fail to consider the differing categories of audit clients in managing portfolio have financially distressed audit clients. More specifically, auditors tend to focus more on audit clients who experienced earnings restatements

² The International Standard on Auditing (ISA) no. (701) "Communicating Key Audit Matters in the Independent Auditor's Report".

rather than other audit clients at the same audit client portfolio. This imbalance of workload in the audit office is the leading cause of auditors to be distracted. Hence, the author sets out the first hypothesis that financially distressed audit clients receive higher audit quality when auditors are distracted than non-financially distressed audit clients at the same audit client portfolio. The final sample is divided into two groups based on the financial distress (i.e., earnings restatements). The first group includes the financially distressed audit clients, while the second group includes the non-financially distressed audit clients. The following primary linear probability regression model is developed to test the first hypothesis:

$$\begin{aligned}
 AQ_{ijt} = & \beta_0 + \beta_1 \text{Distracted_Auditors}_{ijt} \\
 & + \sum_i^n \text{Controls_A}_{ijt} \\
 & + \sum_i^n \text{Controls_B}_{ijt} + \varepsilon_{ijt}
 \end{aligned} \tag{3}$$

where AQ_{ijt} is audit quality (see Sect. "Variables measurement"), $\sum_i^n \text{Controls_A}_{ijt}$ is set of control variables of audit client characteristics, and $\sum_i^n \text{Controls_B}_{ijt}$ is set of control variables of audit office characteristics (see Appendix A for control variables definition and measurement). Coefficient estimates of β_1 in model (3) are considered as an empirical illustration of the impact of distracted auditors on audit quality. Higher value of the coefficient estimates of β_1 for the financially distressed audit client (first group) than the non-financially distressed audit client (second group) appears to support the assumption of H_1 .

Such a connection between distracted auditors and audit quality reveals the need for further investigation with the role of professional skepticism. It is hypothesized that the differential impact on audit quality between financially distressed audit clients and non-financially distressed audit clients at the same audit client portfolio decreases with skeptical auditors. These assumptions further support the idea that the negative impact of distracted auditors on audit quality is decreased with skeptical auditors. The following model is developed to test the second hypothesis:

$$\begin{aligned}
 AQ_{ijt} = & \beta_0 + \beta_1 \text{Distracted_Auditors}_{ijt} + \beta_2 \text{Skept}_{ijt} \\
 & + \beta_3 \text{Distracted_Auditors}_{ijt} * \text{Skept}_{ijt} \\
 & + \sum_i^n \text{Controls_A}_{ijt} + \sum_i^n \text{Controls_B}_{ijt} + \varepsilon_{ijt}
 \end{aligned} \tag{4}$$

Coefficient estimates of β_3 in model (4) are considered as empirical evidence of the role of professional skepticism on the relationship between distracted auditors and

audit quality. The difference of the coefficient estimates of β_3 for the two groups is decreased which appears to support the assumption of H_2 .

It is expected that (BM_{ijt}) , $(Client_Size_{ijt})$, $(Sale_{Growth_{ijt}})$, (OCF_{ijt}) and $(M\&A_{ijt})$ have positive relationship with audit quality; therefore, they have a positive sign of coefficient estimates. On the other hand, $(Loss_{ijt})$, (PPE_Growth_{ijt}) , (Lev_{ijt}) , (Liq_{ijt}) , (ROA_{ijt}) , (Z_score_{ijt}) , $(AuditSize_{ijt})$, $(No_Clients_{ijt})$, $(Busy_Season_{ijt})$, $(Audit_Tenure_{ijt})$, $(Audit_Lag_{ijt})$ and (Big_4_{ijt}) have negative relationship with audit quality; therefore, they have a negative sign of coefficient estimates in model (3) and model (4).

Empirical results

The major objective of this study is to investigate the impact of distracted auditors on audit quality and to clarify the differential impact on audit quality between financially distressed audit clients and non-financially distressed audit clients. Table 3 compares the breakdown of coefficient estimates of β_1 according to model (3) for the two groups of audit clients. It can be seen from the data in Table 3 that the first group reports more audit quality than the second group. The coefficient estimates of β_1 are (0.035) higher in financially distressed audit clients (first group) than non-financially distressed audit clients (second group) with the value of (0.016). These results provide empirical support for the first hypothesis that financially distressed audit clients of distracted auditors receive higher audit quality than non-financially distressed audit clients of the same audit client portfolio.

In addition, it is now necessary to explain the role of professional skepticism on the relationship between distracted auditors and audit quality. Similarly, Table 3 shows the breakdown of coefficient estimates of β_3 according to model (4) for the two groups of audit clients. The coefficient estimates of β_3 of the financially distressed audit clients (first group) are (0.031) and of non-financially distressed audit clients (second group) is (0.021). Comparing the two results, it can be seen that when distracted auditors are stimulated with professional skepticism in model (4), marked decrease in the difference of β_3 between two groups is detected. It can thus be concluded that the differential impact on audit quality of distracted auditors between financially distressed audit clients and non-financially distressed audit clients (the two groups) is decreased with skeptical auditors.

The results of control variables also accord with the earlier observations, which show that (BM_{ijt}) , $(Client_Size_{ijt})$, $(Sale_{Growth_{ijt}})$, (OCF_{ijt}) , and $(M\&A_{ijt})$ have positive coefficient estimates which indicate positive impact on audit quality and $(Loss_{ijt})$, (PPE_Growth_{ijt}) ,

Table 3 Empirical results

Dependent variable	AQ _{ijt}			
	Model(3)	(4)	(3)	(4)
Variable	Financially distressed audit clients		Non-financially distressed audit clients	
Constant	0.003 (0.037)	0.012 (0.016)	0.008 (0.566)	0.008 (0.332)
Main variables				
Distracted_Auditors _{ijt}	0.035* (2.047)	0.034** (2.983)	0.016* (3.733)	0.011* (3.674)
Skept _{ijt}	–	0.021 (0.891)	–	0.020 (0.482)
Distracted_Auditors _{ijt} * Skept _{ijt}	–	0.031** (1.778)	–	0.021* (2.336)
Control variables_A				
BM _{ijt}	0.002 (0.031)	0.003 (0.011)	0.000 (0.071)	0.001 (0.075)
Client_Size _{ijt}	0.015*** (1.330)	0.029* (1.661)	0.003 (0.852)	0.011** (1.797)
Loss _{ijt}	–0.007 (–0.915)	–0.008 (–0.934)	–0.000 (–0.164)	–0.001 (–0.078)
Sale_Growth _{ijt}	0.002 (0.905)	0.003 (1.006)	0.001 (0.113)	0.001 (0.158)
PPE_Growth _{ijt}	–0.000 (–0.193)	–0.001 (–0.375)	–0.000 (–0.108)	–0.001 (–0.209)
Lev _{ijt}	0.002 (0.355)	0.001 (1.053)	0.002** (1.820)	0.002 (1.450)
Liq _{ijt}	0.001 (1.130)	0.000 (1.059)	0.000 (0.540)	0.000 (0.651)
ROA _{ijt}	–0.011 (–0.560)	–0.010 (–0.470)	–0.037 (–1.012)	–0.035 (–1.002)
OCF _{ijt}	0.005 (0.164)	0.002 (0.028)	0.014 (0.911)	0.007 (0.757)
M&A _{ijt}	0.001 (0.332)	0.000 (0.161)	0.010*** (1.410)	0.009** (1.035)
Z_score _{ijt}	–0.001 (–0.759)	–0.000 (–0.889)	–0.001 (–0.389)	–0.000 (–0.411)
Control variables_B				
Audit_Size _{ijt}	–0.007 (–0.978)	–0.009 (–1.280)	–0.011 (–0.968)	–0.015 (–1.207)
No_Clients _{ijt}	–0.001 (–0.632)	–0.000 (–0.750)	–0.001 (–0.410)	–0.000 (–0.601)
Busy_Season _{ijt}	0.053 (1.570)	0.058*** (1.354)	0.036 (1.361)	0.034 (1.222)
Audit_Tenure _{ijt}	–0.013 (–0.806)	–0.033** (–1.648)	–0.002 (–0.205)	–0.004 (–0.507)
Audit_Lag _{ijt}	–0.028 (–0.847)	–0.030 (–0.860)	–0.001 (–0.203)	–0.000 (–0.132)
Big_4 _{ijt}	–0.045 (–1.515)	–0.027 (–1.002)	–0.035 (–1.498)	–0.034 (–1.405)
N	742			
adjusted R ²	0.785	0.383	0.409	0.475

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

(ROA_{ijt}), (Z_score_{ijt}), ($AuditSize_{ijt}$), ($No_Clients_{ijt}$), ($Audit_Tenure_{ijt}$), ($Audit_Lag_{ijt}$) and (Big_4_{ijt}) have negative coefficient estimates, which similarly indicate negative impact on audit quality. Surprisingly, (Lev_{ijt}), (Liq_{ijt}) and ($Busy_Season_{ijt}$) have a positive coefficient estimate, see Table 3. It seems possible that these results are due to the special characteristics of measurement model of audit quality [36].

The results obtained from the empirical analysis of this study can be compared to the prior literature as mentioned in Sect. "Literature review and hypotheses development" of literature review. These results match those observed in earlier study of Heo et al. [18] who find that audit quality is induced during busy seasons, and because of work and time pressure at audit office. Also, in accordance with the previous studies of Ittonen et al. [21] and Hadjigavriel and Hansen [14], the present study has demonstrated that financially distressed audit clients of distracted auditors receive higher audit quality than non-financially distressed audit clients of the same audit client portfolio. Turning now to the second set of the empirical analysis with the role of professional skepticism in shaping the relationship between distracted auditors and audit quality is observed. There are similarities between the attitudes expressed by professional skepticism in this study and those described in prior literature [4, 25, 28, 29, 41]. Therefore, as pointed out in the literature review in this study, skeptical auditors have a role in maintaining audit quality, therefore, decreasing the negative impact of distracted auditors on audit quality.

Robustness tests

The empirical results are robust to additional tests using different proxies of distracted auditors, audit quality and professional skepticism. The main empirical model in this study uses the percentage of audit fees of financially distressed audit clients to total audit fees to measure distracted auditors. Following Hadjigavriel and Hansen [14], there seems to be some evidence to indicate non-accounting-related lawsuits as a distraction event for auditors. Hence, for robustness, model (3) and model (4) are estimated using non-accounting-related lawsuits. Non-accounting-related lawsuit (Law_Suit_{ijt}) is an indicator variable that takes value of one if audit client has non-accounting-related lawsuit in year t and takes value of zero otherwise. This study uses the percentage of audit fees for each audit client who has non-accounting-related lawsuit in the portfolio of audit clients to total audit fees. To see if the two measures of distracted auditors give the same results, the data was plotted in Table 4 and compared with results of Table 3. In the same way of the main empirical model, the coefficient estimates of β_3 are (0.021) for

in financially distressed audit clients (first group) and (0.020) non-financially distressed audit clients (second group) which confirms decreasing the differential impact on audit quality with alternative measure of distracted auditors, (Law_Suit_{ijt}) measurement.

The US SEC issues an AAER (Accounting and Auditing Enforcement Release) for firms to investigate cases that may be associated with certain violation (e.g., income manipulations and material misstatement). Prior literature links the issuance of AAER to the decrease in the audit quality [21]; therefore, the AAER approach is used as a proxy of audit quality. To robustness, model (3) and model (4) are estimated using AAER ($AAER_{ijt}$) which is considered as an indicator variable that takes value of one if audit client receive AAER subsequently and takes value of zero otherwise. Similarly, the coefficient estimates of β_3 are (0.041) higher in financially distressed audit clients (first group) than non-financially distressed audit clients (second group) with the value of (0.029) with alternative measure of audit quality (AAER measurement), see Table 5. However, no evidence of decreasing the differential impact on audit quality by professional skepticism is detected.

Furthermore, model (4) is estimated using going concern as an alternative proxy of professional skepticism [22]. Going concern ($Going_Concern_{ijt}$) is an indicator variable that takes value of one if audit report has going concern and takes value of zero otherwise, see Table 6 for the coefficient estimates of β_3 (0.039) and (0.037), respectively. It has conclusively been shown that financially distressed audit clients of distracted auditors receive higher audit quality than non-financially distressed audit clients of the same audit client portfolio, and this differential impact on audit quality decreases with skeptical auditors.

Discussion

The results obtained from the empirical analysis confirm previous assumptions into this new area of auditing which links distracted auditors and audit quality. The empirical findings show distracted auditors with earnings restatements audit clients receive higher audit quality. Comparing the two results of financially distressed audit clients and other audit clients, it can be seen that distracted auditors are paying particular attention to audit clients with earnings restatements rather than other audit clients. The observed increase in audit fees of financially distressed audit clients could be attributed to distracted auditors. On the other hand, non-financially distressed audit clients receive a lower level of audit quality. Audit quality arises, however, when an attempt is made to accede professional skepticism into the analysis. The results indicate that the differential impact on audit

Table 4 Robustness Tests (A). *Distracted_Auditors_{ijt}*: Non-accounting-related lawsuits

Dependent variable	AQ _{ijt}			
	Model(3)	(4)	(3)	(4)
Variable	Financially distressed audit clients		Non-financially distressed audit clients	
Constant	0.003** (1.444)	0.002** (1.692)	0.001 (0.581)	0.000 (0.580)
Main variables				
Distracted_Auditors _{ijt}	0.023 (1.704)	0.023 (1.438)	0.019 (1.274)	0.018 (0.905)
Skept _{ijt}	–	0.020** (0.781)	–	0.020 (0.378)
Distracted_Auditors _{ijt} * Skept _{ijt}	–	0.021* (1.927)	–	0.020* (1.788)
Control variables_A				
BM _{ijt}	0.002 (0.031)	0.003 (0.011)	0.000 (0.071)	0.001 (0.075)
Client_Size _{ijt}	0.015*** (1.330)	0.029* (1.661)	0.003 (0.852)	0.011** (1.797)
Loss _{ijt}	–0.003 (–0.912)	–0.004 (–0.931)	–0.000 (–0.163)	–0.000 (–0.077)
Sale_Growth _{ijt}	0.002 (0.905)	0.003 (1.006)	0.001 (0.113)	0.001 (0.158)
PPE_Growth _{ijt}	–0.000 (–0.193)	–0.001 (–0.375)	–0.000 (–0.108)	–0.001 (–0.209)
Lev _{ijt}	0.002 (0.355)	0.001 (1.053)	0.002** (1.820)	0.002 (1.450)
Liq _{ijt}	0.001 (1.130)	0.000 (1.059)	0.000 (0.540)	0.000 (0.651)
ROA _{ijt}	–0.011 (–0.560)	–0.010 (–0.470)	–0.037 (–1.012)	–0.035 (–1.002)
OCF _{ijt}	0.005 (0.164)	0.002 (0.028)	0.014 (0.911)	0.007 (0.757)
M&A _{ijt}	0.000 (0.306)	0.000 (0.139)	0.009* (1.377)	0.008** (0.990)
Z_score _{ijt}	–0.001 (–0.759)	–0.000 (–0.889)	–0.001 (–0.389)	–0.000 (–0.411)
Control variables_B				
Audit_Size _{ijt}	–0.007 (–0.978)	–0.009 (–1.280)	–0.011 (–0.968)	–0.015 (–1.207)
No_Clients _{ijt}	–0.001 (–0.632)	–0.000 (–0.750)	–0.001 (–0.410)	–0.000 (–0.601)
Busy_Season _{ijt}	0.051 (1.567)	0.051*** (1.349)	0.035 (1.359)	0.034 (1.221)
Audit_Tenure _{ijt}	–0.012 (–0.801)	–0.032** (–1.633)	–0.000 (–0.201)	–0.000 (–0.506)
Audit_Lag _{ijt}	–0.028 (–0.847)	–0.030 (–0.860)	–0.001 (–0.203)	–0.000 (–0.132)
Big_4 _{ijt}	–0.043 (–1.509)	–0.026 (–1.002)	–0.034 (–1.497)	–0.034 (–1.401)
N	742			
adjusted R ²	0.046	0.126	0.527	0.533

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 5 Robustness Tests (B) AQ_{ijt} : AAER

Dependent variable	AQ_{ijt}			
	Model(3)	(4)	(3)	(4)
Variable	Financially distressed audit clients		Non-financially distressed audit clients	
Constant	1.185* (7.375)	1.242* (7.201)	0.821* (7.375)	0.861* (7.201)
Main variables				
Distracted_Auditors _{ijt}	0.030*** (2.445)	0.027*** (2.132)	0.021*** (2.445)	0.019*** (2.132)
Skept _{ijt}	–	0.011 (0.368)	–	0.007 (0.368)
Distracted_Auditors _{ijt} * Skept _{ijt}	–	0.041* (2.926)	–	0.029* (2.926)
Control variables_A				
BM _{ijt}	0.001 (0.030)	0.000 (0.010)	0.001 (0.065)	0.000 (0.071)
Client_Size _{ijt}	0.001*** (1.321)	0.002* (1.582)	0.002 (0.797)	0.010** (1.775)
Loss _{ijt}	–0.000 (–0.867)	–0.000 (–0.929)	–0.000 (–0.159)	–0.000 (–0.069)
Sale_Growth _{ijt}	0.001 (0.905)	0.001 (1.006)	0.002 (0.113)	0.001 (0.158)
PPE_Growth _{ijt}	–0.000 (–0.187)	–0.001 (–0.368)	–0.000 (–0.107)	–0.001 (–0.201)
Lev _{ijt}	0.002 (0.355)	0.001 (1.053)	0.002** (1.820)	0.002 (1.450)
Liq _{ijt}	0.000 (1.127)	0.000 (1.051)	0.000 (0.533)	0.000 (0.649)
ROA _{ijt}	–0.011 (–0.557)	–0.009 (–0.453)	–0.036 (–0.992)	–0.034 (–0.997)
OCF _{ijt}	0.004 (0.161)	0.001 (0.021)	0.013 (0.909)	0.007 (0.756)
M&A _{ijt}	0.000 (0.327)	0.000 (0.159)	0.000** (0.980)	0.000** (0.979)
Z_score _{ijt}	–0.000 (–0.757)	–0.000 (–0.877)	–0.000 (–0.385)	–0.000 (–0.407)
Control variables_B				
Audit_Size _{ijt}	–0.006 (–0.951)	–0.007 (–0.987)	–0.011 (–0.955)	–0.013 (–1.205)
No_Clients _{ijt}	–0.000 (–0.631)	–0.000 (–0.749)	–0.001 (–0.391)	–0.000 (–0.597)
Busy_Season _{ijt}	0.000 (0.986)	0.000* (0.985)	0.000 (0.990)	0.000 (0.991)
Audit_Tenure _{ijt}	–0.000 (–0.776)	–0.000 (–1.588)	–0.000 (–0.191)	–0.000 (–0.491)
Audit_LaG _{ijt}	–0.027 (–0.833)	–0.029 (–0.851)	–0.001 (–0.199)	–0.000 (–0.127)
Big_4 _{ijt}	–0.000 (–1.343)	–0.000 (–0.966)	–0.000 (–1.303)	–0.000 (–1.397)
N	742			
adjusted R ²	0.337	0.541	0.407	0.401

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 6 Robustness Tests (C) *Skept_{ijt}: Going Concern*

Dependent variable	AQ _{ijt}			
	Model(3)	(4)	(3)	(4)
Variable	Financially distressed audit clients		Non-financially distressed audit clients	
Constant	0.005 (0.037)	0.015 (0.018)	0.070 (0.570)	0.152 (0.420)
<i>Main variables</i>				
Distracted_Auditors _{ijt}	0.035* (2.049)	0.034** (2.985)	0.016* (3.734)	0.010* (3.673)
Skept _{ijt}	–	0.079 (0.480)	–	0.030 (0.988)
Distracted_Auditors _{ijt} * Skept _{ijt}	–	0.039** (1.970)	–	0.037* (2.490)
<i>Control variables_A</i>				
BM _{ijt}	0.002 (0.031)	0.003 (0.011)	0.000 (0.071)	0.001 (0.075)
Client_Size _{ijt}	0.015*** (1.330)	0.029* (1.661)	0.003 (0.852)	0.011** (1.797)
Loss _{ijt}	–0.002 (–0.911)	–0.002 (–0.929)	–0.000 (–0.161)	–0.001 (–0.071)
Sale_Growth _{ijt}	0.002 (0.905)	0.003 (1.006)	0.001 (0.113)	0.001 (0.158)
PPE_Growth _{ijt}	–0.000 (–0.193)	–0.001 (–0.375)	–0.000 (–0.108)	–0.001 (–0.209)
Lev _{ijt}	0.002 (0.355)	0.001 (1.053)	0.002** (1.820)	0.002 (1.450)
Liq _{ijt}	0.001 (1.130)	0.000 (1.059)	0.000 (0.540)	0.000 (0.651)
ROA _{ijt}	–0.011 (–0.560)	–0.010 (–0.470)	–0.037 (–1.012)	–0.035 (–1.002)
OCF _{ijt}	0.005 (0.164)	0.002 (0.028)	0.014 (0.911)	0.007 (0.757)
M&A _{ijt}	0.000 (0.329)	0.000 (0.157)	0.009** (1.390)	0.009** (1.033)
Z_score _{ijt}	–0.001 (–0.759)	–0.000 (–0.889)	–0.001 (–0.389)	–0.000 (–0.411)
<i>Control variables_B</i>				
Audit_Size _{ijt}	–0.007 (–0.978)	–0.009 (–1.280)	–0.011 (–0.968)	–0.015 (–1.207)
No_Clients _{ijt}	–0.001 (–0.632)	–0.000 (–0.750)	–0.001 (–0.410)	–0.000 (–0.601)
Busy_Season _{ijt}	0.050 (1.562)	0.050*** (1.349)	0.034 (1.351)	0.034 (1.219)
Audit_Tenure _{ijt}	–0.012 (–0.801)	–0.032** (–1.633)	–0.000 (–0.201)	–0.000 (–0.506)
Audit_Lag _{ijt}	–0.028 (–0.847)	–0.030 (–0.860)	–0.001 (–0.203)	–0.000 (–0.132)
Big_4 _{ijt}	–0.043 (–1.508)	–0.026 (–1.001)	–0.034 (–1.496)	–0.034 (–1.399)
N	742			
adjusted R ²	0.335	0.481	0.317	0.311

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

quality of distracted auditors between two groups of audit clients decreases with skeptical auditors.

Along with this growth in the role of PCAOB in oversighting audit profession, there is increasing concern over the factors or events that affect audit quality (e.g., distraction events). Therefore, audit quality is an important factor in maintaining auditing profession and auditors' reputation against litigation loss. This study makes several noteworthy contributions to audit quality literature. The analysis of distraction events undertaken here has extended the knowledge of audit quality and for the first time has been demonstrated that distracted auditors have impact in shaping audit quality. However, the current investigation was limited by audit firm level, and it is not specifically designed to evaluate factors related to audit partner. Future research will be useful to conduct a comprehensive framework of auditing process including the role of audit partner.

Conclusion

Prior literature in auditing focuses on identifying the main indicators of audit quality. This study provides an important opportunity to advance the understanding of audit quality by investigating the relationships between distraction events, audit workload, resources constraints, financially distressed audit client, professional skepticism and the impact on audit quality. It investigates the differential impact on audit quality of distracted auditors of financially distressed audit client and non-financially distressed audit clients at the same audit client portfolio. This study provides additional evidence, for the first time, with respect to synthesizing the impact of distracted and skeptical auditors on audit quality. In this context, earnings restatement of audit clients is used as a distraction event of auditors. The distracted auditor is measured by the percentage of the audit fees of financially distressed audit clients to total audit fees while audit quality is proxied by total accruals.

In recent years, literature has been published on distracted auditors finds that limited resources in audit office and providing non-audit services are main causes of decrease in audit quality. Other studies have considered the relationship between professional skepticism and audit quality and find a direct impact of skeptical auditor on audit quality. The results obtained from the

empirical analysis of this study confirm previous assumptions into this area of auditing which links distracted auditors and audit quality. Overall, the empirical evidence reveals that financially distressed audit clients of distracted auditors receive higher audit quality than non-financially distressed audit clients of the same audit client portfolio. However, this differential impact on audit quality decreases with skeptical auditor. The conclusions are robust to alternative measures of distracted auditors and professional skepticism. The present study makes several noteworthy contributions to prior literature in auditing in several ways. First, the findings enhance the understanding of a new determinant of audit quality which is concerned with distracted auditor. Second, it provides additional evidence with respect to the role of professional skepticism in shaping the relationship between distracted auditors and audit quality. Third, the findings of this study have a number of important implications for future practice for auditors, audit clients, regulators: i) auditors should consider distraction events in audit planning and risk assessment. ii) audit clients should bear in mind the busyness and workload at audit office. iii) regulators should take audit distraction events into account when issuing new audit standard. A key policy should therefore be to plan for the long-term managing audit client portfolio and how auditors allocate their limited recourse between audit clients at the same portfolio. Fourth, this study introduces a new comprehensive approach to measure professional skepticism depending on a holistic view of financial reporting (i.e., KAMs disclosure) which is not limited to earning reporting (i.e., earning adjustments).

On the other hand, a full discussion of the audit partner lies beyond the scope of this study. This study cannot provide a comprehensive review of the role of audit partner in auditing engagements of client portfolio of financially distressed and non-financially distressed audit clients. In future investigations, it might be possible to engage audit partner in the analysis. Also, an important issue for future research is using different distraction events of auditing (e.g., audit clients with IPO) and with different measures of audit quality (e.g., identify internal control weaknesses).

Appendix A

Variables definition

Variable	Definition
<i>Main variables</i>	
AQ_{ijt}	Audit Quality = total accruals equal net income before extraordinary items and discontinued operations minus net cash flow
$Distracted_Auditors_{ijt}$	Distracted Auditor = the percentage of audit fees received from financially distressed audit client to total audit fees of audit office
$Skept_{ijt}$	Professional Skepticism = indicator variable takes value of one if auditor discloses about KAMs in the audit report of audit client and takes value of zero otherwise
<i>Control variables_A</i>	
BM_{ijt}	Book to Market = book value to the market value of equity
$Client_Size_{ijt}$	Audit Client Size = the natural logarithm of total assets at the end of year t
$Loss_{ijt}$	Loss = indicator variable takes value of 1 if audit client reports a loss before extraordinary items and takes value of zero otherwise
$Sale_Growth_{ijt}$	Growth in Sales = growth in audit client sales from the previous year to the current year
PPE_Growth_{ijt}	Growth in PPE = growth in audit client property, plant and equipment from the previous year to the current year
Lev_{ijt}	Leverage = the ratio of total debt to total equity at the end of year t
Liq_{ijt}	Liquidity = ratio of current assets to current liabilities at the end of year t
ROA_{ijt}	Returns on Assets = the percentage of net income to average total assets
OCF_{ijt}	Cash Flow from Operations = cash flow from operations to total assets at the end of year t
$M\&A_{ijt}$	Merger and Acquisition = indicator variable takes the value of 1 if audit client engages in a M&A and zero otherwise
Z_score_{ijt}	Altman Zscore = Probability of bankruptcy (Altman, 1983)
<i>Control variables_B</i>	
$Audit_Size_{ijt}$	Audit Office Size = natural log of the total audit fees
$No_Clients_{ijt}$	Number of Audit Clients = number of audit clients at same portfolio of audit office
$Busy_Season_{ijt}$	Busy Season = indicator variable takes value of 1 if audit client's fiscal year ends in December and takes value of zero otherwise
$Audit_Tenure_{ijt}$	Audit Tenure = An indicator variable equals 1 when audit tenure is more than or equal to three years and zero otherwise
$Audit_Lag_{ijt}$	Audi Lag = total number of days between the end date of fiscal year and the date of audit report
Big_4_{ijt}	Big 4 = indicator variable takes value of 1 when the auditor is a member of the Big four (Ernst & Young, KPMG, Deloitte and Pricewaterhouse Coopers) and takes the value of zero otherwise
<i>Robustness tests variables</i>	
Law_Suit_{ijt}	Non-Accounting-Related Lawsuit = is an indicator variable that takes value of one if audit client has non-accounting-related lawsuit and takes value of zero otherwise
$AAER_{ijt}$	Accounting and Auditing Enforcement Release = indicator variable that takes value of one if audit client receive AAER subsequently and takes value of zero otherwise
$Going_Concern_{ijt}$	Going Concern = is an indicator variable takes value of 1 if an audit report has going concern and takes value of zero otherwise

Appendix B

List of Abbreviations

Abbreviation	Definition
AAER	Accounting and Auditing Enforcement Release
IAASB	The International Auditing and Assurance Standards Board
IFAC	The International Federation of Accountants
IPO	Initial Public Offering
ISA	International Standards on Auditing
KAMs	Key Audit Matters
PCAOB	The Public Company Accounting Oversight Board
US SEC	The US Securities and Exchange Commission

Appendix C

Correlation matrix

Variables	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
A. AQ_{ijt}	1.00																			
B. $Distracted_Auditors_{jt}$	0.32	1.00																		
C. $Skept_{ijt}$	0.30	0.27	1.00																	
D. BM_{ijt}	0.17	0.09	0.23	1.00																
E. $Client_Size_{ijt}$	0.16	0.03	0.17	0.04	1.00															
F. $Loss_{ijt}$	-0.05	0.09	-0.04	-0.05	-0.04	1.00														
G. $Sale_Growth_{ijt}$	0.18	0.11	0.09	0.56	-0.10	0.23	1.00													
H. PPE_Growth_{ijt}	-0.25	0.36	0.31	0.20	0.10	0.19	0.02	1.00												
I. Lev_{ijt}	0.06	0.17	0.18	0.12	0.15	0.03	-0.00	-0.00	1.00											
J. Liq_{ijt}	0.22	-0.08	-0.32	-0.38	-0.34	-0.02	0.04	0.02	-0.20	1.00										
K. ROA_{ijt}	-0.29	0.31	0.18	0.15	-0.03	0.00	0.14	0.06	-0.14	0.04	1.00									
L. OCF_{ijt}	0.19	0.10	0.39	0.30	0.25	-0.54	-0.17	-0.13	-0.10	0.55	0.57	1.00								
M. $M\&A_{ijt}$	0.18	0.15	0.38	0.21	-0.03	-0.10	-0.11	0.09	0.02	0.05	-0.11	0.23	1.00							
N. Z_score_{ijt}	-0.12	0.14	0.03	0.30	0.32	-0.10	-0.11	0.28	0.48	0.12	0.24	0.17	0.38	1.00						
O. $Audit_Size_{ijt}$	-0.44	-0.14	-0.44	-0.08	-0.41	-0.53	-0.25	-0.18	0.01	-0.21	-0.12	-0.19	-0.36	0.23	1.00					
P. $No_Clients_{ijt}$	-0.13	-0.03	-0.21	-0.09	-0.00	0.01	0.21	-0.22	-0.06	-0.05	0.01	-0.04	-0.03	-0.04	-0.01	1.00				
Q. $Busy_Season_{ijt}$	0.01	-0.03	-0.02	-0.06	-0.08	0.01	0.00	0.00	-0.03	-0.04	-0.01	0.02	-0.03	-0.02	-0.02	-0.02	1.00			
R. $Audit_Tenure_{ijt}$	-0.02	-0.06	-0.04	-0.04	-0.05	-0.03	0.11	0.04	-0.52	-0.05	-0.24	-0.07	-0.01	-0.05	-0.01	-0.07	-0.06	-1.00		
S. $Audit_Lag_{ijt}$	-0.17	-0.27	-0.22	-0.07	-0.01	0.22	0.08	0.01	0.02	-0.64	-0.20	-0.29	-0.05	-0.00	-0.04	-0.00	-0.00	-0.02	1.00	
T. Big_4_{ijt}	-0.22	-0.00	-0.13	0.02	-0.08	-0.21	-0.38	-0.08	-0.21	-0.38	-0.12	-0.28	-0.17	0.17	-0.02	0.05	-0.28	-0.53	-0.57	1.00

This table provides an overview of correlation coefficient estimates of all variables of this study, see Appendix A for all variables definition and measurement

Acknowledgements

"Not applicable" in this section.

Author contributions

Single author who contributed 100% of the work.

Funding

"Not applicable" in this section.

Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declarations**Ethics approval and consent to participate**

Not applicable for that section.

Consent for publication

Not applicable for that section.

Competing interests

The authors declare that they have no competing interests in this section.

Received: 3 January 2024 Accepted: 26 February 2024

Published online: 18 March 2024

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