The current issue and full text archive of this journal is available on Emerald Insight at:
https://www.emerald.com/insight/2443-4175.htm

Received 13 April 2023
Revised 6 September 2023
14 January 2024
29 April 2024
9 June 2024
Accepted 15 July 2024

A panel data analysis of the effect of audit quality on financial statement fraud

Maryam Yousefi Nejad
Department of Accounting Finance and Economics, Oxford Brookes University, Oxford, UK
Ahmed Sarwar Khan
Management and Science University, Shah Alam, Malaysia, and
Jaizah Othman
College of Business Administration, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia

Abstract

Purpose – Financial statement fraud has become a global concern, and auditors are increasingly focused on identifying and investigating it. Auditors may play a crucial role in investigating and reducing financial statement fraud, and this is particularly important in developing countries where fraudulent practices are more prevalent due to the lack of strict regulations and oversight. This study investigates whether enhanced audit quality has an impact on reducing financial statement fraud. The primary aim is to recognize whether a higher level of audit quality relates with a decrease in fraudulent activities in Indonesia, which is one such country that has not yet adopted IFRS.

Design/methodology/approach – This study investigates the effect of audit quality, as measured by audit tenure, audit fee, and audit size, on the dependent variable of financial statement fraud, as indicated by Dechow F-value. The sample for this study comprises 951 observations from 2015 to 2020, and the research design utilizes a panel data approach. To test the main hypothesis, OLS, and GMM estimation techniques are employed.

Findings – The analyses reveal a negative relationship between audit tenure and financial statement fraud. This suggests that shorter audit tenure may be associated with an increased risk of financial statement fraud. This heightened risk could stem from auditors having limited time to thoroughly understand the company's operations and internal controls, potentially making it more challenging to detect and prevent fraudulent activities perpetrated by the client. Conversely, a positive relationship is identified between audit fees and financial statement fraud, suggesting that companies paying higher fees may be engaging auditors less adept at detecting fraudulent activities. Furthermore, a negative relationship is observed between Big-5 and financial statement fraud, which may be due to the greater resources, expertise, quality control, scrutiny, reputation, and ethical conduct of Big-5 audit companies.

Research limitations/implications – This study only focused on listed companies in Indonesia, therefore, caution should be exercised when generalizing the findings to other developing and Muslim countries such as Malaysia. The findings may differ due to the adoption of IFRS in Malaysia. As such, it is important for future studies to include Malaysia as a sample and compare the results with those of Indonesia. This comparison would demonstrate the impact of IFRS adoption on the relationship between audit quality and financial statement fraud and provide insights for policy makers in Indonesia.

Practical implications – The findings of this study have important implications for developing countries that have been shown to be more susceptible to fraud than developed countries. This study contributes to the existing research on the role of audit quality in reducing financial statement fraud and emphasizes the need for auditors and accountants to take a proactive approach in detecting and investigating financial fraud.

Asian Journal of Accounting Research
Vol. 9 No. 4, 2024
pp. 422-445
Emerald Publishing Limited
e-ISSN: 2443-4175
p-ISSN: 2459-9700
DOI 10.1108/AJAR-04-2023-0112

© Maryam Yousefi Nejad, Ahmed Sarwar Khan and Jaizah Othman. Published in *Asian Journal of Accounting Research*. Published by Emerald Publishing Limited. This article is published under the Creative Commons Attribution (CC BY 4.0) licence. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this licence may be seen at http://creativecommons.org/licences/by/4.0/legalcode

Originality/value – This study is a new study because it investigates the relationship between audit quality and financial statement fraud in Indonesia, a developing Muslim country that has not yet adopted International Financial Reporting Standards (IFRS). The study provides valuable evidence on the unique factors that influence fraud in Indonesia and fills a gap in the literature as previous studies on this topic have largely focused on developed countries. Additionally, the study recommends that policymakers in Indonesia consider implementing IFRS to improve the reliability of financial reporting and strengthen the effectiveness of the auditing process, thus reducing the incidence of fraud.

Keywords Audit quality, Audit tenure, Audit fees, Big-5 audit companies, Financial statement fraud, IFRS

Paper type Research paper

1. Introduction

Fraud can cause substantial damage to businesses and economies by deceiving individuals about products or services and disseminating false information. One prevalent form of fraud is the misrepresentation of financial statements, which can mislead shareholders andx investors about a company's true financial condition (Abebaw, 2020; Hakami *et al.*, 2020). This misrepresentation can harm the company's reputation and, in severe cases, lead to bankruptcy (Button *et al.*, 2012). Moreover, financial statement fraud can negatively impact the national economy, potentially decreasing shareholder value and eroding a company's position on the stock exchange (Free and Murphy, 2015). In this study, the term 'fraud' specifically refers to financial statement fraud, encompassing deceptive practices related to financial reporting. The term 'fraudulent' is used as an adjective to describe individuals who engage in such deceptive practices, including acts like the manipulation of financial records or the misrepresentation of financial information. These individuals may include company executives, employees, or other parties involved in financial reporting processes. Similarly, the term 'defrauded' is used to describe individuals or entities who have experienced negative consequences due to fraudulent activities. This term refers to those who have been misled or harmed by deceptive financial practices, such as investors, creditors, or other stakeholders affected by misrepresented financial information. According to Almarayeh *et al.* (2020), fraud can undermine the reliability of financial information and erode trust between fraudulent entities and investors, resulting in substantial losses. Additionally, companies with a track record of fraudulent behaviour may encounter reluctance from investors, influencing their investment decisions (Fully and David, 2020a).

Despite concerted efforts to mitigate it, fraud remains a significant challenge in many countries. A comprehensive study by the Association of Certified Fraud Examiners (ACFE) highlights the pervasive nature of occupational fraud, revealing a median loss of $125,000, with nearly one in five cases resulting in losses exceeding $1 million (ACFE, 2018). Additionally, research from Global Financial Integrity estimates that illicit financial flows from developing countries reached between $1.1 trillion and $1.6 trillion in 2013, underscoring the magnitude of the challenge (Kar and Cartwright, 2015). A report by PwC further emphasizes this trend, indicating a rise in fraud incidents, with 47% of organizations experiencing fraudulent activities in the last two years, up from 36% in 2016.

The pervasive growth of fraud underscores the urgency for a robust response, with high-quality audits emerging as a crucial mechanism to prevent and detect fraudulent financial reporting. This need is particularly critical in developing countries, where fraudulent practices are more common due to lax regulations and oversight (Aliu *et al.*, 2018). The pressing necessity for effective audit mechanisms becomes apparent as organizations contend with the increasing sophistication and prevalence of fraudulent activities, highlighting the pivotal role of audits in maintaining the integrity of financial reporting on a global scale.

Fraud's impact on developing countries is particularly profound, exerting intricate and substantial economic implications. The repercussions extend beyond immediate financial

losses, affecting both the economy and the social fabric of these nations. According to a World Bank report, fraud directly leads to economic losses by diverting funds away from productive endeavours that could otherwise contribute to economic development. This diversion of capital limits the resources available to legitimate businesses, thereby hindering economic growth (Dincer and Gunalp, 2012). Moreover, high levels of fraud create an environment that discourages foreign investors, who are apprehensive about the associated risks. This diminished inflow of foreign capital, often vital for economic development, further compounds the challenges faced by developing countries.

The destabilizing impact of fraud extends to financial institutions, eroding stability and trust. Instances of fraudulent activities or financial losses within banks and other financial entities can undermine public confidence, potentially leading to bank runs or financial crises (Mlachila *et al.*, 2013). In response to increased fraud risks, lenders may demand higher interest rates or increased collateral, driving up the cost of borrowing for both businesses and individuals (Beck *et al.*, 2007). Additionally, when fraud manifests as tax evasion or customs fraud, governments suffer revenue losses that could otherwise be allocated to public services and infrastructure development (Schneider *et al.*, 2010). The far-reaching consequences of fraud also extend to a country's reputation, potentially diminishing its attractiveness for investment and tourism, thereby exerting long-term economic repercussions.

Continuing from the above discussion, an array of studies underscores the escalating challenge of fraud in developing countries. For instance, Sumartono *et al.* (2020) found a significant prevalence of fraud in developing countries, with a notable increase observed in Southeast Asia, indicating a rising trend in fraudulent activities within the region. Similarly, research conducted by Ramanna and Sletten (2014) identified a higher occurrence of fraudulent financial reporting in emerging markets compared to developed countries. Khan and Muttakin (2015) supported this observation, attributing the escalating fraud problem in developing nations to factors such as weak governance structures, inadequate regulatory environments, and a lack of transparency.

To address this pervasive issue, developing countries have implemented various policies and regulations aimed at reducing fraud and fostering a transparent business environment. An exemplary initiative is the Asian Roundtable on Corporate Governance (ARCG), which issued a white paper in 2003 outlining common policies and recommendations. These initiatives aimed to enhance governance control mechanisms, protect minority shareholders, and elevate financial reporting standards (ARCG, 2003). Similarly, Muslim countries have embraced Shari'ah-compliant auditing standards from the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) to mitigate the risk of fraud (Trabelsi and Trabelsi, 2014; Yazid and Suryanto, 2016). These efforts represent significant steps toward curbing fraudulent activities and promoting a culture of integrity and transparency in business practices.

Despite these concerted efforts, developing countries continue to face persistent challenges in controlling fraud, underscoring the need for ongoing enhancement of these measures. The Association of Certified Fraud Examiners (ACFE) emphasizes the critical role of auditing as the primary means to detect fraud at an early stage (ACFE, 2018). Previous studies support this perspective, demonstrating the effectiveness of auditing in both detecting and mitigating fraud (Aliu *et al.*, 2018; Hakami *et al.*, 2020; Sumartono *et al.*, 2020). Continuous improvement in auditing practices and regulatory frameworks remains essential to effectively combat fraud and promote transparency in these regions.

The adoption of IFRS can positively affect the relationship between audit quality and financial statement fraud. IFRS adoption can improve the quality of financial reporting, making it easier for auditors to perform high-quality audits and detect fraud (Nguyen and Truong, 2021). Additionally, IFRS can increase the transparency and comparability of financial statements across different countries, facilitating auditors' assessment of

multinational companies' financial performance (Yousefinejad *et al.*, 2018a, b). By promoting greater transparency, higher quality financial information, and accountability in financial reporting, IFRS adoption plays a crucial role in reducing fraud (Alzoubi *et al.*, 2021).

However, in developing countries like Indonesia, where the adoption of IFRS may be slow or incomplete, auditors and accountants play a pivotal role in detecting and investigating fraudulent practices in the absence of standardized international accounting principles (Nejad *et al.*, 2020). Therefore, this study focuses on investigating the relationship between audit quality and financial statement fraud in Indonesia, a developing country that has not yet fully adopted IFRS. Given the critical importance of enhancing the quality of financial information in Indonesia, this study aims to explore whether audit quality can mitigate financial statement fraud in the absence of comprehensive IFRS adoption.

This study addresses a critical gap in the literature by examining the relationship between audit quality and financial statement fraud in Indonesia, a developing Muslim-majority country. While existing research primarily focuses on developed nations, there is a notable lack of empirical evidence from developing countries, especially those with Muslim-majority populations. This study aims to fill this void and provide valuable insights into the factors influencing the mitigation of financial statement fraud within Indonesia's unique developmental context. By exploring this relationship, the study seeks to contribute to a deeper understanding of how audit quality can help combat fraud in similar settings.

Furthermore, this research sheds light on Indonesia's unique position as a country that has not yet adopted International Financial Reporting Standards (IFRS), despite the documented impact of IFRS in enhancing the efficacy of audit quality in reducing financial statement fraud. Given the potential advantages of IFRS adoption for both audit quality and fraud reduction, this study advocates for policymakers in Indonesia to consider implementing IFRS. Such a move could significantly improve the reliability of financial reporting and strengthen the effectiveness of the auditing process, thereby mitigating the incidence of fraud within the Indonesian context.

In addition to focusing on Indonesia, it is imperative to recognize the fundamental role of the country's institutional framework in shaping the prevalence of fraudulent activities. Indonesia faces significant challenges related to corruption, with this perception permeating various levels of government and fostering an environment conducive to fraud. Regulatory bodies such as the Indonesia Financial Services Authority (OJK) and the Indonesia Corruption Eradication Commission (KPK) play pivotal roles in oversight, enforcement, and the prevention of fraudulent activities. However, Indonesia scored 37 out of 100 on Transparency International's Corruption Perceptions Index (CPI) in 2020, highlighting the ongoing challenges related to corruption within the country. This study offers crucial insights into the factors that can contribute to fraud reduction in developing countries like Indonesia. It enriches the ongoing discourse on the role of audit quality and IFRS adoption in preventing fraudulent activities, making a meaningful contribution to the literature on this pertinent subject. By examining the interplay between audit quality, IFRS adoption, and the institutional framework, this research provides a comprehensive understanding of how to mitigate fraud in similar contexts.

The upcoming sections will offer a concise overview of the literature on audit quality and financial statement fraud, identify research gaps, and develop hypotheses. This paper will explore the relationship between audit quality and financial statement fraud in Indonesia, detailing the research approach, data collection methods, and sampling strategy. The research models and findings section will discuss the study's results and statistical analysis, considering potential confounding variables. The final section will address the study's limitations and provide suggestions for future research.

1.1 Literature review

Previous research has produced mixed findings on the relationship between audit quality and financial statement fraud. Some studies have found a positive effect of audit quality on reducing fraud, including Drogalas *et al.* (2017), Yang *et al.* (2020), Dhaliwal *et al.* (2010), and Sjam *et al.* (2020). However, other studies, such as Hallman and Schmidt (2020), Khlif (2016), and Tepalagul and Lin (2015), have reported that audit quality does not necessarily lead to lower levels of fraud. Additionally, Clarina and Fitriany (2019) and Fully and David (2020b) found a negative relationship between audit quality and fraud. Some studies, like those by Hsiao *et al.* (2012) and Zamzami *et al.* (2017), found no effect of audit quality on fraud. Given these mixed results, further research is needed to determine whether audit quality is a significant factor in reducing fraud. Moreover, most previous studies on this topic have focused on developed countries, with limited research on developing and Muslim-majority countries like Indonesia. Therefore, this study aims to contribute new evidence on the effect of audit quality on financial statement fraud reduction in Indonesia.

2. Audit quality

According to Xiao *et al.* (2020), the auditing process is a crucial method of information processing, searching, judging, and adjusting. Auditing can be classified into two types: external audit and internal audit. External audits are conducted by independent auditors to verify the accuracy of financial statements, such as income statements, balance sheets, and cash flow statements. In contrast, internal audits evaluate a company's internal controls, including its corporate governance and accounting processes. Audit quality, as defined by DeAngelo (1981) and Donald, (1992), determines how effectively an auditor can identify and report discrepancies within financial statements and other related documents. High audit quality adheres to accounting standards and promotes transparency, which is essential in building trust among investors and stakeholders (Sjam *et al.*, 2020).

The determinants that shape the landscape of audit quality are diverse, including pivotal factors such as audit tenure, audit fees, and auditor size. Numerous studies have shed light on the intricate dynamics within these determinants, revealing their significant roles in shaping audit quality. Audit tenure, referring to the duration of the auditor-client relationship, emerges as a crucial factor influencing audit quality. Extensive research, highlighted by Cassell *et al.* (2020), suggests that prolonged audit tenure fosters an auditor's deep familiarity with the intricacies of the client's business operations. This extended professional relationship allows auditors to develop a nuanced understanding of the client's financial statements, ultimately contributing to heightened audit quality. The impact of audit fees on audit quality constitutes another critical dimension. Higher audit fees have consistently demonstrated a positive relationship with improved audit quality. The rationale behind this association is multifaceted. Auditors, when allocated greater financial resources through higher fees, can dedicate more time and expertise to the audit process. This, in turn, attracts auditors with enhanced skills and capabilities, as evidenced by studies from Gul *et al.* (2017) and Sharma and Krishnan (2009). However, the relationship between lower audit fees and audit quality is more nuanced, with conflicting findings in the literature. Some studies suggest a negative association (Gul *et al.*, 2017; Cohen *et al.*, 2014). Overall, understanding these determinants is essential for improving audit practices and ensuring the reliability and transparency of financial reporting.

The influence of audit size on fraud reduction is complex, with some studies suggesting a positive association between larger audit size and fraud reduction, while others find no significant relationship (Hussein, 2016; Beasley *et al.*, 2000). The choice between larger audit firms often referred to as the Big 4, and non-Big 4 audit firms, adds further complexity to this issue. Research has shown that using larger audit firms, such as the Big 4, is associated with

higher audit quality and a reduced likelihood of fraudulent financial reporting. However, the effectiveness of audit services is not confined to Big 4 firms. Non-Big 4 audit firms can also deliver robust audit services depending on the specific circumstances, as indicated by Kinney *et al.* (2004) and Chen *et al.* (2010).

Audit quality is a topic that has been extensively studied in the accounting and finance literature. Numerous studies have focused on the relationship between audit quality and firm performance. For instance, Cenciarelli *et al.* (2018) and Muñoz-Izquierdo *et al.* (2019) found a positive relationship between audit quality and firm performance. Other studies have examined the relationship between audit quality and earnings forecasts. Gul *et al.* (2017) and Nouri and Gilaninia (2017) found that higher audit quality leads to more accurate earnings forecasts. In addition to firm performance and earnings forecasts, several studies have investigated the effect of audit quality on transparency and financial information quality. For example, Castillo-Merino *et al.* (2020) and Le and Lobo (2020) found that audit quality is positively related to financial information quality. Similarly, Coram *et al.* (2006) and Salameh *et al.* (2011) found that audit quality is positively related to transparency. Several studies have also examined the relationship between audit quality and earnings management. Ittonen (2010) suggests that higher quality audits can mitigate earnings management. Mustapha *et al.* (2019) found a significant negative relationship between audit quality and accrual earnings management. While numerous studies have examined the relationship between audit quality and various financial outcomes such as firm performance, earnings forecasts, transparency, and earnings management, there is a lack of research focusing specifically on the relationship between audit quality and financial statement fraud. This gap in the literature underscores the need for further investigation into how audit quality can impact the prevalence and detection of financial statement fraud.

3. Audit quality and financial statement fraud

The effect of audit reports and auditors' opinions on the likelihood of bankruptcy and financial distress has been extensively studied. Muñoz-Izquierdo *et al.* (2019) and Cenciarelli *et al.* (2018) examined the relationship between external auditor characteristics and the likelihood of bankruptcy in the US, finding that companies audited by industry expert auditors, large audit firms, and long-tenured auditors are less likely to default. Guo *et al.* (2020) investigated the influence of audit quality on the probability of financial distress using a sample of 2,937 companies in Australia from 2011 to 2015. Their results suggested that financially distressed companies are more likely to receive going concern opinions, indicating a positive relationship between an auditor's opinion and bankruptcy control. Enofe *et al.* (2015) explored the relationship between forensic audit and corporate fraud in Nigeria, concluding that the frequent utilization of forensic audit services significantly aids in the detection, prevention, and reduction of fraud in companies and businesses.

Several studies have demonstrated that auditing is designed to increase transparency, reduce fraud levels, and investigate the causes and outcomes of fraud in financial reporting (Alsmairat *et al.*, 2019; Castillo-Merino *et al.*, 2020; Clarina and Fitriany, 2019; Le and Lobo, 2020). Drogalas *et al.* (2017) found that auditing significantly affects fraud detection in companies listed in Athens, Greece, highlighting the importance of internal audits and investing in audit practices and education for improved corporate performance. Sanjaya Adi Putra and Dwirandra (2019) found that audit experience, personality type, audit training, and professional scepticism have a significant positive effect on an auditor's ability to detect fraud. Umar *et al.* (2019) demonstrated that high-quality audits positively impact fraud detection in Indonesian companies. Brazel and Schmidt (2019) found that auditors with greater industry expertise and tenure, as well as audit committee chairs with longer tenure, are less likely to be associated with companies exhibiting significant irregularities.

According to Kabuye *et al.* (2017), the status and competence of internal audit departments are significant indicators of fraud management, while internal audit activities themselves do not significantly predict fraud management.

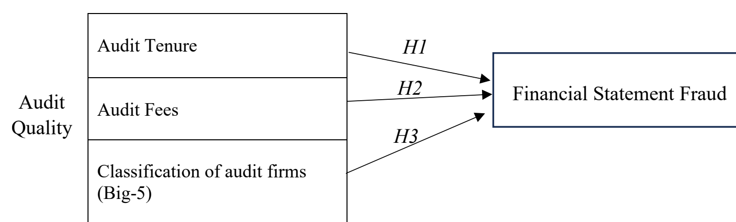
Audit quality has been widely recognized as an essential factor in fraud detection. However, some studies have shown a negative or negligible effect between audit quality and fraud detection. Beasley and Carcello (1999) and Beasley (1996) identified 641 suspected cases of fraud between 1987 and 2007 in New York-listed firms, indicating that auditors failed to identify fraud. These studies suggest that audit quality may have a limited impact on fraud detection. Additionally, Hsiao *et al.* (2012) investigated the impact of audit quality on fraud and found that aspects such as auditor independence, competence, and fees related to auditing have no significant effect on enhancing fraud detection. Furthermore, Zamzami *et al.* (2017) found no evidence that audit quality affects fraud reduction in the Indonesian stock exchange. The varied findings in these studies suggest a need for further investigation to determine whether audit quality can effectively reduce financial statement fraud (Fully and David, 2020b). It is essential to consider the limitations of these studies and continue to explore the role of audit quality in fraud detection to improve the efficacy of audits in reducing fraud. While some studies have shown a negative or negligible effect, most of the research in this area has emphasized the positive role of audit quality in fraud detection. Considering these findings, auditors must continuously strive to improve their skills, knowledge, and independence to effectively detect and prevent fraud.

Past research has predominantly focused on developed nations, including European countries, the United States, and Canada, to investigate the correlation between audit quality and fraud. However, there is a scarcity of studies examining this relationship in developing nations like Indonesia (Dhaliwal *et al.*, 2010). This study aims to enrich the literature by scrutinizing the effect of audit quality on financial statement fraud in a developing nation, specifically Indonesia, where the adoption of IFRS has not been fully implemented. The main objective is to identify factors or indicators of audit quality that influence the reduction of financial statement fraud, such as audit fees, audit tenure, and audit size.

3.1 Research framework and hypotheses development

This study seeks to make a valuable contribution to the literature by examining the relationship between audit quality and financial statement fraud within the context of a developing country, specifically Indonesia. Given the scarcity of research in this area for developing countries, particularly compared to developed nations, this study aims to fill a gap in the existing body of knowledge (Beasley, 1996; Dhaliwal *et al.*, 2010). The theoretical framework of this study is based on the Policeman Theory. Developed by Theodore Limperg in the 1920s, the Policeman Theory suggests that auditors are accountable for preventing, discovering, and investigating any fraudulent activities that can harm a company's reputation (Limperg, 1923). This theory emphasizes the importance of detecting and preventing errors and fraud in companies, thereby safeguarding financial resources such as financial statements. Numerous prior studies, including those by Enofe *et al.* (2015) and Gospel *et al.* (2019), have employed the Policeman Theory to explore the effect of audit quality on financial statement fraud. In this study, the Policeman Theory serves as a guiding framework to investigate the influence of audit quality on the reduction of financial statement fraud.

The research framework, illustrated in Figure 1, delineates the variables employed in this study. The primary focus is on the independent variable of audit quality, with specific emphasis on three metrics: Audit Tenure (AT), Audit Fees (AF), and the categorization of audit firms within the Big-5 Audit Companies. The dependent variable of this study is financial statement fraud, prompting an exploration into the potential relationship between



Control Variables:

- Leverage
- Profitability
- Company's Size
- Return on Assets

Source(s): Figure created by authors

Figure 1.
Research framework

audit quality and the mitigation of financial statement fraud. A negative relationship in the outcomes would suggest that heightened audit quality corresponds to a diminished occurrence of financial statement fraud. The evaluation of fraud magnitude in this study employs the F-Value, as introduced by Dechow *et al.* (2011), denoted as Financial Statement Fraud (FR).

Figure 1 outlines the research framework and presents three hypotheses integral to this study. Additionally, it incorporates various control variables, including leverage, profitability, company size, and return on assets. Detailed information regarding the measurement of all variables is provided in Table 1.

As discussed in the literature review, audit quality is a crucial factor in detecting and preventing fraud in companies (Hsiao *et al.*, 2012; Mustapha *et al.*, 2019; Xiao *et al.*, 2020). However, the relationship between audit quality and fraud remains controversial. Previous studies have yielded mixed results, with some showing a negative relationship between audit quality and fraud, while others have shown no relationship at all. For instance, Clarina and Fitriany (2019) and Fully and David (2020a) found a negative relationship between audit quality and fraud, whereas Hsiao *et al.* (2012), Umar *et al.* (2019), and Zamzami *et al.* (2017) found no relationship. To address this issue, this study aims to investigate the effect of audit quality on financial statement fraud. The study employs the Policeman Theory, which underscores the pivotal role of auditors as watchdogs to detect and prevent errors and fraud within the company. Essentially, auditors are expected to act as vigilant guardians, safeguarding the company's financial resources, including its financial statements.

The Policeman Theory also supports the notion that higher audit quality can mitigate fraudulent activities in companies. According to the theory, auditors function as "policemen," exerting a deterrent effect on fraudulent activities. This concept posits that companies are less likely to engage in fraudulent activities if they are aware that auditors are closely scrutinizing their financial statements. Therefore, companies subject to high-quality audits are expected to be less prone to committing fraud, as they recognize that auditors are likely to uncover any fraudulent activities.

The prolonged engagement between an audit firm and its client, as discussed by Al-Thuneibat *et al.* (2011) and Ananda and Faisal (2023), aligns with the principles of the Policeman Theory in the context of auditing. The extended duration of an audit contract not only influences the professional demeanour of auditors but also fosters a closer and more familiar relationship between the audit firm and the client company. This connection,

Variables	Definitions	Measurements
Audit Quality	Audit Tenure: Audit Tenure is a commonly used variable to determine audit quality. Audit tenure typically measured the length of the period an auditor has been working for the same client	Auditor period time in the same company from 2015 to 2020 use 1 to 5
	Audit Fee: Audit Fees are costs incurred by companies to pay public accounting firms to audit the company's financial statements	The amount paid by the company to receive audit service
	Big 5 and Non-Big 5: Big 5 are the largest accounting firms such as KPMG, Deloitte, Baker Tilly, Enrst and Young, BDO PL. Whereas Non-Big 5 are also accounting firms but they are not considered at top of the list	Dummy Variable, Companies audited by Big 5 1, otherwise 0
Fraud	F-Value: This model was carried out by Dechow *et al.* (2011). The variable RSST, which measures changes in current assets without cash by subtracting changes in current liabilities and depreciation without short term debt. ΔREC measures changes in receivables from the previous year to the current year as scaled by the average of total assets. ΔINV measures changes in inventories from the previous year to the current year as scaled by the average of total assets. SOFTASSETS refers to soft assets, which is defined as total assets minus PPE and cash with cash equivalents as scaled by the average of total assets. ΔCASHSALES measures the percentage change of cash sales from the previous year to the current year. ΔROA measures the percentage change in total earnings as a division of total assets in the previous year, which is less than the same measure in the current year	F-Value = −7.893 + 0.790 R*RSST +2.518*ΔREC +1.191*ΔINV +1.979*SOFTASSETS +0.171*ΔCHCS – 0.932*ΔROA
Control Variables	Size	Size is measured by the total assets of the company
	Return On Assets	Return on assets which is measured by income continuing operation divided by total assets
	Profitability	Profitability is measured by net profit margin
	Leverage	Leverage is measured by total assets and divided by total liabilities

Source(s): Table created by authors

Table 1.
Measurements of the variables

reminiscent of the role of a "policeman," creates an environment conducive to shared understanding and trust, as emphasized by Buntara and Adhariani (2019).

In the context of the Policeman Theory, auditors are akin to guardians, closely monitoring and safeguarding the financial landscape of the client company. This study highlights the significance of the prolonged relationship between auditors and client companies in the context of financial statement fraud. Auditors, acting as guardians in the spirit of the

Policeman Theory, play a vital role in closely monitoring and protecting the financial integrity of the client company. However, this enduring relationship also raises concerns about the independence and objectivity of auditors. The cumulative knowledge acquired over a prolonged audit tenure may potentially influence auditors' perspectives, compromising their watchdog role.

Building on this theoretical foundation and the application of the Policeman Theory, this study formulates the first hypothesis as follows:

H1. There is a significant negative relationship between audit tenure and financial statement fraud.

Extensive research has established a positive correlation between audit fees and audit quality (Alhadab, 2018; Jadiyappa *et al.*, 2021). The observed link between high audit fees and low discretionary accruals indicates a heightened level of audit quality (Jadiyappa *et al.*, 2021). Within the framework of the Policeman Theory, the engagement of external auditors and the determination of appropriate audit fees can be viewed as deploying vigilant overseers to curb potential moral hazards, including financial statement fraud, within an organization.

The external auditor, functioning as a monitoring entity, plays a pivotal role in ensuring the integrity and reliability of financial information. The establishment of audit fees serves as a mechanism to incentivize auditors to exercise diligence and vigilance in their oversight role, thereby contributing to the prevention and detection of financial statement fraud. This alignment with the principles of the Policeman Theory underscores the critical role of external audit arrangements and fee structures in maintaining ethical conduct and minimizing the risk of financial statement fraud within corporate entities.

Building on this theoretical foundation and the application of the Policeman Theory, this study formulates the second hypothesis as follows:

H2. There is a significant negative relationship between audit fees and financial statement fraud.

Auditors affiliated with renowned audit firms exhibit heightened competence and precision in identifying material misstatements within financial statements, as emphasized by Ali and Aulia (2015). This elevated proficiency is underpinned by the incentives inherent in large audit firms, which seek to mitigate litigation risk and safeguard their reputation through the execution of high-quality audits, as asserted by Reguera-Alvarado *et al.* (2019).

In line with the principles of the Policeman Theory, auditors from significant audit firms can be conceptualized as vigilant enforcers actively working to uphold the integrity of financial reporting landscapes. Reguera-Alvarado *et al.* (2019) highlighted that auditors affiliated with the Big 4 play a crucial role in diminishing the magnitude of discretionary accruals during economic crises. This signifies their capacity to deliver heightened audit quality and enhanced reliability for clients' financial statements compared to auditors from non-Big 4 firms. This resonates with the ethos of the Policeman Theory, wherein auditors, particularly from larger firms, are pivotal in curbing potential financial misconduct and strengthening the credibility of financial disclosures.

The empirical affirmation of the positive impact of audit firm size on audit quality, as validated by Salehi *et al.* (2019) and Reguera-Alvarado *et al.* (2019), aligns with the principles of the Policeman Theory. Auditors, acting as vigilant overseers, contribute to the assurance and reliability of financial information. In the context of financial statement fraud, this study suggests that auditors from large firms, motivated by reputation protection and the pursuit of high-quality audits, play a crucial role in mitigating the risk of fraudulent financial reporting. Therefore, the relationship between the classification of audit firms (Big-5) and

financial statement fraud is a pertinent aspect to explore in understanding how audit quality influences the detection and prevention of fraudulent activities in financial statements.

Building on this theoretical foundation and the application of the Policeman Theory, this study formulates the third hypothesis as follows:

H3. There is a significant negative relationship between the classification of audit firms (Big-5) and financial statement fraud.

By exploring these relationships, this study aims to provide valuable insights into the pivotal role of audit quality in detecting and preventing fraudulent activities. These insights are crucial for investors, financial institutions, and regulators, as they underscore the importance of high-quality audits in maintaining the integrity and reliability of financial reporting.

3.2 Research methodology

In this study, a quantitative research methodology was employed, utilizing panel data analysis to scrutinize the relationship between audit quality and the reduction of financial statement fraud in Indonesia. The dataset for this study was sourced from DataStream and comprises 951 observations across 180 listed companies on the Indonesia Stock Exchange. The temporal scope of the data spans from 2015 to 2020, ensuring a robust examination of trends and patterns over a substantial timeframe.

To measure audit quality, this study operationalized three key dimensions: audit tenure, audit fee, and audit size. Audit tenure, referring to the duration of the auditor's engagement with the same client, was measured on a scale ranging from 1 to 5 for the first five consecutive years, following the methodology proposed by Simnett *et al.* (2014), Jadiyappa *et al.* (2021), and Ananda and Faisal (2023). Beyond this initial five-year period, tenure was treated as a continuous variable, with each additional year of engagement being accounted for incrementally. This approach allows for capturing the nuanced effects of prolonged auditor-client relationships on audit quality and their potential implications for financial statement fraud.

Audit fees, representing the remuneration disbursed to auditors by the client, were assessed using the audit fee amounts reported in the annual reports, as outlined in the methodologies of Francis *et al.* (2015) and Ananda and Faisal (2023). This metric provides insights into the financial commitment and resource allocation dedicated to the audit process. Audit size, reflecting the categorization of audit firms within the Big-5, was also considered. This dimension evaluates the influence of employing large, reputable audit firms on audit quality. By utilizing these three dimensions, this study aims to capture the cumulative experience and familiarity an auditor develops with a client over a prolonged period, the financial investment in the audit process, and the reputation and resources of the audit firm. This comprehensive approach provides a robust framework for examining the relationship between audit quality and financial statement fraud.

Moreover, the study considered the dichotomy between Big-5 and non-Big 5 audit companies to ascertain the impact of audit size. Big-5 audit companies, representing the preeminent global audit firms, were identified as the top 5 audit entities worldwide, which, in the context of this study, encompassed Deloitte, KPMG, Ernst and Young, BDO, and PWC, in accordance with the classifications provided by Ali and Aulia (2015), Li *et al.* (2017), Salehi *et al.*, (2019) and Abdelfattah *et al.* (2021). In contrast, non-Big 5 audit companies were excluded from this elite category. This differentiation allows for a nuanced exploration of the potential variations in audit quality between these distinctive categories of audit firms.

In this study, financial statement fraud serves as the dependent variable, assessed through the Dechow F-value, to determine whether superior audit quality is associated with reduced financial statement fraud (FR). Additionally, this study incorporates control

variables, including Size, Return on Assets (ROA), Leverage, and Profitability, which could potentially affect the relationship between audit quality and fraud reduction. The details of the measurements for all variables are presented in Table 1. The inclusion of these control variables ensures that the study's findings are robust and account for any potential bias arising from unobserved variables.

The outcomes of this study aim to enrich the current understanding of the relationship between audit quality and financial statement fraud, with a particular emphasis on developing countries like Indonesia, where the risk of fraud is more pronounced. Furthermore, the findings from this study have the potential to offer valuable insights for policymakers and regulators in Indonesia and other developing nations. These insights can inform the enhancement of corporate governance practices and financial reporting standards, ultimately contributing to the reduction of fraudulent activities.

3.3 Research models

Fraudulent activities can have a significant detrimental impact on businesses and the broader economy. Identifying factors that contribute to the reduction of such activities is crucial. One pivotal determinant in this context is audit quality, which refers to the degree of assurance provided by an audit that financial statements are free from material misstatements. This study aims to explore the relationship between audit quality and financial statement fraud by proposing a research model that investigates the association between audit quality specifically audit tenure, audit fees, and audit size and financial statement fraud. The research model is designed to test three hypotheses within the study, exploring the dynamics among three dimensions of audit quality (AQ): Audit Tenure (AT), Audit Fees (AF), and the classification of Audit Firms as Big-5 (B5), and financial statement fraud (FR), utilizing the F-Value as a metric. The F-Value is a widely accepted measure for assessing the likelihood of financial statement manipulation and fraud. Introduced by Dechow *et al.* (2011), the F-Value uses five financial ratios to evaluate the quality of financial reporting, identifying companies with a higher probability of financial misstatement. By examining these relationships, this study aims to provide valuable insights into how audit quality can influence the detection and prevention of fraudulent activities, thereby enhancing the integrity of financial reporting. These findings will be particularly relevant for policymakers, regulators, and stakeholders in developing countries like Indonesia, where the risk of fraud is more pronounced.

$$FR_{it} = \beta_0 + \beta_1 AT_{it} + B_2 AF_{it} + B_3 B5_{it} + B_4 Lev_{it} + B_5 Prof_{it} + B_6 Size_{it} + B_7 ROA_{it} + \in_{it}$$

Where;

FR is financial statement fraud which is measured by F-Value (details are provided in Table 1)

AT is audit tenure being the number of years that companies hired the same auditors as previous years

AF is audit fees that is the companies' payment to the auditors/audit expenditure

*B*5 If the auditors are from Big-5 audit companies, 1 otherwise 0

Lev is leverage which is measured by total assets divided by total liabilities.

Prof is profitability measured by net profit margin.

Size is Size which is measured by total assets.

ROA is a return on assets which is measured by income continuing operation divided by total assets.

4. Results

To understand the relationship between variables, this study employed various analytical techniques and assumptions. Descriptive statistics were used to summarize the data, including measures such as mean, median, and standard deviation. A normality test was conducted to check the distribution of the data. Additionally, a correlation matrix was constructed to assess multicollinearity among the variables. For analysing the relationship between variables, Ordinary Least Squares (OLS) regression analysis and Two-Step Difference Generalized Method of Moments (GMM) were utilized. These methods help ensure robust and reliable results, accounting for potential biases and endogeneity in the data.

To ensure the accuracy and reliability of the analysis, this study employed several techniques to identify and treat outliers in the data. Firstly, Mahalanobis distance was used to recognize multivariate outliers. Additionally, Z-scores were utilized to identify univariate outliers. To further improve the quality of the data, a transformation technique was applied to the control variables, using the natural logarithm to reduce the number of outliers. In cases where data was not available, the affected observations were removed from the analysis to ensure that only complete and reliable data were included in the final dataset. After applying these techniques, the initial observations for the period 2015 to 2020 were reduced from 951 to 564.

Table 2 provides the descriptive statistics for all variables used in this study. Panel A presents the descriptive statistics before the outlier treatment, while Panel B shows the statistics after the outlier treatment. The differences in mean values, as well as maximum and minimum values between Panel A and Panel B, demonstrate the effects of outlier treatments and the omission of zero and negative values for all variables. High values of skewness and kurtosis in Panel A indicate the presence of extreme data that can affect the regression outcomes. In Panel A, skewness values range from 24.966 to −0.751, and kurtosis values range from 649.966 to 15.819, indicating a non-normal data distribution. After treating outliers, Panel B shows skewness values ranging from 4.609 to −0.242, and kurtosis values ranging from 26.235 to 2.024, suggesting a significant improvement and a closer approximation to a normal distribution. Despite these improvements, the data still exhibits some non-normality. However, previous studies, such as those by Hayes (2009) and Jafaridehkordi and Rahim (2014), have indicated that non-normal values are unlikely to result in biased estimates of regression coefficients. Therefore, this study accepts the adjusted data and proceeds with data analysis and correlation matrix assessment. After examining the correlation matrix between variables, it can be concluded that there is no significant multicollinearity issue, allowing for reliable regression analysis in the subsequent steps.

Table 3 presents the outcomes related to the three hypotheses addressed in this study. Firstly, a significant negative relationship was found between audit tenure and financial statement fraud, indicated by a coefficient value of −0.661 and a t-statistic of −2.344. This suggests that shorter audit tenure is associated with increased instances of financial statement fraud. The findings align with existing research, emphasizing that shorter audit tenure may elevate the risk of financial statement fraud due to insufficient time for auditors to gain a profound understanding of the company's operations and internal controls (Agustriyana and Saudi, 2021). Therefore, the first hypothesis of this study is accepted.

Secondly, the findings revealed a statistically significant positive relationship between audit fees and financial statement fraud, indicated by a coefficient value of 0.539 and a

Table 2. Descriptive statistics results before and after outliers' treatment

	FR	AF	AT	B5	Lev	Prof	ROA	Size
Panel A								
Mean	4.892	1210747.000	3.085	0.322	3.343	9330000000.000	0.031	598.156
Median	5.000	158412.100	3.000	0.000	0.963	2910000000.000	0.029	148.211
Maximum	8.000	136000000.000	5.000	1.000	915.783	239000000000.000	0.535	55993.110
Minimum	0.000	0.000	1.000	0.000	−1.715	11276672.000	−0.653	28.852
Skewness					24.966	6.599	−0.751	12.516
Kurtosis					649.966	59.069	15.819	180.266
Obs	951	951	951	951	951	951	951	951
Panel B								
Mean	4.851	5.477	3.143	0.354	1.217	9.559	2.256	2.256
Median	5.000	5.440	3.000	0.000	0.965	9.566	2.159	2.159
Maximum	8.000	8.089	5.000	1.000	9.573	11.314	3.937	3.937
Minimum	0.000	3.149	1.000	0.000	0.002	7.636	1.460	1.460
Skewness					4.609	−0.242	0.276	0.960
Kurtosis					26.235	2.924	5.070	4.550
Obs	564	564	564	564	564	564	564	564

Note(s): Panel A is before outlier treatment, Panel B is after outlier treatment. *FR* is financial statement fraud that is measured by Dechow f-score, *AT* is auditor period that is measured by number of years auditor work for same audit/accounting companies. *B5* is five big audit firms (Deloitte, KPMG, Enrst andYoung, PWC, BDO) that is measured by client company using big five audit service 1, otherwise 0. *AF* is the amount paid for the auditor service; *Lev* is a leverage of the company is measured by total assets divided by total liabilities of the company; *Prof* is profitability measured by net profit margin; *ROA* is return on assets is measured by income continuing operation divided by total assets. *Size* that is measured by the total assets of the company
Source(s): Table created by authors

Table 3. Results of OLS on the relationship between audit quality, specifically Audit Tenure (AT), Audit Fees (AF), and Audit Size (B5), And Financial Statement Fraud (FR)

Variable	Coefficient	t-Statistic	Prob
AT	−0.661	−2.344	0.0197**
B5	0.626	0.793	0.429
AF	0.539	2.590`	0.010**
Prof	−3.362	−2.25	0.025**
Lev	0.138	1.874	0.0618*
ROA	13.335	7.459	0.000***
Size	7.688	14.058	0.000***
Adj R^2	0.29		
F-stat	2.417		
D-W	2.83		

Note(s):
$FR_{it} = \beta_0 + \beta_1 AT_{it} + B_2 AF_{it} + B_3 B5_{it} + B_4 PROF_{it} + B_5 Lev_{it} + B_6 Size_{it} + B_7 Roa_{it} + \in_{it}$
*, **, *** Represent significance at the 10, 5, and 1 percent levels, respectively. *FR* is Dechow f-value, *AT* is auditor period; Big5 is five big audit firms (Deloitte, KPMG, Enrst and Young, PWC, BDO); *AF* is the amount paid for the auditor service; *Prof* is profitability measured by net profit margin, *Lev* is a leverage of the company is measured by total assets divided by total liabilities of the company, *ROA* is return on assets is measured by income continuing operation divided by total assets; *Size* that is measured by the total assets of the company. White robust standard errors are used to control for heteroscedasticity
Source(s): Table created by authors

corresponding t-statistic of 2.035. This suggests that an increase in audit fees may be associated with an elevated risk of financial statement fraud. Consequently, the second hypothesis posited in this study is rejected. This outcome contradicts the common assumption that higher audit fees are indicative of enhanced audit quality and more comprehensive auditing procedures (Ettredge *et al.*, 2014). Instead, it suggests a scenario where companies with a higher likelihood of committing fraud may be willing to pay higher audit fees, potentially engaging auditors who are less adept at detecting fraudulent activities.

Additionally, according to Table 3, the classification of audit firms within the Big-5 (B5) exhibits no discernible relationship with financial statement fraud. This outcome is consistent with the conclusions drawn by Lennox and Pittman (2010) and Hakami *et al.* (2020). As a result, the study rejects the third hypothesis, which proposed a significant relationship between the classification of audit firms within the Big-5 and the reduction of financial statement fraud. The prevailing assumption that Big-5 audit firms inherently contribute to higher audit quality, and, by extension, a lower likelihood of financial statement fraud, is brought into question by these results. This unexpected outcome prompts a call for more in-depth exploration and analysis to unravel the intricate factors that may be influencing or mitigating the anticipated relationship between Big-5 audit firms and the reduction of financial statement fraud.

The adjusted R^2 were 29%, which is a moderate level of explanation. This outcome is consistent with previous studies in this area, which have also found relatively low R^2 values for fraud prediction models.

4.1 Additional test

This study employed a range of econometric techniques to explore the relationship between audit quality and financial statement fraud. In addition to the commonly used OLS estimator, the Generalized Method of Moments (GMM) was utilized to address potential endogeneity issues. The OLS estimator has known limitations in panel data analysis, particularly in addressing individual-specific effects, lagged dependent variables, and the endogeneity of independent variables (Nickell, 1981). To overcome these limitations, several studies have

recommended the use of GMM as a more robust estimator that can also correct for heteroscedasticity and autocorrelation. Previous research has shown that GMM can produce more reliable results compared to OLS in the presence of endogeneity (Baltagi, 2008; Arellano and Bond, 1991). By applying both OLS and GMM methods, this study enhances the robustness of the analysis and provides a more thorough examination of the relationship between audit quality and financial statement fraud.

In this study, a two-step difference GMM analysis was employed to investigate the relationship between variables. The results of this analysis are presented in Table 4. The validity of the GMM results is contingent upon meeting several important conditions, including the absence of second-order serial correlation and the validity of the instruments used.

First, the number of instruments should be less than the number of observations. Second, the null hypothesis of no autocorrelation in AR (2) must not be rejected (p-value >0.005). Third, the Sargan or Hansen test of overidentification restrictions must have a p-value greater than 0.005. Finally, the dynamic effect, represented by the lagged dependent variable, should be less than 1 and significant. The results of the GMM analysis in this study meet all of these conditions. As shown in Table 4, the AR (2) and Hansen tests are not significant, and the lagged dependent variable is significant at the 1% level. This suggests that the GMM model used in this study is appropriate and that the results are reliable.

The results indicate a negative and significant relationship between audit tenure and financial statement fraud at the 1% level, with a coefficient value of −0.532. This suggests that longer audit tenure is associated with lower financial statement fraud. In addition, the results show a positive and significant relationship between audit fees and fraud at the 10% level, with a coefficient value of 0.963. This finding suggests that higher audit fees are associated with higher financial statement fraud.

The results of the GMM analysis are consistent with those of the OLS analysis for the relationship between audit tenure, audit fees, and financial statement fraud. However, the GMM analysis yielded a new finding regarding the relationship between audit size (measured by Big-5 and non-Big-5 firms) and financial statement fraud. While the OLS

Variables	Coefficient	p Value
FR L1	−6.338	0.000***
AT	−0.532	0.005***
AF	0.963	0.062*
Big5	−1.735	0.016**
PROF	−4.274	0.032**
LEVE	0.164	0.023**
SIZE	−9.598	0.001***
ROA	5.323	0.000***
Arellano-Bond test (AR (2))		0.662
Hansen Test		0.296

Note(s):
$FR_{it} = \alpha FR_{it-1} + \beta_1 AT_{it} + B_2 AF_{it} + B_3 B5_{it} + B_4 PROF_{it} + B_5 Lev_{it} + B_6 Size_{it} + B_7 Roa_{it} + n_i + \in_{it}$
Note(s): *, **, *** represent significance at the 10, 5 and 1 percent levels, respectively. *FR* is Dechow f-value, *AT* is auditor period; *Big5* is five big audit firms (Deloitte, KPMG, Enrst and Young, PWC, BDO); *AF* is the amount paid for the auditor service; *Prof* is profitability measured by net profit margin; *Lev* is a leverage of the company is measured by total assets divided by total liabilities of the company; *Size* that is measured by the total assets of the company; *ROA* is return on assets is measured by income continuing operation divided by total assets
Source(s): Table created by authors

Table 4. Results of Two-Step Difference GMM Analysis on the relationship between audit quality, specifically Audit Tenure (AT), Audit Fees (AF), and Audit Size (B5), And Financial Statement Fraud (FR)

results showed an insignificant relationship, the GMM results indicated a negative and significant relationship between audit size and financial statement fraud at the 5% level, with a coefficient value of −1.735. This indicates that firms audited by Big-5 audit companies have lower instances of financial statement fraud. Consequently, the results from the GMM analysis led to the acceptance of the third hypothesis in this study.

5. Finding and conclusion

This study aimed to investigate the relationship between audit quality specifically audit tenure, audit fees, and audit size—and financial statement fraud using the Policeman Theory. This theory suggests that auditors act as "policemen" by monitoring a company's financial statements and detecting any fraudulent activities. The study tested three hypotheses to examine the negative and significant relationships between audit tenure, audit fees, audit size, and financial statement fraud. To examine these hypotheses, the study utilized panel data and employed both the OLS estimation technique and GMM as an additional test. The OLS results revealed a significant and negative relationship between audit tenure and financial statement fraud. This finding is consistent with prior research suggesting that shorter audit tenure may increase the risk of fraud due to insufficient time for auditors to develop an in-depth understanding of the company's operations and internal controls. Additionally, the study found a significant and positive relationship between audit fees and financial statement fraud. This result indicates that companies more likely to commit fraud are willing to pay higher audit fees to engage auditors who are less likely to detect their fraudulent activities. This finding raises concerns about the potential compromise of audit quality when audit firms are incentivized by high audit fees. Moreover, the GMM analysis revealed a negative and significant relationship between audit size (measured by Big-5 and non-Big-5 firms) and financial statement fraud, indicating that firms audited by Big-5 companies have lower instances of financial statement fraud. This result led to the acceptance of the third hypothesis, highlighting the critical role of larger audit firms in maintaining audit quality and reducing fraud. Overall, this study underscores the importance of audit quality in preventing financial statement fraud and provides valuable insights for policymakers, regulators, and stakeholders, particularly in developing countries like Indonesia.

The GMM results align with the OLS findings concerning the relationships between audit tenure and audit fees with financial statement fraud (first and second hypotheses). Notably, the GMM analysis reveals a significant negative relationship between Big-5 audit companies and financial statement fraud. Several plausible explanations exist for this negative relationship. Firstly, Big-5 audit firms may possess greater resources and expertise, enhancing their capability to detect and prevent fraud effectively. These firms might also implement more stringent quality control systems, thereby aiding in the identification and mitigation of potential fraud risks (DeFond and Zhang, 2014). Additionally, the heightened scrutiny and oversight faced by Big-5 firms from regulatory bodies incentivize them to uphold elevated standards of quality and compliance (Chen *et al.*, 2010; Gul *et al.*, 2017). Moreover, the reputational incentives for ethical conduct among Big-5 firms are stronger, as any instance of fraud or misconduct could lead to significant negative consequences for their reputation and market share (Piotroski and Wong, 2012). This heightened focus on maintaining their reputation and market position drives Big-5 firms to deliver high-quality audits and reduce the risk of financial statement fraud. Overall, these findings underscore the critical role of larger audit firms in maintaining audit quality and reducing fraud.

This study prioritizes GMM results as the primary analytical framework due to its effectiveness in mitigating potential endogeneity and other biases inherent in panel data analysis. GMM addresses unobserved individual-level heterogeneity and incorporates

instruments to tackle endogeneity, thereby enhancing the reliability and validity of the study's results. In contrast, the OLS method, frequently employed in panel data analysis, may overlook endogeneity and individual-specific effects, leading to biased estimates. By utilizing both OLS and GMM methodologies, this study offers a more comprehensive and robust exploration of the relationship between audit quality variables and financial statement fraud. The emphasis on GMM results helps safeguard against potential biases, instilling greater confidence in the study's outcomes.

This study makes a valuable contribution to the literature by emphasizing the critical role of audit quality in preventing and detecting financial statement fraud. The results indicate that extended audit tenure, engagement with Big-5 audit companies, and appropriate audit fees contribute to enhanced audit quality, thereby reducing the occurrence of financial statement fraud. However, further investigation is warranted to delve into the underlying mechanisms and factors shaping the intricate relationship between audit quality and financial statement fraud. Future research should explore these dynamics in more depth to provide a comprehensive understanding of how specific audit practices and policies influence the effectiveness of fraud prevention and detection. This will help refine audit strategies and enhance the overall integrity of financial reporting.

Moreover, the study recommends that Indonesian policymakers consider adopting International Financial Reporting Standards (IFRS) to elevate the quality of financial reporting and foster transparency in financial statements. Implementing IFRS can provide auditors with a consistent framework for financial reporting, enhancing comparability across companies and aiding in fraud detection and reduction. Furthermore, the adoption of IFRS can attract foreign investors, bolster Indonesia's global market reputation, and strengthen the country's economic standing (Yousefinejad *et al.*, 2018a, b). By aligning with international standards, Indonesia can benefit from improved financial practices that support sustainable economic growth and investor confidence.

In addition to these findings, the study underscores the significance of audit quality in reducing financial statement fraud, particularly in developing countries like Indonesia. Policymakers are encouraged to prioritize initiatives that promote audit quality, such as providing adequate training and resources for auditors, regularly monitoring and evaluating audit firms, preserving auditor independence, and strengthening the regulatory framework governing auditing practices. The combined adoption of IFRS and the promotion of audit quality are poised to substantially enhance the efficacy of financial statement fraud reduction efforts in Indonesia. These measures will foster a healthier business environment and contribute to sustainable economic growth.

6. Limitation and future studies

Although this paper contributes to the literature on the relationship between audit quality and financial statement fraud, several limitations need to be considered. Firstly, this study focuses exclusively on Indonesia, so caution should be exercised when generalizing the findings to other developing and Muslim-majority countries. The findings may differ due to the adoption of IFRS in other countries. Previous studies have shown that IFRS adoption can affect the relationship between audit quality and fraud. Therefore, future studies should include countries that have adopted IFRS in their samples and compare the results with those of Indonesia. Such comparisons would demonstrate the impact of IFRS adoption on the relationship between audit quality and fraud, providing valuable insights for policymakers in Indonesia.

Additionally, this study exclusively focused on the relationship between audit quality and financial statement fraud, omitting consideration of other factors that might contribute to fraudulent activities. Future research endeavours could explore variables such as

corporate governance, internal control systems, and management integrity to provide a more comprehensive understanding of fraud prevention and detection. Despite these limitations, this study offers valuable insights into how higher audit quality contributes to the reduction of financial statement fraud in Indonesia. Future studies can build upon this research by extending the analysis to other developing countries with similar characteristics.

References

Abdelfattah, T., Elmahgoub, M. and Elamer, A.A. (2021), "Female audit partners and extended audit reporting: UK evidence", *Journal of Business Ethics*, Vol. 174 No. 1, pp. 177-197, doi: 10.1007/s10551-020-04607-0.

Abebaw, A.W. (2020), "A study on auditor's expert performance to fraud detection: in Ethiopian private audit firms", *International Journal of Research in Economics and Social Sciences*, Vol. 10 No. 2, pp. 34-49.

Agustriyana, D. and Saudi, M.H. (2021), "The effect of audit fees and audit tenure to audit quality", *Education Journal*, Vol. 58, pp. 6089-6099.

Al-Thuneibat, A.A., Issa, R.T.I.A. and Baker, R.A.A. (2011), "Do audit tenure and firm size contribute to audit quality? Empirical evidence from Jordan", *Managerial Auditing Journal*, Vol. 26 No. 4, pp. 317-334, doi: 10.1108/02686901111124648.

Alhadab, M. (2018), "Abnormal audit fees and accrual and real earnings management: evidence from UK", *Journal of Financial Reporting and Accounting*, Vol. 16 No. 3, pp. 395-416, doi: 10.1108/jfra-07-2017-0050.

Ali, S. and Aulia, M.R.P. (2015), "Audit firm size, auditor industry specialization and audit quality : an empirical study of Indonesian state-owned enterprises", *Research Journal of Finance and Accounting*, Vol. 3 No. 3, pp. 275-283, ISSN:2225-8329.

Aliu, M.M., Okpanachi, J. and Mohammed, N.A. (2018), "Auditor's independence and audit quality: an empirical study", *International Accounting and Taxation Research Group*, Vol. 2 No. 2, pp. 15-27.

Almarayeh, T.S., Aibar-Guzmán, B. and Abdullatif, M. (2020), "Does audit quality influence earnings management in emerging markets? Evidence from Jordan", *Revista de Contabilidad-Spanish Accounting Review*, Vol. 23 No. 1, pp. 64-74, doi: 10.6018/rcsar.365091.

Alsmairat, Y.Y., Yusoff, W.S. and Ali, M.A. (2019), "The effect of audit tenure and audit firm size on the audit quality: evidence from Jordanian auditors", *International Journal of Business and Technopreneurship*, Vol. 9 No. 1, pp. 15-24.

Alzoubi, E., Al-Shattarat, W. and Obeidat, B. (2021), "The impact of International Financial Reporting Standards (IFRS) adoption on reducing fraud in Jordan", *Journal of Financial Crime*, Vol. 28 No. 1, pp. 165-181.

Ananda, C. and Faisal, F. (2023), "Audit fees, audit tenure, auditor industry specialization, audit firm size, and audit quality", *Evidence from Indonesian Listed Companies', Jurnal Dinamika Akuntansi Dan Bisnis*, Vol. 10 No. 2, pp. 213-230, doi: 10.24815/jdab.v10i2.27750.

Arellano, M. and Bond, S. (1991), "Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations", *The Review of Economic Studies*, Vol. 58 No. 2, p. 277, doi: 10.2307/2297968.

Association of Certified Fraud Examiners (ACFE) (2018), "Report to the Nation's 2018 global study on occupational fraud and abuse", *Fraud Magazine*.

Asian Roundtable on Corporate Governance (2003), *White Paper on Corporate Governance in Asia*, Organisation for Economic Co-operation and Development, OECD.

Baltagi, B.H. (2008), "Forecasting with panel data", *Journal of Forecasting*, Vol. 27 No. 2, pp. 153-173, doi: 10.1002/for.1047.

Beasley, M.S. (1996), “An empirical analysis of the relation between the board of director composition and financial statement fraud”, *The Accounting Review*, Vol. 71 No. 4, pp. 443-465.

Beasley, M., Carcello, J. and Hermanson, D. (1999), *Committee of Sponsoring Organizations of the Treadway Commission*, Fraudulent Financial Reporting.

Beasley, M.S., Carcello, J.V., Hermanson, D.R. and Lapides, P.D. (2000), “Fraudulent financial reporting: consideration of industry traits and corporate governance mechanisms”, *Accounting Horizons*, Vol. 14 No. 4, pp. 441-454, doi: 10.2308/acch.2000.14.4.441.

Beck, T., Demirgü, Kunt, A. and Levine, R. (2007), “Finance, inequality and the poor”, *Journal of Economic Growth*, Vol. 12 No. 1, pp. 27-49, doi: 10.1007/s10887-007-9010-6.

Buntara, A.A. and Adhariani, D. (2019), “Audit tenure and audit quality: the renewal sense of comfort?”, *Australasian Accounting, Business and Finance Journal*, Vol. 13 No. 4, pp. 46-62, doi: 10.14453/aabfj.v13i4.4.

Button, M., Lewis, C. and Tapley, J. (2012), “Not a victimless crime: the impact of fraud on individual victims and their families”, *Journal of Financial Crime*, Vol. 27 No. 1, pp. 36-54, doi: 10.1057/sj.2012.11.

Brazel, B. and Schmidt, J. (2019), “Do auditors and audit committees lower fraud risk by constraining inconsistencies between financial and nonfinancial measures?”, *A Journal of Practice and Theory*, Vol. 38 No. 1, pp. 103-122, doi: 10.2308/ajpt-52087.

Cassell, C.A., Hansen, J.C., Myers, L.A. and Seidel, T.A. (2020), “Does the timing of auditor changes affect audit quality? Evidence from the initial year of the audit engagement”, *Journal of Accounting, Auditing and Finance*, Vol. 35 No. 2, pp. 263-289, doi: 10.1177/0148558X17726241.

Castillo-Merino, D., Garcia-Blandon, J. and Martinez-Blasco, M. (2020), “Auditor independence, current and future NAS fees and audit quality: were European regulators right?”, *European Accounting Review*, Vol. 29 No. 2, pp. 233-262, doi: 10.1080/09638180.2019.1577151.

Cenciarelli, V.G., Greco, G. and Allegrini, M. (2018), “External audit and bankruptcy prediction”, *Journal of Management and Governance*, Vol. 22 No. 4, pp. 863-890, doi: 10.1007/s10997-018-9406-z.

Chen, Y., Ding, S. and Xu, B. (2010), “The impact of auditor size and industry specialization on audit quality: evidence from China”, *Journal of International Accounting, Auditing and Taxation*, Vol. 19 No. 2, pp. 71-84.

Clarina, M. and Fitriany, F. (2019), “The impact of audit market concentration on audit quality: evidence from Indonesia”, *Jurnal Pengurusan*, Vol. 57, pp. 37-49, doi: 10.17576/pengurusan-2019-57-12.

Cohen, D.A., Dey, A. and Lys, T.Z. (2014), “Real and accrual-based earnings management in the pre- and post-Sarbanes-Oxley periods”, *The Accounting Review*, Vol. 89 No. 3, pp. 1083-1113.

Coram, P., Ferguson, C. and Moroney, R. (2006), “The value of internal audit in fraud detection”, *Accounting and Finance*, Vol. 48 No. 4, pp. 1-32.

DeAngelo, L.E. (1981), “Auditor size and audit fees”, *Journal of Accounting and Economics*, Vol. 3 May, pp. 183-199, doi: 10.1016/0165-4101(81)90002-1.

Dechow, P.M., Ge, W., Larson, C.R. and Sloan, R.G. (2011), “Predicting material accounting misstatements”, *Contemporary Accounting Research*, Vol. 28 No. 1, pp. 17-82, doi: 10.1111/j.1911-3846.2010.01041.x.

DeFond, M.L. and Zhang, J. (2014), “A review of archival auditing research”, *Journal of Accounting and Economics*, Vol. 58 Nos 2-3, pp. 275-326, doi: 10.1016/j.jacceco.2014.09.002.

Dhaliwal, D., Naiker, V. and Navissi, F. (2010), “The association between accruals quality and the characteristics of accounting experts and mix of expertise on audit committees”, *Contemporary Accounting Research*, Vol. 27 No. 3, pp. 787-827, doi: 10.1111/j.1911-3846.2010.01027.x.

Dincer, G. and Gunalp, B. (2012), “Corruption and income inequality in the United States”, *Contemporary Economic Policy*, Vol. 2 No. 30, pp. 283-292, doi: 10.1111/j.1465-7287.2011.00262.x.

Donald, R.D., Jr. (1992), "Determinants of audit quality in the public sector", *The Accounting Review*, Vol. 67 No. 3.

Drogalas, G., Pazarskis, M., Anagnostopoulou, E. and Papachristou, A. (2017), "The effect of internal audit effectiveness, auditor responsibility and training in fraud detection", *Journal of Accounting and Management Information Systems*, Vol. 16 No. 4, pp. 434-454, doi: 10.24818/jamis.2017.04001.

Enofe, A.O., Omagbon, P. and Ehigiator, F.I. (2015), "Forensic audit and corporate fraud", *IIARD International Journal of Economics and Business Management*, Vol. 1 No. 7, pp. 1-10.

Ettredge, M., Fuerherm, E.E. and Li, C. (2014), "Fee pressure and audit quality", *Accounting, Organizations and Society*, Vol. 39 No. 4, pp. 247-263, doi: 10.1016/j.aos.2014.04.002.

Francis, J.R., Wu, Q. and Zhang, X. (2015), "Reputational consequences of customer corporate governance failures: evidence from auditor resignations", *Contemporary Accounting Research*, Vol. 32 No. 3, pp. 1162-1196.

Free, C. and Murphy, P.R. (2015), "The ties that bind: the decision to co-offend in fraud", *Contemporary Accounting Research*, Vol. 32 No. 1, pp. 18-54, doi: 10.1111/1911-3846.12063.

Fully, F. and David, A.K. (2020a), "Impact of fraud on the financial performance of Nigerian deposit money banks", *Journal of Financial Crime*, Vol. 27 No. 2, pp. 489-505.

Fully, R.B. and David, K.D. (2020b), "Causes of audit delay and their effects on public sector audit quality (A case of the supreme audit institution of Liberia - general auditing commission)", *Master thesis, Department of Business, Faculty of Business, Högskolan Kristianstad.*

Gospel, J., Ordu, P.A., Barigbon, M. and Namapele, A. (2019), "Sufficiency and appropriateness of audit evidence for giving an opinion on the true and fair view of financial statements", *International Journal of Innovative Development and Policy Studies*, Vol. 7 No. 3, pp. 36-43.

Gul, F.A., Al-Najjar, B. and Al-Sartawi, A. (2017), "Audit firm tenure and financial reporting quality: evidence from Jordan", *International Journal of Accounting, Auditing and Performance Evaluation*, Vol. 13 No. 4, pp. 403-423.

Guo, Y., Delaney, D. and Ahmed, A. (2020), "Is an auditor's propensity to issue going concern opinions a valid measure of audit quality?", *Australian Accounting Review*, Vol. 30 No. 2, pp. 144-153, doi: 10.1111/auar.12300.

Hakami, T.A., Rahmat, M.M., Yaacob, M.H. and Saleh, N.M. (2020), "Fraud detection gap between auditor and fraud detection models: evidence from gulf cooperation council", *Asian Journal of Accounting and Governance*, Vol. 13, pp. 1-13, doi: 10.17576/aj.

Hallman, N.J. and Schmidt, J.J. (2020), "Measuring competitive bidding in the audit market and its relation to market concentration, audit quality, and audit fees: evidence from auditor views of company SEC filings measuring competitive bidding in the audit market and its relation to market C".

Hayes, A.F. (2009), "Beyond Baron and Kenny: statistical mediation analysis in the new millennium", *Communication Monographs*, Vol. 76 No. 4, pp. 408-420, doi: 10.1080/03637750903310360.

Hsiao, F.D., Lin, J.W. and Yang, J.S. (2012), "An empirical analysis of the effect of audit quality on financial reporting fraud", *Corporate Ownership and Control*, Vol. 9 No. 9, pp. 391-399, doi: 10.22495/cocv9i4c4art2.

Hussein, M.A. (2016), "The impact of audit quality on financial performance: empirical study in amman stock exchange", *International Journal of Academic Research in Accounting, Finance and Management Sciences*, Vol. 6 No. 3, pp. 119-131.

Ittonen, K.I.M. (2010), *A Theoretical Examination of the Role of Auditing and the Relevance of Audit Reports*, Emerald Group Publishing.

Jadiyappa, N., Hickman, L.E., Kakani, R.K. and Abidi, Q. (2021), "Auditor tenure and audit quality: an investigation of moderating factors prior to the commencement of mandatory rotations in India", *Managerial Auditing Journal*, Vol. 36 No. 5, pp. 724-743, doi: 10.1108/maj-12-2020-2957.

Jafaridehkordi, H. and Rahim, R.A. (2014), "Intellectual capital and investment opportunity set", *European Online Journal of Natural and Social Sciences*, Vol. 3 No. 4, pp. 1030-1041.

Kabuye, F., Korutaro, S., Nakabuye, N., Nkundabanyanga, S.K., Opiso, J. and Nakabuye, Z. (2017), "Internal audit organisational status, competencies, activities and fraud management in the financial services sector", *Managerial Auditing Journal*, Vol. 32 No. 4, pp. 924-944, doi: 10.1108/maj-09-2016-1452.

Kar, D. and Cartwright-Smith, L. (2015), "Illicit financial flows from developing countries: 2004-2013", *Global Financial Integrity*, available at: https://gfintegrity.org/report/illicit-financial-flows-from-developing-countries-2004-2013/

Khan, A.Q. and Muttakin, M.B. (2015), "Corporate governance and financial reporting quality in developing countries: evidence from Bangladesh", *International Journal of Accounting and Information Management*, Vol. 23 No. 3, pp. 228-248.

Khlif, H. (2016), *IFRS Adoption and Auditing: A Review*, Emerald Group Publishing.

Kinney, W.R., Palmrose, Z.V. and Scholz, S. (2004), "Auditor independence, non-audit services, and restatements: was the U.S. Government right?", *Journal of Accounting Research*, Vol. 42 No. 3, pp. 561-588, doi: 10.1111/j.1475-679x.2004.t01-1-00141.x.

Le, A.T. and Lobo, G.J. (2020), "Audit quality and financial reporting quality: an overview", *Journal of Accounting Literature*, Vol. 44, 101472, doi: 10.1016/j.acclit.2020.101472.

Le, T. and Lobo, G.J. (2020), "Audit quality inputs and financial statement conformity to benford's law", *Journal of Accounting, Auditing and Finance*, Vol. 37 No. 3, 0148558X2093046, p. 602, doi: 10.1177/0148558x20930467.

Lennox, C. and Pittman, J.A. (2010), "Big five audits and accounting fraud", *Contemporary Accounting Research*, Vol. 27 No. 1, pp. 209-247, doi: 10.1111/j.1911-3846.2010.01007.x.

Li, X., Sun, L. and Zhang, F. (2017), "Non-audit service fees, auditor tenure and financial restatements: evidence from China", *Managerial Auditing Journal*, Vol. 32 No. 3, pp. 237-252.

Limperg, T. (1923), "De accountant als policeman", *Maandblad voor Accountancy en Bedrijfseconomie*, Vol. 1, pp. 65-71.

Mlachila, D., Z. and Aithnard (2013), "Banking in sub-saharan africa challenges and opportunities", *European Investment Bank*, Vols 1-118, available at: https://elibrary.imf.org/view/journals/087/2013/004/087.2013.issue-004-en.xml

Muñoz-Izquierdo, N., Camacho-Miñano, M.D.M., Segovia-Vargas, M.J. and Pascual-Ezama, D. (2019), "Is the external audit report useful for bankruptcy prediction? Evidence using artificial intelligence", *International Journal of Financial Studies*, Vol. 7 No. 2, p. 20, doi: 10.3390/ijfs7020020.

Mustapha, U.A., Rashid, N., Ado, A.B. and Ademola, L.S. (2019), "The effect of audit quality on accruals earnings management in Nigerian listed firms", *International Journal of Recent Technology and Engineering*, Vol. 8 No. 4, pp. 4894-4897, doi: 10.35940/ijrte.D5441.118419.

Nejad, M.Y., Ahmad, A. and Rahim, R.A. (2020), "Does IFRS drive information asymmetry reduction? Evidence from asean-6 countries", *Asian Journal of Accounting and Governance*, Vol. 14 No. 0.

Nguyen, T.M. and Truong, T. (2021), "The impact of IFRS adoption on financial reporting quality: evidence from Vietnam", *Journal of Accounting in Emerging Economies*, Vol. 11 No. 1, pp. 126-146.

Nickell, S. (1981), "Biases in dynamic models with fixed effects", *The Econometric Society*, Vol. 49 No. 6.

Nouri, S. and Gilaninia, B. (2017), "The effect of surplus free cash flow and audit quality on earnings management", *International Journal of Economics and Financial Issues*, Vol. 7 No. 3, pp. 270-275.

Piotroski, J.D. and Wong, T.J. (2012), "The effect of shocks to auditor reputation on auditor market share", *Contemporary Accounting Research*, Vol. 29 No. 1, pp. 175-207.

Ramanna, K. and Sletten, E. (2014), "Why firms should disclose more information about internal control", *Harvard Business Review*, Vol. 92 No. 12, pp. 118-125.

Reguera-Alvarado, N., de Fuentes, P. and Laffarga, J. (2019), "Do auditors mitigate earnings management during economic crisis?", *Revista de Contabilidad-Spanish Accounting Review*, Vol. 22 No. 1, pp. 6-20, doi: 10.6018/rcsar.22.1.354271.

Salameh, R., Al-Weshah, G. and Al-Hiyari, A. (2011), "Alternative internal audit structures and perceived effectiveness of internal audit in fraud prevention: evidence from Jordanian banking industry", *Canadian Social Science*, Vol. 7 No. 3, pp. 40-50, doi: 10.3968/j.css.1923669720110703.007.

Salehi, M., Mahmoudi, M.R.F. and Gah, A.D. (2019), "A meta-analysis approach for determinants of effective factors on audit quality: evidence from emerging market", *Journal of Accounting in Emerging Economies*, Vol. 9 No. 2, pp. 287-312, doi: 10.1108/jaee-03-2018-0025.

Sanjaya Adi Putra, G. and Dwirandra (2019), "The effect of auditor experience, type of personality and fraud auditing training on auditors' ability in fraud detecting with professional skepticism as a mediation variable", *International Research Journal of Management, IT and Social Sciences*, Vol. 6 No. 2, pp. 31-43, doi: 10.21744/irjmis.v6n2.604.

Schneider, F., Buehn, A. and Montenegro, C. (2010), "New estimates for the shadow economies all over the World", *International Economic Journal*, Vol. 24 No. 4, pp. 443-461, doi: 10.1080/10168737.2010.525974.

Sharma, D. and Krishnan, J. (2009), "Are audit fees and audit quality positively associated? Evidence from the pre-and post-SOX audit markets", *Contemporary Accounting Research*, Vol. 26 No. 3, pp. 755-792.

Simnett, R., Carson, E. and Vanstraelen, A. (2014), "Audit firm tenure and audit quality: a review", *Auditing: A Journal of Practice and Theory*, Vol. 34 Supplement 1, pp. 147-162.

Sjam, J.M.E., Yadiati, W., Winarningsih, S. and Rosdini, D. (2020), "Audit quality influenced by auditor competence and audit task complexity", *Talent Development and Excellence*, Vol. 12 No. 1, pp. 4228-4246.

Sumartono, S., Urumsah, D. and Hamdani, R. (2020), "Budgetary participation, compensation, and performance of local government working unit: the intervening role of organizational commitment", *Journal of Accounting and Investment*, Vol. 21 No. 1, doi: 10.18196/jai.2101144.

Tepalagul, N. and Lin, L. (2015), "Auditor independence and audit quality", *Journal of Accounting, Auditing and Finance*, Vol. 30 No. 1, pp. 101-121, doi: 10.1177/0148558x14544505.

Trabelsi, N.S. and Trabelsi, M. (2014), "The value relevance of IFRS in the UAE banking industry: empirical evidence from dubai financial market, 2008-2013", *International Journal of Academic Research in Accounting, Finance and Management Sciences*, Vol. 4 No. 4, pp. 60-71, doi: 10.6007/IJARAFMS/v4-i4/1241.

Umar, H., Erlina, Fauziah, A. and Purba, R.Br. (2019), "Audit quality determinants and the", *International Journal of Civil Engineering and Technology*, Vol. 10 No. 3, pp. 1447-1460.

Xiao, T., Geng, C. and Yuan, C. (2020), "How audit effort affects audit quality: an audit process and audit output perspective", *China Journal of Accounting Research*, Vol. 13 No. 1, pp. 109-127, doi: 10.1016/j.cjar.2020.02.002.

Yang, J.C., Chuang, H.C. and Kuan, C.M. (2020), "Double machine learning with gradient boosting and its application to the Big N audit quality effect", *Journal of Econometrics*, Vol. 216 No. 1, pp. 268-283, doi: 10.1016/j.jeconom.2020.01.018.

Yazid, F.A.M. and Suryanto, T. (2016), "The impact of Shari'ah-compliant auditing practices on the internal control system of Islamic financial institutions", *Journal of Islamic Accounting and Business Research*, Vol. 7 No. 4, pp. 276-291.

Yousefinejad, M., Ahmad, A. and Rahim, A. (2018a), "The mediating effect of information asymmetry on IFRS and foreign direct investment", *International Journal of Economics and Management*, Vol. 12 September, pp. 641-656.

Yousefinejad, M., Ahmad, A., Salleh, F. and Abdul Rahim, R. (2018b), "Causal relationship between international financial reporting standard (IFRS) and foreign direct investment (fdi): a panel data analysis of asean countries", *Asian Journal of Accounting and Governance*, Vol. 10, pp. 61-72, doi: 10.17576/ajag-2018-10-06.

Zamzami, F., Tantri, S.N. and Timur, R.P. (2017), "Effects of auditor independence and experience, size of client's financial health, and audit fee on audit quality: an empirical study on public accounting firms in Indonesia", *Journal of Economics Business*, Vol. 5 No. 1, pp. 69-73, doi: 10.18178/joebm.2017.5.1.488.

Corresponding author
Maryam Yousefi Nejad can be contacted at: myousefi-nejad@brookes.ac.uk

For instructions on how to order reprints of this article, please visit our website:
www.emeraldgrouppublishing.com/licensing/reprints.htm
Or contact us for further details: **permissions@emeraldinsight.com**