Essays on Auditor Choice and Audit Disclosures

Gordon Mwintome

Essays on Auditor Choice and Audit Disclosures

Dissertation for the degree of Philosophiae Doctor (PhD)

University of Agder

School of Business and Law

2022

Doctoral dissertations at the University of Agder 369

ISSN: 1504-9272

ISBN: 978-82-8427-079-1

Print: 07 Media, Kristiansand

Acknowledgements
I am extremely grateful to the Almighty God for blessing me with life, good health, and grace to travel this journey of excellence.

Many thanks to my supervisor Professor Anna Alon for her kind guidance and patience throughout the PhD journey. I am forever grateful to her for the opportunity to get into the PhD program and also to work with her on the *Internationalization of Financial Reporting and Audit* (IFRA) project. I am also grateful for the workshops, conferences, and courses that I benefited from the financial support of IFRA. A big thank you to all the members of the IFRA project especially Dr. Stephen Zamore and Dr. Joseph A. Agana whom I worked with.

I am also grateful to Professor Roy Mersland, the PhD Director for the rare opportunity to work with him. While not my main supervisor, Roy voluntarily agreed to supervise me on my first dissertation essay. He did this so well that many thought he was my main supervisor. He provided me with data, was always available, and patient enough to review several versions of the paper. He was also benevolent enough to offer me a number of opportunities to travel and attend conferences and workshops fully funded by him. These opportunities greately expanded my academic and social capital for my next steps. I am also grateful to Professor Ole-Kristian Hope (Rotman School of Management, University of Toronto, Canada) and Professor Langli John Christian (BI Norwegain School of Business) for the opportunity to participate in the Intensive PhD Seminar in Accounting.

I am equally grateful for the support of the School of Business and Law, University of Agder without which this journey would have been a great challenge if not impossible. I am particularly grateful for the generous funding provided to make my PhD journey a memorable one as it afforded me the opportunity to participate in several international academic conferences and courses outside the university. A special thank you also goes to the University's administrative staff: Harald Stokkeland, Anne Line Omsland, Elise Frølich Furrebøe, Liv Bente Hannevik Friestad, Gro Anita Homme, Miriam Høgseth Joakimsen, Diana Trydal Solli, Gunvor Guttormsen, Silje Halvorsen Sveaas, Aline Craide who played diverse roles in providing office space, facilitating access to funds as well as creating a very conducive working environment.

Finally, I wish to say a special thank you to my colleagues both in the 2018 and 2019 PhD cohorts. It was encouraging going through this journey together. I am as well grateful to Edward and his family for the many visits to their home. Once again, I am thankful to Roy for the memorable boat trip and warm welcome to his home. Equal measure of appreciation goes to the Zamores for the many invites to their home, indeed you made my stay in Norway a lot more interesting. Finally, I wish to thank my family and all friends back in Ghana for the support and encouagement throughout this PhD journey.

Gordon Mwintome
March 2022
Kristiansand, Norway.

List of studies

This dissertation consists of the following three studies

1. Mwintome, G., Mersland, R., & Nyarko, S.A. Firm ownership and auditor choice: Insights from microfinance institutions in developing countries.

2. Mwintome, G. & Alon, A. Auditor specialization, audit committee independence, and key audit matters.

3. Mwintome, G. Auditor changes and key audit matters.

Table of Contents

Overview of the Dissertation: Essays on Auditor Choice and Audit Disclosures

1. Introduction

A well-functioning capital market relies on reliable financial information. For this reason, external auditors are required to assess the financial statements prepared by management and express an independent opinion. The purpose is to provide reasonable assurance that the financial statements prepared by management are fairly presented. Auditors thus lend credibility on the accounting information, which is valuable for the economic decisions of interested users such as shareholders (Quick, Turley, & Willekens, 2008).

Although the auditor's opinion is important, the extent to which stakeholders can rely on the audited financial information depends on the perceived quality of the auditor's work. But the quality of the auditor's work is largely unobservable because details of the audit processes are not visible to external users. Since audit quality is unobservable, it has often been inferred from the auditor's characteristics. Many audit quality studies draw from the theoretical arguments by DeAngelo (1981) that audit quality is affected by audit firm size. Accordingly, audit firm size is widely applied in many studies as a proxy for auditor quality (Quick et al., 2008). Aside audit firm size, auditor industry specialization has also been widely used as an indicator of auditor quality (Ferguson, Francis, & Stokes, 2003; Francis, Reichelt, & Wang, 2005).

As all auditors cannot deliver same level of service quality, companies tend to appoint auditors with peculiar characteristics to satisfy their auditing needs. Therefore, the auditor choices of companies are influenced by several factors such as price, location, perceived auditor expertise, and interpersonal associations (Brown & Knechel, 2016). The extant literature suggests that auditor choice has implications for audit results. For example, companies that hired auditors they share more characteristics with are associated with better audit quality as indicated by lower discretionary accruals (Brown & Knechel, 2016). Moreover, Kang (2014) found that family companies pay lower audit fees when they appoint non-top-tier auditors. With the requirement to disclose key audit matters (KAMs) in the audit report under the International Auditing standard (ISA) 701, it is possible to examine questions related to auditor choice and disclosures in the audit report. According to ISA 701, "*Key audit matters are those matters that, in the auditor's professional judgement, were of most significance in the audit of the financial statements"* (IAASB, 2015).

Accordingly, the purpose of this dissertation is to answer three questions related to auditor choice and disclosures in the audit report. Thus, the first essay: *Firm Ownership*

and Auditor Choice: Insights from Microfinance Institutions in developing countries is an archival study of the auditor choices of companies in developing countries. Audit markets are very concentrated in developed countries and dominated by the large firms. In contrast, developing countries have less intense audit markets, which creates a large pool of audit suppliers for companies (Huang, Chang, & Chiou, 2016). However, a limited number of auditor choice studies have been conducted in the developing markets due to lack of high-quality data. Hence, the first study aims to provide some insights on the auditor choices of companies in developing countries by inferring from microfinance institutions (MFIs) as they typically operate in such countries. The findings show that compared to cooperative MFIs (COOPs), shareholder (SHFs) and non-governmental organization (NGOs) MFIs are more likely to appoint a Big 4 auditor, perceived as high-quality auditors for the purposes of resolving agency problems and to strongly signal their commitment to credible financial reporting. Further, the likelihood to hire a Big 4 auditor by SHFs and NGOs is reinforced as the country-level institutions develop compared to COOPs.

The second and third essays focus on the expanded audit report which required the inclusion of additional audit disclosures. The requirement to provide more information was adopted in the European Union (EU)/European Economic Area (EEA) starting from the fiscal years ended on or after December 2016 by listed companies. In accordance with ISA 701, auditors need to disclose key audit matters from the engagement in the audit report. Thus, auditors apply professional judgment and skepticism in the determination of KAMs. In order to provide some insights on the determinants of KAMs, the second study: *Auditor Specialization, Audit Committee Independence and Key Audit Matters* analyzed a sample of Norwegian listed companies to examine whether and how the number of KAMs disclosed are associated with auditor's industry specialization and the level of audit committee independence. The results show that industry specialist auditors are associated with fewer KAMs while companies with more independent audit committees received audit reports that included a greater number of key audit matters.

The final study: *Auditor Changes and Key Audit Matters* takes the examinations a step further by exploring whether and how auditor changes influence KAMs attributes in terms of their number, details included in the description, and their level of readability using a sample of Norwegian listed companies. The extant literature on the influence of auditor changes on audit results, including audit opinions, audit fees, report delays, among others is well developed, but incomplete as the empirical evidence is largely mixed. Thus,

study three seeks to provide some further insights on the issue of auditor changes and audit outcomes by exploiting the new requirement to disclose KAMs in the audit report. As such, the study empirically examines whether and how the phenomenon of auditor changes that occur at both the audit firm and partner levels are associated with auditors' disclosures of KAMs in the audit report. The findings show that the number of KAMs and their readability did not change when a new audit firm took over but there was a positive influence on the level of details included in the description of KAMs. Audit partner changes were associated with fewer KAMs. However, the KAMs identified included more details and were more readable.

The remainder of this introductory chapter proceeds as follows. Section 2 provides an overview of audit reporting. The theoretical framework underpinning the dissertation is presented in section 3. Section 4 provides an overview of the research design and philosophical position, research context, data sources, and the analytical approaches applied. Finally, section 5 provides a summary of the essays that make up the dissertation and highlight the implications of the key findings.

2. Overview of audit reporting

The auditor's report has been the subject of long-standing debates and discussions due to concerns about its form, content, and overall communicative value (Mock et al., 2013). In particular, the audit report was often viewed as limited in scope, which does not permit users to better understand the audited financial statements. As a result, stakeholders such as shareholders and others have questioned the value of the audit report (Church, Davis, & McCracken, 2008).

Audit standard-setters and regulators in several jurisdictions responded through a series of changes that resulted in new and revised auditing standards aiming to improve the communicative value of the audit report (Reid, Carcello, Li, & Neal, 2015; Sierra-García, Gambetta, García-Benau, & Orta-Pérez, 2019). The International Auditing and Assurance Standards Board (IAASB) issued ISA 701 for the fiscal years ending on or after December 15, 2016 (IAASB, 2015). Statutory auditors of public-interest entities (PIEs) operating in the EU/EEA are required to follow ISA 701. The UK's Financial Reporting Council (FRC) introduced key audit matters through ISA 700 for the periods ending on or after October 1, 2012 (FRC, 2013). The Public Company Accountability Oversight Board (PCAOB) in the US announced, "*critical audit matters* (CAMs)". CAMs took effect for the fiscal years

ended on or after June 30, 2019 for audits of large accelerated fillers and December 15, 2020 for all other companies expected to comply with the CAMs requirements (PCAOB, 2017).

Since KAMs took effect, a burgeoning stream of literature has emerged with the main objective to provide insight into the consequences of KAMs. Focusing on investor behavior and market reaction, Gutierrez, Minutti-Meza, Tatum, and Vulcheva (2018) examined the consequences of adopting an expanded audit report in the UK. They found no significant evidence that the inclusion of KAMs affected the investor's reaction to the release of the report. In France and Australia, Sirois, Bédard, and Bera (2018) and Moroney, Phang, and Xiao (2021), respectively, concluded that the decision to include KAMs have attention-directing effect on the information priorities of users. Moreover, Gold, Heilmann, Pott, and Rematzki (2020), analyzed data from Germany, to examine the impact of KAMs on the financial reporting behaviors of managers. They found that the tendency for managers to make an aggressive financial reporting decision is reduced when KAMs are reported in the audit report.

An emerging stream of studies has also explored the determinants of KAMs. Sierra-García et al. (2019) analyzed the determinants of KAMs in the UK and found that both auditor-and client-related attributes are associated with the number of KAMs disclosed. In particular, they found that PwC disclosed more key audit matters than EY, Deloitte, and KPMG. Similarly, Abdelfattah, Elmahgoub, and Elamer (2020) analyzed a sample of UK companies and observed that more key audit matters are disclosed when the audit partner is a female. Using a cross-country sample from the UK, France and the Netherlands, Pinto and Morais (2019) observed that number of business segments, audit fees, and client size measured by total assets are positively associated with the number of key audit matters disclosed.

Gold et al. (2020) suggested that the research on KAMs is still largely at its infancy, which indicates that the influence of other auditor- and client-related characteristics on the reporting of KAMs remains under explored. As such, the influence of auditor's industry specialization, audit committee independence, and auditor changes on key audit matters are considered by examining the number, details included and readability of KAMs.

3. Theoretical framework

The theoretical framework presents and describes the theories that can explain the research problem under consideration. Moreover, it helps the researcher in explaining and drawing meaning of the eventual research findings. As a PhD thesis must be theoretically founded, signaling, agency, and institutional theories have been used in this dissertation to provide the theoretical underpinnings of the research problems studied. Specifically, agency theory is applied to explain how agency relationships can create agency problems which need to be resolved through the installation of third-party agents such as external auditors. As the work of the auditor is largely unobservable to the interested stakeholders, signaling theory is used to help explain why auditors may engage in sending signals to project their invisible underlying qualities. These theories are complemented by the institutional theory which recognizes a wide range of isomorphic pressures that shift firms towards certain decisions to obtain legitimacy. Details of the three theories are discussed in the ensuing subsections.

3.1 Signaling theory

Signaling theory seeks to explain why parties including management undertake actions to lessen the information asymmetry faced by stakeholders such as shareholders (Connelly, Certo, Ireland, & Reutzel, 2011; Spence, 1973). The theory was originally developed in the job market context to explain the issue of information asymmetry between employers and potential job candidates, where job seekers employ actions to minimize it (Connelly et al., 2011). Spence (1973) used the labor market to show the signaling function of education. In the job market, the quality of job candidates is not obvious to the potential employers, thus creating some form of information asymmetry. To reduce it, job candidates obtain higher education to signal their abilities.

Three key elements underpin the signaling theory. These are the *signaler*, *signal*, and *receiver* (Connelly et al., 2011). According to the signaling theory, *signalers* are insiders (e.g., managers) who possess some information that is unavailable to outside parties such as shareholders (Kirmani & Rao, 2000). S*ignal* is the information possessed by *signalers* that they must decide whether to communicate to the outsiders (Connelly et al., 2011). The *receiver* refers to the outside parties such as investors who do not have as much information as insiders (Connelly et al., 2011).

Considering the main objective of signaling theory, it has been widely applied in the context of imperfect markets. In the field of auditing, studies have applied the signaling theory to provide insight into companies' auditor choices (Abbott & Parker, 2000; Bewley, Chung, & McCracken, 2008; Kang, 2014). In these studies, management of the companies are the *signalers*, investors constitute the *receivers* while the type of auditor appointed is the *signal*. Accordingly, companies hire auditors with peculiar characteristics to signal their level of commitment to credible financial reporting. In particular, the studies suggested that perceived high-quality auditors such as Big N and industry specialist auditors are hired by companies to signal the level of their financial reporting quality to shareholders (Habib, Wu, Bhuiyan, & Sun, 2019).

The signaling theory has been used in the study: *Firm Ownership and Auditor Choice: Insights from Microfinance Institutions in developing countries* (study one). It is used to understand the auditor choices of companies operating in the high-information asymmetry context of developing countries. Audit markets in developing countries have many small-size auditors that compete with few Big N audit firms, thereby providing more options to companies (Huang et al., 2016). As the Big N audit firms have better reputation, their selection by a company located in a developing context is indicative of a strong signal of commitment to credible financial reporting. The theory has also been applied in study two: *Auditor Specialization, Audit Committee Independence, and Key Audit Matters.* It is used to understand how industry specialist auditors may convey their expertise and effectiveness to shareholders through KAM disclosures.

3.2 Agency theory

Agency relationships are considered as one of the most common and oldest type of social interactions (Ross, 1973). An agency relationship arises when two or more parties enter into a relationship where one of the parties known as the principal engages the other party referred to as the agent to act on their behalf (Ross, 1973). Common examples of agency relationships include the relationship between shareholders (Principal) and management (Agent), debtholders (Principal) and shareholders (Agent), and employers (Principal) and employees (Agent) (Ross, 1973; Thomsen & Conyon, 2012). When the agent fails to act in the best interests of the principal, an agency problem is created. Hence, agency theory emerged as researchers sought to understand issues around agency conflicts.

From the agency theory point of view, the agent normally has more information and superior knowledge in the agency relationship than the principal. Thus, principals delegate decision-making authority to agents to engage in business transactions on their behalf (Jensen & Meckling, 1976). For instance, shareholders in the shareholder-management relationship delegate business decision-making authority to management and hope that the decisions of management would maximize their interests. In this process, management accumulate critical entity-specific information as they run the business on daily basis while shareholders depend on the annually published financial statements for business insights (Watson & Head, 2010). As such, the published financial reports prepared by management become the primary source of company information to shareholders. As a result, agency relationships are typically characterized by information asymmetries, and therefore agency conflicts. Extant literature suggests that audit is one of the main mechanisms typically used to decrease agency conflicts (Lennox, 2005).

Agency theory is widely used in the field of accounting and audit research (Lennox, 2005; Shan, Troshani, & Tarca, 2019; Wu, Hsu, & Haslam, 2016). Lennox (2005) used the agency theory to examine the relationship between management ownership and audit firm size. The claim is that agency problems are alleviated through contracting, but management accounting information are often the basis of the contracts. Thus, to enforce the contracts, the accounting information must be credible. As extant studies utilized audit firm size to capture auditor quality, the author used agency theory and predicted that shareholders will demand higher-quality auditors when the level of management ownership creates severe agency problems. Accordingly, agency theory is applied in study one: *Firm Ownership and Auditor Choice: Insights from Microfinance Institutions in developing countries* to predict that owners of MFIs with ownership structures embedded in severe agency problems will be associated with greater incentives to demand higher-quality auditors such as the Big 4 audit firms. Agency theory is again applied in study two: *Auditor Specialization, Audit Committee Independence and Key Audit Matters.* Specifically, it is applied to predict that more independent audit committee members will possess greater motivations to support external auditors to disclose more entity-specific information in the form of KAMs to satisfy the information needs of shareholders.

3.3 Institutional theory

Institutional theory recognizes a wide range of isomorphic pressures that shift private firms towards certain decisions to obtain legitimacy (R. Baker & Rennie, 2006). DiMaggio and Powell (1983) identified three external pressures or institutional isomorphism that firms respond to. These include normative, mimetic, and coercive and have been widely applied in the extant literature. In the field of accounting and audit, Corten, Steijvers, and Lybaert (2017) used the institutional theory to study the auditor choice of companies and concluded that Big 4 auditors are appointed by companies whose suppliers are being audited by such audit firms, which confirms the isomorphism effect towards suppliers as suggested by the institutional theory. MFIs compete for donor funds and literature suggests that donors favor firms that are being audited by high-quality audit firms such as the Big 4 (Kitching, 2009). Moreover, institutional theory suggests that firms respond to pressures from their peers and environment to take specific actions (R. Baker & Rennie, 2006). As such, the examinations in study one: *Firm Ownership and Auditor Choice: Insights from Microfinance Institutions in developing countries* draw on the institutional theory perspectives to understand the auditor choice decisions of MFIs.

4. Research design

A research design is the researcher's blueprint for data collection, measurement, and data analysis to answer research questions (Sekaran & Bougie, 2019). In essence, the research design addresses issues related to the researcher's research strategy, level of interference by the researcher, setting of the study, unit of analysis, and the time horizon during which the research questions are answered. Underlying the research design is the researcher's beliefs about the existence of things in the world (*ontology*) and the nature of knowledge creation (*epistemology*). How scientific knowledge is created is a subject that has long fascinated philosophers, resulting in varied philosophical positions. Since a doctoral dissertation is a piece of scientific writing, the PhD candidate is required to adopt a philosophical position in the writing process. In this respect, I present the philosophical position adopted in this dissertation.

4.1 Philosophical position

Several schools of thought are espoused in the field of social science about the philosophy of science. The commonest and widely applied philosophical positions are the *positivism*, *constructivism*, and *critical realism* (Sekaran & Bougie, 2019).

From a *positivist* perspective, scientific research is considered as the means to arrive at the truth. Accordingly, the positivist believe that an objective truth exists. In essence, the positivists consider that the world operates by laws of cause and effect that can be understood through the application of scientific approach to research. As a result, the greatest concern of a positivist in scientific research is with the rigor and replicability of the research, reliability of the findings, and how the research findings can be generalized (Sekaran & Bougie, 2019). Accordingly, the positivist researchers believe that the primary goal of research is to understand phenomena that can be directly observed and objectively measured. Thus, objectivity is a key strength while the lack of research context is the main weakness of the positivism philosophical position.

An entirely different approach to research and to the creation of scientific knowledge is *constructivism*. Indeed, the constructivists have strongly criticized the positivist view that there exists an objective truth. Rather, they believe that the goal of research should be to understand the rules people apply to make sense of the world by studying what happens in people's minds. Therefore, constructivism emphasizes how people construct knowledge. As a result, *qualitative* research is the key methodological approach. Moreover, research context is an important element which results in less objectivity and ability to generalize the research findings (Sekaran & Bougie, 2019).

Critical realism lies between the foregoing two opposing philosophical views. It is a combination of the positivist's view that there is an objective truth and the constructivist's position that this truth cannot be objectively measured. Essentially, the critical realist is very critical of the researchers' ability to make sense of the world with certainty. Therefore, the realist believes that while it is impossible to reach an objective truth, the aim of research should be to progress towards it rather than attempting to uncover any objective truth. As such, the critical realists suggest that the essential methodological approach to conducting scientific research should be *triangulation* as a means to overcome the notable flaws of single research methods (Sekaran & Bougie, 2019).

The three major philosophical positions as discussed above are generally applied in business and management studies. However, most archival accounting and audit research

are typically dominated by the positivist philosophical position due to the emphasis on the analysis of numbers and hypothesis testing (C. R. Baker, 2011; Bisman, 2010). Although the positivist paradigm has its own limitations such as its extreme emphasis on the existence of absolute truth independent of the researcher, it is the most suitable and dominant paradigm for archival studies as the aim is to explain the relationships between a given set of variables. As such, the positivist philosophical position is adopted in this dissertation.

4.2 Context and data sources

The three studies included in the dissertation are archival in nature and rely on secondary data from different jurisdictions. The first study is an international analysis of the auditor choices of companies operating in several developing countries. A major reason for the lack of auditor choice studies in developing markets is the absence of reliable data. To overcome this challenge, study one employed an international sample of 452 microfinance institutions from 74 developing countries over the period 2000 to 2016. The dataset is constructed using the rating reports of five of the largest rating agencies in the microfinance field, i.e., Planet Rating, MicroRate, M-CRIL, CRISIL, and Microfinanza. The rating reports utilized were either hand-collected from the official websites of the rating agencies or www.ratingfund2.org. All the rating reports are obtained from rating agencies approved by the Rating Fund of the Consultative Group to Assist the Poor (C-CAP), which is the microfinance branch of the World Bank Group (Zamore, 2018). The dataset used is an updated version of an earlier version applied in several published articles in the field of microfinance (Beisland, Mersland, & Strøm, 2015; Djan & Mersland, 2021; Mersland, Randøy, & Strøm, 2011). To include the effects of country-specific factors, data from the World Bank's Worldwide Governance databases are incorporated into the dataset.

Both study two and three used data on companies publicly trading on the Oslo Stock Exchange and focus on ISA 701: *Communicating key audit matters in the independent auditor's report*. Due to the adoption of the EU regulations and directives, the accounting and audit environment in Norway is similar to other member states (Sormunen, Jeppesen, Sundgren, & Svanström, 2013). The implementation of ISA 701 from the fiscal years ended December 2016 was expected to provide users with more relevant entity-specific information (Sierra-García et al., 2019). As such, auditors of listed companies are required to disclose significant issues encountered during the audit as key audit matters. For the

analysis of the influence of auditor specialization and audit committee independence on key audit matters (study two), a panel data of 441 observations is obtained from 147 listed companies. This constitutes about 70% of the companies listed on the Oslo Stock Exchange over the period 2016 to 2018. In the case of study three in which the association between auditor changes and attributes of key audit matters is examined, a panel data was obtained from 113 companies yielding 452 observations for the period 2016 to 2019.

4.3 Analytical approaches

All three studies in the dissertation are based on panel data estimation techniques. Specifically, the logistic regression techniques are applied in the analysis of the auditor choices of companies in study one. In study two, random effects and Poisson regression models are applied to analyze the influence of auditor industry specialization and audit committee independence on the number of disclosed key audit matters in the audit reports. Finally, the random effects regression model is applied in study three to examine the association between auditor changes and attributes of key audit matters – the number of KAMs disclosed, details included, and level of readability. All the three studies that make up this dissertation are archival in nature. Accordingly, the use of panel data estimation techniques is consistent with the argument that such approaches are suitable for accounting analysis as they permit the researcher to mitigate the effects of potential endogeneity bias (Nikolaev & Van Lent, 2005).

5. Summary of the studies

The first essay: *Firm Ownership and Auditor Choice: Insights from Microfinance Institutions in developing countries* is an archival analysis of the auditor choices of MFIs to provide some understanding on how governance, ownership structures in particular, influence auditor choice in developing countries. The findings revealed that, compared to member-owned MFIs (COOPs), shareholder-owned (SHFs) and non-governmental organizations-owned (NGOs) MFIs are more likely to appoint a Big 4 firm, perceived as a high-quality auditor, to resolve agency problems and signal their commitment to credible financial reporting. This suggests that when stakeholders, in particular owners, are not in position to directly and actively monitor the affairs of MFIs in which they invest, the demand for high-quality third-party monitoring agents, such as external auditors, is stronger. Further analysis shows that, compared to COOPs, the likelihood to appoint a

perceived high-quality auditor by SHFs and NGOs is strengthened as the macro-level institutions improve. It suggests that stronger institutions are necessary to complement and incentivize the efforts of stakeholders towards improving financial reporting credibility in the context of developing countries. The study concludes that the auditor choice of companies in developing countries is affected by governance factors, especially ownership structures and tend to differ based on the extent of agency problems being faced by owners.

The second essay: *Auditor Specialization, Audit Committee Independence and Key Audit Matters,* focuses on new disclosures in the audit report and examines how key audit matter disclosures are associated with auditor industry specialization and audit committee independence. Based on a sample of Norwegian listed companies, the results show that industry specialist auditors are associated with fewer KAMs while companies with more independent audit committees received audit reports that included a greater number of key audit matters. The implication is that auditors' client-industry expertise/knowledge and the level of audit committees' independence are associated with KAM reporting. Collectively, the findings could be of value to European regulators who adopted the disclosure of KAMs. Moreover, the findings provide further insights on the implications of regulatory decisions as regulators have introduced new directives on the composition of audit committees of public companies. The conclusion is that auditor-client characteristics, specifically auditor industry expertise and greater audit committee's independence are important determinants of the disclosures included in the audit reports.

The final study: *Auditor Changes and Key Audit Matters* explores whether and how auditor changes are associated with several attributes of key audit matters – the number, details included, and readability. The findings suggest that the number of KAMs and their readability did not change when a new audit firm took over but there was a positive impact on the level of details disclosed. Audit partner changes were associated with fewer KAMs. However, KAMs identified included more details and were more readable. Overall, the study provides new insights into auditor changes and shows that implications of audit firm changes and partner changes are not uniform and should be taken into consideration when standards requiring these changes are considered. Accordingly, the findings are of potential importance to audit regulators and auditors as they continue to implement projects towards improving the communicative value of the audit report. Accordingly, the study concludes that the effects of auditor changes on audit outcomes, particularly those related to KAMs are to be found among individual audit partners instead of at the audit firm level.

References

Abbott, L. J., & Parker, S. (2000). Auditor selection and audit committee characteristics. *Auditing: A Journal of Practice & Theory, 19*(2), 47-66.

Abdelfattah, T., Elmahgoub, M., & Elamer, A. A. (2020). Female audit partners and extended audit reporting: UK evidence. *Journal of Business Ethics*, 1-21.

Baker, C. R. (2011). A genealogical history of positivist and critical accounting research. *Accounting History, 16*(2), 207-221.

Baker, R., & Rennie, M. D. (2006). Forces Leading to the Adoption of Accrual Accounting by the Canadian Federal Government: An Institutional Perspective*/Les forces ayant mené l'administration fédérale canadienne à adopter la comptabilité d'exercice: une perspective institutionnelle. *Canadian Accounting Perspectives, 5*(1), 83-112.

Beisland, L. A., Mersland, R., & Strøm, R. Ø. (2015). Audit quality and corporate governance: evidence from the microfinance industry. *International Journal of Auditing, 19*(3), 218-237.

Bewley, K., Chung, J., & McCracken, S. (2008). An examination of auditor choice using evidence from Andersen's demise. *International Journal of Auditing, 12*(2), 89-110.

Bisman, J. (2010). Postpositivism and accounting research: A (personal) primer on critical realism. *Australasian Accounting, Business, & Finance Journal, 4*(4), 3-25.

Brown, S. V., & Knechel, W. R. (2016). Auditor–client compatibility and audit firm selection. *Journal of Accounting Research, 54*(3), 725-775.

Church, B. K., Davis, S. M., & McCracken, S. A. (2008). The auditor's reporting model: A literature overview and research synthesis. *Accounting Horizons, 22*(1), 69-90.

Connelly, B. L., Certo, S. T., Ireland, R. D., & Reutzel, C. R. (2011). Signaling theory: A review and assessment. *Journal of Management, 37*(1), 39-67.

Corten, M., Steijvers, T., & Lybaert, N. (2017). The effect of intrafamily agency conflicts on audit demand in private family firms: The moderating role of the board of directors. *Journal of Family Business Strategy, 8*(1), 13-28.

DeAngelo, L. E. (1981). Auditor independence,'low balling', and disclosure regulation. *Journal of Accounting and Economics, 3*(2), 113-127.

DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 147-160.

Djan, K. O., & Mersland, R. (2021). Are NGOs and cooperatives similar or different? A global survey using microfinance data. *Journal of Management and Governance*, 1-43.

Ferguson, A., Francis, J. R., & Stokes, D. J. (2003). The effects of firm-wide and office-level industry expertise on audit pricing. *The Accounting Review, 78*(2), 429-448.

Francis, J. R., Reichelt, K., & Wang, D. (2005). The pricing of national and city-specific reputations for industry expertise in the US audit market. *The Accounting Review, 80*(1), 113-136.

Gold, A., Heilmann, M., Pott, C., & Rematzki, J. (2020). Do key audit matters impact financial reporting behavior? *International Journal of Auditing, 24*(2), 232-244.

Gutierrez, E., Minutti-Meza, M., Tatum, K. W., & Vulcheva, M. (2018). Consequences of adopting an expanded auditor's report in the United Kingdom. *Review of Accounting Studies, 23*(4), 1543-1587.

Habib, A., Wu, J., Bhuiyan, M. B. U., & Sun, X. (2019). Determinants of auditor choice: Review of the empirical literature. *International Journal of Auditing, 23*(2), 308-335.

Huang, T.-C., Chang, H., & Chiou, J.-R. (2016). Audit market concentration, audit fees, and audit quality: Evidence from China. *Auditing: A Journal of Practice & Theory, 35*(2), 121-145.

IAASB. (2015). International Standard on Auditing 701: Communicating Key Audit Matters in the Independent Auditor's Report.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics, 3*(4), 305-360.

Kang, F. (2014). Founding family ownership and the selection of industry specialist auditors. *Accounting Horizons, 28*(2), 261-276.

Kirmani, A., & Rao, A. R. (2000). No pain, no gain: A critical review of the literature on signaling unobservable product quality. *Journal of Marketing, 64*(2), 66-79.

Kitching, K. (2009). Audit value and charitable organizations. *Journal of Accounting and Public Policy, 28*(6), 510-524.

Lennox, C. S. (2005). Management ownership and audit firm size. *Contemporary Accounting Research, 22*(1), 205-227.

Mersland, R., Randøy, T., & Strøm, R. Ø. (2011). The impact of international influence on microbanks' performance: A global survey. *International Business Review, 20*(2), 163-176.

Mock, T. J., Bédard, J., Coram, P. J., Davis, S. M., Espahbodi, R., & Warne, R. C. (2013). The audit reporting model: Current research synthesis and implications. *Auditing: A Journal of Practice & Theory, 32*(Supplement 1), 323-351.

Moroney, R., Phang, S.-Y., & Xiao, X. (2021). When do investors value key audit matters? *European Accounting Review, 30*(1), 63-82.

Nikolaev, V., & Van Lent, L. (2005). The endogeneity bias in the relation between cost-of-debt capital and corporate disclosure policy. *European Accounting Review, 14*(4), 677-724.

PCAOB. (2017). The Auditor's Report on an Audit of Financial Statements when the Auditor Expresses an Unqualified Opinion and Related Amendments to PCAOB Standards.

Pinto, I., & Morais, A. I. (2019). What matters in disclosures of key audit matters: Evidence from Europe. *Journal of International Financial Management & Accounting, 30*(2), 145-162.

Quick, R., Turley, S., & Willekens, M. (2008). *Auditing, trust and governance*: Routledge.

Reid, L. C., Carcello, J. V., Li, C., & Neal, T. L. (2015). Impact of auditor and audit committee report changes on audit quality and costs: Evidence from the United Kingdom. *Contemporary Accounting Research, 36*(3), 1501-1539.

Ross, S. A. (1973). The economic theory of agency: The principal's problem. *The American Economic Review, 63*(2), 134-139.

Sekaran, U., & Bougie, R. (2019). *Research methods for business: A skill building approach*: john wiley & sons.

Shan, Y. G., Troshani, I., & Tarca, A. (2019). Managerial ownership, audit firm size, and audit fees: Australian evidence. *Journal of International Accounting, Auditing and Taxation, 35*, 18-36.

Sierra-García, L., Gambetta, N., García-Benau, M. A., & Orta-Pérez, M. (2019). Understanding the determinants of the magnitude of entity-level risk and account-level risk key audit matters: The case of the United Kingdom. *The British Accounting Review, 51*(3), 227-240.

Sirois, L.-P., Bédard, J., & Bera, P. (2018). The informational value of key audit matters in the auditor's report: Evidence from an eye-tracking study. *Accounting Horizons, 32*(2), 141-162.

Sormunen, N., Jeppesen, K. K., Sundgren, S., & Svanström, T. (2013). Harmonisation of Audit Practice: Empirical Evidence from Going-Concern Reporting in the N ordic Countries. *International Journal of Auditing, 17*(3), 308-326.

Spence, M. (1973). Job market signaling the quarterly journal of economics, 87 (3). *MIT Press, August, 355*, 374.

Thomsen, S., & Conyon, M. (2012). *Corporate Governance 1e*: McGraw Hill.

Watson, D., & Head, A. (2010). *Corporate finance: principles and practice*: Pearson Education.

Wu, C. Y.-H., Hsu, H.-H., & Haslam, J. (2016). Audit committees, non-audit services, and auditor reporting decisions prior to failure. *The British Accounting Review, 48*(2), 240-256.

Zamore, S. (2018). Should microfinance institutions diversify or focus? A global analysis. *Research in International Business and Finance, 46*, 105-119.

Study 1: Firm Ownership and Auditor Choice: Insights from Microfinance Institutions in Developing Countries

Firm Ownership and Auditor Choice: Insights from Microfinance Institutions in developing countries[1]

Gordon Mwintome
gordon.mwintome@uia.no
Roy Mersland
roy.mersland@uia.no
Samuel Anokye Nyarko
s.nyarko@montpellier-bs.com

Abstract

In this paper, we examine the relationship between firm ownership structure and external auditor choice of firms in developing countries and also analyze the moderating effect of the strength of country-level institutions. We utilize data from microfinance institutions (MFIs) which are social enterprises that provide banking services to low-income families and micro-enterprises in developing countries. We contrast between non-governmental organizations (NGOs) and shareholder-owned (SHFs) MFIs on the one hand and member-owned cooperatives (COOPs) on the other hand. We contend that due to the degree of dispersion of ownership, the former is associated with severe agency problems and is more likely to hire a perceived high-quality auditor than the latter. We also predicted that the results will be more pronounced in stronger institutional settings. Confirming our hypotheses, the findings show that compared to COOPs, SHFs and NGOs are more likely to hire a Big 4 auditor for the purposes of resolving agency problems and to signal their commitment to credible financial reporting. We also find that, compared to COOPs, the likelihood to hire a Big 4 auditor by SHFs and NGOs is reinforced as the country-level institutions develop. We discuss these findings and open avenues for future research.

Keywords: *ownership structures, institutional factors, auditor choice, Big 4*
JEL Classification : M40; M41; M42; G20; G21

[1] **Acknowledgements**
We thank participants of the American Accounting Association International Accounting Section Midyear Meeting, January 28–30, 2021, participants of the European Accounting Association 43RD Annual Congress – Virtual, May 26 - 28, 2021, and participants of the World Finance Conference – Virtual, August 03 - 06, 2021 for their insightful comments.

1. Introduction

In this paper, we examine the relationship between firm ownership structure and auditor choice in the high-information asymmetry context of developing countries. Further, we investigate whether this relationship varies with the strength of country-level institutional factors. In the auditing literature, it is well established that firm ownership structure affects auditor choice (Habib, Wu, Bhuiyan, & Sun, 2019; He, Rui, Zheng, & Zhu, 2014; Hope, Langli, & Thomas, 2012; Kim, Pevzner, & Xin, 2019; Lennox, 2005). Moreover, it is shown that firms' choice of external auditor is impacted by macro-level institutional factors (Sarhan, Ntim, & Al-Najjar, 2019; Wang, Wong, & Xia, 2008). A drawback, however, of existing research is over-reliance on data of firms in high-income countries with strong institutional systems (Huang, Chang, & Chiou, 2016; Velte & Stiglbauer, 2012). The emerging market context is less examined, despite the institutional peculiarity of this context and growing importance of firms therein.

Several firm ownership structures are typically used, but each of them is associated with distinct features and varying levels of risk of agency problems. Previous research suggests that some ownership structures are typically embedded in agency problems (Fan & Wong, 2005; Ho & Kang, 2013; Lennox, 2005). When faced with agency problems, rational owners tend to introduce monitoring mechanisms in an attempt to mitigate the related agency conflicts (Corten, Steijvers, & Lybaert, 2017; Fan & Wong, 2005). In general, agency theory considers external auditing (particularly, high-quality) as one of the effective governance mechanisms to mitigate agency conflicts (Corten et al., 2017; Fan & Wong, 2005; Hope et al., 2012; Lennox, 2005). The context of developing countries is associated with high-information asymmetry which potentially exacerbates the agency problems embedded in firm ownership structures. As firm auditor choice decisions are typically affected by the level of agency problems (Lennox, 2005), it is more compelling to examine the relationship between firm ownership structures and auditor choice in the context of developing countries.

It has been established that country-level institutional factors significantly influence the information environment of countries (Houqe, Monem, & van Zijl, 2012) and also tend to affect the auditing needs of private firms (Sarhan et al., 2019). As such, we extend our analysis to include the moderating effect of country-level institutional factors. Moreover, in contrast to the situation in developed countries, the audit markets in developing countries are less concentrated and characterized by many small-size audit firms, a situation that increases firms' choice of audit service suppliers (Huang et al., 2016). Also, evidence suggests that different country-level institutional factors including legal systems, national culture, political connections, among others affect firm-level auditor choice internationally (Habib et al., 2019).

A key reason for the limited auditor choice studies in the developing countries can be attributed to the lack of reliable international dataset. Thus, we provide some insights on firm-level auditor choice by inferring from microfinance institutions (MFIs) which usually operate in developing countries. MFIs are unconventional financial institutions that provide banking services to economically poor families and micro-enterprises (Servin, Lensink, & Van den Berg, 2012). An advantage of utilizing data from the microfinance

industry is that MFIs typically deploy different ownership structures such as shareholder-owned firms (SHFs), non-governmental organizations (NGOs), and member-owned organizations (COOPs) (Mersland, 2009). These ownership structures are associated with different levels of agency concerns which affect monitoring needs differently (Servin et al., 2012). For instance, because owners of COOPs actively participate in daily operations, the issue of information asymmetry is less severe. The agency problems among COOPs are thus similar to those of family firms which are shown to have less demand for high-quality external auditors (Ho & Kang, 2013). In contrast, both SHFs and NGOs are associated with dispersed owners (Fama & Jensen, 1983; Mersland, 2009), a situation that exposes them to severe agency problems due to the separation of ownership and control as is the case of public firms. As MFIs deploy varied ownership structures (Djan & Mersland, 2021) and compete in the same markets (Mersland, 2009), there is a unique opportunity to analyze the relation between ownership structure and auditor choice.

Donor grants, government subsidies, and debt capital are among the primary sources of funding for MFIs' activities (Fehr & Hishigsuren, 2006). Thus, MFIs compete for these resources (Mersland, 2009). Empirical evidence shows that donors tend to favor charitable organizations that are audited by high-quality audit firms (Kitching, 2009). All else equal, it seems reasonable to expect that MFIs desirous of winning the competition for funding are likely to hire perceived high-quality auditors. Big 4 audit firms are generally reputed as providers of better audit quality compared to non-Big 4 audit firms (Becker, DeFond, Jiambalvo, & Subramanyam, 1998; Che, Hope, & Langli, 2020). Hence, we proxy auditor choice with a binary variable set to one if an MFI is audited by one of the Big 4 audit firms – PwC, Deloitte, EY, and KPMG.

Our international MFI sample is made of 2,078 firm-year observations from 2000 to 2016. Drawing on the signaling, institutional, and agency theories, we find that compared to COOPs, SHFs and NGOs are more likely to appoint a Big 4 audit firm, perceived as high-quality auditors for the purposes of resolving agency problems and to strongly signal their commitment to credible financial reporting. This indicates that when the potential information asymmetry is severe, owners of SHFs and NGOs have greater incentives to strongly signal their external stakeholders about their commitment to credible reporting through the choice of a perceived high-quality auditor. Regarding the moderating role of country-level institutional factors, we find that, compared to COOPs, the likelihood to hire a perceived high-quality auditor by SHFs and NGOs is strengthened as the institutional factors develop.

Our study makes two major contributions to the international accounting and audit literature. First, to the best of our knowledge, this study is the first of its kind that examines the choice of audit service providers by unconventional firms such as MFIs. Accordingly, the paper provides some rare insights on the association between ownership structures and the monitoring practices of MFIs. In essence, the findings may be of interest to policy makers as Di Benedetta, Lieberman, and Ard (2015) suggest that while governance is essential for all firms, it remains one of the least-addressed concerns in the microfinance industry.

Second, this study directly responds to the recent call by Habib et al. (2019) for further auditor choice research to revisit the consequences of various firm ownership structures applying cross-country data and how this association is moderated by country-level factors. As such, we contribute to the limited research on auditor choice in the high-information asymmetry context of developing countries by jointly considering whether and how firm-level governance structures (i.e., ownership structures) and country-level institutional factors affect the auditor choice of private firms. Prior research has generally considered the impact of corporate governance structures and country-level institutional factors in isolation (Houqe et al., 2012; Mersland & Strøm, 2009), in single countries (Lin & Liu, 2009), and in selected developing countries (Fan & Wong, 2005; Sarhan et al., 2019). Different from the foregoing studies, we examine the influence of both aspects (i.e., firm- and country-level governance factors) simultaneously, employing an international sample in developing countries. In particular, we analyze the moderating role of country-level institutional factors on the relationship between ownership structures and auditor choice of MFIs.

The article proceeds as follows: Section 2 discusses the background, theoretical framework, and hypotheses development. Section 3 presents the research design while section 4 presents the results. In section 5, we discuss the results and conclude the article.

2. Institutional background, theory, and hypotheses

2.1. Institutional background

Audit markets in developing countries have more complex and unique structures compared to the situation in developed countries. For example, the audit profession in developing countries is usually under the direct control of central governments and the associated litigation risks for audit firms being very low (Barroso, Ben Ali, & Lesage, 2018; Samaha & Hegazy, 2010). As a result, audit firms in developing countries are mostly influenced by governments and at times, powerful families. Haniffa and Hudaib (2007) suggested that recruitment of staff by audit firms is influenced by the state and powerful families. Audit firms in some developing countries are even required to reserve a certain proportion of their hires for nationals only, thereby limiting the pool of available talents from which staff can be hired (Haniffa & Hudaib, 2007). Furthermore, the audit environments in developing countries often lack effective professional ethical codes to regulate the conduct of audit firms (Samaha & Hegazy, 2010).

Aside the above, audit markets in developing countries are typically characterized by two broad categories. These groupings are local or domestic audit firms and international or foreign audit firms (El-Dyasty & Elamer, 2020). The first category, local audit firm, includes many small-size audit firms that are unaffiliated with any international audit firm. The second category comprises international or foreign audit firms such as the Big 4 audit firms and second-tier international audit firms. This suggests that the audit markets in developing countries present clients with multiple choice of audit service suppliers.

As is the situation in developed countries, mandatory and voluntary audits are allowed in many developing countries for various types of businesses. While some business entities

are required to be audited, they have liberty to select audit firms of any level of service quality. Accordingly, clients tend to appoint audit firms on the basis of a vector of factors such as price, location, expertise, governance structures etc. to satisfy their peculiar auditing needs (Brown & Knechel, 2016). Fan and Wong (2005) found that in developing countries, specifically East Asia, firms with agency problems embedded in their ownership structures tend to appoint a Big 5 audit firm for mitigation purposes.

MFIs are required by local authorities and/or international donors and lenders to be audited, but they are often free to choose an auditor of any level of service quality. Extant literature suggests that high-quality auditing services boost investor confidence in financial reporting and consequently enhance fundraising prospects (Lin & Liu, 2009). Accordingly, high-quality auditing is considered vital for companies such as financial institutions that frequently engage in fund raising activities (Beisland, Mersland, & Strøm, 2015). As prior studies have shown that firms' demand for high-quality auditing services is related to their financing needs (Broye & Weill, 2008; Knechel, Niemi, & Sundgren, 2008), some MFIs tend to appoint perceived high-quality auditors such as the Big 4 audit firms. This is despite the notion that the Big 4 audit firms tend to charge premium auditing fees (Audousset-Coulier, 2015), and many MFIs experience financial challenges (Servin et al., 2012). This suggests that MFIs seem to accrue some net benefits from hiring perceived high-quality audit firms. Moreover, MFIs compete in the same industry employing different ownership structures which cause varying levels of agency problems. As auditor choice is affected by agency problems, it is insightful to analyze the choice of perceived high-quality audit firms among MFIs.

2.2. Theoretical framework

Previous studies have identified several theoretical perspectives that explain the demand for different types of auditors (Corten et al., 2017; Habib et al., 2019). The main ones include agency, signaling, and institutional theories. In the corporate governance literature, agency theory is the most widely applied theoretical foundation (Jensen & Meckling, 1976; Paniagua, Rivelles, & Sapena, 2018). According to this theory, the demand for auditing, and thus auditor choice, is driven by agency conflicts caused by the separation of ownership and control (Corten et al., 2017; Fama & Jensen, 1983; Fan & Wong, 2005). In particular, this theory considers auditing as one of the key devices that can mitigate agency conflicts (Lennox, 2005). Based on agency theory, several studies have confirmed that the demand for high-quality auditors is motivated by the level of agency conflicts (e.g., Ho & Kang, 2013; Hope et al., 2012; Lennox, 2005). MFIs typically use various ownership structures (Djan & Mersland, 2021), which give rise to differing levels of agency conflicts between owners and managers. As a result, our study is based on the agency theory propositions which consider the choice of high-quality auditors to be influenced by agency conflicts.

Signaling theory offers a complementary perspective in the audit literature. It aims to explain the issue of information asymmetry resulting from the situation where one party (e.g., management) has more information than other parties (e.g., investors) (Spence, 1973, 2002). As a result, this theory is widely applied in the context of imperfect markets typified by high information opacity to understand the actions of those with more information to

send signals to those with less (Connelly, Certo, Ireland, & Reutzel, 2011). Studies have shown that companies interested in signaling their commitment to credible financial reporting tend to select perceived high-quality auditors (Abbott & Parker, 2000; Kang, 2014). For firms, such as MFIs, which operate in markets with weak institutions, i.e., markets with large information asymmetry, the signaling theory should be of particular relevance.

Institutional theory recognizes a wide range of isomorphic pressures that shift firms towards certain decisions to obtain legitimacy (Baker & Rennie, 2006). DiMaggio and Powell (1983) identified three external pressures or institutional isomorphism including normative, mimetic, and coercive that firms respond to. In the field of accounting, Corten et al. (2017) used the institutional theory to study the auditor choice of firms and found that Big 4 auditors are hired by firms whose suppliers are being audited by such audit firms, confirming the isomorphism effect towards suppliers as suggested by the institutional theory. MFIs compete for donor funds and literature suggests that donors favor charitable organizations that are being audited by high-quality audit firms such as the Big 4 (Kitching, 2009). Accordingly, our examination draws on the institutional theory perspectives which recognizes isomorphic forces that drive firms towards certain types of audit firms to understand the auditor choice decisions of MFIs.

2.3. Ownership structures and auditor choice

Extant studies suggest that firm ownership structure is a relevant aspect of agency theory (Corten et al., 2017; Lennox, 2005). More specifically, many studies on audit demand that are based on agency theory typically apply firm ownership structure as proxies for agency problems and then explore the linkage, if any, between diverse ownership structures and firms' auditor choices (He et al., 2014; Hope et al., 2012; Kang, 2014).

Starting with management ownerships, Lennox (2005) examine unlisted UK firms and find a highly nonlinear relation between management ownership and audit firm size. The relationship between family ownership and auditor choice has also been broadly studied, but the evidence is largely mixed (Habib et al., 2019). Family firms have greater tendency to appoint high-quality audit firms to signal their willingness and commitment to credible financial reporting as they are alleged to be capable of extracting private benefits against minority owners (Anderson, Mansi, & Reeb, 2003). Similarly, Hope et al. (2012) examine a sample of Norwegian firms and find that family-owned firms have more penchant to hire a Big 4 auditor when the level of family ownership concentration reduces. Further, Kang (2014) find that family firms compared to nonfamily firms are more likely to hire industry specialized auditors. Alternative evidence suggests that in the absence of any strong outside stakeholder, family firms have less demand for high-quality auditors (AL-Qadasi, Abidin, & Al-Jaifi, 2019; Ho & Kang, 2013; Hsu, Troy, & Huang, 2015).

Studies have also considered the impact of institutional and foreign firm ownerships on auditor choice. Bushee (1998) argue that institutional and foreign owners are complex and tend to demand that their managers appoint high quality auditors. Kim et al. (2019) examine the impact of foreign institutional owners on auditor choice in an international context and conclude that Big 4 auditors are likely to be appointed when the level of foreign

institutional ownership is high. Similar evidence is provided by Karim and van Zijl (2013) in Bangladesh and Ben-Hassoun, Aloui, and Ben-Nasr (2018) in the Middle East and North Africa (MENA) region. Using a sample of privatized firms, Guedhami, Pittman, and Saffar (2009) find that a Big 4 auditor is most likely to be appointed under conditions of increasing level of foreign ownership.

All the above related studies on auditor choice are based on the ownership structures of samples from conventional firms. Like banks in developed countries MFIs are registered with different ownership structures, i.e., COOPs, NGOs and SHFs. COOPs are typically owned by members who make strategic decisions and participate in the daily operations (Liñares-Zegarra & Wilson, 2018). As members of COOPs often participate in the daily duties, they are exposed to less separation of ownership and control, hence the issue of information asymmetry between owners and managers is alleviated. Agency theory and literature suggest that the demand for high-quality auditors is driven by agency problems (Lennox, 2005). Therefore, the members of COOPs may possess less economic incentives to demand that managers appoint high-quality auditors and thus, merely comply with the regulatory requirement to be audited by appointing less costly and (probably) lower-quality auditors. Further, since COOPs are mainly funded by deposits from members and less from donors and lenders (Mersland, 2009), and as COOPs do not include external stakeholders in their ownership structure, there are less agency problems and less signaling needs from hiring high-quality auditors. Hence, COOPs serve as our base case when comparing with NGOs and SHFs which are ownership structures with larger agency problems and signaling needs. We explain this further in the following.

MFIs registered as NGOs are typically without explicit legal owners (Mersland, 2009; Périlleux, Hudon, & Bloy, 2012). As a result, the use of NGOs resources often depends, to a large extent, on the commitment of managers. Moreover, Barry and Tacneng (2014) assert that unlike COOPs, NGOs are often associated with geographically distant grant providers, which tend to trigger lax management practices. Many NGOs are suggested to be associated with ineffective governance structures (Jansson, Rosales, & Westley, 2004; Mersland, 2009). From the lens of agency theory, we argue that NGOs, in comparison with COOPs, may be more exposed to agency problems. By the same token, NGOs face a higher need to improve the transparency of their financial disclosures to signal the credibility of those disclosures to stakeholders such as donors. To achieve these, NGOs are more likely than COOPs to appoint a perceived high-quality auditor. The impetus to signal credible financial reporting stems from the fact that donors – on whom NGOs depend (Mersland, 2009) – tend to prefer charitable organizations with high-quality auditors (Kitching, 2009). Moreover, institutional theory suggests that firms respond to external forces which affect their choices (Habib et al., 2019). We expect that NGOs are likely to be influenced by their peers that are audited by perceived high-quality auditors to also appoint such auditors to enhance access to donor funding. Based on the foregoing discussions, we expect that stakeholders of NGOs in comparison to members of COOPs may have greater economic incentives to demand high-quality auditing which may lead to the choice of a perceived high-quality auditor.

Shareholder-owned MFIs (SHFs) are typically owned by diversified owners and have several other stakeholders including international investors (Mersland, Randøy, & Strøm, 2011). Thus, compared to COOPs, they may be more exposed to agency problems due to the separation of ownership and control (Barry & Tacneng, 2014). Consequently, owners of SHFs may possess greater economic demand than those of COOPs for high-quality auditors to safeguard their interests by effectively checking and deterring managers from engaging in opportunistic activities. More so, the fact that SHFs tend to be associated with several external owners and operate in high-information asymmetry locations such as developing countries may push them to take actions which include appointing perceived high-quality auditors to send strong signals of their level of financial transparency. Based on the agency and signaling theories, we contend that owners of SHFs compared to those of COOPs may be more associated with agency problems as well as have signaling needs to their external stakeholders. As such, we expect that owners of SHFs compared to members of COOPs may have greater demands for high-quality auditing which may lead to the choice of perceived high-quality auditors. In light of the above discussions on the three types of MFIs ownership structures, we propose our first hypothesis as follows:

H1: *Shareholder-owned (SHFs) and non-governmental owned (NGOs) MFIs are more likely to hire a perceived high-quality auditor than MFIs registered as cooperatives (COOPs).*

2.4. The role of institutional factors on auditor choice

Country-level institutional factors refer to the national institutional factors and structures that reflect how authority is exercised in order to regulate the social and economic relations among governing bodies, individuals, and businesses (Zahra, 2014). Specifically, the institutional factors embody the specific regulations and structures of a country that provide the framework within which companies operate. Accordingly, the level of quality and effectiveness of the institutional factors can affect the economic activities and results of private firms (Aguilera & Jackson, 2003; Bonetti, Magnan, & Parbonetti, 2016). As a result countries exercise regulatory power to create an enabling environment within which the interests of investors and other stakeholders can be protected (Ioannou & Serafeim, 2012). It follows that in countries where the institutional factors are functioning properly, managers of firms will have greater incentives to establish stronger internal monitoring systems. These systems may involve building effective corporate governance structures which include hiring a high-quality external auditor (Gul, Zhou, & Zhu, 2013).

An extensive strand of literature suggests a growing awareness that firm-level decisions including auditor choice are affected by country-level institutional factors (Habib et al., 2019; Houqe et al., 2012; Kim et al., 2019). In particular, the prevailing evidence has established that firm-level auditor choices are influenced by the strength of political connections, legal environment, and national culture (Habib et al., 2019). Houqe et al. (2012) find that more developed legal environments positively affect the likelihood of firms hiring a Big 4 auditor. The evidence is mixed on politically connected firms. On one hand, Big 4 audit firms are likely to be appointed by politically connected firms than their

unconnected peers. These results are pronounced for firms located in countries with weak institutional structures and those with concentrated ownership structures (Guedhami, Pittman, & Saffar, 2014). On the other hand, signaling through the selection of Big 4 auditors may become less relevant for politically connected firms as they may be shielded from regulatory and investor scrutiny. Both Cheng, Hsu, and Kung (2015) and Habib, Muhammadi, and Jiang (2017) in China and Indonesia, respectively, confirm this alternative view by finding that non-Big 4 auditors are likely to be hired by politically connected firms. Regarding the effects of other institutional factors on auditor choice, Hope, Kang, Thomas, and Yoo (2008) used a cultural dimension to examine firm-level auditor choice and find that Big N auditors are less likely to be appointed by firms operating in secretive countries.

In the context of the previous evidence, it can be expected that SHFs and NGOs will be more likely to appoint a Big 4 auditor in better institutional contexts in response to regulatory demands as quality institutions can call for high quality audits. This expectation concurs with the findings which show that effective country-level factors improve the information environment of countries which in turn influences the demand for high-quality information, and thus increased demand for high-quality auditors by private firms (Houqe et al., 2012). Furthermore, institutional theory suggests that firms respond to pressures from their environment to take specific actions (Baker & Rennie, 2006). We thus anticipate that stakeholders of SHFs and NGOs compared to members of COOPs who are mostly local will more likely respond to regulatory pressure to improve financial reporting. Thus, viewing through the lens of institutional and signaling theories, we suggest that SHFs and NGOs compared to COOPs will be more driven towards perceived high-quality auditors such as the Big 4 audit firms when they are domiciled in countries associated with relatively better institutional factors. Accordingly, we state our second hypothesis as follows:

H2: *Shareholder-owned (SHFs) and non-governmental owned (NGOs) MFIs, compared to COOP-MFIs are more likely to hire a perceived high-quality auditor as the country-specific institutional factors get better*.

3. Research design

3.1 Sample and data sources

Our analysis is performed on a sample of 452 microfinance institutions over a period of 17 years (2000 – 2016). This is a global sample of MFIs located in 74 developing countries as displayed in Table 1. We manually extracted data from the rating assessment reports of the sampled MFIs issued by specialized microfinance rating agencies, which include Planet Rating, MicroRate, M-CRIL, CRISIL, and Microfinanza. These rating agencies were the largest in the microfinance field during the timespan of the dataset and they were all originally approved by the Rating Fund of the Consultative Group to Assist the Poor (C-GAP), the microfinance branch of the World Bank Group. Though the rating reports differ in detail, each provides financial and non-financial data needed for this study. There is no perfectly representative global dataset for MFIs. The advantages of the rating dataset are

that the data is verified by a third party (the rating agency) and that MFIs seek to be rated when aiming for long term sustainability and operating with more external stakeholders (Beisland, Mersland, & Randøy, 2014). For our study, this is important since we apply agency theory and signaling theory when framing up our research. Following Beisland et al. (2015) who used former versions of this dataset, we applied an updated version of the dataset in our investigations.

Regarding data for the country-level institutional factors, we used the governance data from the World-Wide Governance Indicators (WGI) project of the World Bank Group. This project uses six standardized governance indicator variables to capture differences in governance quality across countries over time (Kaufmann, Kraay, & Mastruzzi, 2010). These governance indicators have been widely applied in recent related studies (Li, Ng, Tsang, & Urcan, 2019; Sarhan et al., 2019). Following prior studies, we computed an index from the six standardized governance indicators to proxy the strength of the country-level institutional factors within which MFIs operate.

3.2 Dependent variables

Our study mainly seeks to test the need for perceived high-quality audits rather than actual audit quality in the context of developing countries. Therefore, we consider the choice of a Big 4 audit firm as a manifestation of strong desire for perceived high-quality auditors. This reasoning concurs with the notion that the Big 4 auditor choice in developing countries is a strong differentiating signal compared to the context of developed countries. In fact, Francis, Khurana, and Pereira (2003) show that the Big 4 (then Big 5) audit firms control only a smaller fraction of the audit markets in developing countries and Fan and Wong (2005) report that a Big 4 audit firm is hired by clients in developing countries as a sign of commitment to credible financial reporting. Big 4 audit firms are commonly employed as a proxy for audit quality (Lin & Liu, 2009; Sarhan et al., 2019). Compared to the non-Big 4 audit firms, Big 4 auditors possess more resources, global reach, and technical knowledge that permit them to appraise their clients more objectively. Therefore, Big 4 auditors are expected to provide audits of better quality than smaller auditors (Becker et al., 1998; Che et al., 2020). Moreover, Boone, Khurana, and Raman (2010) and Karjalainen (2011) find that the Big 4 auditors are still perceived as providers of relatively superior audit quality. As a result, we measure MFIs' desire for perceived high-quality audits with Big 4 auditors. We used a dichotomous variable (*BIG4*) that takes the value of 1 if any of the Big 4 audit firms (i.e., KPMG, PwC, Deloitte or EY) is appointed, and 0 otherwise.

Table 1: Distribution of sample characteristics by country

SN	Country	*N*	MFIs	BIG4	SHFs	NGOs	COOPs	SN	Country	*N*	MFIs	BIG4	SHFs	NGOs	COOPs
1	Afghanistan	6	2	66.67	100	0	0	**38**	Kenya	65	13	13.04	60	40	0
2	Albania	14	3	85.71	78.57	21.43	0	**39**	Kyrgyz Republic	42	9	52.31	71.43	14.29	14.29
3	Angola	3	1	100	100	0	0	**40**	Lebanon	9	2	23.81	44.44	55.56	0
4	Armenia	11	2	9.09	100	0	0	**41**	Madagascar	8	3	100	50	0	50
5	Azerbaijan	56	9	7.14	78.57	0	21.43	**42**	Malawi	4	1	0	100	0	0
6	Benin	23	4	0	21.74	78.26	0	**43**	Mali	30	8	100	0	36.67	63.33
7	Bolivia	115	16	49.57	12.17	87.83	0	**44**	Mexico	98	19	0	50	39.8	10.2
8	Bosnia and Herzegovina	60	11	83.33	6.67	93.33	0	**45**	Moldova	5	1	40.82	100	0	0
9	Brazil	68	15	0	5.88	60.29	33.82	**46**	Mongolia	13	3	100	100	0	0
10	Bulgaria	12	2	0	58.33	0	41.67	**47**	Montenegro	10	2	46.15	60	40	0
11	Burkina Faso	24	6	12.5	29.17	33.33	37.5	**48**	Morocco	37	6	60	0	100	0
12	Burundi	19	5	0	15.79	0	84.21	**49**	Mozambique	11	1	72.97	100	0	0
13	Cambodia	75	13	66.67	93.33	0	6.67	**50**	Nicaragua	66	11	45.45	21.21	69.7	9.09
14	Cameroon	5	1	100	40	0	60	**51**	Niger	26	6	57.58	34.62	19.23	46.15
15	Chad	13	3	0	30.77	0	69.23	**52**	Nigeria	28	4	0	28.57	71.43	0
16	Chile	6	2	50	50	0	50	**53**	Pakistan	4	1	42.86	0	0	100
17	China	12	4	0	91.67	8.33	0	**54**	Palestine	16	3	0	0	100	0
18	Colombia	41	7	41.46	0	97.56	2.44	**55**	Panama	2	1	25	100	0	0
19	Comoros	4	1	0	0	0	100	**56**	Paraguay	5	1	0	0	100	0
20	Costa Rica	11	2	0	0	100	0	**57**	Peru	94	17	100	22.34	63.83	13.83
21	Dominican Republic	16	3	0	18.75	81.25	0	**58**	Philippines	82	16	0	9.76	70.73	19.51
22	Ecuador	124	18	3.23	0	58.06	41.94	**59**	Romania	37	5	7.32	97.3	2.7	0
23	Egypt	31	5	0	0	100	0	**60**	Rwanda	39	10	86.49	48.72	0	51.28
24	El Salvador	20	4	15	70	30	0	**61**	Senegal	41	8	2.56	21.95	0	78.05
25	Ethiopia	51	6	0	100	0	0	**62**	Serbia	6	2	0	33.33	66.67	0
26	Gambia	4	1	0	100	100	0	**63**	Sierra Leone	4	1	0	0	100	0
27	Georgia	37	4	0	59.46	40.54	0	**64**	South Africa	10	2	0	60	40	0
28	Ghana	17	4	59.46	0	100	0	**65**	South Sudan	2	1	40	0	100	0
29	Guatemala	23	5	23.53	100	100	0	**66**	Sri Lanka	4	1	0	100	0	0
30	Guinea	12	2	0	75	25	0	**67**	Tajikistan	32	9	100	59.38	31.25	9.38
31	Haiti	14	2	58.33	7.14	71.43	21.43	**68**	Tanzania	28	5	34.38	100	0	0
32	Honduras	73	13	0	30.14	30.14	39.73	**69**	Togo	24	5	28.57	16.67	33.33	50
33	India	23	8	27.4	0	91.3	8.7	**70**	Tunisia	11	1	0	0	100	0
34	Indonesia	6	2	0	0	0	100	**71**	Uganda	75	15	24	44	21.33	34.67
35	Iraq	3	1	0	100	0	0	**72**	Vietnam	9	2	0	0	33.33	66.67
36	Jordan	24	3	0	100	0	0	**73**	Yemen	5	1	0	0	100	0
37	Kazakhstan	23	6	29.17	100	0	0	**74**	Zambia	17	3	23.53	82.35	0	17.65

Note: *This table shows the country distribution of company-year observations of the sample. BIG4 represents the Big 4 audit firm concentration while SHFs, NGOs, and COOPs are the means of MFIs' ownership.*

To ensure robustness of our analyzes, we also used an alternative dependent variable to proxy perceived high-quality auditors. While the Big 4 auditor choice in developing countries indicates a preference for high-quality audits (Fan & Wong, 2005), MFIs' preference to be audited by such auditors may be constrained by high audit fees. As such, we considered the choice of second-tier international audit firms as a manifestation of a strong desire to be audited by a high-quality auditor as Boone et al. (2010) observed little difference in actual audit quality between the second-tier and the Big 4 audit firms. Following prior studies (Hogan & Martin, 2009; Kurniawati, Van Cauwenberge, & Vander Bauwhede, 2019), we defined BDO and Grant Thornton as second-tier international audit firms. We then re-specified auditor choice by creating a binary variable named *INTAUD* and set equal to 1 if an MFI is audited by a second-tier international audit firm, and 0 otherwise.

3.3 Independent variable (Ownership structures)

We used the legal charters of the sampled MFIs to proxy their ownership structures. MFIs usually use three main legal charters (Djan & Mersland, 2021). These include shareholder-owned firms (SHFs), which comprise banks and non-bank financial institutions (NBFIs), member-owned organizations known as cooperatives (COOPs), and non-governmental organizations (NGOs) (Barry & Tacneng, 2014; Servin et al., 2012). In line with previous studies, we construct a three-level categorical variable (*OWNER*) that depicts the categorization of an MFI into one of the above ownership structures, i.e., COOPs, NGOs, or SHFs. Whereas SHFs and NGOs usually have international funders, COOPs are usually locally owned by members (Mersland et al., 2011). As such, we set COOPs as the reference group in the analysis against which we compare SHFs and NGOs.

3.4 Moderating variable (institutional factors)

We employed the frequently used World-Wide Governance Indicators (WGI) provided by the World Bank Group to represent the country-level institutional factors in which MFIs operate (Gordon, Loeb, & Zhu, 2012; Li et al., 2019). There are six standardized governance-related variables that reflect the heterogeneities in governance across countries over time. They include Government Effectiveness, Voice and Accountability, Political Stability and Absence of Violence/Terrorism, Rule of Law, Control of Corruption, and Regulatory Quality. The values on each indicator ranges from -2.5 to 2.5 with high values indicating better levels of governance quality (Gordon et al., 2012; Kaufmann et al., 2010). Following Alon and Dwyer (2014), we computed an index (*INSTFACT*) using the average of all the six governance indicator variables. As such, *INSTFACT* is a continuous variable with higher values depicting better or improving institutional factors. *INSTFACT* is used as an interacting variable to analyze whether and how the association between ownership structure and auditor choice varies with the strength of the institutional factors within which MFIs operate.

3.5 Control variables

We draw on a number of prior studies on auditor choice to identify and control for a wide range of MFI- and country-level factors that may affect MFI's auditor choice (Kang, 2014; Kim et al., 2019; Wang et al., 2008). In Table 2, we provide a more detailed description of each of the variables. In order to control for MFI-specific factors, we used the presence of international initiators (*INTINIT*) as MFIs often have an international initiator (Mersland et al., 2011). We also considered the existence of audit committees (*AUDCOM*) as used in previous studies (Abbott & Parker, 2000). Furthermore, we control for age (*AGE*); size (*SIZE*), measured as the log of total assets; and change in total assets (*CHTA*). These three variables have been widely used to depict the complexity and scale of a company, which impacts the extent of auditor efforts required to deliver a required level of service quality (Kim et al., 2019). We similarly control for leverage (*LEV*), measured as the ratio of total debt to total assets; operating expenses (*OPEX*), defined as the log of total operating expenses; asset turnover (*ATURN*), measured as the proportion of revenue to total assets; portfolio at risk (*PAR30*), measured as the ratio of the loan portfolio that is overdue by more than 30 days; and bank regulation (*BANKREG*), which is a binary variable that is set to one if the MFI is directly under the control of a national banking authority. Moreover, we included country-level control variables such as the level of human development (*HDI*), which is a composite index comprising life expectancy, education, income (GDP per capita), and GDP growth (GDPGW). Finally, we introduced MFI and country fixed effects.

3.6 Regression models

We analyzed hypotheses (H1) on the association between MFIs ownership structures and perceived high-quality audit firm choice using the following general regression equation:

$$AUD_{it} = \beta_0 + \beta_1 OWNER_{it} + \Sigma CONTROLS + FE_{mfi} + FE_c + \varepsilon_{it} \qquad (1)$$

Equation (1) is estimated by logit regression to test H1 on the auditor choice of MFIs based on their ownership structures. AUD_{it} in equation (1) is the dependent variable representing the two proxies for perceived high-quality auditor. *BIG4* is the main proxy for the perceived high-quality auditor. *BIG4* is later replaced by *INTAUD*, an alternative proxy of perceived high-quality auditors in our additional tests for robustness checks. $\beta_1 OWNER_{it}$ represents the three ownership structures as earlier defined. In the analyzes, *COOPs* are held as the reference group upon which we compare the resulting estimated coefficients of *SHFs* and *NGOs* so as to mitigate the concern of singularity (Barry & Tacneng, 2014). *CONTROLS* is a vector of variables commonly used by previous audit demand studies. We included the change in the absolute value of total assets (*CHTA*) as an exogenous variable in line with Lennox, Francis, and Wang (2012) claim that it is inadvisable to estimate choice models without exclusion restrictions. If SHFs and NGOs demand perceived high-quality audits compared to COOPs as we have predicted, we expect the estimated coefficients on *SHFs* and *NGOs* to be positive and significant (i.e., $\beta_1 > 0$).

Regarding the analysis for our second hypothesis (H2) that the association between the perceived high-quality audit firm choice and MFIs ownership structures varies with the

strength of their country-level institutional factors, we estimated the following general regression equation:

$$AUD_{it} = \beta_0 + \beta_1 OWNER * INSTFACT_{it} + \beta_2 OWNER_{it} + \beta_3 INSTFACT_{it} + \Sigma CONTROLS + FE_{mfi} + FE_c + \varepsilon_{it} \quad (2)$$

Equation (2) is similarly estimated by logit regression to examine the moderating effect of country-level institutional factors on the association between MFIs ownership structure and perceived high-quality auditor choice. AUD_{it} is the dependent variable as in equation (1). $\beta_1 OWNER * INSTFACT_{it}$ is the moderating term of the influence of institutional factors (*INSTFACT*) on the effect of *SHFs* and *NGOs* on auditor choice. All other variables remain as we have earlier discussed in equation (1).

Table 2: Variable definition and summary statistics

Variables	Definition	*N*	Mean	SD
Dependent Variables				
BIG4	1 if audited by one of PwC, EY, Deloitte, or KPMG, 0 otherwise	2078	0.28	0.45
INTAUD	1 if audited by either BDO or Grant Thornton, 0 otherwise	1501	0.20	0.40
Independent variables				
SHFs	1 if licensed as a bank or a non-bank financial institution, 0 otherwise	2078	0.38	0.49
NGOs	1 if registered as a non-governmental organization, 0 otherwise	2078	0.44	0.50
COOPs	1 if the legal status is a cooperative or credit union, 0 otherwise	2078	0.18	0.38
INSTFACT	the arithmetic average of the six standardized governance indicators: voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption, 0 otherwise. Source: (Kaufmann et al., 2010).	2078	-0.51	0.37
Control variables				
INTINIT	1 if the initiator is international, 0 otherwise	2078	0.43	0.50
AUDCOM	1 if there is an audit committee, 0 otherwise	2078	0.42	0.49
AGE	number of years as an MFI	2078	19.52	8.27
SIZE	the natural logarithm of assets	2078	15.44	1.52
CHTA	the change in total assets (log)	2078	10.61	6.29
LEV	the ratio of debt to total assets	2078	0.83	3.31
OPEX	the natural logarithm of operating expenses	2078	13.56	1.46
ATURN	total financial revenue scaled by total assets	2078	0.34	0.96
PAR30	proportion of loan portfolio in arrears over 30 days	2078	0.06	0.12
BANKREG	1 if regulated by a banking authority, 0 otherwise	2078	0.39	0.49
GDPGW	GDP scaled by current year population growth	2078	5.54	4.71
HDI	An index covering life expectancy, education, GDP per capita	2078	0.60	0.12
VOICE	These last six indicators are measured in units ranging from -2.5 to	2078	-0.34	0.55
POLSTAB	2.5. Higher values depict greater participation in governance;	2078	-0.66	0.64
GOVT	political stability, and observance of violence and terrorism;	2078	-0.49	0.42
REGQUA	perceptions of the quality of public service; ability of government	2078	-0.32	0.46
LAW	to implement policies that promote private sector growth; quality of	2078	-0.63	0.41
CORRUPT	contract enforcement and property rights; the extent of public sector corruption. Source: (Kaufmann et al., 2010)	2078	-0.60	0.41

Note: *This table presents the definitions of all the variables together with the means and standard deviations in our sample.*

4. Results

4.1 Summary statistics

Table 1 shows the country distribution of observations. The table also presents the country means of *BIG4*, *SHFs, NGOs*, and *COOPs* for each of the 74 countries. The total number of observations in specific countries ranges between a minimum of 2 in Panama, South Sudan, and to a maximum of 124 in Ecuador. Considerable variations are noted regarding the ownership structures of MFIs as exhibited by the means of *SHFs, NGOs,* and *COOPs*: specifically, all the MFIs in countries such as Afghanistan, Armenia, Ethiopia, Jordan, Mongolia, and Tanzania are of the SHFs ownership structure. Also, only NGOs operate in Costa Rica, Egypt, Guatemala, Morocco, and Palestine, whereas in Indonesia all MFIs are COOPs[2].

Table 2 shows the overall summary statistics for all the dependent, independent, and control variables. On average, 28% of the MFIs in our sample hire a Big 4 audit firm. This is consistent with Beisland et al. (2015) who show that hiring Big 4 auditors is less frequent in developing countries. The mean of *INTAUD* which we applied as alternative proxy of perceived high-quality auditors is 20% which further underscore the low demand for perceived high-quality auditors in developing countries. *NGOs* make up 44%, *SHFs,* 38%, and *COOPs,* 18% of the sample, suggesting that NGOs are the commonest type of MFIs in our sample. This is not unexpected as many MFIs typically start-off as NGOs and in a few cases transform to the shareholder-owned type along their growth cycle (D'Espallier, Goedecke, Hudon, & Mersland, 2017)[3]. About the country-level control variables, all the six governance-related indicators have negative means, suggesting that the sample MFIs operate in countries with rather weak governance structures. Relating to the company-level controls, 43% and 42% of the MFIs have an international initiator and have created an audit committee, respectively.

Table 3 displays the correlation coefficients of pairs of the variables used in the study. Several significant associations emerged among the variables. In particular, the Big 4 auditor choice indicator variable (*BIG4*) is positive and significantly correlated with *SHFs*. *BIG4* however has negative and significant association with *COOPs*. Taken as a whole, the reported correlation matrixes between the main variables of interest – *SHFs, NGOs,* and *COOPs* – and the perceived high-quality auditor choice indicator variable – *BIG4* – provide preliminary support for our predictions. However, we refrain from drawing inferences at this stage, until we see the outcomes of the multivariate analysis. But that being said, the modest correlation coefficients observed in Table 3 suggest that the issue of multicollinearity is not a concern in this study.

[2] In additional unreported analyses, we used subsamples in which all the three ownership structures are present in all countries and observed results that are largely similar to those of the full sample.

[3] Additional unreported analyses using subsamples with only MFIs that maintained their ownership structures throughout the sample period returned comparable results to those of the full sample.

Table 3: Pairwise correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) BIG4	1.000											
(2) INTAUD	0.199*	1.000										
(3) SHFs	0.182*	0.035	1.000									
(4) NGOs	0.020	0.079*	-0.694*	1.000								
(5) COOPs	-0.255*	-0.130*	-0.364*	-0.418*	1.000							
(6) INSTFACT	-0.025	-0.049	-0.066*	0.118*	-0.069*	1.000						
(7) INTINIT	0.165*	0.105*	0.111*	0.012	-0.155*	-0.083*	1.000					
(8) AUDCOM	0.256*	0.095*	0.134*	-0.037	-0.121*	0.006	0.123*	1.000				
(9) AGE	-0.120*	-0.061*	-0.457*	0.357*	0.114*	0.054*	-0.143*	-0.020	1.000			
(10) SIZE	0.254*	0.111*	0.034	-0.049*	0.020	0.054*	0.115*	0.301*	0.093*	1.000		
(11) CHTA	0.058*	0.017	-0.001	-0.031	0.042	0.002	0.037	0.125*	0.005	0.416*	1.000	
(12) LEV	0.033	-0.026	0.085*	-0.057*	-0.033	-0.008	-0.011	0.021	-0.061*	-0.163*	-0.067*	1.000
(13) OPEX	0.304*	0.166*	0.081*	-0.003	-0.098*	0.089*	0.163*	0.350*	0.030	0.845*	0.313*	0.016
(14) ATURN	0.041	-0.007	0.096*	-0.045*	-0.063*	-0.004	0.000	0.017	-0.067*	-0.205*	-0.093*	0.943*
(15) PAR30	-0.083*	-0.038	-0.043	-0.053*	0.122*	0.025	-0.071*	-0.026	0.024	-0.139*	-0.144*	-0.007
(16) BANKREG	0.000	-0.057*	0.396*	-0.499*	0.146*	-0.117*	0.078*	0.011	-0.303*	0.175*	0.043	0.091*
(17) GDPGW	0.000	-0.041	0.111*	-0.136*	0.036	-0.240*	0.049*	0.016	-0.056*	-0.112*	0.075*	-0.015
(18) HDI	0.089*	0.030	-0.057*	0.189*	-0.173*	0.289*	-0.046*	0.099*	0.160*	0.195*	0.073*	0.018
(19) VOICE	0.065*	0.017	-0.248*	0.269*	-0.035	0.542*	-0.141*	-0.037	0.197*	0.050*	-0.042	-0.001
(20) POLSTAB	0.048*	0.105*	0.072*	-0.093*	0.029	0.317*	0.133*	-0.034	-0.131*	0.097*	-0.042	0.050*
(21) GOVT	-0.023	-0.063*	0.006	0.071*	-0.099*	0.687*	-0.122*	0.022	0.046*	0.041	-0.007	-0.028
(22) REGQUA	0.067*	-0.077*	0.075*	0.017	-0.116*	0.663*	-0.030	-0.006	0.017	0.027	-0.039	0.042
(23) LAW	-0.012	-0.067*	-0.049*	0.070*	-0.030	0.722*	-0.018	-0.021	0.025	0.009	-0.049*	-0.005
(24) CORRUPT	-0.030	-0.078*	-0.116*	0.131*	-0.023	0.709*	-0.136*	-0.057*	0.082*	0.045*	-0.007	-0.035

Table 3: Cont'd	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
(13) OPEX	1.000											
(14) ATURN	0.026	1.000										
(15) PAR30	-0.132*	-0.004	1.000									
(16) BANKREG	0.114*	0.066*	0.027	1.000								
(17) GDPGW	-0.101*	-0.016	-0.066*	0.046*	1.000							
(18) HDI	0.179*	0.037	-0.156*	-0.256*	-0.080*	1.000						
(19) VOICE	0.101*	0.004	0.015	-0.328*	-0.255*	0.364*	1.000					
(20) POLSTAB	0.109*	0.046*	-0.049*	0.040	-0.088*	0.149*	0.335*	1.000				
(21) GOVT	0.063*	-0.015	0.005	-0.200*	-0.236*	0.445*	0.461*	0.210*	1.000			
(22) REGQUA	0.092*	0.062*	0.016	-0.156*	-0.205*	0.439*	0.536*	0.278*	0.754*	1.000		
(23) LAW	0.007	-0.012	0.031	-0.128*	-0.181*	0.207*	0.493*	0.405*	0.735*	0.675*	1.000	
(24) CORRUPT	0.059*	-0.037	0.017	-0.125*	-0.202*	0.316*	0.563*	0.392*	0.725*	0.620*	0.779*	1.000

Note: *Significance at the 0.05 level or lower. The above table presents the correlation coefficients on pairs of the variables. All variables are defined in Table 2*

4.2 Auditor choice across different ownership structures

Table 4 shows the multivariate logit estimates of the association between MFIs ownership structures and the choice of a perceived high-quality audit firm. We cluster all standard errors at the MFI and country levels to control for issues like heteroskedasticity. As well, two-sided tests are relied on in gauging the statistical significance in all models. In addition, we control for both country and MFI fixed effects in all the models. Finally, we performed the analysis using the traditional three-level categorical variable approach, i.e., with two categories (*SHFs* and *NGOs*) included and one (*COOPs*) being the reference category.

Our regression results for examining H1 are presented in Table 4 using two models. In model (1), we used the main perceived high-quality audit firm choice variable (*BIG4*) whereas in model (2), we used the alternative proxy – *INTAUD* where the Big 4 audit firms are removed from the analysis. Both models are significant at the 1% level, suggesting model fit. In model (1), we find a significant and positive coefficient on *SHFs* (2.8800, p=0.000), indicating that compared to COOPs, shareholder owned MFIs (SHFs) are more likely to appoint a perceived high-quality audit firm. Consistent with the results in model (1), the estimated coefficients for *SHFs* are significant and positive in model (2) in which we applied the alternative measure of perceived high-quality auditor choice. These results thus corroborate the findings in model (1) that shareholder owned MFIs have a greater tendency to appoint a perceived high-quality auditor to resolve associated agency problems and also to signal commitment to credible financial reporting to their external stakeholders.

We also find in model (1) of Table 4 that the estimated coefficients for *NGOs* (2.4918, p=0.000) are significant and positive at the 1% level, indicating that NGO-MFIs are more likely to appoint a perceived high-quality audit firm compared to COOP-MFIs. We as well observed positive and significant coefficient estimates for *NGOs* in model (2) where we used the alternative proxy of perceived high-quality auditors. Collectively, these estimates provide support for the results reported in model (1) for *NGOs*. The estimates accordingly suggest that the involvement of external stakeholders such as international funders in the ownership structure of NGOs increases the potential for information asymmetry due to separation of ownership and control, which is in line with propositions put forward in prior research (Mersland, 2009). Moreover, the results indicate that NGOs, compared to COOPs, have a higher demand for perceived high-quality auditors for signaling purposes.

Regarding the control variables, our results are largely consistent with those of prior research (Ho & Kang, 2013; Kang, 2014; Sarhan et al., 2019). The coefficients on *INTINIT*, *AUDCOM*, *SIZE*, and *OPEX* as shown in model (1) of Table 4 are all positive. These results suggest that the presence of international initiators, creation of audit committees, larger MFIs, and MFIs with larger operating expenses are more likely to appoint perceived high-quality audit firms. We also find significant negative coefficients on *AGE*, suggesting that more mature MFIs are less likely to hire a perceived high-quality audit firm. This illustrates that as MFIs gain reputation the need to appoint a Big 4 auditing firm is reduced. Moreover, we find that MFIs with higher portfolio at risk (*PAR30*) are less likely to hire a perceived high-quality auditor.

Table 4: Association between ownership structure and auditor choice

VARIABLES	(1) BIG4	(2) INTAUD
OWNER (Ref: COOPs)		
SHFs	***2.8800****	***0.8073****
	(0.3386)	***(0.2389)***
NGOs	***2.4918****	***0.8920****
	(0.3340)	***(0.2205)***
INTINIT	0.3128**	0.1702
	(0.1246)	(0.1555)
AUDCOM	0.6957***	0.2388
	(0.1228)	(0.1570)
AGE	-0.0360***	-0.0237**
	(0.0096)	(0.0100)
SIZE	0.2731**	-0.1561
	(0.1106)	(0.1335)
CHTA	-0.0241**	-0.0067
	(0.0101)	(0.0124)
LEV	-0.0272	-0.1854
	(0.0525)	(0.1356)
OPEX	0.3225***	0.4653***
	(0.1142)	(0.1368)
ATURN	0.1802	0.2570
	(0.1883)	(0.3182)
PAR30	-2.0325**	-0.5187
	(0.8376)	(0.8539)
BANKREG	-0.4847***	-0.3610**
	(0.1539)	(0.1809)
GDPGW	0.0087	-0.0267*
	(0.0128)	(0.0155)
HDI	-0.5078	0.1819
	(0.6414)	(0.7480)
VOICE	0.7158***	0.3638**
	(0.1681)	(0.1847)
POLSTAB	-0.1598	0.5890***
	(0.1126)	(0.1330)
GOVT	-1.2211***	0.0612
	(0.2711)	(0.3326)
REGQUA	0.7637***	-0.7103***
	(0.2262)	(0.2570)
LAW	0.3400	0.0765
	(0.2838)	(0.3405)
CORRUPT	-0.4145	-1.1160***
	(0.2790)	(0.3425)
Constant	-11.2441***	-5.4771***
	(0.9755)	(1.0356)
Country FE	*Yes*	*Yes*
Company FE	*Yes*	*Yes*
Chi2	546.51***	165.32***
Pseudo-R2	0.2235	0.1093
N	2,078	1,501

Note: *This table reports the estimation results for H1. BIG4 and INTAUD are the dependent variables whereas COOPs, SHFs and NGOs are the test variables. Fixed effects are entered in all columns. *, ** and *** denote significance at the 0.1, 0.05 and 0.01 levels, respectively. Robust standard errors are in parentheses. All variables are defined in Table 2.*

4.3 The role of institutional factors on auditor choice

Table 5 shows the estimated coefficients for the effect of country-level institutional factors on the relationship between ownership structures and the perceived high-quality audit firm choice of MFIs. The results are displayed in two models where in model (1) the primary dependent variable is *BIG4* and in model (2), an alternative dependent variable (*INTAUD*) is employed. As presented in model (1), the estimated coefficients on the interaction term *SHFs*INSTFACT* (2.8631, p=0.000), i.e., the interaction between *SHFs* and country-level institutional factors (*INSTFACT*) are positive and significant at the 1% level. The estimates suggest that, compared to COOPs, MFIs owned by shareholders are more likely to hire a perceived high-quality audit firm when they operate in countries with better institutional factors. In line with the results as presented in model (1), the coefficients on the interaction term *SHFs*INSTFACT* (1.6326, p=0.000) are positive and significant in model (2) of Table 5 at the 1% percent level. Taken together, the results suggest that country-level institutional factors play a significant moderating role on the relationship between shareholder-owned MFIs and the choice of a perceived high-quality audit firm than they do for COOPs.

Furthermore, the results presented in Table 5 likewise show the estimated coefficients for the MFIs that are incorporated as NGOs. Specifically, we find in model (1) of Table 5 that the coefficients on the interaction term for NGOs - *NGOs*INSTFACT* (3.5893, p=0.000) are positive and significant at the 1% level, suggesting that as the country-level institutional factors get better MFIs organized as non-governmental organizations have even more incentives compared to COOPs to appoint a perceived high-quality audit firm. Similar estimated coefficients are observed in model (2) of Table 5 for *NGOs*INSTFACT* at the 10 percent significance level in which we used an alternative measure of perceived high-quality auditors. These results thus corroborate the estimated coefficients as presented in model (1) of Table 5, suggesting robust findings. Finally, the results on the control variables mirror those reported in Table 4.

4.4 Additional analyzes

To check the robustness of our results, we run additional regressions employing different sampling and estimation techniques. First, we extended our tests by evaluating the potential effects of selection by clients and screening by auditors. We do this by following previous studies (Guedhami et al., 2014; Lennox & Pittman, 2010) and assessing whether our main evidence remains when we focus on MFIs with longer auditor tenure. This test is driven by the assertion that when the time lag between auditor choice and the decision to misreport is short, endogeneity is worse (Guedhami et al., 2014). As such, we isolated the sampled MFIs with an average auditor tenure of at least three years. Even though this procedure leads to sample reduction (962 observations are lost when doing this), the results presented in model (1) of Table 6 confirm those shown in Table 4. In particular, we find that both the indicator variables for MFIs owned by shareholders (SHFs) and non-governmental organizations (NGOs) have a positive and significant relationship with the perceived high-quality auditor indicator variable (*BIG4*). The results suggest that these two ownership structures compared to COOPs are more likely to hire a perceived high-quality auditor for the purposes of addressing agency problems and signaling to external stakeholders about

commitment to credible financial reporting. Hence, our results are not driven by selection and screening events.

Table 5: The moderating effect of institutional factors

VARIABLES	(1) BIG4	(2) INTAUD
OWNER (Ref: COOPs)		
SHFs* INSTFACT	***2.8631****	***1.6326****
	(0.8140)	***(0.5574)***
NGOs* INSTFACT	***3.5893****	***1.0655****
	(0.8398)	***(0.5673)***
SHFs	4.5133***	1.5505***
	(0.7102)	(0.4142)
NGOs	4.5647***	1.4016***
	(0.7125)	(0.4153)
INSTFACT	-2.8670***	-1.5272***
	(0.7940)	(0.4801)
INTINIT	0.3017***	0.2993**
	(0.1170)	(0.1431)
AUDCOM	0.6547***	0.2010
	(0.1220)	(0.1531)
AGE	-0.0361***	-0.0298***
	(0.0095)	(0.0099)
SIZE	0.2721**	-0.1324
	(0.1061)	(0.1260)
CHTA	-0.0267***	-0.0124
	(0.0100)	(0.0121)
LEV	-0.0028	-0.1845
	(0.0534)	(0.1321)
OPEX	0.3618***	0.4844***
	(0.1080)	(0.1290)
ATURN	0.1222	0.2930
	(0.1919)	(0.3123)
PAR30	-1.2032	-0.5957
	(0.7787)	(0.8194)
BANKREG	-0.5672***	-0.3750**
	(0.1505)	(0.1770)
GDPGW	0.0117	-0.0204
	(0.0122)	(0.0148)
HDI	-0.6531	-0.7699
	(0.5872)	(0.6593)
Constant	-13.1628***	-5.5909***
	(1.1710)	(1.0958)
Country FE	*Yes*	*Yes*
Company FE	*Yes*	*Yes*
Chi2	512.04***	124.69***
Pseudo-R2	0.2094	0.0824
N	2,078	1,501

Note: *This table reports the estimation results for H2. BIG4 and INTAUD are the dependent variables whereas COOPs, SHFs, NGOs, and INSTFACT are the test variables. Fixed effects are entered in all columns. ** and *** denote significance at the 0.05, and 0.01 levels, respectively. Robust standard errors are in parentheses. All variables are defined in Table 2.*

Second, we performed additional examination and sensitivity check by considering the potential impact of reverse causality. Practically, there is very remote possibility that the presence of certain types of auditors affects MFIs' ownership structures because our independent variables – SHFs, NGOs, and COOPs – are exogenous in nature. Nevertheless, we double-check the effect of reverse causality scientifically to attenuate any potential hidden concerns. We do this by performing an additional subsample examination of MFIs that never changed their legal charter during their life cycle (we lost 143 observations in this process). We find in model (2) of Table 6 that our results remain unchanged, suggesting that reverse causality does not affect our results.

Our third additional test involves estimating a random effects model by exploiting the panel characteristics of our dataset. In the results displayed in model (3) of Table 6, we continue to find that SHFs, and NGOs are more likely than COOPs to appoint a perceived high-quality auditor. This additional examination is useful for attenuating any concern that our results are affected by correlated omitted variables.

Also, we created supplementary subsamples where we eliminated observations where a particular type of MFI ownership structure was not deployed in a country. In short, we generated a subsample in which all the three ownership structures are being deployed by MFIs in all the countries. The results (untabulated) confirm that the likelihood of hiring a perceived high-quality auditor for SHFs, and NGOs is significantly higher than for COOPs.

Finally, previous studies (Mansi, Maxwell, & Miller, 2004; Pittman & Fortin, 2004) suggest that cost of debt and target debt ratio are affected by a company's auditor choice. This suggests a potential reciprocal causal association between auditor choice and leverage. Hence, we followed Kang (2014) and applied a two-stage probit least squares (2SPLS) regression techniques to examine the effect of MFIs leverage on the choice of a perceived high-quality audit firm. Again, we observed in untabulated results that the likelihood of hiring a perceived high-quality audit firm is significantly higher for SHFs and NGOs than for COOPs.

Considered together, a battery of supplementary examinations and sensitivity checks were performed applying subsamples and alternative estimation techniques to assure the robustness of the empirical findings obtained in this study. When taken together, the results obtained from these additional examinations are robust across all the models and generally consistent with the baseline findings as reported in Table 4.

Table 6: Additional analyzes using alternative techniques and subsamples

VARIABLES	(1) BIG4	(2) BIG4	(3) BIG4
OWNER (Ref: COOPs)			
SHFs	***3.7201******	***3.6409******	***9.1457******
	(0.6428)	***(0.4292)***	***(1.3748)***
NGOs	***3.2543******	***3.1635******	***10.4210******
	(0.6393)	***(0.4257)***	***(1.2838)***
INTINIT	0.1915	0.3243**	1.9941**
	(0.1759)	(0.1317)	(0.9218)
AUDCOM	0.6389***	0.5515***	4.5061***
	(0.1735)	(0.1288)	(0.9415)
AGE	-0.0355***	-0.0427***	-0.0580
	(0.0133)	(0.0106)	(0.0556)
SIZE	0.3897**	0.3241***	0.9120**
	(0.1643)	(0.1157)	(0.4480)
CHTA	-0.0381***	-0.0237**	-0.0129
	(0.0147)	(0.0107)	(0.0358)
LEV	-0.0447	-0.0239	0.0040
	(0.0850)	(0.0537)	(0.1933)
OPEX	0.2518	0.3175***	-1.1463***
	(0.1680)	(0.1189)	(0.3822)
ATURN	0.2313	0.1730	0.4015
	(0.3222)	(0.1939)	(0.6975)
PAR30	-2.3339**	-1.3807*	-8.5701*
	(1.1561)	(0.8209)	(4.3939)
BANKREG	-0.4244*	-0.4290***	0.4165
	(0.2259)	(0.1606)	(0.8317)
GDPGW	0.0139	0.0104	-0.0636
	(0.0182)	(0.0139)	(0.0739)
HDI	-0.9401	-1.2841*	-6.9130*
	(0.9227)	(0.6929)	(3.8743)
VOICE	1.1994***	0.7765***	0.9655
	(0.2571)	(0.1811)	(0.8580)
POLSTAB	-0.3572**	-0.2849**	0.7333
	(0.1634)	(0.1187)	(0.6133)
GOVT	-1.1367***	-1.2964***	-2.9320*
	(0.3769)	(0.2919)	(1.5344)
REGQUA	0.9118***	0.8707***	1.7897
	(0.3175)	(0.2376)	(1.0974)
LAW	0.3409	0.4021	-1.8471
	(0.4130)	(0.2952)	(1.4354)
CORRUPT	-0.8295**	-0.2562	1.3217
	(0.3857)	(0.2903)	(1.3332)
Constant	-12.9087***	-11.9067***	-12.5013***
	(1.4776)	(1.0630)	(4.4864)
Country FE	*Yes*	*Yes*	*Yes*
Company FE	*Yes*	*Yes*	*Yes*
Chi2	285.90***	520.93***	140.57***
Pseudo-R2	0.2270	0.2343	-
N	1,116	1,935	2,078

Note: *This table reports additional estimation results for H1. BIG4 is the dependent variable whereas COOPs, SHFs and NGOs are the test variables. Fixed effects are entered in all columns. *, ** and *** denote significance at the 0.1, 0.05 and 0.01 levels, respectively. Robust standard errors are in parentheses. All variables are defined in Table 2.*

5. Discussions and conclusion

Audit markets in developing countries are less concentrated as compared to the situation in developed countries (Huang et al., 2016). Moreover, the audit markets in developing countries are characterized by international audit firms and many small-size domestic or local audit firms (El-Dyasty & Elamer, 2020). This creates a large pool of audit service suppliers from which firms can select their auditors, and yet a high proportion of the studies conducted on auditor choice is concentrated on the developed markets, where the audit market is intense. Brown and Knechel (2016) argue that the audit firm selection process by clients is complex and tend to be affected by a vector of factors including price, expertise, location, governance structures, among others. Thus, in this paper we extend this research by studying whether different firm ownership structures explain firms' choice of perceived high-quality audit firm and whether such audit firm choices are influenced by the strength of the country-specific institutional factors within which they operate. Moreover, a novel aspect of our study lies in the extension of the discussion on auditor choice to the context of developing countries, where there is scarce research due to the lack of reliable international dataset.

The microfinance industry is a good setting for our study since MFIs operate in the same markets using different ownership structures, specifically shareholder owned MFIs (SHFs), non-governmental MFIs (NGOs), and member based cooperatives (COOPs) (Djan & Mersland, 2021; Servin et al., 2012). Characteristically, MFIs organized as SHFs, and NGOs are associated with wide range of stakeholders including international investors. This feature exposes such MFIs to the issue of agency conflicts caused by the separation of ownership and control. In contrast, COOP MFIs are owned by local members who actively participate in their daily operations. This aspect of COOPs insulates members from severe separation of ownership and control, and thus less agency conflicts. Studies suggest that firms faced with severe agency conflicts tend to demand perceived high-quality auditors such as the Big 4 audit firms for mitigation and to signal their commitment to credible financial reporting (Fan & Wong, 2005; Lennox, 2005).

Ceteris paribus, it seems reasonable to expect that, compared to COOPs, SHFs and NGOs will be associated with greater incentives for perceived high-quality auditors for mitigating agency conflicts and signaling purposes. Thus, drawing on agency and signaling theories, we find that NGOs and SHFs MFIs, compared to COOPs are associated with a greater tendency to hire a perceived high-quality auditor such as a Big 4 audit firm. These findings show that the effect of agency problems and the need to send strong signals to external stakeholders are stronger for MFIs associated with diversified and external stakeholders (i.e., SHFs and NGOs) than those of COOPs, resulting in a greater demand for perceived high-quality auditors. It stands to reason that the incentives for COOPs to hire perceived high-quality auditors are low, and thus COOPs seek to fulfil the requirement to be audited in the most cost-effective manner. As such the findings generally concur with the conclusions of several studies on audit demand on family firms that due to their fairly less agency conflicts, the incentives to require a high-quality auditor are lower (Corten et al., 2017; Ho & Kang, 2013; Khan, Muttakin, & Siddiqui, 2015). Moreover, the results are consistent with the evidence which suggests that in the absence of any strong external

stakeholder, family firms have less demand for high-quality auditors (AL-Qadasi et al., 2019; Ho & Kang, 2013; Hsu et al., 2015).

Further, we observed that the strength of the country-level institutional factors within which the sampled MFIs operate have significant influence on their choice of audit firms. Specifically, the results suggest that MFIs associated with the issue of separation of ownership and control such as shareholder-owned and NGOs MFIs have a greater chance of hiring a perceived high-quality auditor in countries with better institutional structures compared to MFIs incorporated as COOPs. These results are thus consistent with our predictions and the previous findings on the role of country-level institutional factors on financial reporting (Lin & Liu, 2009; Sarhan et al., 2019). The results corroborate the notion that country-level institutional factors can influence the information environment of a country and create the demand for high-quality audits (Houqe et al., 2012). Moreover, evidence suggests that firms tend to appoint high-quality audit firms such as industry specialized auditors when the levels of investor protection, economic development, and financial reporting regimes are effective (Ettredge, Kwon, & Lim, 2009). In essence, MFIs registered as SHFs, and NGOs compared to COOPs will have greater economic incentives to appoint perceived high-quality auditors as the institutional factors of the countries they are domiciled get better. By appointing a Big 4 audit firm, SHFs and NGOs MFIs will be responding to regulatory demands for more credible financial reporting.

The findings in this study have important and practical implications for a number of stakeholders including shareholders, regulators, lenders, auditors, scholars, and others. Shareholders and lenders for instance, can rely on the results to compare MFIs with regard to their extent of commitment to credible financial reporting. This is particularly important as MFIs typically operate in developing countries associated with weak legal environments and high information asymmetry. For regulators, the results shed light on the link between firms' governance structures, especially ownership structures, and the need for perceived high-quality audit services. To better improve the information environment of developing countries, regulators could institute measures that can reinforce the governance structures of private firms. Audit firms could also find our findings useful as the results suggest that companies associated with ownership structures that induce agency conflicts tend to prefer perceived high-quality audit firms for signaling purposes in the context of developing countries.

Although the literature on auditor choice is well developed, a large proportion of the studies are on data from firms operating in developed countries, where the audit markets are concentrated, resulting in limited auditor choices. Hence, our study contributes to the international audit literature by opening up a new line of research in relation to the audit firm choices of unconventional financial institutions such as MFIs in the high-information asymmetry contexts of developing countries. This may inspire academics to undertake further research in this field. Future studies could for instance extend our results on the influence of corporate governance structures on auditor choice in developing countries by more closely examining the impact of corporate insiders on this relationship. Moreover, our study is a quantitative analysis that used archival data obtained from third-party sources – rating reports from rating agencies. That said, critical qualitative factors that may affect

auditor choice in the microfinance industry may linger unobserved. This limitation in itself constitutes a potential future research avenue for the use of qualitative research techniques such as interviews. Finally, the finding that MFIs with a higher portfolio at risk are less likely to hire a Big4 auditing firm is interesting and should be further investigated. Potential questions to ask include: Does this mean that these MFIs are less likely to let their portfolios be scrutinized by auditors because their loan portfolios are of lower quality than the numbers reported in their financial statements? Or is there a relationship between audit quality and the quality of loan portfolio?

References

Abbott, L. J., & Parker, S. (2000). Auditor selection and audit committee characteristics. *Auditing: A Journal of Practice & Theory, 19*(2), 47-66.

Aguilera, R. V., & Jackson, G. (2003). The cross-national diversity of corporate governance: Dimensions and determinants. *Academy of Management Review, 28*(3), 447-465.

AL-Qadasi, A. A., Abidin, S., & Al-Jaifi, H. A. (2019). The puzzle of internal audit function budget toward specialist auditor choice and audit fees: Does family ownership matter? Malaysian evidence. *Managerial Auditing Journal*.

Alon, A., & Dwyer, P. D. (2014). Early adoption of IFRS as a strategic response to transnational and local influences. *The International Journal of Accounting, 49*(3), 348-370.

Anderson, R. C., Mansi, S. A., & Reeb, D. M. (2003). Founding family ownership and the agency cost of debt. *Journal of Financial Economics, 68*(2), 263-285.

Audousset-Coulier, S. (2015). Audit fees in a joint audit setting. *European Accounting Review, 24*(2), 347-377.

Baker, R., & Rennie, M. D. (2006). Forces Leading to the Adoption of Accrual Accounting by the Canadian Federal Government: An Institutional Perspective*/les forces ayant mené l'administration fédérale canadienne à adopter la comptabilité d'exercice: une perspective institutionnelle. *Canadian Accounting Perspectives, 5*(1), 83-112.

Barroso, R., Ben Ali, C., & Lesage, C. (2018). Blockholders' ownership and audit fees: The impact of the corporate governance model. *European Accounting Review, 27*(1), 149-172.

Barry, T. A., & Tacneng, R. (2014). The impact of governance and institutional quality on MFI outreach and financial performance in Sub-Saharan Africa. *World Development, 58*, 1-20.

Becker, C. L., DeFond, M. L., Jiambalvo, J., & Subramanyam, K. (1998). The effect of audit quality on earnings management. *Contemporary Accounting Research, 15*(1), 1-24.

Beisland, L. A., Mersland, R., & Randøy, T. (2014). Transparency and disclosure in the global microfinance industry: Implications for practice and policy makers. *The Oxford Handbook of Political, Institutional and Corporate Transparency. Oxford University Press, New York, USA*.

Beisland, L. A., Mersland, R., & Strøm, R. Ø. (2015). Audit quality and corporate governance: evidence from the microfinance industry. *International Journal of Auditing, 19*(3), 218-237.

Ben-Hassoun, A., Aloui, C., & Ben-Nasr, H. (2018). Demand for audit quality in newly privatized firms in MENA region: Role of internal corporate governance mechanisms audit. *Research in International Business and Finance, 45*, 334-348.

Bonetti, P., Magnan, M. L., & Parbonetti, A. (2016). The influence of country-and firm-level governance on financial reporting quality: Revisiting the evidence. *Journal of Business Finance & Accounting, 43*(9-10), 1059-1094.

Boone, J. P., Khurana, I. K., & Raman, K. (2010). Do the Big 4 and the second-tier firms provide audits of similar quality? *Journal of Accounting and Public Policy, 29*(4), 330-352.

Brown, S. V., & Knechel, W. R. (2016). Auditor–client compatibility and audit firm selection. *Journal of Accounting Research, 54*(3), 725-775.

Broye, G., & Weill, L. (2008). Does leverage influence auditor choice? A cross-country analysis. *Applied Financial Economics, 18*(9), 715-731.

Bushee, B. J. (1998). The influence of institutional investors on myopic R&D investment behavior. *The Accounting Review*, 305-333.

Che, L., Hope, O.-K., & Langli, J. C. (2020). How big-4 firms improve audit quality. *Management Science, 66*(10), 4552-4572.

Cheng, C.-L., Hsu, C.-S., & Kung, F.-H. (2015). Political connections, managerial incentives and auditor choice: evidence from China. *Pacific Accounting Review*.

Connelly, B. L., Certo, S. T., Ireland, R. D., & Reutzel, C. R. (2011). Signaling theory: A review and assessment. *Journal of Management, 37*(1), 39-67.

Corten, M., Steijvers, T., & Lybaert, N. (2017). The effect of intrafamily agency conflicts on audit demand in private family firms: The moderating role of the board of directors. *Journal of Family Business Strategy, 8*(1), 13-28.

D'Espallier, B., Goedecke, J., Hudon, M., & Mersland, R. (2017). From NGOs to banks: Does institutional transformation alter the business model of microfinance institutions? *World Development, 89*, 19-33.

Di Benedetta, P., Lieberman, I. W., & Ard, L. (2015). Corporate Governance in Microfinance Institutions.

DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 147-160.

Djan, K. O., & Mersland, R. (2021). Are NGOs and cooperatives similar or different? A global survey using microfinance data. *Journal of Management and Governance*, 1-43.

El-Dyasty, M. M., & Elamer, A. A. (2020). The effect of auditor type on audit quality in emerging markets: evidence from Egypt. *International Journal of Accounting & Information Management*.

Ettredge, M., Kwon, S. Y., & Lim, C. Y. (2009). Client, industry, and country factors affecting choice of Big N industry expert auditors. *Journal of Accounting, Auditing & Finance, 24*(3), 433-467.

Fama, E. F., & Jensen, M. C. (1983). Separation of ownership and control. *The Journal of Law and Economics, 26*(2), 301-325.

Fan, J. P., & Wong, T. J. (2005). Do external auditors perform a corporate governance role in emerging markets? Evidence from East Asia. *Journal of Accounting Research, 43*(1), 35-72.

Fehr, D., & Hishigsuren, G. (2006). Raising capital for microfinance: Sources of funding and opportunities for equity financing. *Journal of Developmental Entrepreneurship, 11*(02), 133-143.

Francis, J. R., Khurana, I. K., & Pereira, R. (2003). The role of accounting and auditing in corporate governance and the development of financial markets around the world. *Asia-Pacific Journal of Accounting & Economics, 10*(1), 1-30.

Gordon, L. A., Loeb, M. P., & Zhu, W. (2012). The impact of IFRS adoption on foreign direct investment. *Journal of Accounting and Public Policy, 31*(4), 374-398.

Guedhami, O., Pittman, J. A., & Saffar, W. (2009). Auditor choice in privatized firms: Empirical evidence on the role of state and foreign owners. *Journal of Accounting and Economics, 48*(2-3), 151-171.

Guedhami, O., Pittman, J. A., & Saffar, W. (2014). Auditor choice in politically connected firms. *Journal of Accounting Research, 52*(1), 107-162.

Gul, F. A., Zhou, G., & Zhu, X. (2013). Investor protection, firm informational problems, Big N auditors, and cost of debt around the world. *Auditing: A Journal of Practice & Theory, 32*(3), 1-30.

Habib, A., Muhammadi, A. H., & Jiang, H. (2017). Political connections, related party transactions, and auditor choice: Evidence from Indonesia. *Journal of Contemporary Accounting & Economics, 13*(1), 1-19.

Habib, A., Wu, J., Bhuiyan, M. B. U., & Sun, X. (2019). Determinants of auditor choice: Review of the empirical literature. *International Journal of Auditing, 23*(2), 308-335.

Haniffa, R., & Hudaib, M. (2007). Locating audit expectations gap within a cultural context: The case of Saudi Arabia. *Journal of International Accounting, Auditing and Taxation, 16*(2), 179-206.

He, X., Rui, O., Zheng, L., & Zhu, H. (2014). Foreign ownership and auditor choice. *Journal of Accounting and Public Policy, 33*(4), 401-418.

Ho, J. L., & Kang, F. (2013). Auditor choice and audit fees in family firms: Evidence from the S&P 1500. *Auditing: A Journal of Practice & Theory, 32*(4), 71-93.

Hogan, C. E., & Martin, R. D. (2009). Risk shifts in the market for audits: An examination of changes in risk for "second tier" audit firms. *Auditing: A Journal of Practice & Theory, 28*(2), 93-118.

Hope, O.-K., Kang, T., Thomas, W., & Yoo, Y. K. (2008). Culture and auditor choice: A test of the secrecy hypothesis. *Journal of Accounting and Public Policy, 27*(5), 357-373.

Hope, O.-K., Langli, J. C., & Thomas, W. B. (2012). Agency conflicts and auditing in private firms. *Accounting, Organizations and Society, 37*(7), 500-517.

Houqe, M. N., Monem, R. M., & van Zijl, T. (2012). Government quality, auditor choice and adoption of IFRS: A cross country analysis. *Advances in Accounting, 28*(2), 307-316.

Hsu, W.-Y., Troy, C., & Huang, Y. R. (2015). The determinants of auditor choice and audit pricing among property-liability insurers. *Journal of Accounting and Public Policy, 34*(1), 95-124.

Huang, T.-C., Chang, H., & Chiou, J.-R. (2016). Audit market concentration, audit fees, and audit quality: Evidence from China. *Auditing: A Journal of Practice & Theory, 35*(2), 121-145.

Ioannou, I., & Serafeim, G. (2012). What drives corporate social performance? The role of nation-level institutions. *Journal of International Business Studies, 43*(9), 834-864.

Jansson, T., Rosales, R., & Westley. (2004). *Principles and Practices for Regulating and Supervising Microfinance*. Retrieved from Washington: https://publications.iadb.org/publications/english/document/Principles-and-practices-for-regulating-and-supervising-microfinance.pdf

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics, 3*(4), 305-360.

Kang, F. (2014). Founding family ownership and the selection of industry specialist auditors. *Accounting Horizons, 28*(2), 261-276.

Karim, A. W., & van Zijl, T. (2013). Efficiency and opportunism in auditor quality choice in emerging audit services markets: The case of Bangladesh. *International Journal of Accounting & Information Management*.

Karjalainen, J. (2011). Audit quality and cost of debt capital for private firms: Evidence from Finland. *International Journal of Auditing, 15*(1), 88-108.

Kaufmann, D., Kraay, A., & Mastruzzi, M. (2010). *The Worldwide Governance Indicators:Methodology and Analytical Issues*. Draft Policy Research Working Paper. World Bank. Retrieved from http://info.worldbank.org/governance/wgi/pdf/wgi.pdf

Khan, A., Muttakin, M. B., & Siddiqui, J. (2015). Audit fees, auditor choice and stakeholder influence: Evidence from a family-firm dominated economy. *The British Accounting Review, 47*(3), 304-320.

Kim, J. B., Pevzner, M., & Xin, X. (2019). Foreign institutional ownership and auditor choice: Evidence from worldwide institutional ownership. *Journal of International Business Studies, 50*(1), 83-110.

Kitching, K. (2009). Audit value and charitable organizations. *Journal of Accounting and Public Policy, 28*(6), 510-524.

Knechel, W. R., Niemi, L., & Sundgren, S. (2008). Determinants of auditor choice: Evidence from a small client market. *International Journal of Auditing, 12*(1), 65-88.

Kurniawati, H., Van Cauwenberge, P., & Vander Bauwhede, H. (2019). Affiliation of Indonesian audit firms with Big4 and second-tier audit firms and the cost of debt. *International Journal of Auditing, 23*(3), 387-402.

Lennox, C. S. (2005). Management ownership and audit firm size. *Contemporary Accounting Research, 22*(1), 205-227.

Lennox, C. S., Francis, J. R., & Wang, Z. (2012). Selection models in accounting research. *The Accounting Review, 87*(2), 589-616.

Lennox, C. S., & Pittman, J. A. (2010). Big Five Audits and Accounting Fraud. *Contemporary Accounting Research, 27*(1), 1-342.

Li, W., Ng, J., Tsang, A., & Urcan, O. (2019). Country-level institutions and management earnings forecasts. *Journal of International Business Studies, 50*(1), 48-82.

Lin, Z. J., & Liu, M. (2009). The impact of corporate governance on auditor choice: Evidence from China. *Journal of International Accounting, Auditing and Taxation, 18*(1), 44-59.

Liñares-Zegarra, J., & Wilson, J. O. (2018). The size and growth of microfinance institutions. *The British Accounting Review, 50*(2), 199-213.

Mansi, S. A., Maxwell, W. F., & Miller, D. P. (2004). Does auditor quality and tenure matter to investors? Evidence from the bond market. *Journal of Accounting Research, 42*(4), 755-793.

Mersland, R. (2009). The cost of ownership in microfinance organizations. *World Development, 37*(2), 469-478.

Mersland, R., Randøy, T., & Strøm, R. Ø. (2011). The impact of international influence on microbanks' performance: A global survey. *International Business Review, 20*(2), 163-176.

Mersland, R., & Strøm, R. Ø. (2009). Performance and governance in microfinance institutions. *Journal of Banking & Finance, 33*(4), 662-669.

Paniagua, J., Rivelles, R., & Sapena, J. (2018). Corporate governance and financial performance: The role of ownership and board structure. *Journal of Business Research, 89*, 229-234.

Périlleux, A., Hudon, M., & Bloy, E. (2012). Surplus distribution in microfinance: Differences among cooperative, nonprofit, and shareholder forms of ownership. *Nonprofit and Voluntary Sector Quarterly, 41*(3), 386-404.

Pittman, J. A., & Fortin, S. (2004). Auditor choice and the cost of debt capital for newly public firms. *Journal of Accounting and Economics, 37*(1), 113-136.

Samaha, K., & Hegazy, M. (2010). An empirical investigation of the use of ISA 520 "analytical procedures" among Big 4 versus non-Big 4 audit firms in Egypt. *Managerial Auditing Journal*.

Sarhan, A. A., Ntim, C. G., & Al-Najjar, B. (2019). Antecedents of audit quality in MENA countries: The effect of firm-and country-level governance quality. *Journal of International Accounting, Auditing and Taxation, 35*, 85-107.

Servin, R., Lensink, R., & Van den Berg, M. (2012). Ownership and technical efficiency of microfinance institutions: Empirical evidence from Latin America. *Journal of Banking & Finance, 36*(7), 2136-2144.

Velte, P., & Stiglbauer, M. (2012). Audit market concentration and its influence on audit quality. *International Business Research 5.11 (2012): S. 146-161. 25.03. 2013*.

Wang, Q., Wong, T.-J., & Xia, L. (2008). State ownership, the institutional environment, and auditor choice: Evidence from China. *Journal of Accounting and Economics, 46*(1), 112-134.

Zahra, S. A. (2014). Public and corporate governance and young global entrepreneurial firms. *Corporate Governance: An International Review, 22*(2), 77-83.

Study 2: Auditor Specialization, Audit Committee Independence, and Key Audit Matters

Auditor Specialization, Audit Committee Independence and Key Audit Matters[4]

Gordon Mwintome
gordon.mwintome@uia.no
Anna Alon
anna.alon@uia.no

Abstract
In 2016, the International Auditing and Assurance Standards Board (IAASB) issued a new International Auditing Standard (ISA 701) which required the inclusion of more entity-specific information in the auditors' report. The aim was to enhance the communicative value of the auditor's report by providing insight into the audit processes. Auditors are required to determine and disclose specific issues of significance identified during the audit, classified as key audit matters (KAMs). Drawing on signaling and agency theories, we investigate whether and how auditor industry specialization and audit committee independence are associated with the reporting of KAMs. Based on a hand-collected data for the Norwegian listed companies for the period 2016-2018, our findings show that industry specialist auditors disclose fewer KAMs while companies with more independent audit committees received audit reports that included a greater number of KAMs. We conclude that auditors' industry expertise and the level of audit committees' independence are important characteristics for KAMs reporting. Our findings contribute to the audit literature by highlighting the influence of understudied but important auditor and client attributes on KAM disclosures.

Key words: *key audit matters, audit report, auditor industry specialization, audit committee independence*
JEL classification: M40, M41, M42, M48

[4] **Acknowledgements**
We thank participants of the American Accounting Association International Accounting Section Midyear Meeting, January 28–30, 2021 and participants of the European Accounting Association 43RD Annual Congress – Virtual, May 26 - 28, 2021 for their insightful comments.

1. Introduction

The auditor report is the only visible outcome of a statutory audit and the auditor's primary means of communication with the auditee's shareholders and other stakeholders. Auditors use the audit report to convey their opinion about whether the financial statements prepared by management are fairly presented in all material respects. An unqualified audit opinion provides shareholders with reasonable assurance that the financial statements are free from material misstatements whereas an audit report with a qualified opinion suggests that the financial statements are not free from the effects of one or more material misstatements (Lennox, Schmidt, & Thompson, 2022). Previous research shows that a large proportion of public companies receive unqualified audit opinions rather than opinion disclaimers or qualified opinions (Lennox, 2005). Because nearly all audit reports have unqualified audit opinions written in standardized words, the audit report has been historically criticized as being low in communicative value (Asare & Wright, 2012; Church, Davis, & McCracken, 2008; Lennox, 2005).

To address these concerns, many international audit standard-setters, including the UK Financial Reporting Council (FRC), the International Auditing and Assurance Standards Board (IAASB), and the US Public Company Accountability Oversight Board (PCAOB) have implemented expanded audit reporting models through revised and new auditor reporting standards (FRC, 2013; IAASB, 2015; PCAOB, 2017). The IAASB for example introduced a new International Standard on Auditing (ISA) - ISA 701 "*Communicating Key Audit Matters in the Independent Auditor's Report",* which became effective for audits of the financial statements for the periods ending on or after December 15, 2016 (IAASB, 2015). According to ISA 701, key audit matters (KAMs) are *"those matters that, in the auditor's professional judgement, were of most significance in the audit of the financial statements"*. The requirements under ISA 701 thus fundamentally altered the structure of the audit report. For the first time, auditors were required to include a new section in the audit report that discloses the most significant risks identified by the auditor during the audit (IAASB, 2015).

Auditors rely on client-specific expertise to form professional judgement. As such, we examine whether and how auditor industry specialization influences the number of key audit matters disclosed in the audit reports. Theoretically we draw on signaling theory as presented by Connelly, Certo, Ireland, and Reutzel (2011). From the lens of signaling theory, the disclosure of fewer key audit matters by auditors could represent a signal to substantiate their level of expertise to the external stakeholders, especially shareholders. On the other hand, the determination and disclosure of a greater number of key audit matters by auditors may also represent a signal to the shareholders about the thoroughness of their work and justification for their audit fees. Given these conflicting perspectives, the influence of industry specialist auditors on the number of key audit matters to be disclosed in the audit report could go in either direction.

Key audit matters are selected by auditors from the matters they communicate to those charged with governance (TCWG) of the audited entity (IAASB, 2015). Although the entire TCWG is the accountable body in a company, it generally delegates its duties over the financial reporting process to the audit committee (Vafeas & Theodorou, 1998). In

performing this role, audit committees are specifically responsible for, among other things, appointing and preserving the independence of the external auditor (Sultana, Singh, & Rahman, 2019; Wu, Hsu, & Haslam, 2016). Audit committees composed of majority of independent members are shown to be more effective in their duties and can impact audit outcomes by reducing management pressure on the auditor and also by broadening the scope of the audit engagement (Boo & Sharma, 2008; Sultana et al., 2019). Given that recent audit standards have ensured new auditor disclosures in the audit report, it is compelling to revisit the relationship between audit committee characteristics and audit results. As such, we extend our study by reexamining the influence of audit committee member independence on audit results by focusing on a relatively new auditor disclosure, namely the disclosure of key audit matters.

Applying several panel data regression techniques, we analyzed the influence of auditor's industry specialization and audit committee's independence on the number of key audit matters disclosed. The examination is based on a sample of hand-collected data for companies listed on the Oslo Stock Exchange during the period 2016 to 2018. We find that industry specialist auditors tend to disclose fewer key audit matters. We also find that when the audit committee is composed of more independent members, a greater number of key audit matters are disclosed by auditors in the audit report. These results remain consistent in the analysis of different types of key audit matters and when alternative estimation techniques as well as proxies are applied.

Our study contributes to the audit literature and theory in several ways. The findings suggest that industry specialist auditors have motivations to signal their level of expertise by disclosing fewer key audit matters in the auditor report to a wide range of stakeholders, including investors, regulators, management, and among others. Since management are involved in the daily operations of the audited entities, they are internal stakeholders and the others (investors, regulators etc.) are external stakeholders. The signals from industry specialist auditors through KAMs in the audit report are directed towards both internal and external stakeholder groups. In this regard, we build on the signaling theory by highlighting the prospects of signals from auditors being directed at internal stakeholders (management) of the audited company. This aspect constitutes an addition to the signaling theory as its original intuition is focused on signals being sent by parties with more information (internal stakeholders) to external parties (investors) who lack enough information about a company, service, or a product (Connelly et al., 2011). While prior studies (Abbott, Park, & Parker, 2000; Bewley, Chung, & McCracken, 2008; Kang, 2014) have applied the signaling theory in the field of auditing, their focus was on understanding the motivations for companies to signal their unobservable underlying quality to external parties such as shareholders.

Second, the findings contribute to the audit literature by extending the prior studies on the determinants of key audit matters by auditors. Sierra-García, Gambetta, García-Benau, and Orta-Pérez (2019) examined the influence of auditor characteristics on the number of key audit matters in the UK. They concluded that KPMG, EY, and Deloitte tend to disclose fewer KAMs as compared to PwC. Female audit partners were found in the UK to disclose a greater number of KAMs than male audit partners (Abdelfattah, Elmahgoub, & Elamer, 2020). Accordingly, we add to the prior findings by highlighting that auditor's

industry specialization is also a significant auditor attribute that is associated with the disclosures of key audit matters in the audit reports.

Third, related to client characteristics, prior studies tend to focus on the structure and financial factors that influence KAMs. Pinto and Morais (2019) reported that client complexity, measured by the number of business segments, and higher audit fees are associated with a greater number of KAMs. We contribute to this research stream by extending the discussion to include the effect of client governance structures. In particular, our findings provide some new insights on the influence of audit committee composition in the KAMs' reporting process as more independent audit committees are positively associated with the number of key audit matters disclosed by auditors.

Finally, agency based studies generally suggest that the main goal of audit committees is to safeguard shareholders' interests by ensuring the provision of reliable and informative disclosures (Carcello & Neal, 2003; Wu et al., 2016). Accordingly, our study highlights that audit committees can pursue this objective by supporting auditors to provide more entity-specific information in the form of KAMs to shareholders. Audit committee independence is critical in attenuating information asymmetry among stakeholders. As such, we believe this is an important contribution considering the heightened public interest in the role of audit committees regarding the financial reporting process.

The rest of the paper is structured as follows. In section 2, we provide the background, previous studies, theoretical perspectives, and research questions. We then explain the research design in section 3. Our results are reported in section 4 while in section 5 we discuss and conclude the paper.

2. Background, theory, and research questions

2.1 Background and related studies

Publicly traded companies have several stakeholders, including shareholders who rely on audited financial information for their investment decisions. As such, auditors have an important role in the corporate financial reporting process and are tasked with expressing an independent opinion on the credibility of the information provided by management (DeFond & Zhang, 2014). To accomplish this task, auditors communicate the outcome of their work through the audit report in which they express their opinion on management's compliance with the applicable financial reporting frameworks and standards. The above shows the significance of the auditor's report in the financial reporting process. However, for decades, stakeholders have emphasized the limited value of the auditor's report and criticized it for its standardized wording and low communicative value (Bédard, Coram, Espahbodi, & Mock, 2016; Coram, Mock, Turner, & Gray, 2011; Vanstraelen, Schelleman, Meuwissen, & Hofmann, 2012).

Audit regulators and standard-setters in different jurisdictions have announced new and revised auditing standards aimed at enhancing the communicative value of the auditor's report (IAASB, 2015; Reid, Carcello, Li, & Neal, 2015; Sierra-García et al., 2019). The UK's FRC introduced key audit matters through ISA 700 for the periods ending on or after October 1, 2012 (FRC, 2013). The IAASB issued ISA 701 for the fiscal years

ending on or after December 15, 2016 (IAASB, 2015). Statutory auditors of public-interest entities (PIEs) operating in the EU/European Economic Areas (EEA) follow ISA and implemented this change. In the US, the PCAOB announced its version of KAMs called "*critical audit matters* (CAMs)" in 2017. CAMs took effect for the fiscal years ending on or after June 30, 2019 for audits of large accelerated fillers and December 15, 2020 for all other companies expected to comply with the CAMs requirements (PCAOB, 2017).

The requirement for auditors of listed companies to disclose key audit matters in the audit report has attracted significant academic interest to understand the determinants and consequences of KAMs. A large proportion of the previous studies has focused on the implications of KAMs. Focusing on investor behavior and market reaction to KAMs, Gutierrez, Minutti-Meza, Tatum, and Vulcheva (2018) examined the consequences of adopting an expanded auditor report in the UK. They found no significant evidence that the inclusion of key audit matters in the audit report affected the market and investor's reaction to the release of auditors' reports. Also, Boolaky and Quick (2016) analyzed the perceptions of bank directors about the expanded auditor reports and concluded that the expansion was not necessarily perceived as useful by stakeholders. Lennox, Schmidt, and Thompson (2018) in an archival study based on a sample from the UK reported that investors did not find the KAM disclosures informative. However in France and Australia, Sirois, Bédard, and Bera (2018) and Moroney, Phang, and Xiao (2021), respectively, observed that the inclusion of key audit matters in the audit report attracted users' attention to the key audit matters section of the audit report.

Several studies have also considered the client's responses to the decision to include KAMs in the auditors' report. In Germany, Gold, Heilmann, Pott, and Rematzki (2020) analyzed the impact of key audit matters on the financial reporting behaviors of managers. They concluded that the tendency for managers to make an aggressive financial reporting decision is reduced when KAMs are reported in the audit report than in their absence. Using an experiment, Cade and Hodge (2014) also studied whether expanding the audit report through the disclosure of accounting-estimate details affects the communication openness of managers. They found that participants were less willing to share private information on their accounting choices with auditors when the estimates are required to be disclosed in the audit report.

Further, an emerging stream of studies has also explored the determinants of key audit matters. Sierra-García et al. (2019) analyzed the determinants of key audit matters in the UK and observed that both auditor-and client-related characteristics are associated with the number of KAMs disclosed. In particular, they discovered that EY, Deloitte, and KPMG compared to PwC tend to determine and disclose fewer key audit matters. Abdelfattah et al. (2020) also examined a sample of UK companies and found that more key audit matters are disclosed when the audit engagement partner is a female. Related to clients, they found that auditors of companies that are more leveraged and complex as depicted by number of subsidiaries tend to determine and disclose more key audit matters in their audit reports. Employing a cross-country sample involving companies from the UK, France and the Netherlands, Pinto and Morais (2019) observed that number of business segments, audit fees, and client size, measured by total assets, are positively associated with the number of

key audit matters disclosed by auditors. The authors further found that companies operating in the financial industry were associated with fewer key audit matters. In general, the prior research findings suggest that both client- and auditor-characteristics are associated with the reporting of KAMs. It is thus relevant to expand the current stream of research to include the influence of auditor industry specialization and audit committee independence which are important factors in the audit process but are currently not or insufficiently examined.

2.2 Conceptual framework

The principal aim of the financial reporting process is to provide information to external stakeholders such as shareholders. In this process, the client's management and external auditors seek to ensure that the information needs of the stakeholders are satisfied. Management has responsibility to prepare the financial information in compliance with the relevant financial reporting framework and appropriate accounting policies. Auditors on the other hand are required to assess and express an independent opinion on the information prepared by management. The aim is to provide independent assurance to the stakeholders that management has faithfully complied with the appropriate financial reporting framework and applied relevant accounting policies (DeFond & Zhang, 2014). As management and auditors are involved in the information production process, there is information asymmetry between them and the external users (e.g., investors). Moreover, because the information preparation process is not publicly observable, the underlying quality of the auditor largely remains hidden from the users (Bergner, Marquardt, & Mohapatra, 2020). Auditors can use various approaches to signal their unobservable quality to the external stakeholders.

Signaling theory perspectives can be useful in explaining the behavior of auditors in the financial reporting process (Connelly et al., 2011; Spence, 1973, 2002). The very essence of signaling theory is to lessen the information asymmetry between parties who possess more private information and those with less information (Akerlof, 1970; Spence, 1973, 2002). Hence, the theory is widely applied in the context of imperfect markets in order to understand the behavioral tendencies of the parties with more information who adopt measures to signal the unobservable quality underlying their service or products to the parties with less information (Connelly et al., 2011).

According to the signaling theory, three key elements interact to enable the signaling process. These primary elements include the *signaler*, *signal*, and *receiver* (Connelly et al., 2011). *Signaler* refers to the person, firm or product possessing a certain invisible underlying quality that is intended to be signaled to external parties. In essence, *signalers* from the perspective of signaling theory are insiders who have private information about a product (Kirmani & Rao, 2000), an organization (Ross, 1977), or an individual (Spence, 1973) that is not publicly available to outsiders. It suggests that *signalers* obtain private information that may be useful to the economic decisions of outsiders.

Signal refers to the private information available to the insiders (*signalers*) which they must decide whether and how it should be communicated to outsiders (*receivers*) (Connelly et al., 2011). Signaling theory suggests that *signalers* tend to deliberately share positive

information in part to convey positive organizational characteristics. The theory primarily focuses on the conscious actions taken by insiders to communicate or propagate their imperceptible underlying qualities. Finally, *receivers* are the outsiders such as investors who lack information (Connelly et al., 2011). Applying this theory to our research, auditors constitute the *signalers*, KAMs represent the *signal* whereas the *receivers* include a wide range of stakeholders such as shareholders, management, and among others.

2.3 Industry specialist auditors

Accounting and audit scholars have used signaling theory in auditor choice studies (Abbott et al., 2000; Bewley et al., 2008; Kang, 2014). The general conclusion of this stream of research is that perceived high-quality auditors such as industry specialist and Big N auditors are hired by companies for the purposes of signaling to users their desire and commitment to high-quality financial reporting (Abbott et al., 2000). Industry specialist and Big N auditors are generally perceived to be associated with high-quality audits (Bergner et al., 2020). However, due to the generally unobservable nature of the audit process alongside the binary nature of the auditor's opinion, it becomes very difficult for users to discern how industry specialist and Big N auditors deliver their relatively high-quality audits. Considering that key audit matters represent the most significant topics of the audit, they potentially constitute areas industry specialist auditors could utilize to signal their underlying and unobservable quality.

In line with the signaling theory perspectives, industry specialist auditors (*signalers*) may disclose a greater number of key audit matters as a signal of their thoroughness to the external users (*receivers*). Industry specialist auditors may consider the reporting of key audit matters as a viable signal conveying the underlying quality of their work. As key audit matters typically cover client-specific risks, more extensive disclosure could be indicative of the audit quality. Prior studies indicate that key audit matters have attention directing effect on the information acquisition of external users (Moroney et al., 2021; Sirois et al., 2018). From that lens, industry specialist auditors would be expected to disclose a higher number of key audit matters to signal to receivers of information their underlying ability to provide high-quality audits.

On the other hand, industry specialist auditors may also have strong motivation to disclose fewer key audit matters in their audit reports. According to ISA 701, auditors are required to apply professional judgement and skepticism in the determination and selection of what constitutes a key audit matter (IAASB, 2015). To appropriately apply professional judgements, auditors will have to rely on their accumulated expertise and/or knowledge of the client industry. Research suggests that the acquisition and accumulation of client-specific expertise takes time (Beck & Wu, 2006). Industry specialist auditors are more likely to accrue solid client-specific knowledge as they focus on specific industries. These auditors may signal their expertise by disclosing fewer items. Based on this point of view, industry specialist auditors may be associated with fewer key audit matters in their audit reports compared to non-specialist auditors.

The foregoing discussion suggests that it is challenging to predict the direction for the disclosure of key audit matters by industry specialist auditors. That is, industry specialist

auditors may signal their unobservable underlying expertise to external users by disclosing more key audit matters but also industry expertise can be reflected by disclosing fewer issues. Accordingly, we present the following research question (RQ):

RQ1: *How does auditors' industry specialization impact the number of KAMs disclosed?*

2.4 Audit committee independence

Audit committee independence is generally identified by previous studies as one of the components that improves audit quality (Boo & Sharma, 2008; Raimo, Vitolla, Marrone, & Rubino, 2021; Sultana et al., 2019). The relevance of audit committee independence is not only recognized in the academic literature but has also attracted significant regulatory attention. After high-profile corporate frauds, the Sarbanes-Oxley Act (SOX) of 2002 was passed in the US (Ghafran & O'Sullivan, 2013; Kent & Stewart, 2008). Under SOX, public companies are required to set up audit committees made of only independent members. Similarly, a number of laws and directives have been enacted by the European Commission for its member states. For example, the EU/EAA jurisdictions are required under the Directive 2014/56/EU to establish audit committees where the majority of the members serving on the audit committee are independent of the audited entity (European Parliament, 2014).

The recommendation for greater audit committee member independence is supported by the agency theory perspectives that audit committees composed of more independent members are best controllers of executives' actions (Fama & Jensen, 1983). Agency theory-based studies consider audit committees composed of more independent members as capable of detecting and reducing fraudulent practices in the disclosure of corporate financial information (Abbott et al., 2000; Bédard, Chtourou, & Courteau, 2004; Bronson, Carcello, Hollingsworth, & Neal, 2009). In support of the foregoing view, Carcello and Neal (2003) suggested that because of the absence of relations between audit committee members and the executives, independent audit committees are capable of ensuring credible corporate disclosures.

Audit committees are specifically responsible for, among other things, hiring and preserving the independence of the external auditor (Sultana et al., 2019). As external auditors are directly appointed and protected by audit committees, they are insulated from management pressure in the audit process which could result in better audit outcomes. This view is corroborated by several prior studies which suggest that companies with effective audit committees are associated with better quality of financial reporting (Pomeroy & Thornton, 2008), reduced instances of going-concern reporting (Carcello & Neal, 2003), higher audit fees which denote improved audit quality (G. Krishnan & Visvanathan, 2009), high accruals quality (Dhaliwal, Naiker, & Navissi, 2010; Yang & Krishnan, 2005), effective internal controls (Zhang, Zhou, & Zhou, 2007), and conservative accounting (Sultana & Mitchell Van der Zahn, 2015). Associated specifically with the influence of audit committee independence on financial reporting quality, Li, Mangena, and Pike (2012) found that more independent audit committees are associated with improved credibility of

both financial and non-financial corporate disclosures. Likewise, Raimo et al. (2021) found that audit committee independence is positive and significantly associated with the quality of integrated reports.

The requirement to include key audit matters in the audit report could create some amount of tension between auditors and management. KAMs are salient issues in the audit and represent areas management has exercised the greatest discretion (IAASB, 2015; Sierra-García et al., 2019). Prior KAM literature suggests that audited financial statement users such as investors pay significant attention to the KAM sections in the audit report (Moroney et al., 2021; Sirois et al., 2018). That said, management, in an attempt to avoid the scrutiny of stakeholders in the event of a misjudgment may have some incentives to pressurize auditors not to disclose KAMs around such areas. In this instance, the auditor may require the support of the audit committee to disclose KAMs as warranted by the available audit evidence. Accordingly, the presence of a more independent audit committee which is shown in the previous literature to be more effective in its duties may protect auditors in the KAM disclosure process. The expected result is that a greater number of KAMs are likely to be included in the final audit report. Building on the foregoing discussion, the following hypothesis is proposed in this study:

H1: *The number of KAMs disclosed is positively influenced by audit committee independence.*

3. Research design

3.1 Sample selection

Our study focuses on companies listed on the Oslo Stock Exchange which is made of the Oslo BORS and Oslo AXESS[5]. As the requirement for key audit matters became effective for the audits of financial statements for the periods ending on or after December 15, 2016 (IAASB, 2015), our sample includes reporting for three years - 2016, 2017, and 2018. As of 31 December 2018, a population of 210 listed companies was trading on the Oslo Stock Exchange. From this initial population, following previous studies (Pinto & Morais, 2019; Sierra-García et al., 2019), a number of companies were excluded from the final sample as follows: 1) companies that used financial reporting frameworks other than IFRS (e.g., US GAAP); 2) companies that got listed, delisted or were acquired during the sample period: 3) companies that were the subject of regulatory sanctions or judicial management. Finally, we excluded companies for which there was no clear disclosures about the existence and composition of audit committees. After applying these filtering and screening procedures, the final sample consisted of 147 companies, resulting in 441 company-year observations as summarized in Table 1.

[5] *Oslo Axess is a regulated and licensed market under the auspices of the Oslo Stock Exchange. The purpose is to promote growth among smaller companies and give them the benefits achieved by having shares traded on a regulated market.*

Table 1: Sample selection

Details	Companies
Population of companies listed as of 31 December 2018.	210
Companies excluded as follows:	
Reporting framework other than IFRS	-5
Listed, delisted, and acquired between 2016 and 2018	-26
Others i.e., regulatory sanctions	-17
No clear disclosures on audit committee existence and composition	-15
Final sample analyzed	**147**

3.2 Variables and measurements

3.2.1 Dependent variables

The main dependent variable is the number of key audit matters disclosed by auditors in their audit reports (*#KAMs*). *#KAMs* is measured as the total number of key audit matters disclosed by auditors of the sampled companies in their audit reports (Abdelfattah et al., 2020; Sierra-García et al., 2019). Specifically, we carefully read the key audit matters section of each audit report and manually counted the number of key audit matters disclosed during each year throughout the study period.

To enable us conduct further analysis, we followed the categorization in prior studies and grouped the identified key audit matters into two different types. These are the entity-level risk key audit matters (*ELRKAMs*) and the account-level risk key audit matters (*ALRKAMs*) (Lennox, Schmidt, & Thompson, 2017; Sierra-García et al., 2019). The *ELRKAMs* included the total number of KAMs that relate to the company-level risks. They included the matters associated with the sampled company's IT systems, acquisition accounting, litigation provisions, control systems, tax, and regulatory provisions. The *ALRKAMs* relate to specific items in the financial statements, such as property, plant and equipment (PPEs), revenues, inventories, financial assets, pension schemes, supplier rebates, and asset impairment (Sierra-García et al., 2019). This categorization allows us to explore the impact of industry specialization and audit committee's independence on different types of key audit matters disclosed by auditors.

3.2.2 Independent variables

The explanatory variables applied for the analysis are auditor industry specialization and audit committee independence. The auditor industry specialization variable (*INDSPEC*) is an indicator variable coded as one if the audit firm has the largest market share *(MS)* in the client's industry and zero, otherwise. Previous studies have utilized this measure for auditor industry specialization (Craswell, Francis, & Taylor, 1995; DeFond, Francis, & Wong, 2000; Eshleman & Guo, 2020).

To calculate the audit firm's market share, we collected audit fees data from the annual reports of the companies in the final sample. Then we obtained the total audit fees earned by each audit firm in specific industries. Subsequently, we divided the total audit fees for each audit firm in specific industries by the total audit fees received by all

competing audit firms in that industry (Gramling and Stone (2001). For these calculations, we applied the following formula:

$$MS_{ki} = \frac{\Sigma_{j=1}^{J} AF_{kij}}{\Sigma_{i=1}^{I}\Sigma_{j=1}^{J} AF_{kij}},$$

where *MS* is the market share of auditor *i* in industry *k*, *AF* is the total audit fees paid by client company *j* to auditor *i* in industry *k*, *J* is the total number of clients served by auditor *i* in industry *k* and *I* denote the number of auditors in industry *k.*

We in addition computed two alternative proxies. Specifically, we follow Audousset-Coulier, Jeny, and Jiang (2016) and refer to audit firms in specific industries that obtained at least 24% of the market share as industry specialist auditors (*INDSPEC>24%*). As well, we directly used the raw percentage of the market shares associated with the audit firms (*INDSPEC%*) as a complementary measure of the auditor industry specialization variable consistent with Audousset-Coulier et al. (2016).

The second independent variable used in the study is audit committee independence (*AC_IND*). Poretti, Schatt, and Bruynseels (2018) considered an audit committee member as being independent when there is no employment relationship (that is, the member is not a current or a former employee of the company), no personal relationship (that is, the member is not a family member or a friend of the CEO), and no business relationship (i.e., the member is not a consultant, supplier, large client, or an advisor). Consistent with this definition, we determined the independence status of the audit committee members by carefully reading the description of each audit committee member disclosed in the audit committee's section of the sampled companies' annual reports. Next, for each audit committee, we obtained the number of independent members and divided this number by the total size of the full audit committee for each year to obtain the audit committee's independence percentage. As a result, audit committee independence is a continuous variable measured as the ratio of the independent members serving on the audit committee throughout the sample period (Carcello & Neal, 2003; Klein, 2002; J. Krishnan, 2005; Poretti et al., 2018).

3.2.3 Control variables

Following previous studies, we identified and included a wide range of client and auditor characteristics as control variables (Abdelfattah et al., 2020; Pinto & Morais, 2019; Sierra-García et al., 2019). Four variables that depict auditor characteristics are included. The first variable included is the audit firm type (*Big4*), which is an indicator variable coded as one if the audit firm is either PwC, Deloitte, KPMG or EY, and zero otherwise. The amount of audit fees (*AFEE*) received by each audit firm is the second auditor-related variable. It is measured as the natural logarithm of the total statutory audit fees received by each audit firm. Pinto and Morais (2019) found that auditors who receive higher audit fees tend to disclose more key audit matters in their audit reports. The proportion of non-statutory audit fees to the total audit fees obtained by the audit firm is the third auditor-related control variable (*NAFEE*). Audit firms that provide their clients with consultancy services often tend to accumulate substantial knowledge about client-specific risks which may aid in the

identification of KAMs. Finally, the binary variable stated as one if the audit firm is in the same city as the client and 0, otherwise (*AFLOC*) is included as another auditor-related variable. Choi, Kim, Qiu, and Zang (2012) indicated that audit firms located in the same city location with the client are associated with relatively better audit quality. We manually collected data for these auditor-related control variables from the annual reports of the companies in the final sample.

For the client-related control variables, we included board size (*BOARD*) proxied as the total number of board members. Client size (*SIZE*) is measured by the natural logarithm of total assets. Clients that have large amounts of assets are shown to be associated with a greater number of key audit matters (Pinto & Morais, 2019). The relative size of current assets depicted by the proportion of receivables and inventory to total assets (*RECINV*) is also included as a control variable. The level of client risk is also considered by including the relative size of debt proxied by the ratio of total debt to total assets (*LEV*) as high amount of debt has implications for going concern. Sierra-García et al. (2019) found a negative association between leverage and the number of KAMs disclosed. In addition, client profitability is considered through the ratio of operating profit to total assets (*ROA*) and whether there was a trading loss (*LOSS*). *LOSS* is a binary variable measured as one if a company recorded a net operating loss and zero, otherwise. More KAMs are disclosed by auditors for companies associated with net operating losses (Sierra-García et al., 2019). Furthermore, the level of client liquidity (*CFO*) is measured as the natural logarithm of operating cash flows (Abdelfattah et al., 2020). Finally, client complexity is included by the natural logarithm of the number of subsidiaries (*SUBs*) as well as the proportion of foreign subsidiaries (*FSUBs*). Companies that have many subsidiaries both domestically and abroad are shown to be associated with more key audit matters (Pinto & Morais, 2019). Years, industry and company fixed effects are similarly included in all our estimations to capture their time-invariant effects on the results. Data for all the client-related control variables are drawn from the *Thompson Reuters Eikon* database. A detailed description of the dependent, test, and all the control variables as well as data sources are summarized in Appendix A.

3.3 Statistical tests and equation

In order to analyze the association between the test variables of interest (auditor industry specialization and audit committee independence) and the number of KAMs disclosed, we apply the following multivariate regression model specified in equation 1.

$$\#KAMs_{it} = \beta_0 + \beta_1 INDSPEC_{it} + \beta_2 AC\_IND_{it} + \Sigma CONTROLs + u_i + e_{it} \qquad (1)$$

where $\#KAMs_{it}$ is the dependent variable in the main examination but is subsequently replaced by *#ELRKAMs* and *#ALRKAMs* in the additional analysis. $\beta_1 INDSPEC_{it}$ and $\beta_2 AC\_IND_{it}$ are the independent variables of interest which we used to depict the auditor industry specialist status and audit committee independence, respectively. A statistically significant coefficient on $\beta_1 INDSPEC_{it}$ and $\beta_2 AC\_IND_{it}$ provides evidence of their effect on the number of key audit matters disclosed in the audit reports. *ΣCONTROLs* is a vector

of control variables commonly used in previous studies (Abdelfattah et al., 2020; Sierra-García et al., 2019).

4. Results

4.1 Descriptive statistics

Table 2 Panels A through D shows the distribution of the observations based on the number of key audit matters disclosed in the audit reports of the sampled companies. The statistics as reported in Panel A of Table 2 show that for the study period, a total of 835 key audit matters were reported by the sampled companies. Further details of the 835 KAMs are presented in Table 2 Panel A. The audit reports of 22 companies, approximately 5% of the total sample, did not include key audit matters. 154 companies which is about 35% included at least one key audit matter. Approximately 33% (146 companies) disclosed up to two key audit matters. 91 companies (21%) included three key audit matters in their audit reports. Finally, 24 (5%) and four (1%) of the sampled companies disclosed four and five key audit matters, respectively. Accordingly, Table 2 Panel A reveals that the most frequent number of key audit matters included in the audit reports is either one or two.

Panels B and C of Table 2 also reveals that over 90% of the 835 key audit matters reported were related to the account-level risk (*ALRKAMs*) types of key audit matters. It suggests that the key audit matters identified and disclosed focus on specific items in the clients' financial statements rather than entity-level risks (*ELRKAMs*).

Table 2 Panel D shows the total number of key audit matters for all companies in the sample for each of the years. A total of 288 key audit matters were disclosed in year 2016. The number declined to 282 (about 2%) in 2017 and further to 265 (about 6%) in 2018. Hence, the descriptive statistics as presented in Table 2 Panel D highlights a declining trend in the reporting of key audit matters by the sampled companies over the study period.

In Table 3, we present the distribution of the total sample in terms of the number of KAMs reported by companies in each industry. As is displayed in Table 3, the industries are associated with different numbers of KAMs. The energy industry with 40 companies which is about 28% of the sample is the largest industry and contributed 233 KAMs representing about 27% of the 835 total number of KAMs disclosed by all companies for the study period. With 3 companies (2%), the utilities industry is the smallest industrial sector in the sample and is associated with 15 KAMs which is around 2% of the total number of KAMs. The communication service industry with 6 companies, which is about 4% of the sample, is associated with the highest average (3) number of KAMs whereas the sample average is 2 KAMs per industry.

Table 2: Distribution of observations by number of key audit matters

Panel A: Sample companies distributed by number of KAMs

#KAM	#Companies	%	#KAM
0	22	5%	0
1	154	35%	154
2	146	33%	292
3	91	21%	273
4	24	5%	96
5	4	1%	20
	441	**100%**	**835**

Panel B: Sample companies distributed by account-level risk KAMs

#KAM	#Companies	%	#KAM
0	24	5%	0
1	177	40%	177
2	141	32%	282
3	78	18%	234
4	19	4%	76
5	2	0%	10
	441	**100%**	**779**

Panel C: Sample companies distributed by entity-level risk KAMs

#KAM	#Companies	%	#KAM
0	389	88%	0
1	48	11%	48
2	47	1%	8
3	-	-	-
4	-	-	-
5	-	-	-
	441	**100%**	**56**

Panel D: Total number of KAMs disclosed over time

#Companies	Years	#KAMs
147	2016	288
147	2017	282
147	2018	265
441		**835**

Table 3: Distribution of observations by industry

Industry	#Companies	#KAMs	Average #KAMs
Communication Service	6 (4%)	46 (6%)	3
Consumer Discretionary	6 (4%)	40 (5%)	2
Consumer Staples	11 (7%)	54 (6%)	2
Energy	40 (28%)	233 (27%)	2
Financials	13 (9%)	92 (11%)	2
Health Care	12 (8%)	38 (5%)	1
Industrials	28(19%)	163 (20%)	2
Information Technology	15 (10%)	78 (9%)	2
Materials	7 (5%)	47 (6%)	2
Real Estate	6 (4%)	29 (3%)	2
Utilities	3 (2%)	15 (2%)	2
Total	**147**	**835**	**2**

Table 4 displays the descriptive statistics of the sample analyzed for the remaining variables. The table indicates that on average, 28% of the sampled companies were audited by an industry specialist auditor (*INDSPEC*). Table 4 further shows that, on average, about 79% of the members serving on the audit committees (*AC_IND*) were independent of the companies and their management teams. The figure of 79% as reported in Table 4 suggests that most of the sampled companies have established audit committees of which majority of the members are independent of the audited entity. Moreover, the 79% is comparable to the average of about 78% as reported by Poretti et al. (2018) in their study of audit committee independence of 15 European countries. Table 4 further shows that the sampled companies are associated with an average board size (*BOARD*) of six members. Poretti et al. (2018) found that the typical board size for most European countries is nine. In terms of client complexity, as indicated by the number of subsidiaries, companies in the sample have on average four subsidiaries and approximately 82% of these subsidiaries operate in foreign locations. Finally, Table 4 indicates that the Norwegian audit market is dominated by the Big 4 (*BIG4*) audit firms as such audit firms audited about 89% of the sampled companies. This is greater than the average of about 78% reported by Poretti et al. (2018) for the European audit market.

Table 4: Descriptive statistics

Variable	Obs	Mean	Std.Dev.	Min	Max
#KAMs	441	1.893	1.022	0.000	5.000
#ALRKAMs	441	1.766	0.978	0.000	5.000
#ELRKAMs	441	0.127	0.360	0.000	2.000
INDSPEC	441	0.277	0.448	0.000	1.000
INDSPEC>24%	441	0.528	0.500	0.000	1.000
INDSPEC%	441	0.284	0.193	0.006	0.874
AC_IND	441	0.794	0.265	0.000	1.000
BOARD	441	6.000	1.902	3.000	12.000
SIZE	441	21.898	2.217	16.111	28.624
RECINV	441	0.209	0.233	0.000	1.144
LEV	441	0.256	0.245	0.000	2.056
ROA	441	-2.841	21.200	-99.193	40.877
CFO	441	13.69	9.328	0.000	26.096
LOSS	441	0.420	0.494	0.000	1.000
SUBs	441	3.934	2.416	0.000	14.560
FSUBs	441	0.819	0.386	0.000	1.000
BIG4	441	0.889	0.315	0.000	1.000
AFEE	441	14.361	1.347	10.422	18.005
NAFEE	441	0.290	0.190	0.000	0.948
AFLOC	441	0.884	0.320	0.000	1.000

In Table 5, we provide the bivariate correlations between pairs of the dependent and the test variables together with the results of the variance inflation factor (VIF) analysis. We noted that the association between auditor industry specialization (*INDSPEC*) and the number of key audit matters determined and disclosed (*#KAMs*) is not statistically significant. The correlation between audit committee independence (*AC_IND*) and number of key audit matters (*#KAMs*) is positive and significant at the 10% level. Further, board size (*BOARD*), client size (*SIZE*), return on assets (*ROA*), cash flows from operating activities (*CFO*), number of subsidiaries (*SUBs*), the presence of foreign subsidiaries (*FSUBs*) and audit fees (*AFEE*) all have positive and significant relationship with the number of key audit matters disclosed in the audit reports (*#KAMs*). In contrast, companies that made a net operating loss (*LOSS*) and companies that are audited by a Big 4 audit firm (*BIG4*) are significantly and negatively associated with the number of key audit matters disclosed (*#KAMs*).

Table 5: Pairwise correlations

Variables	VIF	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1) #KAMs	-	1.000															
(2) INDSPEC	1.19	-0.08	1.000														
(3) AC_IND	1.09	0.180*	0.031	1.000													
(4) BOARD	1.94	0.296*	0.304*	0.06	1.000												
(5) SIZE	3.96	0.378*	0.181*	0.098*	0.540*	1.000											
(6) RECINV	1.49	0.002	0.045	0.034	0.139*	-0.220*	1.000										
(7) LEV	1.39	0.045	-0.017	0.055	-0.091	0.251*	-0.222*	1.000									
(8) ROA	1.96	0.138*	0.029	0.017	0.247*	0.384*	0.152*	0.053	1.000								
(9) CFO	1.95	0.198*	0.141*	0.075	0.339*	0.520*	0.07	0.172*	0.531*	1.000							
(10) LOSS	2.14	-0.145*	-0.094*	-0.079	-0.362*	-0.449*	-0.133*	0.073	-0.628*	-0.536*	1.000						
(11) SUBs	2.10	0.338*	0.182*	0.039	0.369*	0.590*	0.002	0.285*	0.211*	0.426*	-0.207*	1.000					
(12) FSUBs	1.37	0.164*	0.054	0.120*	-0.028	0.081	0.150*	0.002	0.002	0.083	0.007	0.325*	1.000				
(13) BIG4	1.28	-0.122*	0.219*	-0.113*	0.147*	0.217*	0.031	0.105*	0.146*	0.072	-0.109*	0.035	0.002	1.000			
(14) AFEE	2.73	0.459*	0.244*	0.094*	0.516*	0.695*	0.07	0.124*	0.251*	0.449*	-0.292*	0.590*	0.272*	0.119*	1.000		
(15) NAFEE	1.11	-0.05	0.011	-0.045	-0.013	-0.015	-0.031	0.111*	-0.016	-0.041	-0.027	-0.071	-0.04	0.051	-0.167*	1.000	
(16) AFLOC	1.33	0.018	0.113*	-0.071	0.202*	0.181*	0.022	0.08	0.036	0.004	-0.081	0.062	-0.170*	0.323*	0.130*	0.095*	1.000

Note: **significance at the 0.05 level or lower. The table above presents the correlation coefficients among pairs of the variables. Detailed description of the variables is presented in Appendix A*

Next, we examined if there is any concern for multicollinearity. Hair, Anderson, Tatham, and William (1998) suggested that the collinearity between pairs of the variables can limit the relevance of the empirical results if it exceeds 0.9. Collinearity is thus not a concern in this present study as all the correlation coefficients are below the suggested threshold of 0.9. However, we further examined the issue of collinearity by performing the variance inflation factor (VIF) analysis which is considered as a more indicative and accurate technique. VIF values that exceed five are considered harmful to the estimated results as large VIF values can render the results spurious (Studenmund & Cassidy, 1992). The highest VIF value as reported in Table 5 is about 3.96 for total assets (*SIZE*). In essence, the low correlation coefficients along with the low VIF values suggest no serious concern for multicollinearity in this study.

4.2 Empirical results

Table 6 shows the results of the multivariate regression analyzes of the influence of auditor industry specialization and audit committee independence on the number of disclosed key audit matters by auditors of the sampled companies. The estimated results are reported using three models and the Wald Chi-squared test is significant in all models suggesting acceptable model fit. The R-squared ranges between 32% in model (2) and 33% in both models (1) and (3). As indicated in Table 6 model (1), we present the main results which included the two test variables, i.e., the industry specialist auditor indicator variable (*INDSPEC*) and audit committee independence (*AC_IND*) together with all the control variables. In models (2) and (3) of Table 6, we included the two alternative proxies which also depict the auditor's industry specialization status (i.e., *INDSPEC>24%* and *INDSPEC%)*, audit committee independence (*AC_IND*), and all the control variables.

The coefficient estimates in model (1) of Table 6 reveal that the industry specialist auditor indicator variable (*INDSPEC*) is negative and significantly associated with the number of key audit matters disclosed by auditors (*#KAMs*) at the 1% level. Therefore, this finding suggests that industry specialist auditors are more likely to disclose fewer key audit matters in their audit reports compared to non-specialist auditors. Further, we provide the results from using the two alternative proxies of industry specialist auditors in models (2) and (3) of Table 6. The estimated coefficients are comparably negative and significant at the 5% and 1% levels in models (2) and (3), respectively. These results considered together thus provide strong support for the primary findings in model (1) of Table 6 that industry specialist auditors are statistically and significantly related to fewer key audit matters in their audit reports. Collectively, these estimated empirical results in models (1) through (3) therefore provide some insights that answer research question (RQ1) on the association between industry specialist auditors and the number of key audit matters disclosed in the audit reports by auditors.

Table 6: The impact of auditor and client attributes on KAMs

VARIABLES	(1) #KAMs	(2) #KAMs	(3) #KAMs
INDSPEC	***-0.362******		
	(0.111)		
INDSPEC>24%		***-0.202****	
		(0.094)	
INDSPEC%			***-0.894*****
			(0.297)
AC_IND	***0.473****	***0.461****	***0.445****
	(0.187)	***(0.189)***	***(0.187)***
BOARD	0.055	0.045	0.053
	(0.035)	(0.036)	(0.035)
SIZE	0.046	0.052	0.045
	(0.045)	(0.045)	(0.045)
RECINV	0.031	0.047	0.021
	(0.258)	(0.260)	(0.258)
LEV	-0.082	-0.071	-0.063
	(0.222)	(0.224)	(0.222)
ROA	0.004	0.003	0.003
	(0.003)	(0.003)	(0.003)
CFO	-0.005	-0.005	-0.005
	(0.006)	(0.006)	(0.006)
LOSS	0.148	0.143	0.128
	(0.114)	(0.115)	(0.115)
SUBs	0.040	0.039	0.048
	(0.031)	(0.032)	(0.031)
FSUBs	0.072	0.067	0.077
	(0.159)	(0.160)	(0.159)
BIG4	-0.474**	-0.513***	-0.428**
	(0.185)	(0.187)	(0.189)
AFEEs	0.268***	0.260***	0.267***
	(0.062)	(0.062)	(0.062)
NAFEEs	0.322	0.333	0.348
	(0.243)	(0.245)	(0.243)
AFLOC	-0.006	-0.003	0.025
	(0.198)	(0.201)	(0.199)
YEARS (Ref-2016)			
2017	-0.085	-0.081	-0.089
	(0.078)	(0.078)	(0.078)
2018	-0.191**	-0.206***	-0.197**
	(0.079)	(0.080)	(0.079)
INDUSTRY fixed effects	Yes	Yes	Yes
FIRM fixed effects	Yes	Yes	Yes
Constant	-3.495***	-3.398***	-3.337***
	(0.863)	(0.872)	(0.861)
Wald χ^2	124.69***	116.25***	123.05***
R-squared	0.327	0.314	0.327
N	441	441	441

Note: **p<0.10; **p<0.05; ***p<0.01. Refer to Appendix A for detailed description of the variables.*

The results as reported in Table 6 similarly include the estimated coefficients of the association between audit committee independence (*AC_IND*) and the number of key audit matters disclosed by auditors in the audit reports. Specifically in model (1) of Table 6, the relationship between audit committee independence (*AC_IND*) and the number of key audit matters (*#KAMs*) disclosed is positive and statistically significant at the 5 percent level. The result therefore indicates that companies with audit committees composed of more independent members had audit reports that contained a higher number of key audit matters. Moreover, these results as reported in model (1) are strongly supported by those in models (2) and (3) of Table 6 as they are positive and statistically significant at the 5% and 1%, respectively. Taken together, the estimated results provide some understanding on the relationship between audit committee independence and the disclosure of key audit matters by auditors. Therefore, the finding on audit committee independence confirms our expectation in H1 that companies with more independent audit committee members are likely to be associated with a greater number of key audit matters in their audit reports.

Related to the control variables, we observed a few interesting significant associations with the number of key audit matters disclosed by auditors (*#KAMs*). For example, we observed that audit fees (*AFEE*) are positively and significantly associated with the number of key audit matters disclosed in all three models in Table 6. It indicates that auditors who receive higher audit fees tend to disclose more key audit matters in their audit reports which confirms the outcomes of previous studies (Velte, 2019). Furthermore, we find that Big 4 auditors (*BIG4*) have a negative and a statistically significant influence on the number of key audit matters, indicating that these types of auditors tend to disclose fewer key audit matters in their audit reports.

4.3 Additional analyzes

In this section, we performed several additional examinations to ensure robustness of the main results. First, given that the dependent variable (i.e., the number of key audit matters disclosed - *#KAMs*) is count in nature, we re-run all the models using the Poisson regression techniques. In doing this, we applied robust standard errors to ensure valid parameter estimates. We also assessed the model fitness by conducting the goodness-of-fit Chi-squared test. The p-values for both the Deviance and Pearson goodness-of-fit are greater than 0.05, which indicates a good fit for the Poisson models.

The estimated results are reported in three models from (1) through (3). In model (1) of Table 7, the results are negative and statistically significant at the 1% level for the association between the primary indicator for industry specialist auditors (*INDSPEC*) and the number of key audit matters disclosed (*#KAMs*). We once again observed in model (1) of Table 7 that the coefficient estimates for the relationship between audit committee independence (*AC_IND*) and the number of key audit matters disclosed (*#KAMs*) is positive and significant at the 5 percent level.

Table 7: Additional Analyzes using Poisson regression techniques

VARIABLES	(1) #KAMs	(2) #KAMs	(3) #KAMs
INDSPEC	***-0.276****		
	(0.090)		
INDSPEC>24%		***-0.188****	
		(0.077)	
INDSPEC%			***-0.670****
			(0.215)
AC_IND	***0.324****	***0.317****	***0.298****
	(0.149)	***(0.150)***	***(0.149)***
BOARD	0.041	0.031	0.041
	(0.026)	(0.025)	(0.026)
SIZE	0.017	0.022	0.015
	(0.032)	(0.032)	(0.032)
RECINV	-0.017	-0.018	-0.040
	(0.193)	(0.194)	(0.193)
LEV	0.000	0.011	0.022
	(0.179)	(0.179)	(0.179)
ROA	0.001	0.001	0.001
	(0.002)	(0.002)	(0.002)
CFO	-0.003	-0.003	-0.003
	(0.005)	(0.005)	(0.005)
LOSS	0.020	0.014	-0.007
	(0.104)	(0.105)	(0.105)
SUBs	0.014	0.014	0.020
	(0.019)	(0.019)	(0.019)
FSUBs	0.102	0.098	0.117
	(0.113)	(0.113)	(0.113)
BIG4	-0.262**	-0.290**	-0.246**
	(0.118)	(0.118)	(0.120)
AFEEs	0.142***	0.137***	0.144***
	(0.044)	(0.044)	(0.044)
NAFEEs	0.059	0.099	0.101
	(0.200)	(0.203)	(0.202)
AFLOC	0.026	0.030	0.056
	(0.128)	(0.129)	(0.130)
YEARS (Ref-2016)			
2017	-0.045	-0.041	-0.046
	(0.084)	(0.084)	(0.084)
2018	-0.099	-0.112	-0.100
	(0.086)	(0.086)	(0.086)
INDUSTRY fixed effects	Yes	Yes	Yes
FIRM fixed effects	Yes	Yes	Yes
Constant	-2.171***	-2.113***	-2.076***
	(0.575)	(0.578)	(0.573)
Wald χ^2	81.92***	78.07***	82.07***
R-squared	0.062	0.059	0.062
N	441	441	441

Note: **p<0.10; **p<0.05; ***p<0.01. Refer to Appendix A for detailed description of the variables.*

As we did in the primary analysis, we also performed a battery of further analyzes applying the alternative measures of auditor industry specialization, i.e., *INDSPEC>24%* and *INDSPEC%* under the Poisson regression methods. The results as tabulated in models (2) and (3) of Table 7 are largely consistent with the main results that industry specialist auditors have a negative and a significant association with the number of key audit matters (*#KAMs*). We further observed that the relation between audit committee independence (*AC_IND*) and the number of key audit matters (*#KAMs*) persists positive and significant at the 5% level. Collectively, these results largely corroborate the main analyzes earlier reported that industry specialist auditors tend to report fewer key audit matters in their audit reports. They similarly confirm that companies with audit committees that are composed of a higher ratio of independent members had audit reports that contained more key audit matters.

Our second set of additional analyzes involved examining whether the observed relationships of the independent variables hold for different types of key audit matters. In conducting this analysis, we followed previous studies and categorized the identified key audit matters into two types – entity-level risk key audit matters (*ELRKAMs*) and the account-level risk key audit matters (*ALRKAMs*). We then re-estimated the results in which we substituted the primary dependent variable (*#KAMs*) by these two types of key audit matters - *#ALRKAMs* and *#ELRKAMs*.

In Table 8 models (1) to (6), we presented the analysis to examine the association between both auditor industry specialization and audit committee independence and the type of key audit matters disclosed. Similar to the observation in the main analyzes, all the three alternative measures of auditor industry specialist status remain negative and statistically significant ranging from 10% to 1% level in models (1) to (3) of Panel A in Table 8. Thus, the finding suggests that auditors with industry expertise tend to disclose fewer account-level risk types of key audit matters. Equally, the effect of audit committee independence continues positive and significant at the 5% level across models (1) to (3) in Panel A of Table 8. This signifies that audit committee independence is associated with more account-level key audit matters. The results for the entity-level risk types of key audit matters – *ELRKAMs* are presented in models (4) to (6) in Panel B of Table 8. We find that both variables for auditor industry specialization and audit committee independence are not statistically significant. In general, the additional tests using types of KAMs suggest that the relationship holds for account level KAMs which is the dominant type of KAMs and not the entity level KAMs.

Table 8: Additional Analyzes using different types of KAMs

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	**Panel A: *#ALRKAMs***			**Panel B: *#ELRKAMs***		
INDSPEC	***-0.351******			***-0.005***		
	(0.108)			***(0.043)***		
INDSPEC>24%		***-0.170****			***-0.041***	
		(0.092)			***(0.036)***	
INDSPEC%			***-0.748****			***-0.149***
			(0.294)			***(0.111)***
AC_IND	***0.446****	***0.433****	***0.420****	***0.033***	***0.032***	***0.030***
	(0.183)	***(0.185)***	***(0.184)***	***(0.071)***	***(0.071)***	***(0.071)***
BOARD	0.052	0.042	0.048	-0.001	0.000	0.002
	(0.035)	(0.035)	(0.035)	(0.013)	(0.013)	(0.013)
SIZE	-0.014	-0.006	-0.013	0.064***	0.064***	0.063***
	(0.044)	(0.045)	(0.045)	(0.017)	(0.017)	(0.017)
RECINV	0.070	0.092	0.069	-0.011	-0.010	-0.016
	(0.253)	(0.257)	(0.255)	(0.097)	(0.096)	(0.097)
LEV	-0.036	-0.024	-0.017	-0.062	-0.063	-0.062
	(0.217)	(0.220)	(0.218)	(0.086)	(0.085)	(0.085)
ROA	0.003	0.002	0.002	0.001	0.001	0.001
	(0.003)	(0.003)	(0.003)	(0.001)	(0.001)	(0.001)
CFO	0.001	0.001	0.001	-0.007***	-0.007***	-0.007***
	(0.006)	(0.006)	(0.006)	(0.002)	(0.002)	(0.002)
LOSS	0.101	0.096	0.085	0.043	0.041	0.039
	(0.110)	(0.111)	(0.111)	(0.046)	(0.046)	(0.046)
SUBs	0.075**	0.073**	0.081***	-0.033***	-0.032***	-0.030***
	(0.031)	(0.031)	(0.031)	(0.012)	(0.011)	(0.012)
FSUBs	0.077	0.068	0.077	-0.032	-0.033	-0.031
	(0.156)	(0.159)	(0.158)	(0.059)	(0.058)	(0.058)
BIG4	-0.441**	-0.484***	-0.414**	-0.047	-0.037	-0.025
	(0.182)	(0.185)	(0.188)	(0.069)	(0.068)	(0.070)
AFEEs	0.231***	0.221***	0.228***	0.041*	0.042*	0.043*
	(0.061)	(0.062)	(0.061)	(0.023)	(0.023)	(0.023)
NAFEEs	0.271	0.283	0.294	0.090	0.099	0.100
	(0.236)	(0.239)	(0.238)	(0.095)	(0.094)	(0.095)
AFLOC	0.007	0.007	0.031	-0.043	-0.041	-0.037
	(0.196)	(0.201)	(0.199)	(0.072)	(0.071)	(0.072)
YEARS (Ref-2016)						
2017	-0.045	-0.040	-0.047	-0.034	-0.035	-0.036
	(0.075)	(0.075)	(0.075)	(0.032)	(0.033)	(0.032)
2018	-0.111	-0.123	-0.116	-0.068**	-0.070**	-0.068**
	(0.076)	(0.076)	(0.076)	(0.033)	(0.033)	(0.033)
INDUSTRY fixed effects	-0.001	-0.000	-0.008	-0.004	-0.004	-0.006
FIRM fixed effects	0.002	0.002	0.002	0.001*	0.001*	0.001*
Constant	-2.001**	-1.903**	-1.848**	-1.581***	-1.600***	-1.586***
	(0.849)	(0.864)	(0.855)	(0.322)	(0.318)	(0.319)
Wald χ^2	101.26***	90.56***	95.48***	61.19***	64.05***	63.94***
R-squared	0.296	0.276	0.287	0.184	0.192	0.192
N	441	441	441	441	441	441

Note: **p<0.10; **p<0.05; ***p<0.01. Refer to Appendix A for detailed description of the variables.*

5. Discussions and conclusion

The new ISA 701 issued by the IAASB represented a landmark reform in the audit field. For the first time in history, auditors have been required to disclose issues they considered the most significant and also unveil the audit procedures they applied in those areas. The requirements under ISA 701 aim for auditors to provide more clarity about their audit engagements to satisfy the growing information demands of the audit report users.

Since the requirement to disclose key audit matters took effect for the fiscal years ended on or after December 15, 2016, studies have investigated the consequences of the reform. A large proportion of these studies suggests that the disclosure of key audit matters in the audit reports did not provide new information to the intended users such as investors (Gutierrez et al., 2018; Seebeck & Kaya, 2022) but tend to influence their information acquisition processes (Moroney et al., 2021; Sirois et al., 2018). A growing stream of research has also suggested that the extent of KAM disclosures is affected by both auditor-and-client attributes (Abdelfattah et al., 2020; Sierra-García et al., 2019). As the level of KAM disclosures is influenced by auditor- and-client characteristics and their presence in the audit reports is shown to influence the information acquisition process of investors (Moroney et al., 2021; Sirois et al., 2018), insights on whether and how auditor- and client-related characteristics influence KAMs identification is of great interest. In this regard, we add to the growing research on the determinants of KAMs by investigating whether and how auditor industry specialization and audit committee independence are associated with the number of key audit matters disclosed in the audit reports by auditors of listed companies on the Oslo Stock Exchange during the period 2016 to 2018.

Identifying and disclosing more key audit matters could be viewed by users as a reflection of thoroughness with which the auditor scrutinized the auditee's transactions. On the other hand, the disclosure of fewer key audit matters could be perceived by the stakeholders as a sign of the auditor being an expert in the KAM related area. Studies that are based on the agency theory consider audit committees composed of more independent members as being effective in the discharge of their duties (Abbott et al., 2000; Bronson et al., 2009). As audit committees are specifically responsible for, among other things, hiring and preserving the independence of the external auditor (Sultana et al., 2019), a more independent audit committee may be more capable of ensuring that the auditor is not influenced by management in the identification and disclosure of key audit matters. Hence, we expect that the presence of an audit committee that is composed of more independent members may result in a greater number of KAMs.

The results suggest that industry specialist auditors are associated with fewer key audit matters in their audit reports which is inconsistent with the general expectation that due to their better understanding of the client, a higher number of key audit matters are likely to be included in the audit report (Sierra-García et al., 2019). The suggestion is that industry specialized auditors potentially consider that the disclosure of fewer KAMs constitutes a signal of their level of expertise. Since industry-specialized auditors tend to focus on specific industries which enable them to accumulate critical client-specific knowledge and expertise, they have familiarity with many transactions of the client. With high degree of familiarity and expertise in specific industries, industry specialized auditors

may consider fewer transactions of the client to be key audit matters. This view potentially explains the negative association between auditor industry specialization and the number of KAMs as observed in this study.

Our results further reveal that companies with audit committees made of more independent members received a greater number of KAMs from auditors. From the agency theory perspectives, audit committees have responsibility to appoint and also ensure the independence of the auditor from the influence of management. One way audit committees can appear to be effectively performing their responsibilities is by supporting auditors to freely disclose adequate and relevant information as they deem fit based on the available audit evidence. As such, the disclosure of more key audit matters by auditors suggests that the presence of a more independent audit committee provides auditors with the appropriate level of protection which ensures greater independence from management in the financial reporting process. In other words, external auditors have the support of a stronger audit committee to be able to freely determine and disclose KAMs as they deem necessary based on the available audit evidence.

As the findings show that both auditor and audit committee attributes are significantly related to the number of KAMs disclosed, they have important implications for a wide range of stakeholders such as shareholders, regulators, scholars, and auditors. From our findings, shareholders' activism can be enhanced through increased participation in annual general meetings to ensure the appointment of more independent directors into the audit committees. Moreover, the findings in this study also have implications of appointing an industry specialist auditor which should be of interest to audit firms. For regulators, our findings shed some light on the effects of greater audit committee independence on the expected number of KAMs to be disclosed by auditors. As a further step to reinforce the role and position of audit committees in the EU/EAA jurisdictions, regulators could for example require that only independent members are appointed to serve on the audit committees as is the case in the US (Poretti et al., 2018). Although some companies in the EU/EAA are already creating audit committees composed of 100% independent members, this is voluntary and thus not yet a regulatory requirement.

Although we tested and obtained robust results, they should be interpreted in the context of the following limitations. As an audit firm's industry specialization status is unobservable, researchers are divided about how to identify and measure this concept. Amidst this debate, we applied the market share (MS) approach constructed using audit fees. Other approaches and calculation bases may yield different results. As the study is based on data from Norway and the country is generally considered less litigious (Hope & Langli, 2010) and follows EU regulation, other settings should be examined to investigate these relationships.

References

Abbott, L. J., Park, Y., & Parker, S. (2000). The effects of audit committee activity and independence on corporate fraud. *Managerial Finance*.

Abdelfattah, T., Elmahgoub, M., & Elamer, A. A. (2020). Female audit partners and extended audit reporting: UK evidence. *Journal of Business Ethics*, 1-21.

Akerlof, G. A. (1970). Quality uncertainty and the market mechanism. *Quarterly Journal of Economics, 84*(3), 488-500.

Asare, S. K., & Wright, A. M. (2012). Investors', auditors', and lenders' understanding of the message conveyed by the standard audit report on the financial statements. *Accounting Horizons, 26*(2), 193-217.

Audousset-Coulier, S., Jeny, A., & Jiang, L. (2016). The validity of auditor industry specialization measures. *Auditing: A Journal of Practice & Theory, 35*(1), 139-161.

Beck, P. J., & Wu, M. G. (2006). Learning by doing and audit quality. *Contemporary Accounting Research, 23*(1), 1-30.

Bédard, J., Chtourou, S. M., & Courteau, L. (2004). The effect of audit committee expertise, independence, and activity on aggressive earnings management. *Auditing: A Journal of Practice & Theory, 23*(2), 13-35.

Bédard, J., Coram, P., Espahbodi, R., & Mock, T. J. (2016). Does recent academic research support changes to audit reporting standards? *Accounting Horizons, 30*(2), 255-275.

Bergner, J., Marquardt, B. B., & Mohapatra, P. (2020). The auditor reputation cycle: A synthesis of the literature. *International Journal of Auditing, 24*(2), 292-319.

Bewley, K., Chung, J., & McCracken, S. (2008). An examination of auditor choice using evidence from Andersen's demise. *International Journal of Auditing, 12*(2), 89-110.

Boo, E. f., & Sharma, D. (2008). Effect of regulatory oversight on the association between internal governance characteristics and audit fees. *Accounting & Finance, 48*(1), 51-71.

Boolaky, P. K., & Quick, R. (2016). Bank directors' perceptions of expanded auditor's reports. *International Journal of Auditing, 20*(2), 158-174.

Bronson, S. N., Carcello, J. V., Hollingsworth, C. W., & Neal, T. L. (2009). Are fully independent audit committees really necessary? *Journal of Accounting and Public Policy, 28*(4), 265-280.

Cade, N. L., & Hodge, F. D. (2014). The effect of expanding the audit report on managers' communication openness. *Available at SSRN 2433641*.

Carcello, J. V., & Neal, T. L. (2003). Audit committee characteristics and auditor dismissals following "new" going-concern reports. *The Accounting Review, 78*(1), 95-117.

Choi, J.-H., Kim, J.-B., Qiu, A. A., & Zang, Y. (2012). Geographic proximity between auditor and client: How does it impact audit quality? *Auditing: A Journal of Practice & Theory, 31*(2), 43-72.

Church, B. K., Davis, S. M., & McCracken, S. A. (2008). The auditor's reporting model: A literature overview and research synthesis. *Accounting Horizons, 22*(1), 69-90.

Connelly, B. L., Certo, S. T., Ireland, R. D., & Reutzel, C. R. (2011). Signaling theory: A review and assessment. *Journal of Management, 37*(1), 39-67.

Coram, P. J., Mock, T. J., Turner, J. L., & Gray, G. L. (2011). The communicative value of the auditor's report. *Australian Accounting Review, 21*(3), 235-252.

Craswell, A. T., Francis, J. R., & Taylor, S. L. (1995). Auditor brand name reputations and industry specializations. *Journal of Accounting and Economics, 20*(3), 297-322.

DeFond, M. L., Francis, J. R., & Wong, T. J. (2000). Auditor industry specialization and market segmentation: Evidence from Hong Kong. *Auditing: A Journal of Practice & Theory, 19*(1), 49-66.

DeFond, M. L., & Zhang, J. (2014). A review of archival auditing research. *Journal of Accounting and Economics, 58*(2-3), 275-326.

Dhaliwal, D., Naiker, V., & Navissi, F. (2010). The association between accruals quality and the characteristics of accounting experts and mix of expertise on audit committees. *Contemporary Accounting Research, 27*(3), 787-827.

Eshleman, J. D., & Guo, P. (2020). Do seasoned industry specialists provide higher audit quality? A re-examination. *Journal of Accounting and Public Policy, 39*(6), 106770.

Directive 2014/56/EU of the European parliament and of the council of 16 April 2014 amending Directive 2006/43/EC on statutory audits of annual accounts and consolidated accounts (Text with EEA relevance) (2014).

Fama, E. F., & Jensen, M. C. (1983). Separation of ownership and control. *The Journal of Law and Economics, 26*(2), 301-325.

FRC. (2013). Consultation paper: Revision to ISA (UK and Ireland) 700— Requiring the auditor's report to address risks of material misstatement, materiality, and a summary of the audit scope. In. London: Financial Reporting Council.

Ghafran, C., & O'Sullivan, N. (2013). The governance role of audit committees: Reviewing a decade of evidence. *International Journal of Management Reviews, 15*(4), 381-407.

Gold, A., Heilmann, M., Pott, C., & Rematzki, J. (2020). Do key audit matters impact financial reporting behavior? *International Journal of Auditing, 24*(2), 232-244.

Gramling, A. A., & Stone, D. N. (2001). Audit firm industry expertise: A review and synthesis of the archival literature. *Journal of Accounting Literature, 20*, 1.

Gutierrez, E., Minutti-Meza, M., Tatum, K. W., & Vulcheva, M. (2018). Consequences of adopting an expanded auditor's report in the United Kingdom. *Review of Accounting Studies, 23*(4), 1543-1587.

Hair, J. F., Anderson, R. E., Tatham, R. L., & William, C. (1998). Black (1998), Multivariate data analysis. In: Upper Saddle River, NJ: Prentice Hall.

Hope, O. K., & Langli, J. C. (2010). Auditor independence in a private firm and low litigation risk setting. *The Accounting Review, 85*(2), 573-605.

IAASB. (2015). *International Standard on Auditing (ISA) 701: Communicating Key Audit Matters in the Independent Auditor's Report*. International Federation of Accountants (IFAC).

Kang, F. (2014). Founding family ownership and the selection of industry specialist auditors. *Accounting Horizons, 28*(2), 261-276.

Kent, P., & Stewart, J. (2008). Corporate governance and disclosures on the transition to international financial reporting standards. *Accounting & Finance, 48*(4), 649-671.

Kirmani, A., & Rao, A. R. (2000). No pain, no gain: A critical review of the literature on signaling unobservable product quality. *Journal of Marketing, 64*(2), 66-79.

Klein, A. (2002). Audit committee, board of director characteristics, and earnings management. *Journal of Accounting and Economics, 33*(3), 375-400.

Krishnan, G., & Visvanathan, G. (2009). Do auditors price audit committee's expertise? The case of accounting versus nonaccounting financial experts. *Journal of Accounting, Auditing & Finance, 24*(1), 115-144.

Krishnan, J. (2005). Audit committee quality and internal control: An empirical analysis. *The Accounting Review, 80*(2), 649-675.

Lennox, C. S. (2005). Audit quality and executive officers' affiliations with CPA firms. *Journal of Accounting and Economics, 39*(2), 201-231.

Lennox, C. S., Schmidt, J., & Thompson, A. (2017). Is the expanded model of audit reporting informative to investors. *Evidence from the UK [Verkkodokumentti][Viitattu 29.11. 2017] Saatavilla https://ssrn. com/abstract, 2619785*.

Lennox, C. S., Schmidt, J. J., & Thompson, A. (2018). Is the expanded model of audit reporting informative to investors? Evidence from the UK. *Social Science Research Network. Retrieved from https://ssrn. com/abstract, 2619785*.

Lennox, C. S., Schmidt, J. J., & Thompson, A. M. (2022). Why are expanded audit reports not informative to investors? Evidence from the United Kingdom. *Review of Accounting Studies*, 1-36.

Li, J., Mangena, M., & Pike, R. (2012). The effect of audit committee characteristics on intellectual capital disclosure. *The British Accounting Review, 44*(2), 98-110.

Moroney, R., Phang, S.-Y., & Xiao, X. (2021). When do investors value key audit matters? *European Accounting Review, 30*(1), 63-82.

PCAOB. (2017). The auditor's report on an audit of financial statements when the auditor expresses an unqualified opinion; and related amendments to PCAOB standards. [Press release]

Pinto, I., & Morais, A. I. (2019). What matters in disclosures of key audit matters: Evidence from Europe. *Journal of International Financial Management & Accounting, 30*(2), 145-162.

Pomeroy, B., & Thornton, D. B. (2008). Meta-analysis and the accounting literature: The case of audit committee independence and financial reporting quality. *European Accounting Review, 17*(2), 305-330.

Poretti, C., Schatt, A., & Bruynseels, L. (2018). Audit committees' independence and the information content of earnings announcements in Western Europe. *Journal of Accounting Literature, 40*, 29-53.

Raimo, N., Vitolla, F., Marrone, A., & Rubino, M. (2021). Do audit committee attributes influence integrated reporting quality? An agency theory viewpoint. *Business Strategy and the Environment, 30*(1), 522-534.

Reid, L. C., Carcello, J. V., Li, C., & Neal, T. L. (2015). Impact of auditor and audit committee report changes on audit quality and costs: Evidence from the United Kingdom. *Contemporary Accounting Research, 36*(3), 1501-1539.

Ross, S. A. (1977). The determination of financial structure: the incentive-signalling approach. *The Bell Journal of Economics*, 23-40.

Seebeck, A., & Kaya, D. (2022). The power of words: an empirical analysis of the communicative value of extended auditor reports. *European Accounting Review*, 1-31.

Sierra-García, L., Gambetta, N., García-Benau, M. A., & Orta-Pérez, M. (2019). Understanding the determinants of the magnitude of entity-level risk and account-level risk key audit matters: The case of the United Kingdom. *The British Accounting Review, 51*(3), 227-240.

Sirois, L.-P., Bédard, J., & Bera, P. (2018). The informational value of key audit matters in the auditor's report: Evidence from an eye-tracking study. *Accounting Horizons, 32*(2), 141-162.

Spence, M. (1973). Job market signalling. *Quarterly Journal of Economics, 87*, 353-374.

Spence, M. (2002). Signaling in retrospect and the informational structure of markets. *American Economic Review, 92*(3), 434-459.

Studenmund, A. H., & Cassidy, H. J. (1992). *Using econometrics: A practical guide*: Addison-Wesley Educational Publishers.

Sultana, N., & Mitchell Van der Zahn, J. L. (2015). Earnings conservatism and audit committee financial expertise. *Accounting & Finance, 55*(1), 279-310.

Sultana, N., Singh, H., & Rahman, A. (2019). Experience of audit committee members and audit quality. *European Accounting Review, 28*(5), 947-975.

Vafeas, N., & Theodorou, E. (1998). The relationship between board structure and firm performance in the UK. *The British Accounting Review, 30*(4), 383-407.

Vanstraelen, A., Schelleman, C., Meuwissen, R., & Hofmann, I. (2012). The audit reporting debate: Seemingly intractable problems and feasible solutions. *European Accounting Review, 21*(2), 193-215.

Velte, P. (2019). Associations between the financial and industry expertise of audit committee members and key audit matters within related audit reports. *Journal of Applied Accounting Research*.

Wu, C. Y.-H., Hsu, H.-H., & Haslam, J. (2016). Audit committees, non-audit services, and auditor reporting decisions prior to failure. *The British Accounting Review, 48*(2), 240-256.

Yang, J. S., & Krishnan, J. (2005). Audit committees and quarterly earnings management. *International Journal of Auditing, 9*(3), 201-219.

Zhang, Y., Zhou, J., & Zhou, N. (2007). Audit committee quality, auditor independence, and internal control weaknesses. *Journal of Accounting and Public Policy, 26*(3), 300-327.

Appendix A: Variables Description

Variables	Description	Data Source
Dependent Variables		
#KAMs	The total number of KAMs disclosed in the audit report	Audit Report
#ALRKAMs	The total number of account-level KAMs in the audit report	Audit Report
#ELRKAMs	The total number of entity-level KAMs in the audit report	Audit Report
Test Variables		
INDSPEC	1 if an auditor has the largest market share based on audit fees in an industry, 0 otherwise	Annual Report
INDSPEC>24%	1 if an auditor has up to 24% or more of the total market share, 0 otherwise	Annual Report
INDSPEC%	The percentage of the auditors' market share based on audit fees.	Annual Report
AC_IND	The ratio of independent directors to the total audit committee size for the year	Annual Report
Control Variables		
BOARD	The total number of board of directors for the year	Annual Report
SIZE	The natural logarithm of total assets	Eikon
RECINV	The ratio of inventories and account receivables to total assets	Eikon
LEV	The ratio of total debt to total assets	Eikon
ROA	Operating income divided by total assets	Eikon
CFO	The natural logarithm of operating cash flows	Eikon
LOSS	1 if the operating profit is negative, 0 otherwise	Eikon
SUBs	The natural logarithm of total number of subsidiaries	Eikon
FSUBs	1 if any of the company has foreign subsidiaries, 0 otherwise	Eikon
BIG4	1 if audited by PwC, KPMG, Deloitte and EY, 0 otherwise	Audit Report
AFEEs	The natural logarithm of total audit fees earned	Annual Report
NAFEEs	The proportion of non-audit service fees to total audit fees	Annual Report
AFLOC	1 if the audit firm is in the same city as client, 0 otherwise	Audit Report
INDUSTRY	Industry fixed effects based on GICS industry classification codes	Eikon

Study 3: Auditor Changes and Key Audit Matters

Auditor Changes and Key Audit Matters

Gordon Mwintome
gordon.mwintome@uia.no

Abstract
The audit report communicates the auditor's opinion to investors as to whether the audited financial statements are fairly presented. Historically, the audit report has been criticized for lacking adequate communicative value as it does not provide much insight into the auditing process. The International Auditing and Assurance Standards Board (IAASB) with International Standard on Auditing (ISA) 701 made significant changes to the audit report by requiring a disclosure of more entity-specific information classified as key audit matters (KAMs). Prior research shows that KAMs are affected by auditor characteristics, but the effect of auditor changes is not examined. Applying methods from computational linguistics, this study examines the influence of audit firm and partner changes on different proxies of KAM attributes – their number, details, and readability. Hand-collected data for companies listed on the Oslo Stock Exchange for the period 2016-2019 is analyzed. The results show that the number of KAMs and their readability did not change when a new audit firm took over but there was a positive influence on the level of details included. New audit partners were associated with fewer KAMs which included more details and were more readable. Overall, the study provides new insights into auditor changes and shows that implications of firm and partner changes are not uniform and should be taken into consideration when standards requiring these changes are considered.

Key words: *auditor change, audit firm changes, audit partner changes, key audit matters*
JEL Classifications: M41; M42; M48

1. Introduction

The audit report has been the subject of long-standing discussions due to concerns about the form, content, and overall communicative value of the auditor's report (Mock et al., 2013). In particular, the audit report was generally viewed as limited in scope and missing insight into the quality of financial statements (Asare & Wright, 2012; Carson et al., 2013). Previous research has considered questions related to the content of the auditor's report and concluded that many audit report users including investors are dissatisfied and consider it lacking relevant entity-specific information (Abdullatif & Al-Rahahleh, 2020; Asare & Wright, 2012; Church, Davis, & McCracken, 2008; Coram, 2014; Litjens, van Buuren, & Vergoossen, 2015; Vanstraelen, Schelleman, Meuwissen, & Hofmann, 2012).

To address the criticism, audit standard-setters and regulators world-wide announced changes to the audit report (FRC, 2013; IAASB, 2015; PCAOB, 2017). The International Auditing and Assurance Standards Board (IAASB) for example introduced a new International Standard on Auditing (ISA) 701: *Communicating Key Audit Matters in the Independent Auditor's Report* (IAASB, 2015). Key audit matters are *"those matters that, in the auditor's professional judgement, were of most significance in the audit of the financial statements of the current period"* (ISA-701, 2015). The standard required external auditors of public interest entities (PIEs) to disclose in the audit report the issues that were considered most challenging (IAASB, 2015). The main aim of the disclosure of KAMs was to ensure that investors are provided with more information about the audited entity (Lennox, Schmidt, & Thompson, 2022).

The standard requiring the disclosure of KAMs represented one of the most profound changes to the audit report in the last 90 years (Coram & Wang, 2021). Consequently, factors that are associated with KAM attributes are of considerable interest. Prior research has found that audit firm type (Sierra-García, Gambetta, García-Benau, & Orta-Pérez, 2019), audit partner gender (Abdelfattah, Elmahgoub, & Elamer, 2020), audit fees and client size (Pinto & Morais, 2019), and audit committee characteristics (Velte, 2018, 2019) are among the factors that affect KAMs reporting. While the prior studies have provided useful insights about the influence of auditor- and client-related attributes on KAMs, the relationship between auditor changes and KAM attributes has not been investigated. Accordingly, the focus of this study is to fill this void by examining the following research question: *How auditor changes influence KAMs?*

Regarding auditor changes, the study distinguishes between audit firm and partner changes, and empirically examines their relationship with KAM attributes. A firm change relates to the removal or resignation of the incumbent audit firm due to auditor-client disagreements, the desire for better engagement terms or due to regulatory requirement to rotate firms (Davidson, Jiraporn, & DaDalt, 2006; Kim & Park, 2006; Turner, Williams, & Weirich, 2005). A partner change occurs when the incumbent engagement partner resigns, retires, or is rotated off in compliance with the regulatory requirement for audit partner rotations after a specified number of years (European Parliament and European Council, 2014). Previous research shows that both audit firm and partner changes can affect audit outcomes including audit fees, audit opinion, report delays, and audit quality (Arthur, Endrawes, & Ho, 2017; Bandyopadhyay, Chen, & Yu, 2014; Chung, Kim, & Sunwoo,

2020; Corbella, Florio, Gotti, & Mastrolia, 2015; Firth, Rui, & Wu, 2012; Horton, Livne, & Pettinicchio, 2020) but their effect on key audit matters have not been examined.

To investigate the implications of auditor changes at the audit firm and partner levels for KAM attributes, data for listed companies on the Oslo Stock Exchange was collected for the period 2016-2019. Methods from computational linguistics and panel data regression techniques were utilized for the analysis to examine the number of KAMs, details included, and readability. The results show that auditor changes that occurred at the audit firm level were not significantly associated with the number and readability of KAMs. The results further reveal that audit firm changes were positively associated with the details included in the description of KAMs. Related to the effects of audit partner changes, the results suggest that they were associated with fewer KAMs. Also, the results show that the KAMs disclosed following a partner change included more details in the descriptions and were more readable. Considered together, the results suggest that the effects of auditor changes occurring at the audit firm and partner levels on KAM attributes were not uniform.

The findings in this study contribute to the auditing literature. First, the analysis of whether and how audit firm and partner level changes are associated with KAM attributes - number, details, and readability extends the growing stream of research examining the relationship between auditor characteristics and KAM disclosures. Changes at the partner level are significantly associated with all the KAM attributes used in this study while those at the firm level were significant for the details included in KAMs. Hence, as efforts are being undertaken to enhance the information content of the auditor's report, the findings in this study should be of use to regulators when standards requiring audit firm and partner level changes are considered.

Second, the findings further add to the research on audit report by focusing on the readability of KAMs. Until recently, the application of computational linguistics to analyze the text of the audit report was difficult as the audit report was very standardized, hence lacking sufficient textual content to support any meaningful analysis. Nevertheless, Pound (1981) analyzed the readability of audit reports in Australia and proved that the information contained in the audit report was not understandable to many users. Hay (1998) also studied the effects of audit firm structure on the readability of audit reports in New Zealand. The findings show significant differences in the level of readability of the audit reports and that the level of readability was affected by the audit firm structure. Analyzing the association between auditor changes and the readability of KAMs provides further insight on the readability of the auditor's report. As such, the evidence observed in this study should be relevant to the audit regulators who are interested in factors that may influence the communicative value of the auditor's report.

Finally, audit regulators in the European Union (EU) through Regulation (EU) No 537/2014 from June 2016 required a dual audit firm/partner rotations to ensure greater auditor independence (Horton, Livne, & Pettinicchio, 2020). In addition to the already existing mandatory rotation of audit partners after seven years, audit firms providing statutory audit services need to be changed (10 years after first appointment and 20 years maximum on the engagement). This approach is in contrast to the position adopted by the

Public Company Accountability Oversight Board (PCAOB) in the US which decided against mandating audit firm rotation and instead maintained the already existing audit partner rotation after seven years (Horton et al., 2020). The PCAOB considered that the rotation at the partner level was sufficient to ensure auditor's independence. Accordingly, the findings in this study inform regulators regarding the consequences of auditor rotations.

The study proceeds as follows: Section 2 discusses the background, literature review, and the research questions. The research design is provided in section 3. Section 4 presents the research results while section 5 discusses the results and concludes the study.

2. Background and research questions

2.1 Background and KAM studies

Auditors use the audit report to communicate their opinion as to whether the financial statements of the audited entity are fairly presented by management to the investors and other stakeholders (Lennox et al., 2022). As such, the audit report is an important document in the corporate financial reporting and communication process. However, the audit report was criticized as being uninformative due to the lack of details about the audit process and standardized wording (Carson et al., 2013; Church et al., 2008). There were calls for more entity-specific and relevant information from auditors to be included in the audit reports (IAASB, 2015).

Audit standard-setters and regulators internationally responded by introducing new and revised auditing standards to enhance the auditor's report. The UK Financial Reporting Council (FRC) introduced ISA (UK) 700 effective for audits of the financial statements of premium listed companies for the fiscal years ending on or after September 30, 2013 (FRC, 2013). With ISA 701, the IAASB required auditors of PIEs to include further disclosures regarded as key audit matters starting from the fiscal years ending on or after December 15, 2016 (IAASB, 2015). Statutory auditors of PIEs operating in the EU/EEA follow IAASB and implemented this change. In the US, the PCAOB issued requirement to disclose *critical audit matters* (CAMs). CAMs took effect for the fiscal year ending on or after June 30, 2019 for audits of large accelerated fillers and December 15, 2020 for all other companies affected by the new requirements (PCAOB, 2017).

KAMs are matters auditors have considered to be the most significant issues they encountered during the audit (IAASB, 2015; Nguyen & Kend, 2021; Zeng, Zhang, Zhang, & Zhang, 2021). Those include areas of higher assessed risk of material misstatement, significant auditor judgement on areas management has exercised greater judgement, and accounting estimates judged as having high estimation uncertainty (IAASB, 2015; Nguyen & Kend, 2021; Sierra-García et al., 2019). Under ISA 701, auditors are required to exercise professional judgement on the matters they have communicated with those charged with governance (TCWG) of the audited entity and determine whether any of those matters satisfy the definition of KAMs (IAASB, 2015).

As KAMs represented the single largest change in the auditor reporting model over the last 90 years (Coram & Wang, 2021), the implementation stimulated extensive research interest. The emerging body of research has largely focused on the consequences of KAMs.

The following studies examined the UK setting. Lennox, Schmidt, and Thompson (2018) investigated the views of investors on the expanded audit report and concluded that they did not find the new disclosures included in KAMs as conveying any new information compared to the older audit reports. Moreover, Gutierrez, Minutti-Meza, Tatum, and Vulcheva (2018) examined the consequences of adopting an expanded auditor's report and concluded that audit quality, audit fees and investors' reaction to the release of the audit report were not affected by KAMs. Reid, Carcello, Li, Neal, and Francis (2019) likewise found that the changes in the auditor's report had no effect on audit fees and audit delays but positively affected financial reporting quality measured by earnings response coefficients, propensity to meet or beat analyst, and absolute abnormal accruals. Generally, the early evidence on the consequences of KAMs from the UK suggests that the addition of KAMs did not have a large impact.

The consequences of KAMs were also examined in other settings. For example, in New Zealand, H. Li, Hay, and Lau (2019) observed increases in audit fees and increases in audit quality proxied by absolute abnormal accruals. Using eye-tracking devices in France, Sirois, Bédard, and Bera (2018) found that KAMs have attention directing effect on the audit report users. Zeng et al. (2021), based on a sample from China, used textual analysis to evaluate KAM's specificity, similarity, readability, and length and concluded that audit quality measured by discretionary accruals, type of audit opinion, and small positive earnings surprise improved after the implementation of KAMs.

Aside the studies that focused on the consequences of KAMs, a few others have studied the determinants of KAMs (Abdelfattah et al., 2020; Pinto & Morais, 2019; Sierra-García et al., 2019). Based on the UK sample, Sierra-García et al. (2019) investigated the factors associated with the disclosures of KAMs and concluded that both auditor and client attributes, such as audit firm type and amount of audit fees, are significant determinants of the number of KAMs that are disclosed. Pinto and Morais (2019), used a sample of listed companies from the UK, France and the Netherlands to investigate the effects of several client- and auditor-specific attributes on the disclosures of KAMs. They found that level of business complexity as reflected by number of subsidiaries and audit fees are significantly associated with higher number of KAMs. Velte (2019) examined the association between audit committees' characteristics and the readability of KAMs and found that the audit reports issued by auditors of companies with audit committees that have more financial and industry expertise are more readable. It was also noted that the KAMs included in the audit reports of companies with audit committees with higher proportion of women have greater level of readability (Velte, 2018).

Generally, previous KAM studies found that auditor's characteristics affect KAM disclosures. Previous audit literature suggests that audit outcomes including audit opinions, audit fees, report delays, and audit quality can be influenced by auditor changes (Arthur, Endrawes, & Ho, 2017; Bandyopadhyay, Chen, & Yu, 2014; Chung, Kim, & Sunwoo, 2020; Corbella, Florio, Gotti, & Mastrolia, 2015; Firth, Rui, & Wu, 2012; Horton et al., 2020) but implications of auditor changes for KAM reporting have not been considered. Only a small body of research has so far considered the relationship between auditor characteristics and KAM attributes. Abdelfattah et al. (2020) examined the association

between female audit partners and the expanded audit reporting model in the UK. The evidence suggests that female audit partners tend to disclose more KAMs which are high in details but less readable than male partners. It is also found in the UK that companies that pay higher audit services fees are associated with more KAMs, particularly the entity-level-risk types of KAMs (Sierra-García et al., 2019). More so, Zeng et al. (2021) examined the reporting of KAMs using a sample of Chinese companies and found that the wordings (i.e., the details included in the description of KAMs) were largely influenced by audit firm-specific characteristics.

Building on the emerging research that focused on factors that affect KAM attributes, this study extends the discussion to include the influence of auditor changes. Specifically, the study investigated audit firm and partner changes on KAM attributes conveyed by the number of KAMs, details included in the description, and their readability. The number of KAMs disclosed in the audit report reflects the quantity of entity-specific information provided to shareholders through the audit report (Sierra-García et al., 2019). By the same token, the number of words used in the description of the identified KAMs signify the level of details regarding the information contained in the KAMs (Abdelfattah et al., 2020). The level of readability of KAMs has implications for the extent to which shareholders can understand the information provided in the disclosed KAMs (Zeng et al., 2021). As such, examining the relationship between auditor changes (audit firm and partner changes) and the number of KAMs, details included, and readability potentially provides some novel insights to regulators regarding the consequences of auditor rotations and their effects on KAMs.

2.2 Audit firm changes

Audit firms seek to establish long-term relationship with their clients. Average audit firm tenure is 16 – 23 years (Erickson, 2017) but a few audit firms have been engaged with specific clients for more than 100 years. Lloyds Banking Group Plc, Procter & Gamble Co, Manulife Financial Group, and General Electric Co have engaged PwC, Deloitte, EY, and KPMG, respectively, for at least a century (Erickson, 2017). Such extended audit firm-client tenures will cease to occur in the EU/EAA as Regulation 537/2014 together with Directive 2014/56/EU took effect mid-2016 and mandated that statutory auditors are changed after 20 years on the engagement (Erickson, 2017; European Parliament and European Council, 2014). With this regulatory decision, audit firm changes can now be expected to be more common in the EU/EEA jurisdictions. Aside regulatory requirements that give rise to audit firm changes, companies change auditors for a number of other reasons. An audit firm change can be initiated by the client or by the audit firm. The incumbent audit firm may for example resign or can be dismissed by management (Davidson et al., 2006; Kim & Park, 2006; Turner et al., 2005).

Audit firm changes attract heightened scrutiny as stakeholders seek to understand the motives behind the change and what they might portend about the integrity of the financial information (Davidson et al., 2006). Research evidence suggests that audit firm changes have both positive and negative influence on several audit outcomes including, audit fees,

audit quality, and audit report delay (Choi, Lim, & Mali, 2017; Corbella et al., 2015; Martani, Rahmah, Fitriany, & Anggraita, 2021).

Regarding audit quality, Chung et al. (2020) analyzed a sample of Korean companies and found that audit quality, measured by earnings response coefficients, deteriorated after companies changed their audit firms. Also, Dutch listed companies had greater probability of financial reporting errors following audit firm changes (De Jong and Hijink (2020). The deterioration in audit quality subsequent to the audit firm changes is possible as an audit firm change can cause a loss of critical client-specific knowledge which is required for a thorough appraisal of the client's transactions. Other previous studies have found that audit firm change had a negative influence on audit quality. Nagy (2005) for example, found in the US that audit quality, proxied by absolute discretionary accruals, was better for smaller clients than bigger companies that changed auditors after the demise of Arthur Andersen. Similarly, Bowlin, Hobson, and Piercey (2015) observed improvement in audit quality, measured as a reduction in aggressive audit reporting, after audit firm changes. In Italy, Corbella et al. (2015) concluded that audit quality proxied by abnormal working capital accruals improved for companies that changed from non-Big 4 audit firms to Big 4 audit firms. Finally, Widyaningsih, Harymawan, Mardijuwono, Ayuningtyas, and Larasati (2019) investigated a sample of Indonesian companies and found an improvement in audit quality, measured by discretionary accruals, following voluntary audit firm rotation. Taken together, the improvement in audit quality after audit firm changes can be expected as new auditors may come with new perspectives into the audit. Moreover, new auditors may have more incentives to justify their appointment by exerting more audit efforts which can enhance the end results.

Aside the relationship between audit firm change and audit quality, there are empirical evidence on other dimensions of audit outcomes, including audit fees and audit report delays. Butterworth and Houghton (1995) investigated the effects of firm switching on the pricing of audit services in Australia but found no significant evidence of market-wide price-cutting by new audit firms after the change. In other words, the authors did not find differences in audit fees after the audit firm changes. On audit report delays, both Tanyi, Raghunandan, and Barua (2010) and Pacheco-Paredes, Rama, and Wheatley (2017) noted that audit firm changes resulted in longer audit report lag. The delays in the report can be expected since an audit firm change can result in a loss of critical client-specific knowledge/experiences as the new audit firm needs to obtain sufficient familiarity with the client and it takes time to accumulate (Bell, Causholli, & Knechel, 2015).

The foregoing empirical evidence highlights that audit results, in particular, measures of audit quality can be positively or negatively influenced by audit firm changes. The mixed evidence could be explained by the application of different proxies of audit quality as it is not directly observable. As such, it is difficult to predict whether and how the level of readability, number, and details of key audit matters may be affected by audit firm changes. Accordingly, the study examines the following research question:

RQ1: *What is the impact of audit firm changes on KAMs?*

2.3 Audit partner changes

Audit partner changes are mostly driven by the needs of the audit firm and regulatory requirements. A resignation or retirement of the engagement partner results in a partner change. It is also a regulatory requirement for audit firms to rotate partners on specific clients at regular intervals (i.e., after seven years) in the EU/EAA member states (Horton et al., 2020). The aim of the regulation is to improve audit quality by encouraging fresh thinking, reducing risks of repeated inaccuracies, and strengthening auditor skepticism (Dodgson, Agoglia, Bennett, & Cohen, 2020).

Previous studies have documented the association between audit partner changes and several audit outcomes such as audit opinions, audit fees, report delays, and audit quality (Arthur et al., 2017; Bandyopadhyay et al., 2014; Chi, Huang, Liao, & Xie, 2009; Lennox, Wu, & Zhang, 2014; Litt, Sharma, Simpson, & Tanyi, 2014; Mali & Lim, 2018; Monroe & Hossain, 2013). Focusing on audit fees and audit report delays, both Grosse, Ma, and Scott (2018) and Azizkhani, Hossain, Jiang, and Yap (2021) observed that Australian companies with new partners paid higher audit fees while audit report timeliness was not affected. In addition, Stewart, Kent, and Routledge (2016) analyzed the relation between audit partner rotation and audit fees and found that higher audit fees were paid in the years after the rotation. In the US, Sharma, Tanyi, and Litt (2017) concluded that audit partner changes resulted in significantly higher audit fees and longer audit report delays in the period immediately following mandatory audit partner rotations.

Empirical evidence also exists on the effects of audit partner changes on audit opinions. Firth et al. (2012) observed that Chinese companies for which their audit firms rotated their key audit partners were associated with a significant prospect of being issued with a modified audit opinion. Also, Monroe and Hossain (2013) studied the audit opinions issued in Australia and observed that successor audit partners were more likely to issue qualified going-concern opinions for financially distressed companies as compared to the predecessor audit partners. These findings are intuitive as an expected effect of audit partner change is that it encourages fresh thinking and also enhances the partner-client independence. Greater level of independence can insulate the audit partners from management pressure and permit the issuance of appropriate audit opinions as warranted by the available audit evidence.

Pertaining to audit quality, Arthur et al. (2017) used discretionary accruals as a proxy for audit quality and found that audit quality improved in terms of lower discretionary accruals after partner changes. Measuring audit quality via audit adjustments, Lennox et al. (2014) observed that in the US mandatory rotation of engagement partners resulted in higher quality audits in the years immediately following the partner rotations. Moreover, Bandyopadhyay et al. (2014) found that in China audit quality, proxied by discretionary abnormal accruals, improved in the three years following audit partner change. Finally, Horton et al. (2020) used abnormal accruals as measures of audit quality in Italy and found significant evidence of improved audit quality following audit partner changes. Since audit partner changes tend to reduce the incidence of repeated inaccuracies and strengthen auditor skepticism, the positive effects of such changes on audit quality can be expected. In other studies, partner changes are found to be negatively associated with audit quality.

Based on a sample from Taiwan, Chi et al. (2009) found that audit quality, measured by abnormal accruals, under new audit partners is lower compared to that of the same companies under old audit partners. Litt et al. (2014) also measured audit quality through discretionary accruals for a US sample and found lower audit quality after audit partner changes. Furthermore, Mali and Lim (2018) employed accounting conservatism to proxy audit quality in South Korea and found that companies audited by non-Big 4 audit firms that implemented audit partner rotations demonstrated lower conservatism.

Given the variability in findings, it is difficult to predict the effects of partner changes. In order to better understand whether and how KAM attributes – their number, details, and readability are associated with audit partner changes, the following research question is put forward:

RQ2: *What is the impact of audit partner changes on KAMs?*

3. Research design

3.1 Sample selection

The new audit reporting standard – ISA 701 applies to public companies listed on the Oslo Stock Exchange comprised of the Oslo BORS and AXESS[6] and with financial statements for the fiscal years ending on or after 15 December 2016. The study analyzed the first four years (2016 – 2019) of the new audit reporting standard for listed companies. The data on KAM attributes (number, details, and readability), audit firm changes, and partner changes is manually collected from the annual reports of the listed companies while the accounting and other data is compiled from the *Thompson Reuters Eikon* Database.

As of 31 December 2019, a population of 210 listed companies was trading on the Oslo Stock Exchange. From this initial population, a number of companies were excluded in the final sample selection process as follows: (1) companies that used a financial reporting framework other than IFRS (e.g., US-GAAP) were removed; (2) those that were listed, delisted or acquired during the study period were excluded from the sample selected; (3) companies that were under regulatory sanctions were not considered. Finally, companies for which auditors did not disclose any key audit matter for any of the years under consideration were removed in line with the sample selection procedures of Zeng et al. (2021) as there is no KAM text to analyze. After applying these filtering and screening procedures, the final sample analyzed included 113 listed companies resulting in 452 company-year observations. Table 1 provides details of the procedures applied in building the final sample.

[6] *Oslo Axess is a regulated and licensed market under the auspices of the Oslo Stock Exchange. The purpose is to promote growth among smaller companies and give them the benefits achieved by having shares traded on a regulated market.*

Table 1: Sample selection procedures

Details	Number of companies
Population of companies listed as of December 31, 2019	210
Reporting framework other than IFRS	-5
Listed, delisted, and acquired between 2016 and 2019	-26
Others i.e., regulatory sanctions	-3
No KAM(s) disclosed in specific years by auditors	-63
Total companies/observations (113*4)	**113/452**

3.2 Dependent variables

Three distinctive KAM attributes represent the dependent variables of interest. The first dependent variable is the number of key audit matters disclosed by auditors (*#KAMs)*. It is proxied by the number of key audit matters determined and disclosed by auditors in the KAMs section of each audit report of the sampled companies. In line with previous studies (Abdelfattah et al., 2020; Bédard, Gonthier-Besacier, & Schatt, 2019; Sierra-García et al., 2019), the number of key audit matters disclosed by auditors is collected manually by reading the key audit matter sections of the audit reports and counting the KAMs disclosed. Appendix A provides a description and data sources for all variables.

The second dependent variable is the level of details included in the description of KAMs (*DETAIL*) as is used in previous studies (Abdelfattah et al., 2020; Zeng et al., 2021). It is measured as the natural logarithm of the total number of words used to describe each disclosed KAM (Abdelfattah et al., 2020; Zeng et al., 2021). The number of words used in the disclosure of KAMs is suggested to reflect the level of details provided (Abdelfattah et al., 2020). As is detailed in Appendix B, the text contained in the description section of each key audit matter in each audit report was used to tally the number of words used in the KAM disclosure.

The level of KAM readability (*READ*) is the third dependent variable. *READ* is measured using the Fog readability index. Fog is an index from the field of computational linguistics and was originally used in Gunning (1952). The Fog index is a metric commonly used in accounting and audit research to evaluate the readability of key audit matters, SOX 404 reports, annual reports, and analyst reports (Abdelfattah et al., 2020; Boritz, Hayes, & Timoshenko, 2016; De Franco, Hope, Vyas, & Zhou, 2015). The index is computed by applying a formula which captures text complexity as a function of syllables per word and words per sentence to determine a text's readability. The formula is stated as: *FOG = 0.4 * (words per sentence + percentage of complex words)*, where complex words are defined as words with three or more syllables. Following prior studies (Boritz et al., 2016; F. Li, 2008) and detailed in Appendix B, the Fog index used in measuring KAM readability is computed using the *Perl language package.* A higher Fog index indicates a more complex text. As such, a Fog readability index of over 18 suggests that the text is *unreadable*; 14-18 *difficult*; 12-14 *ideal*; 10-12 *acceptable*; and 8-10 too *easy* or *childlike* (Velte (2018); Velte (2019). The final KAM readability scores are multiplied by negative one so that higher scores reflect better readability. This approach is consistent with De Franco et al. (2015) who analyzed the readability of analyst reports.

3.3 Independent variables

The test variables utilized to capture auditor changes are audit firm change (*FIRMCHG*) and audit partner change (*PARTCHG*). For each sampled company, the names of the audit firms that issued the audit opinion were collected from the audit reports for the years of study. The audit firms were compared over time to identify if a change occurred. Consistent with Butterworth and Houghton (1995) who examined the effects of auditor switching on the pricing of audit services, audit firm change (*FIRMCHG)* was coded as a binary variable and takes the value of one if the audit firm changed in any of the years of the sample period, and zero otherwise.

The audit partner change variable (*PARTCHG)* is a dichotomous variable indicating whether the partner for a specific client was replaced by a new audit partner from the same audit firm. The variable is coded as one if an audit partner changed in any of the four years, and zero otherwise. Data was hand-collected by carefully reading the audit reports for each sampled company to identify the audit firm and the audit partner who signed off on the audit report. Subsequently, the names of the audit partners for each sampled company were compared over the four-year period to identify if a partner change occurred.

3.4 Control variables

Previous studies have found auditor and client characteristics to be associated with audit outcomes (e.g., Abdelfattah et al., 2020; Gutierrez et al., 2018; Pinto & Morais, 2019; Sierra-García et al., 2019; Velte, 2019). As such, some of them are included in this study as control variables for both auditor and client characteristics. The auditor-related variables include the binary variable (*BIG4*) capturing audit firm type, the logarithm of the amount of audit fees received from the client per year (*AFEE*), and a binary variable depicting the gender of the audit partner's gender (*PARTGEN*). Audit firms that receive high audit fees tend to disclose more KAMs (Pinto & Morais, 2019). Female audit partners were more likely to disclose more KAMs in greater details but less readable (Abdelfattah et al., 2020). Data for the audit firm type, audit partner gender, and audit fees variables are manually collected from the audit and annual reports, respectively.

Consistent with prior KAM studies (e.g., Abdelfattah et al., 2020; Pinto & Morais, 2019; Sierra-García et al., 2019), a wide range of client characteristics are also included as control variables. These include client size, proxied by the natural logarithm of total assets (*SIZE*). The specific effect of current assets is also considered by the ratio of receivables and inventory to total assets (*RECINV*). The study also included variables that reflect the client's financial risk. These are the proportion of total debt to total assets (*LEV*), the return on assets measured as the proportion of operating income to total assets (*ROA*), a binary variable depicting whether an operating loss was recorded for each of the sample years (*LOSS*), and the level of clients' liquidity measured as the logarithm of cash flows from operating activities (*CFO*). Data for these variables are obtained from the *Thompson Reuters Eikon* Databases. Finally, industry and year fixed effects are included in the regression models to mitigate concerns that the estimated results are driven by time-invariant effects.

3.5 Regression model

The study seeks to answer two research questions related to whether and how auditor changes that occur at the audit firm and partner levels are associated with KAM attributes. To empirically examine the research questions, the following general regression model is specified in equation (1).

$$KAMATT_{it} = \beta_0 + \beta_1 FIRMCHG_{it} + \beta_2 PARTCHG_{it} + \Sigma CONTROLS + \varepsilon_{it} \quad (1)$$

where $KAMATT_{it}$ represents the three dependent variables measured as the number of key audit matters disclosed (*#KAMs*), the level of details included in the KAM description (*DETAIL*), and the level of KAM readability (*READ*). The estimated coefficients for *#KAMs*, *DETAIL*, and *READ* are reported in models 1, 2, and 3, respectively, and also discussed as below. $\beta_1 FIRMCHG_{it}$ and $\beta_2 PARTCHG_{it}$ represent the two independent variables of interest, that is, audit firm change (*FIRMCHG*) and audit partner change (*PARTCHG*), respectively. *ΣCONTROLS* represents the control variables.

4. Results

4.1 Descriptive statistics

The descriptive statistics for the sample analyzed are presented in Table 2. On average, about two (2) KAMs were disclosed by auditors in the audit reports. That is comparable to the average number of KAMs disclosed by auditors in studies that investigated samples from the UK (Abdelfattah et al., 2020; Sierra-García et al., 2019) and China (Zeng et al., 2021). The average number of words used by auditors in the description of each KAM (*DETAIL*) was about 138 words and ranged between 34 to 330 words. In terms of KAM readability (*READ*), the average Fog index recorded per KAM is about 13 and ranges from 3 to 36. Accordingly, the average Fog readability index of about 13 in this study falls in the *ideal* range of 12-14. As such, the KAMs appear more readable compared to those examined by Abdelfattah et al. (2020) in the UK and Zeng et al. (2021) in China as they reported average Fog readability indices of about 21 and 26, respectively.

Table 2 further illustrates that about 9% and 17% of the sampled companies had audit firm and partner level changes, respectively. That is marginally greater than the 7% for audit firm changes and 14% for the partner changes reported by Horton et al. (2020) for their Italian sample.

Regarding the control variables, about 12% of the partners are female. That is comparable to the 10% reported by Abdelfattah et al. (2020) for the UK sample. The concentration of the Big 4 audit firms is about 91%. It thus reflects the dominance of the Big 4 audit firms in Norway. Horton, Livne, and Pettinicchio (2020) observed about 87% in Italy and Poretti, Schatt, and Bruynseels (2018) reported an average of about 78% in a European sample that included 15 countries.

Table 2: Descriptive statistics

Variable	N	Mean	SD	Min	Max
#KAMs	452	1.816	0.858	1	5.000
DETAIL	452	137.539	51.654	34.333	330.333
READ	452	13.329	6.121	3.478	35.676
FIRMCHG	452	0.088	0.284	0	1
PARTCHG	452	0.168	0.374	0	1
PARTGEN	452	0.117	0.322	0	1
BIG4	452	0.905	0.294	0	1
AFEE	452	14.405	1.739	10.457	23.172
SIZE	452	22.008	2.139	15.626	28.658
RECINV	452	0.246	0.544	0	6.006
LEV	452	1.875	34.088	0	724.978
ROA	452	-2.017	17.284	-156.034	41.520
LOSS	452	0.383	0.487	0	1
CFO	452	14.432	8.991	0	26.096

Table 3 presents the Pearson correlations between pairs of the variables. It shows significant positive association between audit partner change (*PARTCHG*) and the level of details included in the KAM description (*DETAIL*) at the 1% level. Partner changes are also positively and significantly associated with the readability of KAMs at the 10% level. These statistics suggest that audit partner changes are likely to influence the inclusion of more details and readable KAM descriptions. Moreover, several of the control variables have significant associations with the KAM attributes. Audit firm type (*BIG4*) is positive and significant at the 1% level with the details included in the KAM description (*DETAIL*). Audit fees (*AFEE*) is also positively and significantly correlated at the 1% level with the number of disclosed KAMs (*#KAMs*) and with the details included in the KAMs (*DETAIL*). But it has a negative and significant correlation at the 1% level with the readability of KAMs (*READ*). Similar significant associations are noted for the correlation between client size (*SIZE*) and all three attributes of KAMs. Finally, cash flow from operating activities (*CFO*) has a positive and significant association at the 1% level with the level of details included in the KAMs (*DETAIL*).

Table 3 further shows that except for the associations between the following variable pairs - *SIZE* and *AFEEs* and *LOSS* and *ROA*, all other correlations are under 0.5. As such, the correlation coefficients do not suggest concern for multicollinearity problems. Nonetheless, further procedures are performed to identify any undetected problems by conducting the variance inflation (VIF) analysis. Kennedy (2008) recommended that VIF values that are greater than 10 for any variable is worrisome as the reported results may become meaningless. The highest VIF value recorded is 2.41 for *SIZE* as displayed in Table 3. Thus, the lower correlation coefficients together with the smaller VIF values suggest that multicollinearity is not a serious problem in this sample.

Table 3: Pairwise correlations

Variables	VIF	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) #KAMs	-	1.000													
(2) DETAIL	-	-.174***	1.000												
(3) READ	-	-.876***	.153***	1.000											
(4) FIRMCHG	1.05	-.006	.070	-.023	1.000										
(5) PARTCHG	1.05	-.069	.150***	.080*	-.140***	1.000									
(6) PARTGEN	1.08	.014	-.010	-.023	.080*	-.072	1.000								
(7) BIG4	1.15	.019	.192***	-.023	.021	.065	.024	1.000							
(8) AFEE	1.73	.280***	.176***	-.226***	-.047	.063	.032	.198***	1.000						
(9) SIZE	2.41	.305***	.243***	-.247***	-.026	.076	.135***	.273***	.591***	1.000					
(10) RECINV	1.21	.084*	-.027	-.060	.052	.082*	-.064	.024	.105**	-.153***	1.000				
(11) LEV	1.03	.010	-.041	-.040	-.016	-.021	-.017	.016	-.047	-.107**	.019	1.000			
(12) ROA	1.52	-.003	.087*	.019	-.052	.009	-.093*	.139***	.004	.239***	.058	-.022	1.000		
(13) LOSS	1.62	-.060	-.035	.073	.043	.011	-.075	-.133***	-.198***	-.388***	-.128***	.061	-.503***	1.000	
(14) CFO	1.50	.064	.127***	-.056	-.055	.032	.026	.104**	.232***	.456***	.110**	-.074	.373***	-.427***	1.000

Note: *Detailed description of the variables is in Appendix A. *p<0.10; **p<0.05; ***p<0.*

4.2 Regression results

Table 4 presents the estimation results for equation (1) which analyzes the relationship between auditor changes at the audit firm and partner levels and KAM attributes – number of KAMs (*#KAMs*), details included in the description of disclosed KAMs (*DETAIL*), and the readability of KAMs (*READ*). Table 4, model (1) presents the coefficient estimates for the number of key audit matters (*#KAMs*) disclosed by auditors of the sampled companies. Models (2) and (3) of Table 4 provide the regression outcomes for the details included in the disclosed KAMs (*DETAIL*) and the readability of KAMs (*READ*).

The estimated coefficients for audit firm changes (*FIRMCHG*) in model (2) are positive and significant at the 5% level for the details included in the KAMs description (*DETAIL*). It suggests that audit firm changes were associated with more details included in the KAMs, therefore more information is potentially conveyed through the audit report to users.

As displayed in Table 4, model (1), the estimated coefficient for the partner change indicator variable *(PARTCHG)* is negative and statistically significant at the 1% level with the number of KAMs disclosed in the audit report (*#KAMs*). The estimated results for audit partner change *(PARTCHG)* are positive and statistically significant for the details included in the KAMs (*DETAIL*) at the 1% level (model 2). Further in Table 4 model (3), the results show that audit partner changes (*PARTCHG*) have a positive and significant relationship with the readability of KAMs (*READ*) at the 1% level. The results indicate that incoming audit partners tend to disclose fewer KAMs in their audit reports. On the other hand, they are more likely to include more details in KAMs and KAMs are more readable.

Regarding the control variables, several are statistically significant across the three models. Size measured by the logarithm of total assets (*SIZE*) has positive and a significant relationship with the number of KAMs disclosed (*#KAMs*) at the 1% level. In a similar manner, the association between the proportion of trade receivables and inventories to total assets (*RECINV*) and number of KAMs (*#KAMs*) is positive and significant at the 1% level in model (1). Liquidity as measured by the natural logarithm of operating cashflows (*CFO*) is negative and significant in model (1). It suggests that companies with positive cash flows from operating activities are likely to disclose fewer KAMs. Audit firm type as depicted by the indicator variable (*BIG4*), amount of audit fees received by audit firms from clients (*AFEE*), return on assets (*ROA*), and loss making companies (*LOSS*) are all positively associated with the details included in the disclosed KAMs (*DETAIL*) in model (2). Finally, in model (3), *SIZE* is negatively and significantly associated with the readability of KAMs (*READ*) whereas *CFO* is positive and significant. The results therefore suggest that large companies are potentially associated with more complex transactions that required auditors to use technical words in the KAM descriptions which make KAMs less readable.

Table 4: The relationship between auditor changes and KAM attributes

VARIABLES	(1) #KAMs	(2) DETAIL	(3) READ
FIRMCHG	***-0.0089***	***0.1187****	***-0.7382***
	(0.1270)	***(0.0498)***	***(0.9006)***
PARTCHG	***-0.2584*****	***0.2289*****	***1.7904*****
	(0.0965)	***(0.0378)***	***(0.6836)***
PARTGEN	-0.0205	-0.0038	0.7686
	(0.1378)	(0.0555)	(0.9920)
BIG4	-0.1922	0.1809**	0.7029
	(0.1864)	(0.0784)	(1.3713)
AFEE	0.0186	0.0338***	-0.2112
	(0.0305)	(0.0122)	(0.2185)
SIZE	0.1679***	0.0166	-0.8989***
	(0.0341)	(0.0144)	(0.2511)
RECINV	0.2427***	0.0184	-0.7573
	(0.0792)	(0.0315)	(0.5664)
LEV	0.0013	-0.0003	-0.0100
	(0.0009)	(0.0003)	(0.0063)
ROA	-0.0002	0.0024**	0.0063
	(0.0029)	(0.0011)	(0.0206)
LOSS	0.1169	0.0608*	-0.4324
	(0.0935)	(0.0366)	(0.6630)
CFO	-0.0113**	0.0014	0.0710**
	(0.0048)	(0.0019)	(0.0338)
Constant	-1.7732**	3.7041***	34.4771***
	(0.6994)	(0.3029)	(5.2195)
INDUSTRY FE	*Yes*	*Yes*	*Yes*
YEAR FE	*Yes*	*Yes*	*Yes*
Wald chi2	47.15***	96.29***	32.74***
R-squared	0.1590	0.1517	0.1054
N	452	452	452

Note: **p<0.10; **p<0.05; ***p<0.01. Refer to Appendix A for detailed description of the variables.*

4.3 Additional analyzes

Several additional tests are conducted to examine the relationship between auditor changes and KAM attributes for highly complex KAMs. Previous research suggests that accounting transactions related to valuation and impairment are more complex and typically technical in nature (Stein, 2019). Based on this notion, valuation and impairment KAMs were identified using the headings and text of the KAM. As such, two dichotomous variables - *VALKAMs* and *IMPKAMs* are generated for the valuation and impairment KAMs. The

indicator variables, *VALKAMs* and *IMPKAMs* are coded as one if a KAM is related to valuation or impairment issue and, zero otherwise.

The study then replicated the analyzes using the two sub-samples to further examine the association between auditor changes and KAM characteristics related to their number (*#KAMs*), details included in the KAMs description (*DETAIL*), and level of readability (*READ*). Table 5 displays the estimated results for the analyses related to valuation KAMs and suggests that audit firm level changes (*FIRMCHG*) were not significantly associated with all three attributes of KAMs – number of KAMs disclosed (*#KAMs*), details included in KAMs (*DETAIL*), and the readability of KAMs (*READ*). On the other hand, the estimated results for the relationship between audit partner changes (*PARTCHG*) and the number of KAMs (*#KAMs*) is negative and significant in model (1) of Table 5 at the 5% level. Table 5 model (2) shows that the relation between audit partner changes (*PARTCHG*) and the details included in the description of valuation related KAMs (*DETAIL*) is positive and significant at the 1% level. More so, model (3) of Table 5 reveals that the association between audit partner changes and the readability of KAMs (*READ*) is significant and positive at the 1% level. Overall, partner changes resulted in fewer valuation KAMs which include more details and are more readable.

Table 5: Additional analyzes - Valuation KAMs sub-sample

VARIABLES	(1) #KAMs	(2) DETAIL	(3) READ
FIRMCHG	***0.3189***	***-0.0695***	***-1.4983***
	(0.3137)	***(0.1318)***	***(1.9526)***
PARTCHG	***-0.3878****	***0.2550*****	***2.9285*****
	(0.1693)	***(0.0712)***	***(1.0543)***
PARTGEN	-0.1068	0.0197	1.2456
	(0.2633)	(0.1095)	(1.6726)
BIG4	-0.7593**	0.3065**	5.7136**
	(0.3548)	(0.1382)	(2.6681)
AFEE	0.0328	0.0371*	-0.3315
	(0.0516)	(0.0214)	(0.3282)
SIZE	0.0823	0.0178	-0.2376
	(0.0620)	(0.0249)	(0.4358)
RECINV	-0.2447	0.0677	1.4704
	(0.1791)	(0.0722)	(1.2577)
LEV	-0.5542	0.1057	2.8872
	(0.4390)	(0.1775)	(2.9964)
ROA	0.0020	0.0028	-0.0088
	(0.0044)	(0.0018)	(0.0286)
LOSS	0.0122	0.1125	-0.1156
	(0.1790)	(0.0754)	(1.1138)
CFO	-0.0085	0.0008	0.0549
	(0.0087)	(0.0037)	(0.0537)
Constant	0.6641	3.6830***	14.4696
	(1.2814)	(0.5044)	(9.3700)
INDUSTRY FE	*Yes*	*Yes*	*Yes*
YEAR FE	*Yes*	*Yes*	*Yes*
Wald chi2	23.53**	52.75***	22.25**
R-squared	0.2493	0.3335	0.2208
N	144	144	144

Note: **p<0.10; **p<0.05; ***p<0.01. Refer to Appendix A for detailed description of the variables.*

Table 6 displays the estimated results for the influence of auditor changes on the impairment category of KAMs sub-sample. The associations between audit firm changes (*FIRMCHG*) and partner changes (*PARTCHG*) are positive and significant at the 1% level for the details included (*DETAIL*) in the impairment types of KAMs in model (2). Both auditor changes variables (firm and partner changes) are not significant for the number of KAMs (*#KAMs*) and readability (*READ*) in models (1) and (3), respectively in Table 6. Specifically, the results in Table 6 reveal that audit firm and partner level changes are

significantly associated with the extent of details included in the description of the disclosed impairment types of KAMs.

Table 6: Additional analyzes - Impairment KAMs sub-sample

VARIABLES	(1) #KAMs	(2) DETAIL	(3) READ
FIRMCHG	***-0.1395***	***0.1736****	***0.0565***
	(0.1729)	***(0.0638)***	***(1.2531)***
PARTCHG	***-0.0720***	***0.1927****	***0.5064***
	(0.1360)	***(0.0495)***	***(0.9829)***
PARTGEN	-0.0767	-0.0574	0.6612
	(0.1740)	(0.0687)	(1.2944)
BIG4	0.1040	0.1234	-1.9578
	(0.2212)	(0.0891)	(1.6548)
AFEE	0.0384	0.0105	-0.2053
	(0.0390)	(0.0149)	(0.2864)
SIZE	0.2218***	0.0134	-1.2414***
	(0.0467)	(0.0194)	(0.3515)
RECINV	0.2903***	0.0339	-0.9179
	(0.0858)	(0.0314)	(0.6209)
LEV	-0.6151**	0.2054*	4.0616*
	(0.2821)	(0.1188)	(2.1415)
ROA	0.0015	0.0018	-0.0186
	(0.0039)	(0.0015)	(0.0286)
LOSS	0.2494*	0.0245	-1.0096
	(0.1310)	(0.0479)	(0.9467)
CFO	-0.0066	0.0004	0.0499
	(0.0066)	(0.0024)	(0.0476)
Constant	-3.2792***	4.0616***	41.3432***
	(0.8901)	(0.3926)	(6.8400)
INDUSTRY FE	*Yes*	*Yes*	*Yes*
YEAR FE	*Yes*	*Yes*	*Yes*
Wald chi2	52.21***	48.35***	29.63**
R-squared	0.3007	0.0995	0.2002
N	223	223	223

Note: **p<0.10; **p<0.05; ***p<0.01. Refer to Appendix A for detailed description of the variables.*

The results for valuation KAMs are only significant at the audit partner level, which suggests that when it comes to specific types of KAMs, in particular valuation related KAMs, audit partner change impacts valuation KAMs. The second sub-sample test looked into how impairment types of KAMs are associated with auditor changes. Both audit firm and partner changes are significant for the details included in the KAM description. While the results at the audit firm level largely reflect those observed in the full sample, the results

at the partner level differ marginally with those found at the overall sample. Reconciling these results with those of the overall sample, it appears new audit focus on the level of details included in the description of specific KAMs.

There are also some differences in the results between the two types of KAMs – valuation and impairment KAMs. Partner level changes are significant for all measures of the attributes related to valuation types of KAMs but not for all dependent variables for the impairment related KAMs. Taken together, the sub-sample analysis recognizes differences in the types of KAMs and highlights that the effect of auditor changes differs for different categories of key audit matters. This provides a further layer of insights on the relationship between auditor changes and key audit matter disclosures in terms of their number, details included, and readability.

5. Discussions and conclusion

This study examines the relationship between audit firm and partner changes and KAM attributes. The attributes considered included the number of KAMs, the level of details included in the KAM description, and the readability of KAMs. Audit firm and partner changes have the potential to cause disruption to the audit process due to the loss of client-specific knowledge (Deloitte, 2015; EY, 2019; KPMG, 2015; PwC, 2019). Auditor attributes have been shown to be significantly associated with KAM attributes (Abdelfattah et al., 2020; Sierra-García et al., 2019), but the effect of auditor changes has not been examined. Further, the influence of auditor changes on KAMs disclosures is of interest as extant studies that have explored the effect of auditor changes on several audit outcomes including measures of audit quality, audit fees, audit opinions, and audit timeliness have reported mixed evidence (Arthur et al., 2017; Bandyopadhyay et al., 2014; Chung et al., 2020; Corbella et al., 2015; Firth et al., 2012; Horton et al., 2020).

Consistent with prior studies (Abdelfattah et al., 2020; Pinto & Morais, 2019; Sierra-García et al., 2019), KAM attributes are conceptualized by their number, the level of details included in the KAM description, and level of readability. A hand-collected data from a sample of listed companies on the Oslo Stock Exchange over the period 2016-2019 is analyzed. The findings suggest that auditor changes that occurred at the audit firm level are not significantly associated with KAM attributes depicted by their number and readability but positively associated with the details included in the KAMs disclosures. It is further observed that auditor changes at the partner level are significantly related to the KAM attributes shown by their number, details included, and readability. In particular, new engagement partners are observed to disclose fewer KAMs which are more detailed and are also more readable. The results thus highlight that the effects of audit firm and partner changes are not uniform, precisely those related to key audit matters disclosures.

The findings in this study contribute to the prior literature examining the determinants of KAMs disclosures by recognizing auditor changes a factor that influences how KAMs are reported by audit firms. Typically, how audit firm change versus partner change affects audit results is not compared in a single study. Abdelfattah et al. (2020) found that audit partner attributes, particularly gender differences are significantly associated with KAMs

disclosures. The current study extends this line of research by highlighting that, changes within audit firms that are associated with audit partners with specific audit clients have important implications for the reporting of KAMs. From policy perspective, the findings have important implications as the main objective of the decision on KAMs is to ensure the provision of more client-specific information to the audit report users. In particular, the consistent and statistically significant findings at the audit partner level provide insights that inform the ongoing international discussion about the implementation of auditor rotations. For instance, the EU has mandated a dual rotation of both audit firms and partners aimed at boosting auditor-client independence (Horton et al., 2020). The EU's position represents a stark difference to the position as adopted by the US audit regulators – the PCAOB. The PCAOB initially commenced public consultation processes towards mandating audit firm rotation but later abandoned them as the results suggested that the already existing mandatory rotation of audit partners policy was sufficient in ensuring auditor-client independence.

The results should be interpreted in the context of a number of limitations. The study only used a number of proxies for KAM attributes – number of KAMs, details of KAMs, and the level of KAMs' readability, other measures may produce different findings. The foregoing limitation aside, the study provides new insights about other important factors that are associated with key audit matters. The findings are informative as to the influence of auditor changes at the audit firm and partner levels and the reporting of KAMs by auditors in the auditor's report. It is important to investigate factors that drive KAMs disclosures in order to provide a better and complete understanding of how the communicative value of the auditor's report can be improved to satisfy the information needs of the intended audit report users. Future studies can focus on how audit firm and engagement partner transitions are managed within audit firms and their effects on KAMs disclosures.

References

Abdelfattah, T., Elmahgoub, M., & Elamer, A. A. (2020). Female audit partners and extended audit reporting: UK evidence. *Journal of Business Ethics*, 1-21.

Abdullatif, M., & Al-Rahahleh, A. S. (2020). Applying a new audit regulation: reporting key audit matters in Jordan. *International Journal of Auditing, 24*(2), 268-291.

Arthur, N., Endrawes, M., & Ho, S. (2017). Impact of partner change on audit quality: An analysis of partner and firm specialisation effects. *Australian Accounting Review, 27*(4), 368-381.

Asare, S. K., & Wright, A. M. (2012). Investors', auditors', and lenders' understanding of the message conveyed by the standard audit report on the financial statements. *Accounting Horizons, 26*(2), 193-217.

Azizkhani, M., Hossain, S., Jiang, A., & Yap, W. (2021). Mandatory partner rotation, audit timeliness and audit pricing. *Managerial Auditing Journal*.

Bandyopadhyay, S. P., Chen, C., & Yu, Y. (2014). Mandatory audit partner rotation, audit market concentration, and audit quality: Evidence from China. *Advances in Accounting, 30*(1), 18-31.

Bédard, J., Gonthier-Besacier, N., & Schatt, A. (2019). Consequences of expanded audit reports: Evidence from the justifications of assessments in France. *Auditing: A Journal of Practice & Theory, 38*(3), 23-45.

Bell, T. B., Causholli, M., & Knechel, W. R. (2015). Audit firm tenure, non-audit services, and internal assessments of audit quality. *Journal of Accounting Research, 53*(3), 461-509.

Boritz, J. E., Hayes, L., & Timoshenko, L. M. (2016). Determinants of the Readability of SOX 404 Reports. *Journal of Emerging Technologies in Accounting, 13*(2), 145-168.

Bowlin, K. O., Hobson, J. L., & Piercey, M. D. (2015). The effects of auditor rotation, professional skepticism, and interactions with managers on audit quality. *The Accounting Review, 90*(4), 1363-1393.

Butterworth, S., & Houghton, K. A. (1995). Auditor switching: The pricing of audit services. *Journal of Business Finance & Accounting, 22*(3), 323-344.

Carson, E., Fargher, N. L., Geiger, M. A., Lennox, C. S., Raghunandan, K., & Willekens, M. (2013). Audit reporting for going-concern uncertainty: A research synthesis. *Auditing: A Journal of Practice & Theory, 32*(Supplement 1), 353-384.

Chi, W., Huang, H., Liao, Y., & Xie, H. (2009). Mandatory audit partner rotation, audit quality, and market perception: Evidence from Taiwan. *Contemporary Accounting Research, 26*(2), 359-391.

Choi, J.-s., Lim, H.-j., & Mali, D. (2017). Mandatory audit firm rotation and Big4 effect on audit quality: Evidence from South Korea. *Asian Academy of Management Journal of Accounting and Finance, 13*(1), 1-40.

Chung, H., Kim, Y., & Sunwoo, H.-Y. (2020). Korean evidence on auditor switching for opinion shopping and capital market perceptions of audit quality. *Asia-Pacific Journal of Accounting & Economics*, 1-23.

Church, B. K., Davis, S. M., & McCracken, S. A. (2008). The auditor's reporting model: A literature overview and research synthesis. *Accounting Horizons*, *22*(1), 69-90.

Coram, P. J. (2014). Audit reports. In *The Routledge companion to auditing* (pp. 311-321): Routledge.

Coram, P. J., & Wang, L. (2021). The effect of disclosing key audit matters and accounting standard precision on the audit expectation gap. *International Journal of Auditing*, *25*(2), 270-282.

Corbella, S., Florio, C., Gotti, G., & Mastrolia, S. A. (2015). Audit firm rotation, audit fees and audit quality: The experience of Italian public companies. *Journal of International Accounting, Auditing and Taxation*, *25*, 46-66.

Davidson, W. N., Jiraporn, P., & DaDalt, P. (2006). Causes and consequences of audit shopping: an analysis of auditor opinions, earnings management, and auditor changes. *Quarterly Journal of Business and Economics*, 69-87.

De Franco, G., Hope, O. K., Vyas, D., & Zhou, Y. (2015). Analyst report readability. *Contemporary Accounting Research*, *32*(1), 76-104.

De Jong, B., & Hijink, S. (2020). Mandatory Audit Firm Rotation for Listed Companies: The Effects in the Netherlands. *European Business Organization Law Review*, *21*(4), 937-966.

Deloitte. (2015). *Transparency report*. Retrieved from https://www2.deloitte.com/content/dam/Deloitte/au/Documents/audit/deloitte-au-audit-transparency-report-2015-180915.pdf

Dodgson, M. K., Agoglia, C. P., Bennett, G. B., & Cohen, J. R. (2020). Managing the auditor-client relationship through partner rotations: The experiences of audit firm partners. *The Accounting Review*, *95*(2), 89-111.

Erickson, M. (2017). A century of opinions: Companies with auditor tenure over 100 years. *Audit Analytics*.

European Parliament and European Council. (2014). *Regulation (EU) No. 537/2014 of the European Parliament and of the Council of 16 April 2014 on specific requirements regarding statutory audit of public-interest entities and repealing Commission Decision 2005/909/EC*. Retrieved from https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:02014R0537-20140616&from=FI

EY. (2019). *Transparency report*. Retrieved from https://assets.ey.com/content/dam/ey-sites/ey-com/en_us/home-index/ey-transparency-report-2019.pdf

Firth, M., Rui, O. M., & Wu, X. (2012). How do various forms of auditor rotation affect audit quality? Evidence from China. *The International Journal of Accounting*, *47*(1), 109-138.

FRC. (2013). International Standard on Auditing (UK and Ireland) 700. The independent auditor’s report on fi nancial statements. London. In

Grosse, M., Ma, N., & Scott, T. (2018). Interim reviews and the association between partner rotations and audit fees. *International Journal of Auditing*, *22*(2), 214-229.

Gunning, R. (1952). Technique of clear writing.

Gutierrez, E., Minutti-Meza, M., Tatum, K. W., & Vulcheva, M. (2018). Consequences of adopting an expanded auditor's report in the United Kingdom. *Review of Accounting Studies, 23*(4), 1543-1587.

Hay, D. (1998). Communication in auditors' reports: Variations in readability and the effect of audit firm structure. *Asia-Pacific Journal of Accounting, 5*(2), 179-197.

Horton, J., Livne, G., & Pettinicchio, A. (2020). Empirical evidence on audit quality under a dual mandatory auditor rotation rule. *European Accounting Review*, 1-29.

IAASB. (2015). *Auditor Reporting – Key Audit Matters*. Retrieved from https://www.ifac.org/system/files/publications/files/Auditor-Reporting-Toolkit-KAM-Overview.pdf

ISA-701. (2015). Communicating key audit matters in the independent auditor's report. In: IFAC.

Kennedy, P. (2008). *A guide to econometrics*: John Wiley & Sons.

Kim, Y., & Park, M. S. (2006). Auditor changes and the pricing of seasoned equity offers. *Accounting Horizons, 20*(4), 333-349.

KPMG. (2015). *Transparency report*. Retrieved from https://assets.kpmg/content/dam/kpmg/pdf/2015/12/2015-international-transparency-report.pdf

Lennox, C. S., Schmidt, J., & Thompson, A. (2018). Is the expanded model of audit reporting informative to investors? Evidence from the UK Working paper. In.

Lennox, C. S., Schmidt, J. J., & Thompson, A. M. (2022). Why are expanded audit reports not informative to investors? Evidence from the United Kingdom. *Review of Accounting Studies*, 1-36.

Lennox, C. S., Wu, X., & Zhang, T. (2014). Does mandatory rotation of audit partners improve audit quality? *The Accounting Review, 89*(5), 1775-1803.

Li, F. (2008). Annual report readability, current earnings, and earnings persistence. *Journal of Accounting and Economics, 45*(2-3), 221-247.

Li, H., Hay, D., & Lau, D. (2019). Assessing the impact of the new auditor's report. *Pacific Accounting Review*.

Litjens, R., van Buuren, J., & Vergoossen, R. (2015). Addressing Information Needs to Reduce the Audit Expectation Gap: Evidence from D utch Bankers, Audited Companies and Auditors. *International Journal of Auditing, 19*(3), 267-281.

Litt, B., Sharma, D. S., Simpson, T., & Tanyi, P. N. (2014). Audit partner rotation and financial reporting quality. *Auditing: A Journal of Practice & Theory, 33*(3), 59-86.

Mali, D., & Lim, H. j. (2018). Conservative reporting and the incremental effect of mandatory audit firm rotation policy: a comparative analysis of audit partner rotation vs audit firm rotation in South Korea. *Australian Accounting Review, 28*(3), 446-463.

Martani, D., Rahmah, N. A., Fitriany, F., & Anggraita, V. (2021). Impact of audit tenure and audit rotation on the audit quality: Big 4 vs non big 4. *Cogent Economics & Finance, 9*(1), 1901395.

Mock, T. J., Bédard, J., Coram, P. J., Davis, S. M., Espahbodi, R., & Warne, R. C. (2013). The audit reporting model: Current research synthesis and implications. *Auditing: A Journal of Practice & Theory, 32*(Supplement 1), 323-351.

Monroe, G., & Hossain, S. (2013). Does audit quality improve after the implementation of mandatory audit partner rotation. *Accounting and Management Information Systems, 12*(2), 263-279.

Nagy, A. L. (2005). Mandatory audit firm turnover, financial reporting quality, and client bargaining power: The case of Arthur Andersen. *Accounting Horizons, 19*(2), 51-68.

Nguyen, L. A., & Kend, M. (2021). The perceived impact of the KAM reforms on audit reports, audit quality and auditor work practices: stakeholders' perspectives. *Managerial Auditing Journal*.

Pacheco-Paredes, A. A., Rama, D. V., & Wheatley, C. M. (2017). The timing of auditor hiring: Determinants and consequences. *Accounting Horizons, 31*(3), 85-103.

PCAOB. (2017). *The auditor's report on an audit of financial statements when the auditor expresses an unqualified opinion and related amendments to PCAOB standards*. Retrieved from Washington, D.C.: https://pcaob-assets.azureedge.net/pcaob-dev/docs/default-source/rulemaking/docket034/2017-001-auditors-report-final-rule.pdf?sfvrsn=14ad22c9_0

Pinto, I., & Morais, A. I. (2019). What matters in disclosures of key audit matters: Evidence from Europe. *Journal of International Financial Management & Accounting, 30*(2), 145-162.

Pound, G. (1981). A note on audit report readability. *Accounting & Finance, 21*(1), 45-55.

PwC. (2019). *Transparency report*. Retrieved from https://www.pwc.com/us/en/about-us/assets/pwc-us-fy19-transparency-report.pdf

Reid, L. C., Carcello, J. V., Li, C., Neal, T. L., & Francis, J. R. (2019). Impact of auditor report changes on financial reporting quality and audit costs: Evidence from the United Kingdom. *Contemporary Accounting Research, 36*(3), 1501-1539.

Sharma, D. S., Tanyi, P. N., & Litt, B. A. (2017). Costs of mandatory periodic audit partner rotation: Evidence from audit fees and audit timeliness. *Auditing: A Journal of Practice & Theory, 36*(1), 129-149.

Sierra-García, L., Gambetta, N., García-Benau, M. A., & Orta-Pérez, M. (2019). Understanding the determinants of the magnitude of entity-level risk and account-level risk key audit matters: The case of the United Kingdom. *The British Accounting Review, 51*(3), 227-240.

Sirois, L.-P., Bédard, J., & Bera, P. (2018). The informational value of key audit matters in the auditor's report: Evidence from an eye-tracking study. *Accounting Horizons, 32*(2), 141-162.

Stein, S. E. (2019). Auditor industry specialization and accounting estimates: Evidence from asset impairments. *Auditing: A Journal of Practice & Theory, 38*(2), 207-234.

Stewart, J., Kent, P., & Routledge, J. (2016). The association between audit partner rotation and audit fees: Empirical evidence from the Australian market. *Auditing: A Journal of Practice & Theory, 35*(1), 181-197.

Tanyi, P., Raghunandan, K., & Barua, A. (2010). Audit report lags after voluntary and involuntary auditor changes. *Accounting Horizons, 24*(4), 671-688.

Turner, L. E., Williams, J. P., & Weirich, T. R. (2005). An inside look at auditor changes. *The CPA Journal*, 12.

Vanstraelen, A., Schelleman, C., Meuwissen, R., & Hofmann, I. (2012). The audit reporting debate: Seemingly intractable problems and feasible solutions. *European Accounting Review, 21*(2), 193-215.

Velte, P. (2018). Does gender diversity in the audit committee influence key audit matters' readability in the audit report? UK evidence. *Corporate Social Responsibility and Environmental Management, 25*(5), 748-755.

Velte, P. (2019). Associations between the financial and industry expertise of audit committee members and key audit matters within related audit reports. *Journal of Applied Accounting Research*.

Widyaningsih, I. A., Harymawan, I., Mardijuwono, A. W., Ayuningtyas, E. S., & Larasati, D. A. (2019). Audit firm rotation and audit quality: Comparison before vs after the elimination of audit firm rotation regulations in Indonesia. *Cogent Business & Management, 6*(1), 1695403.

Zeng, Y., Zhang, J. H., Zhang, J., & Zhang, M. (2021). Key audit matters reports in China: Their descriptions and implications of audit quality. *Accounting Horizons, 35*(2), 167-192.

Appendix A: Description of the variables and data sources

Variables	Definition	Data Source
#KAMs	The total number of key audit matters disclosed in the audit report for company *i* in year *t*.	Audit Report
DETAIL	The details included in the disclosed key audit matters measured as the natural logarithm of the number of words per KAM for company *i* in year *t*.	Audit Report
READ	The readability is measured by using the Gunning Fog index. The formular applied in computing the scores is: Fog = *0.4*(average sentence length + % of complex words)* for KAMs of company *i* in year *t*.	Audit Report
VALKAMs	A binary variable coded as one if a KAM is related to valuation issue, 0 otherwise	Audit Report
IMPKAMs	A dichotomous variable coded as one if a KAM is related to impairment issue, 0 otherwise	Audit Report
FIRMCHG	An indicator variable stated as one if the audit firm changed on the audit, 0 otherwise for company *i* in year *t*.	Audit Report
PARTCHG	A dummy variable coded as one if the audit partner changed on the audit, 0 otherwise for company *i* in year *t*.	Audit Report
PARTGEN	A dichotomous variable set to equal one if the audit report was signed by a female audit partner, 0 otherwise for company *i* in year *t*.	Audit Report
BIG4	This is an indicator variable stated as one if a company was audited by either PwC, KPMG, Deloitte and EY, 0 otherwise for company in year *t*.	Audit Report
AFEE	The natural logarithm of the total auditing fees for company *i* in year *t*.	Annual Report
SIZE	The natural logarithm of the total assets for company *i* in year *t*.	Eikon
RECINV	The proportion of inventories and account receivables to the total assets for company *i* in year *t*.	Eikon
LEV	The proportion of total debt to total assets for company *i* in year *t*.	Eikon
ROA	Operating income scaled by total assets for company *i* in year *t*.	Eikon
LOSS	A dummy variable stated as one if the operating profit is negative, 0 otherwise for company *i* in year *t*.	Eikon
CFO	The natural logarithm of operating cash flows for company in year *t*.	Eikon
INDUSTRY	Industry fixed effects based on GICS industry classification codes.	Eikon

Appendix B

Appendix B provides an overview of the algorithms implemented to obtain the number of words used in the KAMs description and the computation of Gunning Fog readability index applied to measure the readability of the descriptions included in KAMs.

The *Perl Language software - Lingua::EN::Fathom and Lingua::EN::Syllable* is used to count the number of words used by auditors in the description of each KAM. This software has been previously used by Boritz et al. (2016) and (F. Li, 2008) to examine the readability of SOX 404 reports and annual report readability, respectively. The text included in the description portion of each KAM is manually collected and fed into the software package to count the number of words used by auditors. The number obtained is then transferred to Stata where the natural logarithm is taken to measure the details included in the KAM description.

In the computation of the Fog readability index, three key variables are required. These are the number of words, sentences, and complex words. A word is considered as a complex word if it has three or more syllables. The Fog readability index is then calculated by obtaining and multiplying the sum of the number of words per sentence and the ratio of complex words by a scale factor of 0.4. As earlier discussed, the *Perl Language software* package - *Lingua::EN::Fathom and Lingua::EN::Syllable* is used to compute the Fog index used in measuring the readability of KAMs. Minor variations in the algorithms applied to count the three key variables can result in differences in the Fog readability index measure. As such, the KAMs readability based on the Fog index as applied in this study was computed and validated as outlined in the following steps:

Step 1

A data feed on all the key audit matters disclosed was obtained manually from the key audit matters section included in the audit reports of the sampled companies for each year. The data feed collected included the text used by the auditors in describing each key audit matter determined and disclosed.

Step 2

The data feed containing the text on key audit matters per year for each sampled company is analyzed by applying Kim Ryan's *Lingua::En::Fathom* (version 1.11) and Greg Fast's *Lingua::EN:Syllables* (version 0.251) Perl scripts consistent with Boritz et al. (2016). In this process, the *Lingua::En::Fathom* part of the package counts the number of words and sentences used in the text while the *Lingua::EN:Syllables* component does same for the number of syllables. Employing the number of words, sentences, and syllables, the package computes the Fog index by using the formula *0.4*(number of words per sentence + percentage of complex words)*. The Fog index per KAM is then transferred to Stata and averaged to obtain the KAM readability index per year for each company.

Step 3

The study then crossed validated the readability scores and number of words computed by the Perl language software package by using an online textual analysis tool that can be assessed at https://www.webfx.com/tools/read-able/. As a further validation process, the study manually computed Fog indices for a sample of randomly selected KAMs. The results from both validation processes were materially the same as those produced by the Perl language software package.