Do key audit matters affect the timing of audit reports? Some international evidence on the moderating role of audit quality and legal protection

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Abstract

This international study using observations from the United Kingdom (UK), France, Germany, and Italy examines the relationship between Key Audit Matters (KAMs) and the timing of audit reports measured by the audit report lag (ARL). Further, this study examines the moderating role of audit firm quality, proxied by Big 4 auditors, and the legal environment, proxied by common versus civil law, in the relationship. The results of 6,372 firm-year observations of listed firms show a significant positive relationship between the number of KAMs and ARL, and this relationship is weaker for Big 4 clients and stronger for firms in UK (common law). The results are robust across alternative models, variables, sample specifications, and endogeneity tests. This study contributes to the audit quality literature, especially the implementation of KAMs, and highlights the significant role of audit firm quality and legal traditions in the relationship between KAMs and ARL. The findings have practical implications for users of audited financial statements.

Keywords: Key audit matters, Audit report lag, Big 4 auditors, Civil law, Common law, Europe

1. Introduction

This study investigates the relationship between the number of Key Audit Matters (KAMs) and Audit Report Lag (ARL). Further, it examines the moderating role of audit quality (Big 4 auditors) and the legal environment proxied by common (UK) and civil law (France, Germany, and Italy) in this relationship. These countries represent the same geographical region and the largest economies in Europe and the 10 largest economies in the world (IMF, 2023). Moreover, KAMs reporting is uniformly mandatory in the above countries.

KAMs reporting is the latest significant change in audit reporting and is mandatory globally in many countries from December 15, 2016. KAMs reporting purpose is to increase the communicative value of audit reports. KAMs relate to the significant risks, or significant transactions or events, or significant auditors' judgment in the client's financial statements (EU, 2014; ISA 701; Pinto & Morais, 2019). Since KAMs reporting is mandated, auditors are responsible for disclosing KAMs in addition to the audit opinion. KAMs reporting is more likely to increase auditing time, especially in identifying, addressing, and reviewing KAMs. Because auditors are responsible for KAMs disclosure, and KAMs reporting is the latest (new) mandatory reporting. Not surprisingly, some prior studies highlight that auditors' workload and efforts have increased since KAMs reporting was introduced (Zeng, Zhang, Zhang, & Zhang, 2021; Rautiainen, Saastamoinen, & Pajunen, 2021; Nguyen & Kend, 2021; Bepari, Nahar, & Mollik, 2024; Alharasis, Alkhwaldi, & Hussainey, 2024; Bepari, Nahar, Mollik, & Azim, 2024; Espahbodi, Lin, Liu, Mock, & Song, 2023). For example, auditors are more likely to conduct more audit procedures on the identified KAMs and spend more time with senior managers and partners for the additional review of the engagement team's work (Espahbodi et al., 2023). Further, many prior studies have focused on the usefulness, consequences, and determinants of the KAMs reporting. For example, a recent study examines the relationship between the number of KAMs and the financial distress level of UK firms (Camacho-Miñano, Muñoz-Izquierdo, Pincus & Wellmeyer, 2024).

We focus on ARL as the dependent variable because timely financial reporting is crucial for stakeholders to be informed in decision-making. Audited financial statements are the primary communication tool to convey the firm's financial performance to internal and external users. Due to the agency problems, stakeholders rely on audited financial statements for economic decisions. Longer ARL is more likely to signal concerns about a firm's financial health, risk profile, and reporting quality. Timely reporting is one of the qualitative characteristics of financial reporting and a key indicator of financial reporting and audit quality. ARL can result from controllable factors, such as delays in stock verification, or uncontrollable

factors, such as COVID-19. However, investors are more likely to perceive late audit reports as indicators of financial distress, weak internal controls, and ineffective auditing processes. Such perceptions may lead to adverse effects, including reduced investor confidence, stock price declines, increased market volatility, and heightened scrutiny from creditors and regulators. Importantly, a longer ARL can hinder a firm's ability to secure financing, as lenders may view delays as a risk factor, demanding higher interest rates and imposing stricter credit terms (Sengupta, 1998). Additionally, longer ARL raises concerns about a firm's governance and internal controls, potentially leading to increased compliance costs and reputational damage. Moreover, a longer ARL is more likely to reduce the reputation(goodwill) of the firms because the financial statements are mainly for external communication, unlike management accounting[1]. Finally, ARL can have far-reaching implications beyond mere delays, potentially affecting the firm's financial health, market standing, and long-term success. ARL is an ongoing key corporate reporting issue because the consequences of ARL affect stakeholders, especially firms in numerous ways (mentioned above), and ARL depends on many factors. Not surprisingly, financial statement users are more concerned about ARL because it is important for economic decision-making. Some prior studies have focused on ARL, for example, Dao and Pham (2014) document that the positive association between auditor tenure and ARL is weaker when statutory auditors are industry-specialized auditors.

This study is motivated by the fact that some past studies that have focused on the relationship between KAMs/ Critical Audit Matters (CAMs) reporting and ARL (Reid, Carcello, Li, Neal, & Francis, 2019; Abdullatif, Alzebdieh, & Ballour, 2023; Lee, Khalaf, Farag, & Gomaa, 2024; Rahaman, & Bhuiyan, 2024; Alawadhi, Alrefai, & Alqassar, 2024; Kitiwong, Ekasingh, & Sarapaivanich, 2024), have documented mixed results. For example, Alawadhi et al. (2024) and Kitiwong et al. (2024) find a positive association between KAMs and ARL. Reid et al. (2019) and Abdullatif et al. (2023) document no statistical results between the number of KAMs and ARL. However, Rahaman et al. (2024) and Lee et al. (2024) show a negative association between KAMs/CAMs and ARL. Therefore, the relationship between KAMs/ CAMs and ARL is an open question for investigation since it is an open question.

Second, prior studies have examined the issues surrounding KAMS based on a single country, for example, KAMS reporting in UK or Australia. Relatively few studies have focused on cross-country applications of KAMs. Cross-country applications studies are important since these provide a better understanding of the role of differences in the legal environment (Hope,

[1] Management accounting is used for internal purpose.

2003; La Porta et al., 1998). This study, therefore, examines the cross-country application of KAMs reporting, particularly between common law and civil law countries. Given that legal environments influence auditing practices and investor protection, this study explores how the relationship between KAMs and ARL varies between common and civil law countries. Common law nations tend to offer stronger investor protection and stricter enforcement, potentially impacting KAMs disclosure and audit timelines because prior studies suggest common-law countries have better investor protection and higher litigation risk (Leuz et al. 2003; Hope, 2003; Ball et al. 2000; La Porta et al. 1998). For example, Leuz et al. (2003) document that firms in countries with developed equity markets, dispersed ownership structures, strong investor rights, and legal enforcement engage in less earnings management. Although the International Auditing and Assurance Standards Board (IAASB) promotes global auditing harmonization, inconsistent implementation as a result of differences in legal protection increases the potential for disparities in financial reporting. Previous studies support these ideas since they document that the strength of auditing and reporting standards varies among European countries (Boolaky, 2012[2]; Schockaert & Houyous, 2007). The study, by assessing how legal traditions moderate KAMs reporting consequences in Europe's largest economies, contributes to a deeper understanding of auditing harmonization and regulatory effectiveness in a globalized business environment.

Finally, stakeholders are also concerned about audit firm quality. Some prior studies suggest that audit quality depends on audit firm size, proxied by large audit firms because they are more competent and independent than non-Big4 auditors, and Big4 auditors have more resources, competent staff, training and development, and use advanced technology. However, stakeholders' concern about audit firm quality has increased since recent news has drawn attention to audit firm quality. For example, recent news in the Financial Times revealed that auditors failed to raise the alarm for bankrupt firms in UK from 2010 to 2022 (Foy, 2024)[3]. Moreover, the collapse of Arthur Andersen due to the issuance of inappropriate opinions in 2002[4] also attracted much public and regulatory attention. These scandals question audit firm quality, proxied by Big 4 auditors. Therefore, the role of the Big 4 is still unclear. This study intends to investigate the moderating role of Big 4 auditors in the relationship between the

[2] Boolaky (2012) documented strength of auditing and reporting standards (SARS) varies among European countries, with a range of SARS ranging from 3.1(weak) and 6.2(strong), where the SARS range is 1-7.
[3] "Auditors failed to raise alarm before 75% of UK corporate collapses from 2010 to 2022" (Foy, 2024).
[4] Arthur Andersen was one of the Big 5 audit firms in the world.

number of KAMs and ARL in the recent business environment, especially in the European context, and to shed some light on the current controversies about audit quality (Foy, 2024).

After controlling for the fundamental clients and audit firm characteristics, the regression results show a significant positive relationship between the number of KAMs and ARL. This link is weaker for Big4 clients, and the result is consistent with the argument that Big4 auditors are more concerned with quality reporting (timely reporting). Further, the result on the moderating role of Big 4 auditors validates arguments surrounding Big 4 auditors providing high audit quality and addressing some current controversies about audit firm quality (audit quality). The relationship between KAMs and ARL is stronger in the UK (common law) than in other civil law countries tested in this study. This result suggests that a stronger investors' protection/legal environment (UK/ common law legal environment) is more concerned with the transparency of auditing (more KAMs) than with timely audit reporting.

This study contributes to the audit quality, especially KAMs reporting, ARL, audit firm quality, and legal environment in several important ways. First, it provides new cross-country evidence on the relationship between the number of KAMs and ARL, addressing the mixed findings in prior research. Second, it highlights the moderating effects of audit firm quality and legal tradition, two critical contextual factors that influence the timeliness of audit reporting. By integrating both institutional and auditor-level perspectives, the study advances understanding of how KAMs affect reporting timelines across different regulatory and auditing environments. These findings have important implications for regulators, auditors, and users of financial statements seeking to balance transparency and timeliness in audit reporting.

The remaining sections present (2) literature review and hypotheses development, (3) research method, (4) results and discussion, and (5) conclusion. Relevant theories, relevant empirical findings, hypotheses development, and the conceptual model are discussed in the literature review and hypotheses development section. The research method section discusses the sample and data, research models, control variables, robustness checks, and additional tests. The results section provides descriptive statistics, correlation analysis, t-test, regression analysis, addressing endogeneity concern [Variation Inflation Factor (VIF), and Entropy Balancing (EB)], and additional tests. The final section reports the conclusion, implications, suggestions, and limitations.

2. Literature Review and Hypotheses Development

2.1 Relevant theories

Audit quality literature suggests that audit quality significantly depends on auditor competence and independence (DeAngelo, 1981a & 1981b). This study draws on audit quality literature because KAMs disclosure and audit delay are well connected with auditor competence and independence. Auditor competence and independence are crucial in KAMs disclosure and ARL. Further, this study is grounded and interconnected with many theories, especially agency, information asymmetry, signaling, and institutional theory.

Agency theory suggests that conflicts of interest between management and shareholders are more likely to increase material misstatements (Jensen & Meckling, 1976). Therefore, stakeholders rely on audited financial statements. Moreover, management is more likely to seek favorable audit outcomes while auditors must maintain independence (Becker, DeFond, Jiambalvo, & Subramanyam, 1998). The demand for an independent audit report, coupled with potential management pressure, can influence the audit process and reporting timeline. Similarly, information asymmetry theory highlights the role of KAMs in reducing the gap between management, auditors, and external users by providing crucial insights into the auditing process. Longer ARL, however, may increase perceived information asymmetry among market participants, leading users to associate delayed reports with financial distress or auditor-management disagreements (Owusu-Ansah & Leventis, 2006). Signaling theory further reinforces this perspective by emphasizing how KAMs communicate complexity and risk to the market. Prior research suggests that the market reacts to audit reports (Czerney, Schmidt, & Thompson, 2019; Menon & Williams, 2010), and as the number of KAMs increases, auditors require more time to address significant risks, transactions, and judgments (ISA 701), thereby extending ARL. Institutional theory adds another dimension by considering the regulatory environment's influence on audit timeliness. While regulators prioritize transparency and timely reporting, the adoption of KAMs has increased auditors' workload (Zeng et al., 2021; Rautiainen et al., 2021), potentially lengthening ARL. Given that regulatory environments differ across common and civil law countries, the study explores how legal traditions moderate the impact of KAMs on ARL (Leuz et al., 2003; Hope, 2003; Ball et al., 2000; La Porta et al., 1998). The present study provides insights into how external regulatory pressures shape KAMs reporting and their consequences for timely audit reporting.

2.2 Relevant empirical findings

2.2.1 KAMs

Prior studies have focused on KAMs reporting over the years since KAMs reporting was introduced in 2015. Notably, some past studies have focused on its consequences. This section summarizes some past studies related to KAMs and ARL. KAMs reporting enhances the credibility and transparency of statutory auditing and financial reporting. KAMs reporting is a mandatory requirement for listed firms' financial statements audit. Therefore, auditors' accountability has increased since the introduction of KAMs. Auditors pay greater attention to the litigation and reputation risks, so they are more aligned with standards and regulatory requirements. Identifying and reporting the KAMs is more likely to increase auditing time because KAMs reporting is an additional mandatory requirement and the latest reporting. Therefore, auditors are more likely to spend considerable time familiarizing the new standards and the likelihood of audit delay when identifying more KAMs. Some prior studies have focused on the relationship between KAMs reporting and audit report delay.

Alawadhi et al. (2024) examine the relationship between KAMs reporting and audit delay. KAMs reporting is a mandatory requirement and increases the accountability of auditors. KAMs are the additional and latest requirements in addition to the audit opinion. Therefore, KAMs reporting consumes auditing times significantly. This study predicts a positive association between the number of KAMs and ARL. The results show a significant positive relationship between the number of KAMs and ARL. They document that each KAMs increases the audit delay by four days. Further, this study shows a significant positive relationship between specific categories of KAMs related to investment and implementation of new standards and ARL.

Reid et al. (2019) investigate the impact of KAMs reporting on financial reporting quality and audit costs. In addition to the audit fee, they examine the relationship between KAMs reporting and ARL in the additional test. KAMs provide detailed information to users about what matters were more significant in the statutory audit and how they were verified and addressed KAMs. This study predicts a positive association between KAMs reporting and ARL; however, the results show no relationship between KAMs reporting and ARL.

Another study by Abdullatif et al. (2023) investigates the impact of KAMs reporting and ARL of listed firms in Jordan. They argue that KAM reporting requires auditors to exert greater effort, as they are responsible for disclosing more detailed information about audit procedures related to the reported KAMs. This effort is expected to increase with the number of reported KAMs, potentially leading to longer auditing and reporting. However, in contexts

such as Jordan, where the demand for external auditing may remain consistent, auditors might treat KAM reporting as a procedural formality. Consequently, their actual audit efforts may not significantly change, resulting in a minimal or insignificant impact of KAMs on the ARL. The results show no significant relationship between the number of KAMs and ARL.

Lee et al. (2024) examine the relationship between CAMs and ARL. They emphasize that CAMs disclosures in the USA lead to extensive discussions on CAMs-related details between firms and audit teams. This is anticipated to increase the time auditors need to complete the audit process and issue their opinions (PCAOB, 2011). In addition, more audit efforts and training are required to effectively address CAMs. Therefore, CAMs may increase audit delays. Conversely, CAMs reporting may encourage managers to be more transparent and cooperative in providing the information auditors need. This collaboration and cooperation may lead to a more efficient audit process and shorter ARL. The results suggest a negative association between CAMs disclosure and ARL.

Rahaman et al. (2024) investigate the relationship between KAMs reporting and ARL of Australian Securities Exchange (ASX) 300 firms from 2018 to 2020. Firstly, they argue that KAMs reporting may increase ARL because KAMs communication involves complex and subjective auditor judgments related to material accounts or disclosures (PCAOB, 2017), and KAMs increase auditors' stress, effort, and time, potentially extending the audit lag (Rahaman and Chand, 2022). Conversely, they argue that KAMs reporting may reduce ARL because KAMs reporting leads to efficient resource allocation and KAMs enhance risk understanding, promote transparency, improve communication, and build stakeholder confidence, facilitating timely issue resolution. The results show a negative association between KAMs disclosure and ARL.

2.2.2 Audit Report Lag

ARL has long been recognized as a significant concern in corporate reporting. Many factors determine ARL, and many previous studies have focused on ARL, especially with the two broader scopes of determinants and consequences of ARL. This section reports some prior studies on the determinants of ARL. Determinants of ARL are associated with two main variables such as audit firm and auditor-related variables, and client-specific characteristics.

2.2.2.1 Audit Firm and Auditor Characteristics

Audit firm size, audit fee, non-audit fee, auditor tenure, auditor gender, and audit opinion are key audit firm-related variables. Auditing literature suggests Big 4 auditors are considered for audit quality because they are more competent and independent than other tier auditors. Based on this argument, some past studies document a negative association between audit firm size

(Big 4 auditors) and audit delay (Abernathy, Barnes, Stefaniak, & Weisbarth, 2017; Habib, Bhuiyan, Huang, & Miah, 2019; Leventis, Weetman, & Caramanis, 2005; Owusu-Ansah et al., 2006). For example, a meta-analysis by Habib et al. (2019) documented a negative association between Big 4 auditors and ARL.

The audit fee is used as a proxy for audit quality. The audit fee is connected with many aspects. Some studies suggest that an abnormal audit fee indicates high risks and complexity. There is an argument for a positive association between risk, complexity, and abnormal audit fees. Auditors are more likely to charge high audit fees for more risky and complex firms because auditors spend more time and resources verifying risky and complex businesses; therefore, they charge high audit fees. More auditing time and effort increase audit fees because auditors charge more when they spend more time and effort. Higher audit fees are more likely to have a positive link with ARL. Past studies document a positive association between abnormal audit fees and ARL (Teng & Han, 2023; Lai, 2023). For example, Teng et al. (2023) find a positive relationship between abnormal audit fees (high audit fees) and ARL.

Gaining more information through non-audit services helps the statutory auditing process because of a better understanding of clients. Statutory auditors are more likely to acquire more information about clients when providing non-audit services to the same clients. For example, if the statutory auditor provides tax-related non-audit services in addition to the statutory audit to the same clients. Knowledge and information gathered through tax-related non-audit services are more likely to reduce auditing time related to tax-related disclosure in the financial statements. Therefore, non-audit services are more likely to have a negative association with ARL because non-audit services lead to knowledge spillover. Some past studies document a negative association between non-audit fees and ARL (Durand, 2019; Knechel & Sharma, 2012). For example, Knechel et al. (2012) document a negative association between non-audit fees and ARL.

Auditor tenure refers to statutory auditors' experience with the same clients. Some prior studies argue that longer auditor tenure increases the understanding of clients and contributes to audit quality. In longer auditor tenure, Auditors are more likely to gain a better understanding of the client's general or regular financial transactions and events, internal controls, business segments, and the internal and external business environment. These better understandings improve audit quality and smooth the auditing process. Auditing is an independent examination and professional judgment involved in auditing. Therefore, a better understanding of clients is more likely to reduce auditing risks and improve the quality of auditing judgments. A better understanding of clients through long auditor tenure may reduce audit delays. Not surprisingly,

some prior studies document a negative association between longer auditor tenure and ARL (Durand, 2019; Blankley, Hurtt, & MacGregor, 2014; Dao et al., 2014; Wan-Hussin & Bamahros, 2013; Knechel et al., 2012; Habib & Bhuiyan, 2011). For example, Dao et al. (2014) find a positive association between shorter auditor tenure and ARL.

Auditors provide two main types of audit opinions, which are unmodified and modified. Auditing literature suggests that the modified opinion is used to measure audit quality because auditors' high competence and independence significantly determine the modified opinion. Auditors provide modified audit opinions when financial statements are materially misstated or unable to draw an opinion due to the unavailability of adequate evidence and documents. Therefore, there is a significant relationship between material misstatements/ risks and modified opinions. Auditors consume more auditing time to verify material misstatements and risks of the clients. Therefore, a modified opinion is more likely to increase ARL. Prior studies show a positive relationship between modified audit opinion and ARL (Habib et al., 2019; Durand, 2019). For example, a meta-analysis by Habib et al. (2019) documents that modified audit opinion is positively associated with ARL in 45 out of 68 prior studies.

2.2.2.2 Client-specific characteristics

Financial performance, position, age, size, corporate governance, internal controls, and operations (for example, segments) are key firm-related variables. Audit reports significantly relate to clients' financial performance, strength, age, and size. Auditors are less likely to issue unmodified/ GCOs to profitable, financially strong, large, and more mature (old) firms because of the lower likelihood of audit risks for material misstatements. Large, old, profitable, and financially strong firms pay greater attention to reputation and litigation risks. In addition, large, old, profitable, and financially strong firms are more likely to have strong corporate governance and internal controls. Strong corporate governance is more likely to assist/help the statutory auditing process in the view of the supply side. For example, independent/ female/expert audit committee members are more likely to contribute to statutory auditing. These firms have high financial reporting and audit quality. Therefore, auditors are more likely to spend less auditing time for financially strong, profitable, old, and large firms. There is a high probability of a negative relationship between the client's financial performance, financial position, age, size, corporate governance, and ARL. Some past studies confirm this relationship (Lai, 2023; Zhou, Liu, & Lei, 2024; Alkebsee et al., 2022; Chalu, 2021; Abernathy et al., 2014; Sultana et al., 2015; Jaggi et al., 1999). For example, Lai (2023) found a negative relationship between firm size and ARL, Alkebsee et al. (2022) documented a negative relationship between

female audit committee gender diversity, size, and ARL, and Jaggi et al. (1999) suggest a negative relationship between financial strength and ARL.

2.2.3 Audit firm quality

Many prior studies conclude that audit firm size significantly contributes to audit quality. Some past studies document a positive relationship between Big 4 auditors and financial reporting quality (Abughazaleh, O'Connell, & Princen, 2015; Khurana & Raman, 2004). For example, Abughazaleh et al. (2015) document a positive relationship between Big 4 auditors and audit quality (discretionary accruals). Some past studies conclude that Big 4 clients are less likely to restate their financial statements (Francis, Michas, & Yu, 2013; Chin & Chi, 2009; Eshleman & Guo, 2014). It means a negative relationship between the Big 4 auditors and clients' FR. For example, Eshleman et al. (2014) conclude that Big 4 clients are less likely to restate their financial statements than other auditors' clients. Audit opinion significantly depends on auditors' competence and independence. Some past studies document a positive relationship between Big 4 auditors and modified audit opinions. Importantly, past studies conclude that Big 4 auditors are more likely to issue GCOs to financially distressed firms (Berglund, Eshleman, & Guo, 2018; Boone, Khurana, & Raman, 2010; Francis & Yu, 2009). For example, Berglund et al. (2018) find a positive association between Big4 auditors and the issuance of GCO for financially distressed firms than other auditors; in addition, they are more likely to issue fewer type I GCO errors. Big 4 auditors are more concerned about timely reporting. With this argument, some past studies have documented a negative relationship between Big 4 auditors and audit delay (Habib et al., 2019; Abernathy et al., 2017; Leventis et al., 2005; Owusu-Ansah et al., 2006). For example, a prior review study documents a negative relationship between Big 4 auditors and audit delay (Abernathy et al., 2017). Stakeholders, especially equity and debt providers, value Big 4 auditors' audit reports more. A past study documents a negative association between Big 4 clients and the cost of debt (Gul, Zhou, & Zhu, 2013).

2.2.4 Legal environment

Institutional factors are crucial in financial reporting and statutory audits. These factors depend on the legal environment. Firms' and auditors' Litigation and reputation risks are more likely to be high in investor-protective legal environments (common law countries). So, management and auditors pay greater attention to financial reporting and audit quality to avoid litigation and reputation risks. Therefore, financial reporting and audit quality are more likely to be high in a highly regulated legal environment. Even though the Arthur Andersen audit firm was one of the big audit firms, they were charged for inappropriate opinions in the highly regulated and

investor-protective legal environment in the US in 2002 because a highly regulated legal environment prioritizes public interest.

Countries mainly follow either common law or civil law traditions. These legal traditions are more likely to differ from each other. Auditing practices, financial reporting quality, auditing practices, and audit quality are more likely to align with the legal environment. Some past studies suggest common law countries for high investor protection because litigation and reputation risks are high in these countries (Gul et al., 2013; Francis & Wang, 2008; La Porta et al., 2006; Leuz et al. 2003; Hope, 2003; Ball et al. 2000; La Porta et al. 1998). Therefore, financial reporting and audit quality are high level in these countries. Gul et al. (2013) used five indicators to measure investor protection in common and civil law countries. They used the law as one of the indicators. The factor analysis shows a positive value for seven common law countries, including UK, out of the ten (10) common law countries tested. Further, factor analysis shows a negative value for all twenty civil law countries used in this study, including Germany, France, and Italy. They find that the cost of debt is low in investor-protective legal environments (common law countries) for Big 4 clients.

Investor protection is more likely to differ according to the legal traditions. La Porta, Silanes, Shleifer, & Vishny (2012) document three important findings that suggest countries that follow common law traditions provide better investor protection than civil law countries. Earnings management is used to measure investors' protection. High earnings management indicates low investor protection. Therefore, less earnings management is expected in an investor protection legal environment. Leuz et al. (2003) document a negative relationship between earnings management and investor protection. Further, Iatridis (2012) finds more conservative earnings in South Africa and suggests low agency costs in South Africa because they follow common law.

Financial forecasting is crucial in investment decisions. Forecasting quality mainly depends on information quality, such as reliability and transparency. Financial reporting and audit quality contribute to financial forecasting quality. Barniv, Myring, & Thomas (2005) investigate the relationship between legal traditions, financial reporting environments, and forecast performance. They note that common law countries have strong corporate governance because of high investor protection and financial reporting systems in these countries. The results show a positive association between superior ability, resources, and forecast performance in common law countries. Audit quality significantly contributes to financial reporting quality because financial statements are published after the completion of statutory auditing. Brown, Preiato, & Tarca (2014) examine country differences in accounting standards

and audit enforcement. The results show high audit scores in UK, US, and Canada, which are common-law countries. Further, the results show low audit scores in Chile, Hungary, Jordan, Romania, and Ukraine, which are civil law countries.

2.3 Hypothesis development

The primary responsibility of the auditors is to provide independent opinions on clients' financial statements. In addition, KAMs reporting mandates that auditors disclose KAMs in the audit report. Auditors are accountable for KAMs disclosure, and KAMs reporting is mandatory for listed firms. Therefore, auditors' accountability has increased since the KAMs reporting was mandated. Auditors' workload and efforts are more likely to increase in terms of adoption of KAMs reporting, identifying, and disclosing KAMs since the announcement of KAMs reporting as mandated. KAMs reporting requires a considerable time to familiarise and its fair application because it is a new standard. KAMs reporting is more likely to affect the auditing process and is expected to consume a considerable auditing time related to identifying and addressing KAMs. In particular, auditors have to spend considerable time deciding what matters should be communicated as KAMs, and what matters do not need to be communicated. At this juncture, more KAMs are more likely to consume auditing time. KAMs are related to professional judgment and skepticism of the auditors based on the available evidence. KAMs are not ordinary communication because the meaning of KAMs presents itself. KAMs are disclosed in the audit report, and these are considered significant outcomes and the auditor's communication of the auditing process. However, ISA 701 does not specify the number of KAMs, but the purpose of the standard is to increase the communicative value of the auditors' reporting. The auditors are responsible for deciding how many and what matters to be disclosed as KAMs.

Some previous studies document that auditors' efforts and workload have increased since the introduction of KAMs reporting (Rautiainen et al., 2021; Zeng et al., 2021; Maroun & de Ricquebourg, 2023). Therefore, auditors are expected to take a longer time to conduct an audit and issue a report because KAMs reporting increases auditors' accountability. Auditors are more concerned about KAMs disclosure because they are responsible for KAMs disclosure; therefore, they may consume more auditing time for identifying and addressing (especially for reviewing) KAMs. Moreover, Alawadhi et al. (2024) and Kitiwong et al. (2024) document a positive relationship between KAMs reporting and ARL. Based on the above argument and recent findings, the first hypothesis is:

H1: A positive association exists between the number of KAMs and ARL.

This relationship is more likely to be weaker for Big 4 clients because they are more competent and independent. In addition, they are more concerned with litigation and reputation risks. Therefore, they are more likely to report within the stipulated timeframe. Moreover, past studies show a negative association between Big 4 auditors and ARL (Abernathy et al., 2017; Habib et al., 2019; Leventis et al., 2005; Owusu-Ansah et al., 2006). Based on this, the next hypothesis is:

H2: The positive relationship between the number of KAMs and ARL is weaker for Big4 clients.

As discussed earlier, common law countries suggest for high investor protection legal environment. Financial statements are more likely to be misstated due to the agency problems between management and shareholders. In addition, the audit is a business, so auditors may commit fraudulent reporting when they prioritize personal interest over public interest and due to auditing threats. Therefore, the legal environment is crucial in investor protection through financial reporting and audit quality. La Porta et al. (2006) note that legal origin is a strong investor protection predictor. Decisions are based on the available information therefore, quality economic decisions highly depend on quality information. Quality information refers to relevant, adequate, and transparent information. Information disclosure significantly contributes to investor protection. Common law countries are more concerned about information disclosure because of regulatory requirements. Common law countries have more extensive mandatory disclosure requirements and make it easier for investors to recover damages (La Porta, Lopez-de-Silanes, & Shleifer, 2006). Therefore, the above relationship is more likely to be stronger in UK when they focus on providing more and better information through more KAMs. Therefore, the next hypothesis is:

H3a: The positive relationship between the number of KAMs and ARL is stronger for listed firms in UK.

Accounting practices, financial reporting quality, auditing practices, and audit quality are more likely to differ among countries according to their legal environment (legal traditions). These are expected to be high in common law countries because they suggest high investor protection. The choice of auditors is crucial in ensuring financial reporting and audit quality. Large audit firms suggest more competent and independent; therefore, audit quality depends on audit firm size. Houqe, Monem, & van Zijl (2012) examine the relationship between government quality, auditor selection, and IFRS adoption. The results show a significant relationship between government quality, auditor choice, and IFRS adoption. More specifically, this study documents that common law countries are more likely to choose one of the Big 4's auditors. Francis, Khurana, & Pereira (2001) study the link between laws,

accounting, and auditing among countries. They find national accounting standards are timelier in common law countries because public disclosure of accrual-based accounting information is more common in these countries. Further, they conclude that accounting practices are timely and transparent where legal environments demand auditing as an enforcement mechanism. In contrast (H3a), the above relationship is more likely to be weaker in UK when they prioritise timely reporting. Therefore, the next hypothesis is:

H3b: The positive relationship between the number of KAMs and ARL is weaker for listed firms in UK.

2.4 Conceptual model

Figure I, the conceptual model, shows the relationship between the variables tested in this study. The Independent variable is KAMs reporting measures by the number of KAMs. The dependent variable is ARL. Audit firm quality and legal environment are moderating variables in this study.

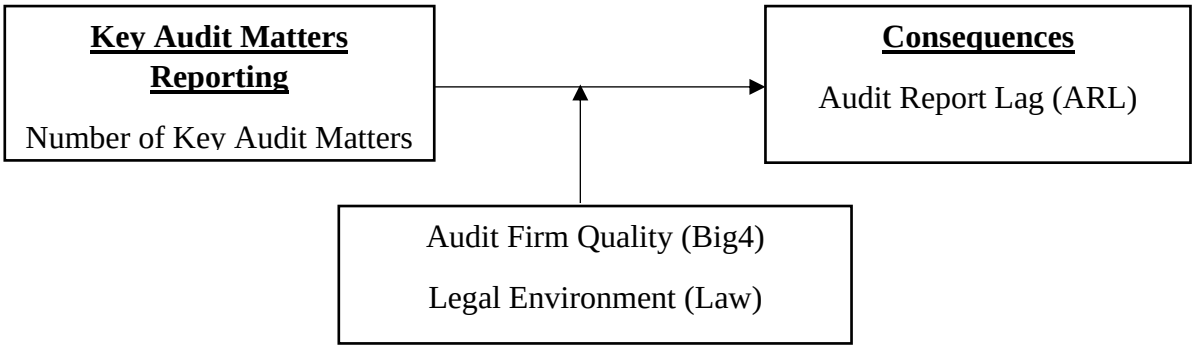

Figure I: Conceptual Model

3. Research Design

3.1 Sample and data

This study's data covers some listed firms in the United Kingdom (UK), France, Germany, and Italy from 2018 to 2022. Data was collected from various sources. The number of KAMs, FR, audit firms, audit fees, total assets, non-audit fees, ARL, assets turnover, and GCOs are derived from the Audit Analytics database (*Europe Module*), and other control variables are hand-collected data with the help of the above database. Table 1 shows the derivation of the sample. The data of the study represent 6,372 firm-year observations. These firm-year observations are from firms that have at least one KAMs. A large number of observations represent listed firms from UK (N=2,895), followed by France (N=1,527), Germany(N=1,264), and Italy (N=686).

Table 1. *Derivation of the Sample*

Description	Sample
Total observations in the database	11,031
(-) Financial firms' firm-year observations	2,191
Non-financial firms' firm-year observations	8,840
(-) Firm-year observations without KAMs	1,710
Firm-year observations with KAMs	7,130
(-) Non-UK-France-Germany-Italy firms	758
Final firm-year observations used	6,372

3.2 Research models

Model 1 investigates the relationship between the number of KAMs and ARL (OLS model):

$$ARL = \beta_0 + \beta_1 NKAMs + \beta_2 BIG4 + \beta_3 LAW + \beta_4 AFEES + \beta_5 NAFEES + \beta_6 ATENURE + \beta_7 GCOs + \beta_8 ATURNOVER + \beta_9 CSIZE + \beta_{10} FAGE + Year\ Fixed\ Effects + Industry\ Fixed\ Effects + Country\ Fixed\ Effects + \varepsilon_i \quad (1)$$

Model 2 investigates the moderating role of Big 4 auditors in the relationship between the number of KAMs and ARL (OLS model):

$$ARL = \beta_0 + \beta_1 NKAMs + \beta_2 BIG4 + \beta_3 NKAMs*BIG4 + \beta_4 LAW + \beta_5 AFEES + \beta_6 NAFEES + \beta_7 ATENURE + \beta_8 GCOs + \beta_9 ATURNOVER + \beta_{10} CSIZE + \beta_{11} FAGE + Year\ Fixed\ Effects + Industry\ Fixed\ Effects + Country\ Fixed\ Effects + \varepsilon_i \quad (2)$$

Model 3 investigates the moderating role of the legal environment (law) in the relationship between the number of KAMs and ARL (OLS model):

$$ARL = \beta_0 + \beta_1 NKAMs + \beta_2 BIG4 + \beta_3 LAW + \beta_4 NKAMs*Law + \beta_5 AFEES + \beta_6 NAFEES + \beta_7 ATENURE + \beta_8 GCOs + \beta_9 ATURNOVER + \beta_{10} CSIZE + \beta_{11} FAGE + Year\ Fixed\ Effects + Industry\ Fixed\ Effects + Country\ Fixed\ Effects + \varepsilon_i \quad (3)$$

Table 2 shows the definition of variables tested in this study. The dependent variable of the above models is ARL and the main predictor is the number of KAMs in model 1, the interaction between Big4 and the number of KAMs is the main predictor in model 2, and the interaction between law and the number of KAMs and legal environment (law) is the main predictor of the model 3. The following controls are in the above models based on past studies. 09 control variables are included in the above three statistical models based on prior studies. According to past studies, fundamental client characteristics such as client size, age, and asset turnover are included in the models (Habib et al., 2019; Durand, 2019; Zhou et al., 2024; Lai, 2023; Alkebsee et al., 2022). Audit firm size, auditor tenure, audit fees, and non-audit fees are controlled in the above models (Habib et al., 2019; Durand, 2019; Knechel et al., 2012; Zhou

et al., 2024; Lai, 2023; Alkebsee et al., 2022). These models control the going concern opinion because it is more likely to highlight significant risks to continue the business and require more audit work (Zhou et al., 2024; Lai, 2023; Habib et al., 2019; Alkebsee et al., 2022). This study's firm-year observations are from common law and civil law countries; therefore, the law is controlled (Zhou et al., 2024).

Table 2. *Definition of variables*

Variable	Definition
Dependent variable:	
ARL	*Log the number of days between the financial year-end and the audit report date of the clients.*
Independent variable:	
NKAMs	*Number of KAMs included in the financial statements audit report.*
NKAMs*BIG4	*Interaction between the number of key audit matters and Big4 auditors.*
NKAMs*Law	*Interaction between the number of key audit matters and law.*
Control variables:	
BIG4	*1 if the auditor is from Deloitte, EY, KPMG, or PricewaterhouseCoopers, 0 otherwise.*
LAW	*1 if firms are listed in the common law countries, 0 otherwise.*
CSIZE	*Client size is the log of the total assets.*
ATURNOVER	*Assets turnover is calculated as sales divided by the clients' total assets.*
FAGE	*Number of years from the date of the initial public offering.*
GCOs	*1 if the client receives a going concern opinion (GCO), and 0 otherwise.*
ATENURE	*Statutory auditor's tenure with the clients.*
AFEES	*Audit fee is the log of the statutory auditor's statutory audit fees.*
NAFEES	*Natural logarithm of one plus total non-audit fees paid to auditors.*

3.3 Addressing endogeneity concern

The global economy faced a serious effect of COVID-19 during this study period; therefore, the statistical models include year-fixed effects. This study's data covers listed firms in many industries therefore, models include industry-fixed effects, and data are from four countries; therefore, models include country-fixed effects. In addition to that, VIF and EB are used in this study. Where (1) VIF is used to detect the severity of multicollinearity in the analysis. (2) EB is used to achieve a covariate balance between treatment and control groups, which helps researchers draw more reliable conclusions about the causal effects of treatments or interventions. Entropy balancing is a powerful tool in empirical research for addressing the challenges of observational data. Achieving covariate balance through reweighting enhances

the validity of causal inferences, reduces bias, and ensures more reliable and interpretable results (Hainmueller & Xu, 2013).

3.4 Additional analysis

Additional analysis compares model 1 regression analysis among selected countries. These comparisons provide some insightful findings on the relationship between the number of KAMs and ARL among the four largest economies in Europe.

4. Results and Discussion

4.1 Descriptive statistics

Tested variables are winterized at 1% except for binary variables (BIG4, LAW, and GCOs). Table 3 shows descriptive statistics of the variables used in this study. Table 3A shows that the mean ARL is 96 days (95.50), which is just above three months in the selected countries. The average number of KAMs is around 2.51. Big 4 auditors are auditors of 56% of the sample firms. Selected 45% of firms represent the common law legal environment. The mean auditor tenure is around 6 (5.82) years, which is well below the suggested tenure in the EU 2014 audit regulations. The sample firms' average age is around 20 (19.53) years, and these firms' mean asset turnover is 79%. The average log audit fees and non-audit fees are 12.71 and 8.17, respectively. Importantly, 7% of sample firms received GCOs during the sample period.

Table 3. Descriptive Statistics

Table 3A. *Descriptive Statistics for the Full Sample*

Variables	Observations	Q1	Mean	Median	Std. dev.	Q3
ARL	6,372	72.00	95.50	89.00	33.16	116.00
NKAMs	6,372	2.00	2.51	2.00	1.27	3.00
BIG4	6,372	0.00	0.56	1.00	0.50	1.00
Law	6,372	0.00	0.45	0.00	0.50	1.00
AFEE	6,372	11.55	12.71	12.51	1.52	13.65
NAFEE	6,372	0.00	8.17	10.17	5.13	11.73
GCOs	6,372	0.00	0.07	0.00	0.26	0.00
ATENURE	6,372	2.00	5.82	4.00	5.25	9.00
ATURNOV	6,372	0.38	0.79	0.69	0.64	1.03
CSIZE	6,372	17.97	19.74	19.59	2.43	21.42
FAGE	6,372	8.00	19.53	18.00	15.69	24.00

Table 3B compares the descriptive statistics between Big4 and non-Big4 clients, and firms operating in selected common and civil law legal traditions in Europe. It shows that the average number of KAMs is higher (2.66) for Big4 clients than for non-Big4 clients. It suggests better applications of KAMs by the Big 4 firms. Comparison between common law and civil laws highlights that the average number of KAMs is higher for listed firms in the common law (2.97)

legal tradition than civil law (2.13). It suggests that firms are more likely to disclose more KAMs in UK than in other selected countries. It is consistent with the argument that litigation risks are high in common-law countries. Understandably, audit fees and non-audit fees are higher for Big 4 and non-Big 4 clients because they are more competent and more concerned about litigation and reputation risks. In addition, large firms are audited by Big 4 auditors. Big 4 clients (20.90) size average is higher than non-Big 4 clients (18.24). Interestingly, the average log audit fees and non-audit fees are higher for firms in selected civil law countries than UK. Importantly, the average GCOs are lower for Big 4 clients (4%) than for non-Big 4 clients (11%). It suggests that non-Big4 clients are more likely to receive GCOs than Big4 clients, or non-Big4 auditors are more likely to issue GCOs than Big4. The average GCOs highlight that UK firms receive more GCOs than other firms. Again, it is consistent with the argument that investor protection is high in common-law countries. Finally, the firm's assets turnover is higher for Big4 clients and in UK.

Table 3B. *Descriptive Statistics Comparison Between Big4 Vs Non-Big4 and Common Law Vs Civil Law*

	Full (6,372)	BIG4 (3,592)	Non-BIG4 (2,780)	Common Law (2,895)	Civil Law (3,477)
Variables	Mean	Mean	Mean	Mean	Mean
ARL	95.50	83.61	110.87	99.11	92.49
NKAMs	2.51	2.66	2.31	2.97	2.13
BIG4	0.56			0.47	0.64
Law	0.45	0.38	0.55		
AFEE	12.71	13.44	11.76	12.47	12.90
NAFEE	8.17	9.62	6.31	7.77	8.51
GCOs	0.07	0.04	0.11	0.11	0.04
ATENURE	5.82	6.10	5.47	5.09	6.43
ATURNOVER	0.79	0.80	0.79	0.81	0.78
CSIZE	19.74	20.90	18.24	18.95	20.40
FAGE	19.53	21.43	17.07	20.18	18.98

4.2 Correlation analysis

The Pearson correlation result is presented in Table 4. The correlation results show that the number of KAMs, Big4, audit fees, non-audit fees, auditor tenure, assets turnover, client size, and firm age are negatively and significantly associated with audit delay individually. In contrast, law and GCOs are positively and significantly associated with ARL. In addition, Table 4 shows VIF for each independent and control variable. The mean value of VIF for all variables stands at 2.14 (VIF < 10), which is well below the threshold of 10, which suggests that multicollinearity is not an issue among most of our variables (Kennedy, 2003). The VIF values of the tested variables range from 1.05 (low) to 5.90 (high).

Table 4. *Correlation matrix*

Variables	1	2	3	4	5	6	7	8	9	10	11	VIF
ARL (1)	1.00											
NKAMs (2)	-0.03**	1.00										1.31
	0.01											
BIG4 (3)	-0.41***	0.14***	1.00									1.47
	0.00	0.00										
Law (4)	0.10***	0.33***	-0.17***	1.00								1.39
	0.00	0.00	0.00									
AFEE (5)	-0.49***	0.28***	0.55***	-0.14***	1.00							5.56
	0.00	0.00	0.00	0.00								
NAFEE (6)	-0.36***	0.16***	0.32***	-0.07***	0.51***	1.00						1.38
	0.00	0.00	0.00	0.00	0.00							
ATENURE (7)	-0.05***	-0.04***	0.06***	-0.13***	0.10***	0.07***	1.00					1.05
	0.00	0.00	0.00	0.00	0.00	0.00						
GCOs (8)	0.31***	0.11***	-0.13***	0.14***	-0.18***	-0.12***	-0.07***	1.00				1.13
	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
ATURNOV (9)	-0.09***	0.01	0.00	0.03**	0.04***	0.01	0.00	-0.06***	1.00			1.08
	0.00	0.60	0.70	0.04	0.00	0.58	0.92	0.00				
CSIZE (10)	-0.54***	0.18***	0.54***	-0.30***	0.88***	0.49***	0.15***	-0.27***	-0.08***	1.00		5.9
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
FAGE (11)	-0.23***	0.12***	0.14***	0.04***	0.30***	0.09***	0.14***	-0.10***	0.04***	0.28***	1.00	1.14
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

Note(s): *** represents significance at 1%, ** represents significance at 5%, and * represents significance at 10%.

4.3 Regression analysis

Table 5 presents baseline regression results. The model 1's results show a significant positive relationship between the number of KAMs and audit delay (p=0.00). The model 1 result supports hypothesis 1. It shows the adjusted R-squared of 43 percent, and the model is significant at a 1% level. R-squared indicates that the outcome variable (ARL) is explained by 43% in this study. Auditors are responsible for disclosing KAMs, and their accountability has increased since KAMs were mandated in 2016. The model 1 result is consistent with the argument that KAMs reporting increases auditor work and effort; therefore, it is more likely to increase audit delay. Further, the result is consistent with the prior studies' findings (Alawadhi et al., 2024; Kitiwong et al., 2024). For example, Alawadhi et al. (2024) find a positive association between KAMs and audit delays in Kuwait. In addition, model 1 results between control variables and ARL are consistent with prior findings.

The model 2 results show that the relationship between the number of KAMs and audit delay is weaker for Big 4 clients. The results support the second hypothesis (p=0.000). It shows the adjusted R-squared of 43 percent, and the model is significant at a 1% level. The result is consistent with our argument that Big4 auditors are more competent than non-Big4 auditors; therefore, the relationship between the number of KAMs and ARL is significantly and negatively moderated by Big4 auditors. Big4 auditors are more likely to ensure auditors' competence on new standards, for example, KAMs reporting, therefore, they are more likely to train the staff well with the new standards. So, they are more competent and updated with new standards. This competency is more likely to reduce auditing time. Big 4 auditors are more likely to use experienced and expert audit teams and more advanced technology than non-Big 4 auditors. In addition, as noted earlier, prior studies document a negative association between Big 4 auditors and ARL. The model 2 result is consistent with the argument and prior findings on audit firm quality (Big 4 auditors). Finally, the findings on the moderating role of Big 4 auditors in the relationship between KAMs and ARL support the underlying arguments and highlight the role of Big 4 auditors in enhancing audit quality.

The model 3 result shows that the relationship between the number of KAMs and ARL is stronger for UK firms. The result is significant and supports hypothesis 3a (p=0.000), therefore, hypothesis 3b is rejected. It shows the adjusted R-squared of 43 percent, and the model is significant at a 1% level. The result is consistent with our argument that investor protection is high in common law countries, therefore, firms are more likely to disclose more information to reduce the information asymmetry and increase the communicative value of

financial and audit reporting. In particular, auditors are more likely to identify and disclose more KAMs in common law countries because they are more concerned about litigation risks, which are higher level in common law countries than in civil law countries. The prior studies suggest that common law countries are more likely to disclose extensive information to users (La Porta et al., 2006; Houqe et al., 2012; Francis et al., 2001; Barniv et al., 2005; Brown et al., 2014), and firms and auditors are more likely to ensure financial reporting and audit quality in common law countries. The number of KAMs is more likely to suggest audit quality because KAMs increase audit work, auditor competence, and management competence, and importantly, KAMs are useful for the market. The result is consistent with the argument and prior findings. The result suggests that firms in common law countries (UK) are more likely to increase the communicative value of audit reporting and disclose more KAMs than issue audit reports quickly.

Table 5. *Regression results*

	Model 1		Model 2		Model 3	
Variables	Coefficient	t	Coefficient	t	Coefficient	t
NKAMs	**3.03*****	**10.40**	4.44***	10.35	1.84***	4.07
BIG4	-10.61***	-13.10	-4.96***	-3.30	-10.82***	-13.34
NKAMs*BIG4			**-2.38*****	**-4.47**		
Law	-15.98***	-13.09	-15.27***	-12.42	-20.49***	-11.38
NKAMs*Law					**1.87*****	**3.41**
AFEE	2.41***	4.68	2.48***	4.83	2.51***	4.88
NAFEE	-0.63***	-8.55	-0.64***	-8.69	-0.62***	-8.46
ATENURE	0.08	1.28	0.07	1.15	0.09	1.36
GCOs	18.04***	13.96	18.01***	13.96	18.16***	14.06
ATURNOVER	-4.57***	-8.37	-4.57***	-8.39	-4.57***	-8.39
CSIZE	-7.44***	-22.28	-7.36***	-22.06	-7.45***	-22.33
FAGE	-0.13***	-5.79	-0.12***	-5.61	-0.13***	-5.77
_cons	235.90	51.86	229.76	48.42	237.29	52.00
Year fixed effects		Yes		Yes		Yes
Industry fixed effects		Yes		Yes		Yes
Country fixed effects		Yes		Yes		Yes
Number of observations		6,372		6,372		6,372
Prob		0.00		0.00		0.00
Adj R-squared		0.43		0.43		0.43

Note(s): *** represents significance at 1%, ** represents significance at 5%, and * represents significance at 10%.

4.4 Endogeneity tests

4.4.1 Entropy balancing results

Entropy balancing helps to equalize the distribution moments of all covariates across treatment and control groups by assigning continuous weights (Ali, Liu, & Su, 2022). We grouped firms into treatment (more KAMs) and control (less KAMs) groups based on the number of KAMs identified and addressed in the financial statements audit. We allocated 1 for firms that have more KAMs (NKAMs ≥ 3) and 0 for firms that have less KAMs (NKAMs ≤ 2) based on the median value of NKAMs (median KAMs is 2). Table 6, Panels A–B present the mean, variance, and skewness of all covariates for firms that have more and less KAMs. In post-matching, the means in the weighted control group (firms that have less KAMs) align with those in the treatment group (firms that have more KAMs), confirming the effectiveness of the matching process, as per the guidelines of Hainmueller et al. (2013). Table 6, Panel C results show a significant positive association between the number of KAMs and FR ($p < 0.05$). The entropy balancing regression results are consistent with the baseline regression results after balancing the variables for the above two groups and confirm no causal inference.

Table 6. *Entropy Balancing Results*

Panel A: *Before entropy balancing*

	Treat: More KAMs			Control: Less KAMs		
	mean	variance	skewness	mean	variance	skewness
BIG4	0.62	0.23	-0.52	0.52	0.25	-0.06
LAW	0.60	0.24	-0.42	0.34	0.22	0.69
AFEE	13.12	2.79	0.34	12.38	1.70	0.54
NAFEE	9.05	25.44	-0.99	7.48	25.95	-0.64
ATENU	5.64	26.85	1.12	5.97	28.08	1.16
GCOs	0.10	0.09	2.63	0.05	0.05	4.00
ATURN	0.79	0.42	2.15	0.80	0.40	1.71
CSIZE	20.17	6.99	0.11	19.40	4.77	0.20
FAGE	21.33	320.40	1.58	18.10	183.00	1.73

Panel B: *After entropy balancing*

	Treat: More KAMs			Control: Less KAMs		
	mean	variance	skewness	mean	variance	skewness
BIG4	0.62	0.23	-0.52	0.62	0.23	-0.52
LAW	0.60	0.24	-0.42	0.60	0.24	-0.42
AFEE	13.12	2.79	0.34	13.12	2.45	0.33
NAFEE	9.05	25.44	-0.99	9.04	23.64	-1.09
ATENU	5.64	26.85	1.12	5.64	25.08	1.16

GCOs	0.10	0.09	2.63	0.10	0.09	2.63
ATURN	0.79	0.42	2.15	0.79	0.41	1.82
CSIZE	20.17	6.99	0.11	20.17	6.20	0.00
FAGE	21.33	320.40	1.58	21.32	319.90	1.49

Panel C: *Regression results with the entropy balancing framework*

	Model 1	
Variables	Coefficient	t
NKAMs	4.96***	6.08
BIG4	-13.73***	-13.2
Law	-18.22***	-14.8
AFEE	3.79***	5.49
NAFEE	-0.62***	-6.16
ATENURE	0.11	1.28
GCOs	19.47***	9.75
ATURNOVER	-5.06***	-7.14
CSIZE	-7.49***	-17.37
FAGE	-0.16***	-6.84
_cons	231.45	37.53
Year fixed effects		Yes
Industry fixed effects		Yes
Country fixed effects		Yes
Number of observations		6,372
Prob		0.00
Adj R-squared		0.46

Note(s): *** represents significance at 1%, ** represents significance at 5%, and * represents significance at 10%.

4.4.2 Propensity-score matching results

To ensure that the difference in ARL between firms with more and less KAMs is not caused by cross-sectional heterogeneity, we constructed a treated group (firms with more KAMs, firms that have 3 or more KAMs) and matched it to the control group (firms with less KAMs, firms that have 2 or less KAMs). We use the PSM method to identify a control firm for each treated firm (Lennox, Francis, & Wang, 2012; Boonlert-u-thai, Chatjuthamard, Papangkorn, & Jiraporn, 2024). The same variables in regression model 1 are used in the propensity score matching (PSM) model. According to Table 7, the PSM regression results show a significant positive association between the number of KAMs and ARL ($p < 0.00$). The positive coefficient suggests that firms with more KAMs are more likely to have longer ARL, after controlling for the covariates through PSM. Finally, PSM regression results are consistent with the baseline regression results and ensure that differences between treatment and control groups (more KAMs vs. less KAMs) are not simply due to observable confounders.

Table 7. *Propensity Score Matching (PSM) Regression Results*

	Model 1
NKAMs	3.33***
	(8.91)
BIG4	-10.71***
	(-9.99)
AFEES	2.93**
	(4.10)
LAW	-17.09***
	(-10.23)
NAFEES	-0.75***
	(-7.87)
ATENURE	0.13
	(1.47)
GCOs	13.96***
	(8.34)
ATURNOVER	-5.01***
	(-7.12)
CSIZE	-7.43***
	(-16.45)
FAGE	-0.147***
	(-5.00)
Constant	232.25***
	(31.64)
Year Fixed Effects	Yes
Industry Fixed Effects	Yes
Country Fixed Effects	Yes
Number of Observations	3,892
Adjusted R Square	41%

Note(s): *** represents significant at 1%, ** represents significant at 5%, and * represents significant at 10%.

4.5 Additional analysis

Additional test reported in Table 8 shows that the relationship between the number of KAMs and ARL is stronger for UK firms than for selected firms in civil law countries. Importantly, the positive relationship between KAMs and ARL only exists for UK firms, France, and Germany. Italian firms represent civil law legal traditions, even though there is no relationship between KAMs and ARL. With earlier descriptive results, this comparison suggests that KAMs reporting is at a higher level in UK and it increases audit delay than other countries. Importantly, UK firms are more likely to disclose more KAMs, and understandably, it increases audit delays. Therefore, more auditing work and more disclosure are more likely to increase

audit delay and suggest that stakeholders prefer more communicative audit reporting or quick reports. In addition, these results underscore the need for auditing harmonization, especially new audit reporting, because KAMs reporting and consequences significantly differ among the tested countries, even though these countries represent the same region. More specifically, France, Germany, and Italy represent the same legal environment (civil law), even though KAMs reporting and their consequences differ among these countries.

Table 8. *Model 1 regression among selected countries*

	UK		France		Germany		Italy	
Variables	Coef	t	Coef	t	Coef	t	Coef	t
NKAMs	4.51***	10.55	1.38**	2.14	1.34**	1.98	0.66	0.98
BIG4	-15.19***	-10.11	-4.77***	-3.85	-8.27***	-5.35	-1.07	-0.40
AFEE	3.71***	3.87	-0.70	-0.77	4.54***	4.94	2.59**	2.49
NAFEE	-0.69***	-5.80	-0.58***	-4.19	-0.67***	-4.67	-0.07	-0.36
ATENURE	0.27***	2.34	-0.06	-0.59	-0.09	-0.70	0.01	0.05
GCOs	17.48***	9.64	8.94*	1.93	17.48***	6.73	24.91***	8.24
ATURNOVER	-6.53***	-7.46	-0.86	-0.69	-4.76***	-4.95	0.28	0.21
CSIZE	-8.72***	-14.34	-6.54***	-10.95	-6.96***	-11.96	-5.02***	-6.85
FAGE	-0.18***	-5.69	0.26***	4.30	-0.09**	-2.25	-0.02	-0.19
_cons	232.56	27.62	249.71	32.34	188.54	20.73	158.37	16.52
Year fixed effects		Yes		Yes		Yes		Yes
Industry fixed effects		Yes		Yes		Yes		Yes
Number of observations		2,895		1,527		1,264		686
Prob		0.00		0.00		0.00		0.00
Adj R-squared		0.45		0.41		0.42		0.34

Note(s): *** represents significance at 1%, ** represents significance at 5%, and * represents significance at 10%.

5. Conclusion

Auditors' accountability and responsibility are more likely to increase in KAMs reporting because they are responsible and accountable for KAMs disclosure. This study examines the effect of KAMs disclosure on timelines of audit reporting and the moderating role of audit firm quality and legal environment in this link. The findings suggest that the number of KAMs is significantly associated with audit delay, indicating that auditors require more time to identify and address significant matters in the financial statements. This relationship is stronger for UK firms than for France, Germany, and Italy. However, this positive association is weaker for Big 4 clients. The additional analysis reports that this association is stronger for firms in UK than in other tested countries. Notably, no relationship exists between KAMs and ARL in Italy. This study concludes that KAMs disclosure is a key determinant of the timing of audit reports, and audit firm quality and legal environment significantly moderate this relationship. The different results among the selected countries suggest the need for audit harmonization.

This study significantly contributes to the audit quality literature, especially in KAMs reporting, ARL, audit firm quality, and legal environment. The results have potential implications for stakeholders, especially for management, investors, regulators, auditors, standard setters, and researchers. Because they are more concerned about the ARL, KAMs reporting, audit firm quality, and legal environment. Generally, stakeholders are more likely to perceive ARL due to the adverse performance, position, internal controls, and poor audit quality. However, the results show that KAMs disclosure is more likely to increase audit delay, and this result is significantly weaker for Big4 clients and stronger for UK firms. The results are more likely to mitigate the negative concern about audit delay because more audit work and KAMs disclosure are more likely to increase audit delay. Again, the results confirm that Big4 auditors provide high audit quality, and the common law legal environment provides more disclosure on significant matters identified and addressed in the financial statements audit. Combined, Big 4 auditors and the common legal environment significantly contribute to information asymmetry reduction.

While this study is subject to the usual limitations of empirical methodology, some other limitations are worth emphasizing. First, both the sample period (2018-2022) and the use of four countries' data (UK, Germany, France, and Italy) limit the generalizability of the results to other times and jurisdictions, respectively. Second, statistical models include many control variables; however, more control variables, especially related to financial and corporate governance, could have affected the results. Third, businesses had significant and negative effects of COVID-19 globally during this study period, especially in 2020 and 2021, and could have affected the results. Finally, it must be noted that we are not able to completely rule out endogeneity problems and leave these and other issues for future studies.

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