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The Informative Value of Key Audit Matters in the Audit Report: Understanding the Impact of the Audit Firm and KAM Type

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This paper examines whether the readability (and hence informative value) of key audit matters (KAM) varies according to the audit firm and the KAM type disclosed, a question of vital importance for stakeholders, whose effective decision-making depends on the quality of information received. Our analysis shows that the informative value of KAM matter and KAM audit procedures varies according to the audit firm responsible. This informative value also depends on whether the KAM is related to entity- or accounting-level risks. This study contributes to the KAM and audit quality literature by showing how these factors impact on the informative value of the expanded audit report. Furthermore, in the context of the agency, institutional and self-presentation theories and the real effects hypothesis, we discuss auditors' incentives to increase or decrease the informative value of the expanded audit report.

In 2015, the International Auditing and Assurance Standards Board (IAASB) approved the new expanded audit report to improve the quality of audit reports and hence their informative value (Vanstraelen et al. 2012; Dobija and Cieslak 2013). The IAASB 700 series introduced significant changes to the format and content of audit reports, making them longer and potentially more informative. The most important of these changes were detailed in the International Standard on Auditing 701 – ISA 701 (IAASB 2015). This standard introduced a new section in the audit report, 'Key Audit Matters' (KAM). According to the IAASB, 'Key Audit Matters are those matters that, in the auditor's professional judgement, were of most significance in the audit of the financial statements'. Among other effects, this additional information for stakeholders on the company's current status and future prospects was expected to narrow the expectation gap. Moreover, the introduction of the ISA 700 series gave auditors the opportunity to generate a 'tailored audit report', greatly enhancing the stakeholders' understanding of the audit process. In addition, the reform opened up interesting new areas for research (Köhler et al. 2016).

The evidence obtained in recent studies is inconclusive on the impact of KAM disclosure on audit report quality. Some studies have found that the expanded audit report increases report quality (Li et al. 2019; Reid et al. 2019; Botes et al. 2020; Zeng et al. 2021; Zhai et al. 2021; Seeback and Kaya 2022), while others have detected no such relationship (Wei et al. 2017; Almulla and Bradbury 2018; Gutierrez et al. 2018; Lennox et al. 2022); still others have observed a negative impact (Bédard et al. 2014; Carver and Trinkle 2017; Sirois et al. 2018; Kachelmeier et al. 2018; Abdullatif and Al-Rahahleh 2020). Nguyen and Kend (2021) find that there is little consensus between some stakeholder groups on whether the KAM reforms have improved audit quality. In view of these mixed results, the present study considers the concept of audit quality and the informative value of the audit report in terms of the readability of the KAM section of the audit report, following the approach adopted by Li (2008) and Bloomfield (2008), who suggest that readability is an important attribute of report quality.

Readability can be defined as 'that quality in writing which results in quick and easy communication. Readable writing communicates precisely and with a single reading' (Schroeder and Gibson 1990: 78). In the present context, therefore, readability describes how well the KAM section of the audit report communi-

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cates: (a) the matters of most significance identified by the auditors; and (b) the audit procedures performed to address these matters (Li 2008). This focus is of vital importance, as readability is crucial to the effective communication of the audit process (Rennekamp 2012; Tan et al. 2015). According to the Financial Reporting Council (FRC) the audit report must describe the risks of material misstatement that in the auditor's opinion have the greatest effect on the audit. The auditor must also describe the audit procedures performed to address those risks (FRC 2015).

This research focuses on companies listed in the Financial Times Stock Exchange (FTSE) 100 index for the period 2013–2016. The period under study is of special interest because, by that time, only the UK was implementing the expanded audit report. In the context of Goffman's self-presentation theory and the real effects hypothesis, this study analyses the relationship between the audit firm employed and the readability of its descriptions of the KAM, and of the audit procedures applied to address them. Additionally, based on agency theory and institutional theory, we also argue that as the nature of the audit procedures depends on the type of account or transaction audited, the readability of KAM-related audit procedures may be determined not only by the audit firm but also by the nature and complexity of the KAM itself. Therefore, the readability of KAM audit procedures may differ between KAM related to the entity and those related to accounting issues. Accordingly, we argue that the type of KAM considered is relevant to the readability of the KAM audit procedures description. In 2013, the UK was the first European country to adopt the KAM (FRC 2013) standard required by EU Regulation 537/2014 (European Parliament and European Council 2014). Following Asare and Wright (2016), we consider the UK experience to be a very suitable case for analysis because this introduction of KAM disclosure was well received by auditors and stakeholders alike (Trpeska et al. 2017; Danescu and Spatacean 2018). This situation meant it was not possible for UK auditors to mimic other countries' auditors' behaviour regarding KAM disclosure, so UK auditors created their own learning curve on the expanded audit report. The FRC subsequently issued a discussion paper on the usefulness of the audit report as a primary driver of audit quality (FRC 2016).

This study contributes to the KAM and audit quality literature as we build on Seeback and Kaya (2022) and Smith (2019) who focus on whether audit reports in the post-ISA 700 period are more readable than before (finding that this is indeed the case) and on Zeng et al. (2021) who identify a readability difference between KAM matter and KAM audit procedures descriptions. Our study is novel in identifying the audit firm and the type of KAM as determinants of KAM matter and KAM audit procedures readability. Our results show that the audit firm impacts in different ways on the quality of the additional information provided to stakeholders via KAM disclosure. Thus, the audit firm has a specific impact on the informative value (readability) of the descriptions made, both of the KAM and of the audit procedures used to describe them. Additionally, we show that the informative value of the KAM audit procedures description depends on whether the type of KAM disclosed is related to entity-level or accounting-level risk. In summary, this paper sheds light on how the audit firm and KAM type influence the informative value of the expanded audit report and hence audit quality. In addition, we highlight the need to consider potential incentives for audit firms to increase or decrease the informative value of their audit report via KAM disclosure, a question that is directly relevant to regulatory and supervisory activities. The study also provides useful information for standard-setters and regulators regarding the effectiveness of the expanded audit report in enhancing audit quality; for companies, enabling them to better understand the auditor's contribution to the informative value of the report; and for stakeholders in general, by identifying the KAM types that may be more challenging to understand and whose interpretation, therefore, warrants particular attention.

The Expanded Audit Report

In recent years, several new audit reporting standards have been proposed to enhance the communicative value of audit reports and to increase the information available to stakeholders. The most important initiatives in this respect are those of the IAASB, the Public Company Accounting Oversight Board (PCAOB), the European Commission and the FRC in the UK. The new requirements of these regulators and standard-setters present certain differences, but all result in an expanded auditor's report with more precise information about the audit. The IAASB in its ISA 700 series introduced significant changes into audit report structure and content, with the aim of improving the communicative value provided. The new ISA 701 requires the inclusion of a KAM paragraph in the audit report of listed companies. This is the most significant of all the changes proposed in this field. According to the 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'. The KAM item requires auditors to describe the most significant risks facing the client, the reasons why they are considered particularly significant for the audit, and the ways in which they have been addressed by the audit procedures (IAASB 2015). Inclusion of the KAM section in the audit report involves changes in how the audit is documented. Thus, the auditor must analyse risks in accordance with ISA

315 and also evaluate the quality of the internal control system (IAASB 2015). KAM are often related to areas of significant complexity in financial information, in areas commonly requiring difficult judgement by the auditor and by the company management. Audit firms use different techniques to describe in the audit report the matters of most significance identified as KAM and the procedures performed to address them. In some cases, the auditor uses a single column, starting with the KAM title, followed by the content description, then an explanation of how the matter is addressed in the audit, and finally a brief conclusion. Other auditors use a two-column format, using the first column to describe the KAM and the second to describe the procedures used to address them. In some cases, the auditor uses graphs or tables to summarise the KAM and to show how they have evolved over time. Irrespective of the layout used, it is clear that to comply with ISA 701, the auditor must describe the KAM and the procedures used to address them.

The UK was the first EU Member to require the inclusion of KAM in audit reporting. In 2013, the FRC published the revised ISA 700 (UK and Ireland), requiring auditors to disclose the audit's scope, the risk assessment and the materiality determined. In addition, the auditor is required to disclose the audit strategy employed and the resource allocation made in the audit process (Simnett and Huggins 2014). In June 2016, the FRC published ISA 701 (FRC 2016). In Europe, the European Commission identified the need to enhance the standard audit report model. Thus, EU regulation No. 537/2014 requires the audit report to describe any significant risks of material misstatement (in line with ISA 701), and to present a summary of audit procedures (European Parliament 2014).

The new audit report standards require US[1] and EU auditors to communicate critical audit matters (CAMs) and KAMs, respectively. Audit report observations in accordance with ISA 700 have now been available for several years for UK listed companies. The FRC requirements are similar to those established by the IAASB in ISA 701 and to those established by the PCAOB in the AS 3101 audit reporting standards (PCAOB 2017) although there are some differences in the definitions of KAM and CAM (Carver and Trinkle 2017).

Literature Review and Research Questions Development

The informative value of key audit matters

KAM disclosure in the audit report aims to increase its communicative value, thus enhancing audit quality. This study is framed in agency theory as auditors represent shareholders in a business and also represent the interests of other users of the financial statements. The introduction of the KAM in the expanded audit report would help to reduce the existing principal-agency problem and improves company corporate governance (Hegazy and Kamareldawla 2021). In addition to audited financial statements, auditors can now inform stakeholders through KAM about management's behaviour (Kend and Nguyen 2022). The evidence obtained in recent studies is inconclusive about the impact of KAM disclosure on audit quality. On the one hand, some studies have found that KAM disclosures are useful to shareholders or potential investors. Ong et al.'s (2022) findings suggest that KAMs are more helpful to investors when they are readable. Hegazy et al (2022: 908) find that 'auditors were more effective in recognizing KAMs compared to other audit matters, thus enhancing users' confidence in both the audit and the financial reporting processes'. Seeback and Kaya (2022) find that the communicative value of the audit report improved in post-ISA 700 periods. Zeng et al. (2021) and Li et al. (2019) report that the new audit reporting standards have resulted in improved audit quality. Zhai et al.'s (2021) findings suggest that KAM disclosure reduces information acquisition costs and facilitates firm-specific information impounded in price. Similarly, Reid et al. (2019), in their study of the relationship between KAM disclosure and audit-related outcomes, observe a beneficial effect on audit quality. Botes et al. (2020), in a study considering New Zealand, Australia and the UK find evidence that the expanded audit report provides stakeholders with improved and expanded knowledge of the role of the auditor, suggesting that a reduction in the audit expectation gap may be likely. On the other hand, in a more neutral position, Gutierrez et al. (2018) find no significant association between the expanded audit report and audit quality. Similarly, in a study conducted in Australia, Wei et al. (2017) show that the implementation of the enhanced auditor's report was not associated with any increase in audit quality. In another study conducted in New Zealand, Almulla and Bradbury (2018) find that KAM disclosure has no impact on audit quality. Lennox et al. (2022) and Lennox et al. (2017) provide evidence suggesting that the expanded audit report lacks information content because investors are already informed about the financial reporting risks before auditors began disclosing. In contrast, other studies have measured a negative effect of KAM disclosure on audit quality. For example, Sirois et al. (2018) find that KAM disclosure has a negative impact on users' perceptions of the disclosures made in the financial statement, because these paragraphs caused confusion regarding the level of assurance provided by the audit report. In the same vein, Kachelmeier et al. (2018) report that users of financial statements assign less responsibility to auditors for a misstatement in a financial statement related to

KAM disclosed in the audit report. Moreover, Carver and Trinkle (2017) provide evidence that the inclusion of KAM may make the report less readable, whilst not affecting investors' assessments of the company's situation. In another study, Bédard et al. (2014) observe negative efficiency effects in the first year of implementation of JOAs (justification of assessments, a similar concept to KAM, employed in France), and show that in subsequent years the disclosure of JOAs is negatively associated with financial reporting quality. Finally, Abdullatif and Al-Rahahleh (2020) raise concerns, including the potential for opportunistic selection of KAMs and avoidance of reporting KAMs in some cases. Overall, these prior studies seem to show that the incorporation of KAM in the audit report is detrimental to perceived audit quality.

These findings suggest that either users of audit reports do not fully understand the information in the KAM or this information is not properly conveyed by the auditor. Carver and Trinkle (2017) criticise the limited transparency and readability of audit reports, and Velte (2018) argues that further research into KAM readability and external auditors' communicative performance is needed. Zeng et al. (2021) infer that information users need a certain degree of financial literacy to understand the text in KAM matter and KAM audit procedures descriptions.

The IAASB 700 series significantly changed the requirements for the format and content of the audit report, making it both more complete and potentially more informative (IAASB 2015). Certainly, if KAM disclosure achieves its stated goals, the audit report will be more informative and thus of higher quality. Furthermore, making the audit report more informative should narrow the expectation gap between the principal and the agents in this process.

To provide useful information to audit report users, KAM must be easy to understand and interpret, enabling appropriate decisions to be taken. The question of readability has aroused considerable research interest. It constitutes a neutral measure, not requiring specific skills on the part of the user (such as a particular level of education or specialist skills). Moreover, readability does not depend on external factors or on the context, which might be difficult to predict and/or analyse (Brennan and Merkl-Davies 2018). Instead, readability addresses only the content of the text and its semantic difficulty (Jones 1996). Readability depends both on the inherent complexity of the matter being discussed and on the report writer's skills and intentions.

A recent study by Seeback and Kaya (2022) finds that different proxies for communicative value (including readability) improve post-ISA 700. Similarly, Smith (2019) provides evidence that audit reports issued in accordance with the revised ISA 700 are higher in readability, lower in complexity, and more representative of increased risk and uncertainty, as they contain more uncertain and negative words. However, as KAM represent the items of most significance in the audit of financial statements, greater content disclosure might be interpreted by users of the report as indicating that the company is at higher risk (Kachelmeier et al. 2018; Rapley et al. 2018; Dennis et al. 2019). Additionally, if the KAM include information related to complex accounting items or transactions, users may find it difficult to understand, due to the specialised language often used to describe them (Carver and Trinkle 2017; Dennis et al. 2019). Users may also ignore the information included in the KAM if it is perceived as generic and boilerplate (Bédard et al. 2014; Gutierrez et al. 2018) or if the information is already known to them (Lennox et al. 2017, 2022). If these study findings are correct, the main objective of the expanded audit report, namely to increase the informative value and hence the quality of the audit report, may not be achieved. The question becomes even more complex if we consider that KAM are qualitative disclosures that are inherently more difficult to verify than quantitative ones (Baginski et al. 2016). In this respect, studies of corporate information disclosure have shown that managers may draft reports in a less readable form in order to blur or conceal their own poor performance (Li 2008; Lo et al. 2017). In other words, a company may not want investors to understand an issue that has potential legal consequences for its managers.

In addition to agency theory, we rely on institutional theory, which explains how organisations respond to pressure from the context. The audit report, considered a financial reporting practice, is considered organisational practice used to achieve homogenisation across organisations and compliance serves to maintain organisational legitimacy (Pelzer 2021). In this context, auditors are under pressure from 'coercive isomorpshism' by regulators to comply with KAM disclosures. At the same time, auditors could be tempted not to comply with the standard as they receive pressure from the client and are exposed to litigation risk. Thus, institutional theory suggests that the organisation might also practice decoupling while experiencing isomorphism (Pelzer 2021). Abdullatif and Al-Rahahleh (2020) study Jordanian auditors' KAM disclosure in the context of institutional theory and find that audit firms vary on both the nature and content of KAM and they usually disclose industry- rather than entity-specific KAM. On the contrary, Zeng et al. (2020) show that the KAM disclosed by auditors in China are more entity-specific leading to increased audit quality.

KAM readability may be primarily determined by the very nature and complexity of the KAM described. In this respect, Doyle et al. (2007) examine whether the underlying determinants of internal control prob-

lems vary according to their severity or to their underlying causes (or weaknesses). In this analysis, the authors adopt the classification suggested by Moody's, according to which material weaknesses are categorised as account-specific or company-level. Lennox et al. (2017) and Sierra-García et al. (2019) identify some KAM disclosures that discuss risks at the entity level (such as those related to tax, litigation/regulatory provisions, acquisition accounting, controls or IT) versus accounting-level risks (e.g., those related to revenues, intangibles, property, plant and equipment, pension schemes, inventories, financial assets, supplier rebates or asset impairment) and concur with Doyle et al. (2007) that the former are usually more severe. Given that entity-level risk is a more challenging area to audit than accounting-level risk, the procedures performed to address problems in this respect may differ in nature and complexity among auditors, because here the auditor's particular methodology would be applied to gather specific, appropriate and sufficient evidence, while the audit procedures performed to address accounting-level risk are usually more standardised, as they concern specific generally accepted accounting principles (GAAP) regarding the recognition, valuation and disclosure of the accounting item in question. Therefore, based on agency theory and institutional theory, we believe the type of KAM addressed largely determines the readability of the KAM audit procedures description given in the audit report. Accordingly, we propose the following research question:

RQ1: Does the type of KAM disclosed determine the readability of the auditor's description of the procedures performed?

Litigation risk and audit quality

Another interesting line of research is whether KAM disclosure influences liability judgements. In the context of Goffman's self-presentation theory, communication is an integral tool as the individual highlights information that will allow the audience to view them favourably (Goffman 1959). In line with Pelzer (2021), we draw on Goffman's self-presentation theory to understand how auditors disclose KAM in the audit report. Using jury-eligible individuals as participants, some studies have found that KAM disclosure either has no effect (Brown et al. 2016) or reduces auditor liability (Brasel et al. 2016; Kachelmeier et al. 2018). In contrast, Gimbar et al. (2016) report that disclosing KAM significantly increases auditor liability under precise accounting standards, and to a lesser extent under imprecise standards. Clearly, if disclosing KAM has the potential to affect the auditor's litigation risk, then the language and style employed to describe the KAM and the audit procedures used to address them are not a trivial concern. While there are high expectations that KAM will provide additional information to investors and improve audit quality, it is nevertheless possible that due to the potential litigation risk attached to these matters KAM may not provide the expected benefits. This would be the case, for example, if the auditor lacked incentives to provide useful information when describing the KAM (Bédard et al. 2014). If we also consider the potential use of boilerplate or ambiguous sentences, and highly complex and technical language, the information content of KAM may be reduced still further. Bédard et al. (2014) also argue that less relevant KAM would not have the same accountability effect on the auditors, and hence, could reduce the expected effect of KAM on the audit. In addition, some business groups have expressed concern that auditors could resort to defensive disclosures of audit matters and use boilerplate disclosures to mitigate risk (ACCA 2018). Finally, there is also a risk that the auditor may become complacent over time, leading the reports to become superficial and/or misleading in their portrayal of the current audit (ICAEW 2017).

In addition to Goffman's self-presentation theory, we focus on the real effects hypothesis. The real effects of KAM disclosures are interesting because, even though managers perceive KAM disclosure to be costly, they cannot avoid the disclosure as it depends on the auditor. A KAM disclosure can be costly to managers in the form of lower investor confidence, market valuation, incremental management disclosures in the financial statements, increased auditor scrutinity and increased audit-related costs (Bentley et al. 2021). Francis et al. (2014) explain that each Big 4 audit firm has its own approach for implementing generally accepted auditing standards (GAAS), together with in-house working rules for interpreting and applying GAAP, thus producing an 'audit style' (Cushing and Loebbecke 1986). In other words, each Big 4 firm has its own audit methodology and testing procedures. Moreover, auditors differ not only in the methods employed, but also in aspects such as their investment in human capital, that is, by hiring competent staff, providing regular re-training (Francis et al. 2014; Samagaio and Rodrigues 2016), using compensation policies to incentivise their staff and designing internal audit programs to ensure the consistency of auditing standards across different engagements (Francis et al. 2014). Kend and Nguyen (2022) explore audit procedure disclosures related to KAM during the prior year and the initial year of the COVID-19 pandemic and find that smaller practitioners reported much fewer audit procedures related to COVID-19 audit risks than most larger audit firms. Another important way in which audit firms differentiate themselves is by establishing a unique firm culture, for example, with regard to risk. Guénin-Paracini et al. (2014) ar-

gue that auditors may suffer from anxiety if their firm's demands are considered unachievable. Thus, they may attempt to alleviate fear by performing audit procedures that provide a certain degree of comfort. However, audit quality could suffer if this kind of fear results in the auditor having inappropriate responses to risk. Studies of audit firm characteristics primarily focus on two areas, Big-N membership and industry specialisation, and report that both factors are associated with higher audit quality (Becker et al. 1998; Francis and Wang 2008; Lennox and Pittman 2010).

Considering the potential effect of KAM description on litigation risk and on auditor accountability, the auditor may have incentives to reduce the readability of the KAM and to muddy the description of the audit procedures used, although this question would depend on the audit firm's preferred methodology and on its attitude towards risk.

Audit standards suggest that if auditors perceive higher litigation risk, they should adjust the level of audit risk by increasing the audit procedures' scope and practice extreme exceptisim on management assertions. Minutti-Meza (2021) discusses the incentives auditors have to disclose information that differentiates the quality of audits. He argues that auditors could benefit from providing additional information in the KAM if it reveals the relative quality of the audit firm and leads to higher compensation or market share for auditors who provide high-quality audits. Auditors seek to provide clear and straightforward information to audit report users, thus maximising the communicative value and hence the quality of the audit report, to the ultimate benefit of audit quality. But prior studies suggest that the expanded audit report has not increased audit fees or affected audit market share (Gutierrez et al. 2018) and that it is very difficult for users to assess audit quality (Causholli and Knechel 2012).

On the other hand, the audit firm may avoid disclosing sensitive information to the client if this disclosure could impair its relations with company management (Coffee 2019).

In addition, the auditor may also wish to reduce the readability of this information in order to avoid possible litigation and uncomfortable accountability to audit report users. While new information provided in the KAM section of the audit report, which by definition concerns risky accounts, transactions or events, may already be disclosed in the financial reports, it is specifically highlighted in the audit report, and thus more conspicuous.

The KAM identified by the auditor are closely related to client characteristics and the auditor's understanding of these characteristics. Furthermore, as the KAM are usually related to accounting issues, the auditor's own interpretation of the GAAP is a relevant factor. The procedures designed and implemented to address the KAM depend on the auditor's style, that is, the specific methodology used to implement the GAAS, for all clients. The nature of the information provided in the KAM description (more closely related to GAAP and client characteristics) differs from that provided in the audit procedures description (more closely related to GAAS and auditor style). In consequence, there might be different levels of readability in these two areas, in view of the differing incentives to increase the clarity and readability of the information provided in each part of the KAM description. It might be argued that as the KAM description has previously been disclosed in the company's financial statements (Lennox et al. 2022), the auditor should have no impediment to providing a straightforward account, using simple and clear language. At the same time, when describing the audit procedures applied, the auditor will wish to avoid litigation risk and enhanced accountability (Minutti-Meza 2021), and thus has an incentive to use less clear language, lowering readability. The latter situation might also arise because the auditor is unwilling to disclose clear information about its audit methodology to competitors. Moreover, the auditor may use less clear language in describing the KAM in order to avoid conflict with management, which might prefer not to disclose sensitive information too clearly (Coffee 2019). Along this line, Bepari (2023) find that auditors produce more readable KAMs in the presence of female audit committee members.

In view of these considerations that are in the context of self-presentation theory and real effect hypothesis, we suggest that the audit firm determines the readability not only of the KAM presented, but also of the audit procedures described. Accordingly, the following research questions are proposed:

RQ2: Does the audit firm determine the readability of the KAM matter presented in the audit report?

RQ3: Does the audit firm determine the readability of the auditor's description of the KAM procedures performed?

Research Method

Sample selection

In the present study, the sample was drawn from companies listed in the Financial Times Stock Exchange 100 (FTSE 100) index, regarding financial information published for the period 2013–2016. Thus, the initial study population comprised 400 company years. This period is of interest because KAM reporting became obligatory in the UK in 2013, while implementation worldwide began in 2017. During this four-year period, therefore, the UK regulator and stakeholders in general had no benchmark with which to compare UK auditors regarding

Table 1 Composition of sample

FTSE 100 Index companies	Observations
Listed throughout study period (2013–2016)	400
Dual-listed	(4)
No expanded audit report (6 companies)	(24)
Operating in financial sector (23 companies)	(92)
Total sample with KAM disclosure (70 companies)	280

Table 2 Number of companies per number of KAM and year

KAM (n)	2013	2014	2015	2016	Total
1	2	1	0	1	4
2	5	4	7	1	17
3	9	11	17	22	59
4	18	19	13	16	66
5	22	19	16	12	69
6	8	7	9	6	30
7	3	6	5	6	20
8	1	3	2	5	11
9	1	0	1	1	3
10	1	0	0	0	1
Total	70	70	70	70	280

KAM disclosure. The final sample was obtained after excluding firms operating in the financial sector and those that did not publish financial information or KAM data. The final sample, thus, comprises 1269 KAM reported by 280 companies, during the period 2013–2016, which are summarised in Tables 1 and 2.

Financial data were obtained from the Thomson Reuters EIKON database and from audited financial statements. In addition, an Excel spreadsheet was generated by performing content analysis of each audit report obtained in order to summarise the KAM matter and the descriptions of the audit procedures applied for each of the 1269 KAM included in the audit reports considered. Hence, the observations analysed consist of these 1269 company KAM. Text readability was assessed by calculating the FOG index for each description of KAM matter and of the KAM-related audit procedures applied, using an online tool supplied by the University of Alicante (Spain).[2] We also calculated the BOG index, using the Stylewriter 4 tool by Editor Software.[3] In our opinion, these indices are the most suitable for analysing the technical information in question, as explained below.

Models

The study research questions were tested in the following models by ordinary least squares and multiple regression analysis.

$$FOG/BOGKAM\ MATTER_{i,t} = \beta_0 + \beta_1\, AUDITOR_{i,t} + \beta_2 SWITCH_{i,t} + \beta_3 SPECIALIST_{i,} + \beta_4 SIZE_{i,t} + \beta_5 LEVERAGE_{i,t} + \beta_6 ROA_{i,t} + \beta_7 YEARS_{i,t,} + \beta_8 INDUSTRY_{i,t} + \varepsilon_{i,t} \quad (1)$$

$$FOG/BOGKAMPROCEDURES_{i,t} = \beta_0 + \beta_1 AUDITOR_{i,t} + \beta_2 KAMTYPE_{i,t} + \beta_3 SWITCH_{i,t} + \beta_4 SPECIALIST_{i,} + \beta_5 SIZE_{i,t} + \beta_6 LEVERAGE_{i,t} + \beta_7 ROA_{i,t} + \beta_8 YEARS_{i,t,} + \beta_9 INDUSTRY_{i,t} + \varepsilon_{i,t} \quad (2)$$

Model 1 tests RQ2 while Model 2 tests RQ1 and RQ3.

Variables

Dependent variables

Previous studies have employed various indices to measure the readability of narrative disclosure in accounting and auditing (Courtis 1998; Sydserff and Weetman 1999; Li 2008; Lehavy et al. 2011; Ajina et al. 2016; Ertugrul et al. 2017; Wang et al. 2018) but to our knowledge none has attempted to determine which readability index is most appropriate (Sattari et al. 2011).

In the present analysis, the first measure used is the FOG index (Gunning 1952). This was adopted for several reasons. First, the FOG index reflects the linguistic complexity of the text according to syllables per word and words per sentence (Li 2008). Second, this index considers the number of years of formal education

required to understand the text on the first reading (Courtis 1998). Overall, the higher the FOG index score, the lower the readability of the text. Another benefit offered by the FOG index, according to Lehavy et al. (2011), is that it provides an objective measure and can be applied to any narrative text. In addition to the FOG index, Smith (2019) also uses two alternative measures proposed by Loughran and McDonald (2014), namely 'vocabulary' (representing the number of unique words that appear in the audit report divided by the maximum number of entries in the master dictionary) and 'financial jargon' (defined as the frequency of the words included and also present in Campbell R. Harvey's Hypertextual Finance Glossary). Third, in recent years this index has been the most commonly used in accounting, financial and non-financial information studies (Li 2008; Lehavy et al. 2011; Lo et al. 2017; Smith 2019). Therefore, our findings can readily be compared with those of previous work.

The FOG index is based on the percentage of polysyllabic words (i.e., words of three or more syllables) in a passage. This measure, therefore, is a function of the sentence length and the percentage of complex words. The higher the score, the greater the complexity and, hence, the lower the readability. The index has two components that are summed and then multiplied by a scalar to predict a reading grade level, where higher values indicate less readability, as follows:

$$\text{FOGindex} = 0.4\,(\text{averagenumberofwordspersentence} + \text{percentageofcomplexwords})$$

Complex words are identified as words with three syllables or more.

The different values of the FOG index will show the different level of complexity of this information if the values of the index are different among the KAM under study.

Our second readability proxy is the BOG index (Bonsall et al. 2017; Bonsall and Miller 2017; Blanco et al. 2021; Hasan 2020). This index, created in response to the US Securities and Exchange Commission's (SEC) call for investor communications to be made more readable and understandable, measures readability by detecting features that 'bog down' readers (Bonsall et al. 2017). This index is wide-ranging, including sentence complexity in areas such as use of the passive voice, redundant verbs and jargon (Bonsall and Miller 2017). The higher the score, the lower the readability. The BOG index is derived from three components:

$$\text{BOGindex} = \text{SentenceBog} + \text{WordBog} - \text{Pep}$$

According to the StyleWriter software website (2020), '**Sentence Bog** measures the effect of sentence length for different writing tasks. **Word Bog** measures word difficulty (rather than word length), abbreviations and acronyms, wordiness, passive verbs and other style issues. **Pep** measures features that are the hallmarks of good writing. They include proper names, interesting words, conversational expressions, direct questions, short sentences, and sentence length variety. Sentence length variety is measured by taking the sentence length standard deviation, multiplying by 10 divided by the average sentence length'. In the present study, the BOG index is measured as the natural logarithm of the total index score.

In Models 1a and 1b, the variables *FOG KAM MATTER* and *BOG KAM MATTER* represent the readability score calculated using the FOG index and BOG index, respectively, related to the matter described in the audit report for each KAM. In Models 2a and 2b, the variables *FOG KAM PROCEDURES* and *BOG KAM PROCEDURES* represent the readability score calculated using the FOG index and BOG index, respectively, related to the description of the audit procedures performed to address each KAM. FOG values of 12–14 mean the text is readable for its intended audience, while FOG values >18 reflect considerable reading difficulty. Similarly, the higher the value of the BOG index, the lower the readability. According to Bonsall and Miller (2017: 618–19), 'the ratings can be interpreted as follows: 0 to 20 = Excellent; 21 to 40 = Good; 41 to 70 = Average; 71 to 100 = Poor; 101 to 130 = Bad; 131 to 1,000 = Dreadful; 1000+ = Gobbledygook'.

Independent variables

Table 3, Panel A shows the model variables. Following Smith (2019) and Seeback and Kaya (2022) who studied audit report readability after the implementation of ISA 700, our model includes auditor characteristics, assuming that the audit report is influenced by the characteristics of auditor and client alike.

The first independent variable considered is that of *AUDITOR*, which identifies the audit firm employed by the companies in our sample (BDO, Deloitte, EY, KPMG or PwC). These firms are numbered from 1 to 5, taking PwC as the reference because it has the largest share in the sample. Each of these firms has its own techniques and procedures, with varying impacts on the auditors' judgements (Francis 2011; Francis et al. 2014). A priori, we expect these firms to present different levels of readability for the KAM matter description and for the KAM procedures description as each has its own assessment of litigation risk, different incentives to provide high-quality audits and their own audit style and in-house interpretation of the GAAP (related to the KAM mat-

Table 3 **Panel A: Definition of study variables**

Variable name	Definition
FOG KAM MATTER	FOG index related to KAM matter description
FOG KAM PROCEDURES	FOG index related to KAM procedure description
BOG KAM MATTER	Natural log of BOG index related to KAM matter description
BOG KAM PROCEDURES	Natural log of BOG index related to he KAM procedure description
AUDIT FIRM	Categorical variable of the audit firm: PwC, BDO, Deloitte, EY, KPMG
KAM TYPE	Dummy variable = 1 if the KAM concerns entity-level risk and = 0 if it concerns accounting-level risk
SWITCH	Dummy variable = 1 if the company has changed its auditor since the previous year and = 0 otherwise
SPECIALIST	Dummy variable = 1 when the auditor is a specialist in the client's industry and = 0 otherwise
SIZE	Natural log of client's total assets
LEVERAGE	Total debt divided by total assets
ROA	Return on assets: total profits divided by total assets
YEARS	Categorical variable that reflects the year, 2013–2016
INDUSTRY	Categorical variable that reflects industry sector: Basic Materials, Consumer Goods, Consumer Services, Healthcare, Industrial, Technology & TCommunications, and Utilities, Gas & Oil.

Panel B: KAM topics by KAM type

ACCOUNTING-LEVEL RISK KAM	ENTITY-LEVEL RISK KAM
Asset impairment	Business combination
Accounts/Loans receivables	Compliance with laws and regulations
Contingent liabilities	Industry-specific issues
Derivatives and hedging	Information technology control
Financial assets	Internal control
Intangibles and goodwill	Litigation/Regulatory provisions
Inventories	Tax-related issues
Investment valuation	
Leases	
Long-lived assets	
Pension schemes	
Presentation and disclosure	
Property, plant and equipment	
Revenue	
Supplier rebates	

ter) and the GAAS (related to the KAM procedures performed) (Coffee 2019; Minutti-Meza 2021; Lennox et al. 2022).

Following Lennox et al. (2017) and Sierra-García et al. (2019), we conducted content analysis of the audit reports to classify the KAM into two groups (see the KAM topics included in each KAM type in Table 3, Panel B): on the one hand, entity-level risks and on the other, risks related to accounting-level issues. *KAM TYPE* is a dummy variable that takes the value one if the KAM is related to an entity-level risk and zero when it is related to an accounting-level risk. We expect the KAM type to be related to the readability of the description of the procedures performed in the audit in this respect, as different types of KAM require the auditor to perform different types of audit procedure, in complexity and scope (Doyle et al. 2007; Lennox et al. 2017; Sierra-García et al. 2019; Zeng et al. 2021).

Table 4 Descriptive statistics: Continuous variables

Panel A: Dependent variables				
Variable	**Mean**	**Std. Dev.**	**Min.**	**Max.**
FOG KAM MATTER	18.930	3.371	8.040	33.110
BOG KAM MATTER	99.688	28.614	20.000	264.000
FOG KAM PROCEDURES	20.466	3.405	11.450	36.000
BOG KAM PROCEDURES	91.451	24.497	5.000	236.000
Panel B: Control variables				
Variable	**Mean**	**Std. Dev.**	**Min.**	**Max.**
SIZE	16.325	1.277	13.083	28.111
LEVERAGE	0.652	3.365	0.016	45.620
ROA	6.045	7.566	–23.197	48.769

Control variables

In addition to the above, and in line with previous practice, we control for auditor characteristics as follows. *SWITCH* is a dummy variable that takes the value one if the company has changed its audit firm since the previous year and zero otherwise (Brown and Knechel 2016). Although, a priori, no clear sign is apparent for the relationship between a change of auditor and KAM readability, we expect that following such a change, the readability of the KAM matter description and that of the procedures used to determine it would be increased. We also consider audit industry specialisation. Thus, *SPECIALIST* takes the value one when the audit firm is an industry specialist and zero otherwise. Auditors are treated as specialists if they are industry leaders, defined as having a market share >30% (Audousset-Coulier et al. 2016). Initially, we expect audit industry specialists to include a more readable description of the KAM in their audit report, due to their greater knowledge of the client and its industry.

Another factor included is that of the impact of client characteristics on KAM readability, as more complex clients may have more complex KAM. In this respect, we take company size (*SIZE*), which is measured as the natural logarithm of its total assets to avoid problems of scale (Prawitt et al. 2011). We expect that the KAM element of the audit report for larger companies will be more complex, and hence less readable, than the corresponding element for smaller companies. As a proxy for solvency, we use the variable *LEVERAGE*, defined as total debts divided by total assets (Wu et al. 2016). This variable reflects potential financial problems. We expect that highly leveraged companies will present higher complexity, making the KAM more difficult to explain. Hence, the greater the leverage, the lower the readability of the KAM. To examine whether the study topics are affected by profitability, we include *ROA*, measured as profit before taxes divided by total assets (Velte 2018). In this, we expect that the KAM of more profitable firms will be more readable, due to the lower complexity of the risk described. Finally, we also control for industry and year effects.

Results

In this section, we present the descriptive statistics, the correlation results and the main multivariate results.

Descriptive statistics and univariate analysis

Descriptive statistics

Table 4 shows the descriptive statistics obtained for the continuous variables from a sample of 1269 observations. The mean values of 18.93 and 20.46 for *FOG KAM MATTER* and *FOG KAM PROCEDURES*, respectively, are similar to those obtained in prior studies on disclosure readability in accounting and auditing in general (Ajina et al. 2016; Ertugrul et al. 2017; Wang et al. 2018) but on the other hand, the results differ from the those reported by Zeng et al. (2021) in China: they report mean values of 25.77 and 17.02 for *KAM MATTER* and *KAM PROCEDURES*, respectively. This means that while in the UK the readability of *KAM MATTER* is higher than that of *KAM PROCEDURES*, in China it is the opposite, suggesting different readability levels between KAM matter and KAM audit procedures descriptions among countries. Additionally, the mean values of 99.69 and 91.45 for *BOG KAM MATTER* and *BOG KAM PROCEDURES*, respectively, are higher than those reported by Blanco et al. (2021) and Cano-Rodríguez and Moreno (2020). Overall, these results indicate that the matter descriptions made and the explanation of the audit procedures performed, for the companies analysed, are generally very difficult to read.

Table 5 presents the summary statistics for the categorical variables *AUDITOR* and *KAM TYPE*. The Big 4 firm with the largest market share is PwC, with more than 38% of the clients in the sample. The only non-Big 4 firm in our analysis is BDO, which has 1.34% of the

Table 5 **Descriptive statistics: Categorical variables**

Panel A: Independent variables	Frequency	%	Cumulative
AUDITOR			
PwC	490	38.58	38.58
DELOITTE	305	24.02	62.60
EY	156	12.28	74.88
KPMG	302	23.78	98.66
BDO	17	1.34	100.00
KAM TYPE			
Accounting	740	58.27	58.27
Entity	530	41.73	100.00
Panel B: Control variables			
SWITCH			
No	1,157	91.10	91.10
Yes	113	8.90	100.00
SPECIALIST			
No	721	56.77	56.77
Yes	549	43.23	100.00
YEAR			
2013	317	24.96	24.96
2014	321	25.28	50.24
2015	311	24.49	74.72
2016	321	25.28	100.00
INDUSTRY			
Basic Materials	176	13.86	13.86
Consumer Goods	243	19.13	32.99
Consumer Services	346	27.24	60.24
Healthcare	95	7.48	67.72
Industrial	172	13.54	81.26
Technology & Communications	102	8.03	89.29
Utilities, Gas & Oil	136	10.71	100.00
Total	1269	100.00	100.00

sample. Thus, over 98% of the companies in the sample are audited by a Big 4 firm. Furthermore, 58.27% of the KAM observations are accounting related and 41.73% concern the entity.

Univariate analysis

The aim of this analysis is to determine the existence of significant differences for the dependent variables *FOG KAM MATTER* and *FOG KAM PROCEDURES* in relation to the independent variables. As shown in Table 6, Panel A, significant differences were found in the polytomous variables for the variable *AUDITOR*, significant at the 1% level according to the ANOVA test. For EY and PwC, the average mean value of *FOG KAM MATTER* and *FOG KAM PROCEDURES* is lower than for the other audit firms (lower than 19 and 20, respectively). This means that the readability of the descriptions given by EY and PwC of the KAM matter and the KAM procedures is higher than that found for the other auditors. Significant differences at the 1% level were also found in the mean value of the dependent variables in the case of the independent variable *INDUSTRY*. The industries with high levels of readability are Technology & Communications and Consumer Services, with mean values of 17.63 and 18.14 respectively for *FOG KAM MATTER* and of 18.35 and 20.09 for *FOG KAM PROCEDURES*. For the variable *YEAR*, the results are significant only for the dependent variable *FOG KAM PROCEDURES*. For the year 2016, the mean value is 19.99, meaning that the readability of the description of the KAM procedures was higher in 2016 than in any of the other years under study.

Finally, Table 6, Panel B shows the results of the *t*-test for the independent variable *KAM TYPE*. The mean differences are only significant at the 1% level for the dependent variable *FOG KAM PROCEDURES* and show that the descriptions of accounting-level KAM procedures are more readable than those of entity-level KAM procedures.

In summary, Table 6 shows that the mean values of the variables *FOG KAM MATTER* and *FOG KAM PROCEDURES* differ significantly among audit firms, KAM type, industries and years. These results of the univariate test provide preliminary answers to the

Table 6 ANOVA for *FOG KAM MATTER* and *FOG KAM PROCEDURES* as a function of the independent variables *AUDITOR*, *KAM TYPE*, *INDUSTRY* and *YEAR*

PANEL A: ANOVA for *FOG KAM MATTER* and *FOG KAM PROCEDURES* as a function of the independent variables *AUDITOR*, *INDUSTRY AND YEAR*

FOG KAM MATTER						***FOG KAM PROCEDURES***					
AUDITOR	**Mean**	**Std. dev.**	**Freq.**	**F**	**Sig.**	***AUDITOR***	**Mean**	**Std. dev.**	**Freq.**	**F**	**Sig.**
PwC	18.44	3.12	489	12.78	0.0000	PwC	19.86	2.96	489	15.25	0.0000
BDO	21.10	3.16	17			BDO	21.70	2.16	17		
Deloitte	19.63	3.83	305			Deloitte	21.30	4.17	305		
EY	17.97	3.55	156			EY	19.47	2.76	156		
KPMG	19.40	2.90	302			KPMG	21.06	3.27	302		
INDUSTRY	**Mean**	**Std. dev.**	**Freq.**	**F**	**Sig.**	***INDUSTRY***	**Mean**	**Std. dev.**	**Freq.**	**F**	**Sig.**
Basic Materials	19.47	3.51	176	10.23	0.0000	Basic materials	21.27	3.67	176	13.14	0.0000
Consumer Goods	19.85	3.42	243			Consumer goods	20.92	3.46	243		
Consumer Services	18.14	3.14	346			Consumer services	20.09	3.11	346		
Healthcare	19.27	3.33	95			Healthcare	21.86	3.43	95		
Industrials	19.06	3.29	172			Industrials	20.49	3.46	172		
Technology & Communications	17.63	3.21	102			Technology & communications	18.35	2.71	102		
Utilities, Gas & Oil	19.18	3.25	135			Utilities & Gas & Oil	20.15	3.20	135		
YEAR	**Mean**	**Std. dev.**	**Freq.**	**F**	**Sig.**	***YEAR***	**Mean**	**Std. dev.**	**Freq.**	**F**	**Sig.**
2013	19.10	4.20	317	0.49	0.6878	2013	21.00	3.78	317	4.83	0.0024
2014	18.95	3.18	321			2014	20.50	3.28	321		
2015	18.90	3.03	311			2015	20.39	3.29	311		
2016	18.78	2.93	320			2016	19.99	3.18	320		
PANEL B: T-student results for *FOG KAM MATTER* and *FOG KAM PROCEDURES* as a function of the independent variable *KAM TYPE*											
KAM TYPE	**Mean**	**Std. dev.**	**Freq.**	**t**	**Sig.**	***KAM TYPE***	**Mean**	**Std. dev.**	**Freq.**	**t**	**Sig.**
Accounting	18.94	3.31	739	0.1505	0.8804	Accounting	20.06	3.32	739	-5.0464	0.0000
Entity	18.91	3.46	530			Entity	21.03	3.45	530		

Table 7 **Pairwise comparison of adjusted means in the key components of *FOG KAM MATTER* and *FOG KAM PROCEDURES***

FOG KAM MATTER	**Pairwise mean difference**	**Tukey t**	**P>|t|**	**FOG KAM PROCEDURES**	**Pairwise mean difference**	**Tukey t**	**P>|t|**
AUDITOR				***AUDITOR***			
Deloitte vs PwC	1.197	4.95	0.000	Deloitte vs PwC	1.438	5.91	0.000
KPMG vs PwC	0.962	3.97	0.001	KPMG vs PwC	1.196	4.91	0.000
EY vs BDO	–3.134	–3.71	0.002	EY vs BDO	–2.233	–2.62	0.067
EY vs Deloitte	–1.662	–5.10	0.000	EY vs Deloitte	–1.830	–5.58	0.000
KPMG vs EY	1.428	4.38	0.000	KPMG vs EY	1.588	4.83	0.000
INDUSTRY				***INDUSTRY***			
Consumer Services vs Basic Materials	–1.334	–4.37	0.000	Consumer Services vs Basic Materials	–1.172	–3.82	0.003
Technology & Communications vs Basic Materials	–1.842	–4.48	0.000	Technology & Communications vs Basic Materials	–2.915	–7.07	0.000
				Utilities, Gas & Oil vs Basic Materials	–1.114	–2.94	0.052
Consumer Services vs Consumer Goods	–1.711	–6.19	0.000	Consumer Services vs Consumer Goods	–0.831	–3.00	0.044
Technology & Communications vs Consumer Goods	–2.219	–5.70	0.000	Technology & Communications vs Consumer Goods	–2.574	–6.59	0.000
Healthcare vs Consumer Services	1.131	2.96	0.049	Healthcare vs Consumer Services	1.762	4.59	0.000
Industrials vs Consumer Services	0.917	2.98	0.047				
				Technology & Communications vs Consumer Services	–1.743	–4.67	0.000
Utilities, Gas & Oil vs Consumer Services	1.042	3.11	0.031				
				Industrials vs Healthcare	–1.367	–3.23	0.022
Technology & Communications vs Healthcare	–1.638	–3.48	0.009	Technology & Communications vs Healthcare	–3.505	–7.42	0.000
				Utilities, Gas & Oil vs Healthcare	–1.704	–3.84	0.002
Technology & Communications vs Industrials	–1.424	–3.45	0.010	Technology & Communications vs Industrials	–2.138	–5.17	0.000
Utilities, Gas & Oil vs Technology & Communications	1.549	3.58	0.007	Utilities, Gas & Oil vs Technology & Communications	1.801	4.15	0.001
YEARS				***YEARS***			
				2016 vs 2013	–1.014	–3.78	0.001

study research questions, suggesting that the audit firm impacts on the readability of both the KAM matter description and the KAM procedures description (RQ2 and RQ3), while KAM type impacts on the readability of the KAM procedures description (RQ1).

In addition, we conducted a post hoc pairwise comparison of the adjusted means of *AUDITOR*, *INDUSTRY* and *YEAR* with *FOG KAM MATTER* and *FOG KAM PROCEDURES*. The results of this comparison are summarised in Table 7. Significant differences were found in the mean values of *FOG KAM MATTER* and *FOG KAM PROCEDURES* between Deloitte and KPMG, on the one hand, and PwC and EY, on the other, with the latter presenting significantly higher levels of readability in their descriptions of KAM matter and KAM procedures.

Significant differences were also found in the mean values of *FOG KAM MATTER* in the case of *INDUSTRY*. By industries, Consumer Services and Technology & Communications presented significantly higher levels of readability than the other industry sectors considered. In the case of *FOG KAM PROCEDURES*, the industries whose KAM reports were most readable were Consumer Services, Technology & Communications, and Utilities,

Table 8 The impact of audit firm on readability of KAM matter and procedures

	Model 1: Impact of audit firm on KAM matter readability		Model 2: Impact of audit firm and KAM type on KAM procedures readability	
	1a. FOG	1b. BOG	2a. FOG	2b. BOG
	Coef. (p-value)	Coef. (p-value)	Coef. (p-value)	Coef. (p-value)
INDEPENDENT VARIABLES				
Auditor (PwC)				
BDO	2.940*	0.006	2.013**	0.170**
	(0.001)	(0.736)	(0.021)	(0.014)
DELOITTE	1.401*	0.782*	1.913*	0.155*
	(0.000)	(0.000)	(0.000)	(0.000)
EY	0.296	0.019	0.593***	0.156*
	(0.401)	(0.610)	(0.084)	(0.000)
KPMG	1.430*	0.074*	1.798*	0.142*
	(0.000)	(0.009)	(0.000)	(0.000)
KAM type	-	-	1.069*	0.050*
			(0.000)	(0.001)
CONTROL VARIABLES				
Switch	-0.178	0.016	-1.352*	-0.093*
	(0.590)	(0.705)	(0.000)	(0.000)
Specialist	0.758*	0.008	1.076*	0.065*
	(0.006)	(0.861)	(0.000)	(0.000)
Size	-0.108	-0.002	-0.113	-0.042
	(0.232)	(0.591)	(0.201)	(0.652)
Leverage	0.055**	0.013	0.021	0.057**
	(0.048)	(0.754)	(0.432)	(0.021)
ROA	-0.023***	0.005	-0.033**	0.010
	(0.084)	(0.689)	(0.011)	(0.560)
Year-controlled	Yes	Yes	Yes	Yes
Industry-controlled	Yes	Yes	Yes	Yes
Constant term	0.000	0.000	0.000	0.000
Adjusted R^2	0.070	0.081	0.135	0.154

Note: Sample: 1269 observations in 2013–2016.
*, ** and *** represent statistical significance at 1%, 5% and 10%, respectively.

Gas & Oil. These results suggest that the industry sector impacts on the readability both of the KAM matter and of the description given of the procedures to determine this content.

Finally, significant differences were detected in the mean values for *FOG KAM PROCEDURES* in the case of *YEARS*. The KAM procedures descriptions presented higher levels of readability in 2016 than in 2013. This result suggests that readability had significantly improved by the end of the study period, but only in the description of KAM procedures, not in the description of KAM matter.

We also performed univariate tests for the dependent variables *BOG KAM MATTER* and *BOG KAM PROCEDURES*. These results did not differ from those reported for *FOG KAM MATTER* and *FOG KAM PROCEDURES*.

Empirical models

Table 8 presents the regression results obtained, showing the effect of the audit firm on the readability of the KAM matter description. For Model 1a (*FOG KAM MATTER*), the results for the independent variable *AUDITOR* show that BDO (2.940; *p*-value = 0.001) presents the highest positive relation (the KAM matter description disclosed by this audit firm is the least readable). Deloitte (1.401; *p*-value = 0.000) and KPMG (1.430; *p*-value = 0.000) present positive associations while for EY the coefficient is not significant. As PwC is the reference firm, these results show that the KAM matter descriptions made by PwC and EY are the most readable. In Model 1b (*BOG KAM MATTER*), only Deloitte (0.782; *p*-value = 0.002) and KPMG (0.074; *p*-value = 0.009) present a significant positive association, while for BDO and EY the association is positive but not significant. In line with Model 1a, these results show that PwC and EY provide the highest levels of readability in their KAM matter descriptions. These findings address RQ2, according to which the readability of the KAM matter description varies among audit firms.

Among the control variables, in Model 1a the coefficient for the variable *SPECIALIST* is positive and significant, suggesting that the matter description provided

by specialist auditors (vs non-specialists) is more difficult to read, possibly because they use a more complex rationale to explain KAM. *LEVERAGE* is also positively related to the readability of the matter description, indicating that more highly leveraged companies tend to provide a KAM matter description that is more difficult to understand. Moreover, *ROA* presents a significant negative association with the FOG index, suggesting that less profitable companies use a more complex KAM matter description. However, Model 1b does not reveal any significant association for these three variables.

For Model 2a (*FOG KAM PROCEDURES*), the results for the independent variable *AUDITOR* show that BDO (2.013; *p*-value = 0.021) presents the strongest positive relation, meaning that this firm presents the most complex explanation of the audit procedures performed for the KAM. Deloitte (1.913; *p*-value = 0.000), EY (0.593; *p*-value = 0.084) and KPMG (1.798; *p*-value = 0.000) are also positive and significant but their coefficients are lower than those of BDO. PwC, the reference firm in the model, presents the KAM procedures most clearly. The second independent variable of interest, *KAM TYPE* (1.069; *p*-value = 0.000), is positive and significantly correlated, which suggests that the description of the audit procedures performed to address an entity-level risk is more difficult to read than that performed for an accounting-level risk KAM. For Model 2b (*BOG KAM PROCEDURES*), the results show, as in Model 2a, that the KAM procedures descriptions by PwC are the easiest to read and that the KAM procedures for entity-level risk KAM (vs accounting-level) tend to be less readable. These results address RQ1 and RQ3.

Regarding the control variables in Model 2a, the correlation between readability of KAM procedures and the *SWITCH* variable is negative and significant, meaning that a new auditor's description of the procedures used to address the KAM is usually easier to read than that made by an established firm. On the other hand, the correlation for the *SPECIALIST* variable is positive and significant, from which we conclude that a specialist auditor is more likely to provide a complex, less readable description. As expected, more profitable companies (represented by the *ROA* variable) provide more readable descriptions of the procedures used to address KAM. In Model 2b, the results for the variables *SWITCH* and *SPECIALIST* are similar to those in Model 2a. Finally, the procedures performed to address KAM are usually more readable in highly leveraged companies (LEVERAGE).

Robustness

In addition to the above analysis, three supplementary measures of readability were applied, to validate our findings, to corroborate their robustness and to overcome the limitations of the FOG and BOG indexes (Loughran and McDonald 2014). This check ensures that our study represents a genuine contribution to the academic debate on the question of audit report readability. These supplementary measures and tests of robustness are detailed in Table 9.

The first is the Flesch-Kincaid grade level (FKGL), which is used to determine a reading grade level for written materials. The higher the FKGL score for a text, the more difficult it is to read. This instrument has been used, for example, to test the readability of technical documents for the US armed forces (Kincaid et al. 1975). The following formula is used for the FKGL:

$$\text{FKGL index} = 0.39\text{x (the number of words divided by } the\ number\ of\ sentences) + 11.8\text{x (the number of syllables divided } by\ the number\ of\ words) - 15.59$$

Second, the Automated Readability Index (ARI) was applied as the dependent variable. This index, developed to assess the readability of written materials used in the US Air Force (Senter and Smith 1967), is calculated as follows:

$$\text{ARIindex} = 4.71(\text{characters/words}) + 0.5\,(\text{words/sentences}) - 21.43$$

The third additional instrument used is the Simple Measure of Gobbledygook (SMOG) index, which is based on the number of complex words per sentence (Richards and van Staden 2015). The higher the index score, the lower the readability of the text considered. The SMOG index was developed as a quick and easy means of estimating readability from just two statistics: the number of sentences in the text and the number of words with three or more syllables. The SMOG index is calculated as follows:

$$\text{SMOG index} = 1.043 \text{ x square root of } (30 \text{ x number of words with more than two syllables})/(\text{number of sentences}) + 3.1291$$

Table 10 shows the descriptive statistics obtained for the three supplementary measures of readability. The mean *FKGL KAM MATTER* score is 16.152, while for *ARI KAM PROCEDURES* it is 16.443. The mean *SMOG KAM MATTER* score is the highest of all, at 17.262. These results are similar to those reported in prior studies on readability in accounting and auditing (Richards and van Staden 2015; Wang et al. 2018). Furthermore, the mean scores for *FK KAM PROCEDURES*, *ARI KAM*

Table 9 **Variables: Test of robustness**

Variable name	Definition
FK KAM MATTER	FK index related to KAM matter
ARI KAM MATTER	ARI index related to KAM matter
SMOG KAM MATTER	SMOG index related to KAM matter
FK KAM PROCEDURES	FK index related to KAM procedures
ARI KAM PROCEDURES	ARI index related to KAM procedures
SMOG KAM PROCEDURES	SMOG index related to KAM procedures

Table 10 **Descriptive statistics: Test of robustness**

Dependent variables				
Variable	**Mean**	**Std. dev.**	**Min.**	**Max.**
FK KAM MATTER	16.252	3.154	4.450	28.650
ARI KAM MATTER	16.444	3.945	3.480	33.020
SMOG KAM MATTER	17.262	2.477	8.480	38.420
FK KAM PROCEDURES	18.207	2.963	11.580	33.290
ARI KAM PROCEDURES	18.749	3.758	10.800	39.070
SMOG KAM PROCEDURES	18.828	2.306	13.250	28.100

PROCEDURES and *SMOG KAM PROCEDURES* are all around 18. These results corroborate those obtained with the FOG and BOG indexes according to which the KAM matter description and that of the auditors' procedures to address these risks are in many cases difficult to read.

In addition, Table 11 shows that the alternative measures of readability corroborate the robustness of our initial findings. Thus, the choice of audit firm is significantly associated with KAM matter readability. Furthermore, there is a positive, significant relationship between the audit firm, KAM type and the readability of the description of the audit procedures. Accordingly, the robustness of Models 1a, 1b, 2a and 2b is confirmed.

Conclusions, Limitations and Implications

This paper examines whether the audit firm and KAM type determine the readability of the KAM disclosed in the audit reports of non-financial FTSE 100-listed firms during the period 2013–2016. The KAM section is one of the most important in the expanded audit report, according to ISA 701. In it, the auditor must clearly explain the risks identified and the procedures performed to address them. The audit report is addressed to a wide group of stakeholders and therefore its readability is a significant issue. Only if the information presented is readily understandable will stakeholders be able to use it as the basis for making informed decisions. In this paper, based on agency theory and institutional theory, we argue that if the KAM section effectively increases the communicative value of the audit report, then the overall audit quality will be enhanced. For the purposes of this study, the readability of the KAM matter description and the KAM audit procedures description is considered a proxy for audit quality, and, in the context of self-presentation theory and the real effects hypothesis, we seek to determine whether this readability varies according to the audit firm and the type of KAM included in the audit report.

The results obtained show that BDO, the only non-Big 4 firm in the sample, describes the KAM matter description and the procedures performed to address the risk in a way that is more difficult to understand, in comparison with PwC, the reference auditor in our models, followed by Deloitte, KPMG and EY. This result shows that the audit firm impacts directly on the readability (and hence the quality) of the additional information provided to stakeholders via KAM disclosure. Furthermore, for most of the readability indexes considered, the KAM matter description is less complex than that of the KAM audit procedures. This might be because the matter description has previously been disclosed by the company in its financial statements (in order to anticipate and reduce the real effects of KAM disclosure by the auditor), and so the auditor does not foresee any great litigation risk attached to the subsequent disclosure. On the other hand, describing the audit procedures performed to mitigate audit risk or litigation risk could increase the auditor's exposure and hence aggravate the audit firm's litigation risk and accountability. Therefore, vague language might be used to explain the audit procedures performed as a means of justifying or concealing malpractice. To the same end, the auditor might argue that most readers will not un-

Table 11 **Test of robustness - The impact of audit firm on readability of KAM matter and procedures**

	Model 1. The impact of audit firm on KAM matter readability			Model 2. The impact of audit firm and KAM type on KAM procedures readability		
	FKGL	**ARI**	**SMOG**	**FKGL**	**ARI**	**SMOG**
	Coef. (p-value)	Coef. (p-value)	Coef. (p-value)	Coef. (p-value)	Coef. (p-value)	Coef. (p-value)
INDEPENDENT VARIABLES						
Auditor (PwC)						
BDO	3.148*	4.003*	2.391*	3.054*	1.417**	3.054*
	(0.000)	(0.000)	(0.000)	(0.001)	(0.016)	(0.010)
DELOITTE	1.562*	1.869*	1.115*	2.596*	1.365*	2.596*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)
EY	-0.045	-0.284	-0.343	0.9226*	0.5947*	0.9226**
	(0.889)	(0.486)	(0.185)	(0.003)	(0.010)	(0.012)
KPMG	1.251*	1.420*	0.797*	2.363*	1.384*	2.363*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)
KAM type	-	-	-	0.7769*	0.7072*	0.7769*
				(0.002)	(0.000)	(0.000)
CONTROL VARIABLES						
Switch	-0.138	-0.131	-0.054	-1.267*	-1.562*	-0.963*
	(0.652)	(0.732)	(0.822)	(0.000)	(0.000)	(0.000)
Specialist	0.581**	0.625**	0.308	1.082*	1.302*	0.814*
	(0.021)	(0.047)	(0.123)	(0.000)	(0.000)	(0.000)
Size	0.005	-0.024	0.012	-0.017	-0.016	-0.075
	(0.952)	(0.816)	(0.849)	(0.820)	(0.863)	(0.209)
Leverage	0.032	0.041	0.022	0.033	0.050***	0.028
	(0.210)	(0.194)	(0.270)	(0.157)	(0.093)	(0.124)
ROA	-0.023***	-0.028***	-0.016	-0.026**	-0.038*	-0.019**
	(0.059)	(0.073)	(0.109)	(0.021)	(0.008)	(0.032)
Year-controlled	Yes	Yes	Yes	Yes	Yes	Yes
Industry-controlled	Yes	Yes	Yes	Yes	Yes	Yes
Constant term	0.000	0.000	0.000	0.000	0.000	0.000
Adjusted R^2	0.099	0.088	0.072	0.151	0.144	0.145

Note: Sample: 1269 observations in 2013–2016.
*, ** and *** represent statistical significance at 1%, 5% and 10%, respectively

derstand the audit procedures used as they lack the necessary technical skills and language. These findings are a significant contribution to self-presentation theory and the real effects hypothesis as they show that when disclosing KAM, audit firms have different communication strategies and approaches to litigation risk, a distinction which could be related to differences in audit firm culture.

Our study results also show that the readability of the KAM audit procedures description varies according to the type of KAM disclosed. Specifically, entity-level risks are usually presented in a form that is more difficult to read than accounting-level KAM audit procedures, possibly due to the greater inherent complexity of the former. These findings contribute to institutional theory in relation to KAM disclosure by auditors as they provide evidence of decoupling by auditors while performing isomorphism. That is, auditors could receive pressure from the client or could intend to reduce litigation risk, so they decide to decouple, reducing readability, when they disclose KAM related to entity-level risk as they are more complex.

The question of audit report readability has been examined in earlier research (Fakhfakh 2015; Carver and Trinkle 2017; Smith 2019; Zeng et al. 2021; Seeback and Kaya 2022; Ong et al. 2022; Bepari 2023). Several studies have examined the effectiveness of the expanded audit report, providing evidence that audit report quality has improved in the post-ISA 700 period using KAM readability as a proxy for audit quality. For example, Seeback and Kaya (2022) and Smith (2019) show that audit reports in the post-ISA 700 period are more readable than before, but they do not identify what determines the readability enhancement. KAM disclosure may expose auditors to more careful scrutinity (Coffee 2019; Minutti-Meza 2021; Lennox et al. 2022). But knowing that the cost of increased audit quality is lower than the expected marginal cost of litigation (Minutti-Meza 2021), we argue that audit firms will address litigation risk differently following their own audit style. We take the KAM readability literature a step further by showing not only the impact the audit firm has on KAM readability, but also focusing on the readability of the descriptions of KAM matter and KAM audit procedures sepa-

rately. Additionally, prior studies argue that KAM contain inherently complex information and hence, users need a certain degree of financial literacy to understand them (Doyle et al. 2007; Lennox et al. 2017; Sierra-García et al. 2019; Zeng et al. 2021). Our study builds on existing literature by showing that KAM type (entity-level versus accounting-level KAM) impacts on KAM readability, also focusing on the readability of the descriptions of KAM matter and KAM audit procedures separately.

This study contributes to institutional theory as it is the first study to provide evidence of decoupling by auditors when disclosing more complex KAM (linked to entity-related risks). Also, we contribute to self-presentation theory by providing evidence that auditors use different communication strategies when disclosing KAM as we find that the readability of the KAM risk description and audit procedures description varies depending on the audit firm. Finally, in the context of the real effects hypothesis, we provide evidence that the readability of the KAM risk description is higher than the readability of the audit procedures description. This is because the risk description includes information previously disclosed by management in an attempt to reduce the real effects of KAM, so this information does not increase auditor litigation risk. On the contrary, the KAM audit procedures description is less readable as it is new information to users and could increase auditor litigation risk.

In summary, our analysis provides evidence to standard-setters and regulators that the readability and informative value of the KAM description, and hence the quality of the audit report, differ according to the audit firm concerned and KAM type addressed. Our discussion of audit firms' potential incentives to increase or decrease the informative value of the audit report via their mode of KAM disclosure is also relevant to regulatory and supervisory activities. For companies, our study facilitates a better understanding of the role played by the incumbent auditor, as an agent, in maintaining/increasing the informative value of the audit report. The study also provides useful information for assessing the performance of the incumbent auditor and the audit quality provided. Finally, the results we report can help companies and stakeholders identify the KAM types that can be most challenging to understand and towards which most effort should be directed to maximise clarity.

The present research is subject to certain limitations: (a) even though the period under study is of special interest, as by the period 2013–2016 the UK was the first country to implement the expanded audit report, we recognise the age of the dataset as a limitation; (b) as the study focuses on listed companies, the extrapolation of our conclusions to the case of unlisted companies is by no means straightforward; and (c) as the regulatory environment varies from country to country, this diversity could impact on the behaviour of the audit firm as regards KAM disclosure in the audit report. However, our work also suggests interesting areas for future research. For example, it would be useful to determine whether differences in KAM readability by audit firm and KAM type tend to increase or decrease over time. Additionally, studying the impact of change in firm variables on KAM readability instead of the level is an opportunity for future research. Furthermore, as a logical consequence of our focus on readability, further work in this field could usefully examine the understandability of the KAM disclosed and consider how this might vary among audit firms and according to KAM type.

Notes

1 In the US, on 1 June 2017, the Public Company Accounting Oversight Board (PCAOB 2017) adopted a new audit report standard, AS 3101, requiring the communication of critical audit matters. For large, accelerated filers, the effect of this standard was to become apparent in audits of the fiscal year ending on or after 30 June 2019; for all other companies within the scope of the standard, the corresponding date was the fiscal year ending on or after 15 December 2020. According to the PCAOB a CAM is 'any matter arising from the audit of the financial statements that was communicated or required to be communicated to the audit committee; and that relates to accounts or disclosures that are material to the financial statements, and involved especially challenging, subjective, or complex auditor judgment' (PCAOB 2017).

2 Document readability tool from: http://accesibilidadweb.dlsi.ua.es/?menu=hr-legibilidad

3 http://www.editorsoftware.com/stylewriter/

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