



The impact of the precision of accounting standards on the expanded auditor's report in the European Union



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ARTICLE INFO

Article history:

Available online 27 June 2020

Keywords:

Key audit matters
Auditor report
Principles-based
Rules-based
Readability

ABSTRACT

One of the most important recent expansions of the auditor's report within the European Union, but also in the International Standards on Auditing, is the mandatory disclosure of key audit matters (KAMs). This paper investigates whether or not the likelihood of a KAM depends upon the level of precision and detail of an accounting standard. We use the Rules-Based Characteristics (RBC) score of [Mergenthaler \(2009\)](#) validated in [Donelson, McInnes, and Mergenthaler \(2012\)](#) to determine whether an accounting standard is more precise, i.e., whether the accounting standard is more rules-based. We also analyze the impact of accounting standard precision on the readability of the auditor's report. The sample consists of FTSE 100 (UK), CAC 40 (France), and AEX 25 (Netherlands) companies that disclosed KAMs in 2016. The findings show that the probability of a KAM increases with more precise accounting standards. Our results also show that the disclosure of KAMs that are based on accounting standards with higher rules-based characteristics decreases the readability of auditors' reports. This paper contributes to the literature by showing how accounting standard precision interacts with the auditor's report from the point of view of the preparer (auditor) and of the user of the report.

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1. Introduction

The aim of this paper is to examine the implications of accounting standard precision on auditor behavior regarding the expanded auditor's report. The 2015 issuance of the International Standard on Auditing (ISA) 701, Communicating Key Audit Matters ([IAASB, 2018b](#)), required the disclosure of key audit matters¹ (KAMs) in a separately identified section of a new expanded auditor's report. KAMs are areas that auditors consider as having a higher assessed risk of misstatement. As the identification and communication of KAMs are both dependent on the result of the auditor's professional judgement, we analyze the influence of the level of an accounting standard's precision on such judgement.

We use the incremental perspective of [Nelson \(2003\)](#) regarding the level of an accounting standard's precision. Accordingly, all standards can be viewed as principles-based, and are defined as more rules-based when they include relatively more elaborate rules.² Nelson argues that more rules-based accounting standards increase the precision level of the standards,

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¹ In the US, the expression Critical Audit Matters (CAMs) is used.

² [Nelson \(2003\)](#) defines "rules" to include specific criteria, "bright line" thresholds, examples, scope restrictions, exceptions, subsequent precedents, implementation guidance, etc.

which in turn may have implications for the behavior of participants in the financial reporting process. In this context, using the new format of the auditor's report, we examine whether the level of precision (more or less rules-based) of accounting standards has any impact on the likelihood of an auditor reporting a KAM and the readability of the auditor's report.

The principal aim of the International Auditing and Assurance Standards Board (IAASB) regulatory changes to the auditor's report is to increase both its information content and its transparency (Bédard, Gonthier-Besacier, & Schatt, 2019; Boolaky & Quick, 2016; Cordoş & Fülöp, 2015; Gimbar, Hansen, & Ozlanski, 2016; Lennox, Schmidt, & Thompson, 2019), thereby increasing its information value and leading to the efficiency of capital markets. However, the auditor's report loses its usefulness if users misunderstand it, and the disclosure of KAMs may then have the opposite effect. By raising new expectations, the expectation gap between auditors and users may increase if the information is not adequately disclosed and understood. Auditors may also fear disclosing too much information about the clients, due to their duty to maintain confidentiality (Vanstraelen, Schelleman, Hofmann, & Meuwissen, 2011). This could lead to KAMs containing boilerplate language that is not sufficiently informative to protect auditors from dismissal or litigation (Lennox et al., 2019).

Furthermore, the accounting scandals and permanent economic-environment changes led to a debate regarding the role and consequences of the precision level of the accounting standard system (Benston, Bromwich, & Wagenhofer, 2006). Some argue that under a more rules-based system up-front standard-setting costs are higher, but this approach restricts earnings management, increases financial reporting comparability and verifiability, and also reduces after-the-fact litigation (Benston et al., 2006; Ewert & Wagenhofer, 2005; Schipper, 2003). Others argue that rules-based accounting standards can become useless if the context changes, may be more complex with numerous scope exceptions, and allow for more earnings management (Agoglia, Doupnik, & Tsakumis, 2011; Donelson, McInnis, & Mergenthaler, 2016). Supporters of more principles-based accounting standards believe in the importance of professional judgement as a distinctive element of the accounting process, suggesting that the flexibility of this regime enables the application of the same accounting standards in different environments (Carmona & Trombetta, 2008).

Previous research provides evidence that the precision level of accounting standards has implications and consequences for both financial reporting and litigation risk (Li, 2011). According to Carmona and Trombetta (2008), a change to a less precise regime implies that the auditor cannot merely report formal compliance of a firm's financial information with a set of rules. It may require substantial changes in the training of auditors and accountants. Peytcheva, Wright, and Majoor (2014) also show that less precise accounting standards induce a demand for more audit evidence and related program planning decisions. Accordingly, we can expect that the level of accounting standard precision influences the auditors' role and behavior, especially with regard to this new type of non-standardized auditor's report.

Contemporary research on KAM disclosure is predominantly experimental. Archival studies are scarce and to the best of our knowledge, the impact of accounting standards precision on the likelihood of KAM disclosure is not yet investigated. Previous research investigated the implications of communicative characteristics for the annual report. However, less work has been carried out regarding how accounting standard systems affect auditor's role and behavior and, in particular, how they impact the readability of auditors' reports.

Our study is important for several reasons. The disclosure of KAMs is not standardized, but rather is affected by the circumstances of the audit and the auditor's professional judgement. Therefore, the informational content of KAMs can differ, depending on the accounting standard upon which they are based. Differences in informational content can affect the decision-making of users. The auditor's report is the primary means of communication between the auditor and users of financial statements. KAM disclosure potentially provides decision-useful information, and the communicative effectiveness of expanded auditors' reports is influenced by the number of KAMs disclosed. Therefore, it is relevant to analyze factors that influence the likelihood of KAM disclosure. Taking into account the ongoing discussion on whether rules-based or principles-based accounting standards are superior, the impact of the accounting standard precision is of particular interest. Moreover, the auditor's report can only be decision-useful if it is understandable, which in turn requires the provision of information in a clear and concise form (ISA 700, §A5; ISA 701, §A34) (International Auditing & Assurance Standards Board, 2018a & 2018b). Thus, the auditor's report loses its usefulness if it is not readable by the users of financial statements. Consequently, it is important to investigate the determinants of auditor report readability and especially to determine whether the precision of accounting standards has a significant effect on readability.

The sample consists of FTSE 100, CAC40, and AEX 25 companies that disclosed KAMs for the 2016 fiscal year-end. We chose these indices because for these three countries (the United Kingdom (UK), France, and the Netherlands), the disclosure of KAMs was already mandatory in the auditor's report. To define the level of accounting standard precision, we use the rules-based continuum score (RBC) developed by Mergenthaler (2009) and validated in Donelson et al. (2012), which was computed by Morais (2020) for the European context. We assume that a standard with more rules-based characteristics is more precise. Regarding the impact of the accounting standard precision on the readability of the auditor's report, we use a readability index that combines several established measures of readability (Flesch Reading Ease, Gunning Fog Index, Flesch-Kincaid Grade Level, and SMOG Grade). The results show that more precise accounting standards increase the probability of disclosing KAMs. On the other hand, our findings also suggest that the communication of KAMs related to more precise accounting standards results in a reduced readability of auditors' reports.

This paper makes several distinct contributions to the literature. First, we complement the scarce archival literature on KAM reporting by shedding light on factors that influence the likelihood of KAM disclosure. Second, we reveal determinants of expanded auditor report readability, and thereby, also contribute to the discussion on the decision-usefulness of the related reform of auditing standards.

Third, our study generates knowledge on a relatively unexplored area of investigation, namely the relationship between the precision of an accounting standard (principles- vs. rules-based system) and the disclosure of KAMs. The fact that an accounting standard is more or less rules-based is particularly important, as previous studies show that the level of accounting standard precision influences financial reporting decisions, which has implications for both preparers and auditors (Cohen, Krishnamoorthy, Peytcheva, & Wright, 2013; Jamal & Tan, 2010; Nelson, Elliot, & Tarpley, 2002; Salterio & Koonce, 1997; Segovia, Arnold, & Sutton, 2009; Trompeter, 1994). This paper contributes to the debate on the implications and consequences of principles- versus rules-based accounting systems. In the US, some authors claim that US generally accepted accounting principles (GAAP) should adopt more principles-based standards (Donelson et al., 2012), while Morais (2020) provides evidence that in Europe, standards are becoming more rules-based. We expand the existing research on the impact of accounting standard types by demonstrating that this also affects auditors' reporting decisions.

Fourth, our results show that the probability of issuing a KAM increases with higher precision levels of the accounting standard. This may mean that more rules-based accounting standards require more audit work and that a need to increase fees may arise, in order to compensate for additional tests or to include a risk premium. Fifth, this study is also important as it provides empirical evidence that higher levels of accounting standards precision reduce readability and, thus, may reduce the understandability of expanded auditors' reports. Consequently, our findings provide further arguments for those who suggest that more rules-based accounting standards may increase complexity, making it more difficult to communicate KAMs based on this type of accounting standards. Finally, our results also indicate that KAM reporting differs by country, suggesting that institutional effects influence expanded auditors' reports and should be considered in cross-country studies.

Our results are of interest to academics, as they provide evidence on how the level of accounting standard precision influences auditor judgement with consequences for KAMs identification and communication. This contributes to the debate on the costs and benefits of the type of accounting standard regimes (rules- vs. principles-based systems). Our findings may also be useful to standard-setters and regulators by improving their understanding of how the characteristics of accounting standards may impact financial reporting disclosures and auditor communication.

The remainder of the paper is organized as follows: Section 2 provides an overview of the regulatory environment and Section 3 reviews the relevant literature and develops hypotheses. The research design is described in Section 4, followed by information on the sample in Section 5. Section 6 presents the empirical results, and Section 7 states the main conclusions.

2. Current regulatory environment

The 2014 European Union (EU) regulation on specific requirements regarding the statutory audit of public-interest entities expanded the content of the auditor's report in order to increase stakeholder confidence in the financial statements of the audited entity. For this reason, Article 10 of the regulation stipulates that the auditor's report shall provide, in support of the audit opinion, a description of the most significant risks of material misstatements due to error or fraud, a summary of the auditor's responses to those risks, and key observations arising with regard to them. The auditor shall also refer to the related disclosures in the financial statements.³ Despite a deviation in wording, the required description of the most significant risks of material misstatements can be qualified as equivalent to KAMs.

In 2015, the IAASB issued ISA 701, Communicating Key Audit Matters. This standard is mandatory for audits of all listed firms' financial statements for periods ending on or after December 15, 2016. The standard defines KAMs and requires the auditor to set out, in a separately identified section of the audit report and with an appropriate subheading, those matters that, in the auditor's professional judgement, were of most significance in auditing the financial statements of the current period. Of all the matters on which they communicated with the firm's governance, auditors should select those matters as KAMs that "required significant auditor attention in performing the audit" (ISA 701, §9). In this assessment, auditors should consider areas of higher assessed misstatement risk, significant auditor judgements relating to areas in the financial statements that involved significant management judgement, including accounting estimates identified as having high estimation uncertainty, and the effect on the audit of significant events or transactions that occurred during the period (ISA 701, §10). In addition to the justification as to why the matter was considered a KAM, the auditors must also explain how the matter was addressed in the audit.

Prior to the EU regulation and to ISA 701, some countries required the disclosure of KAMs. In France, the disclosure of audit matters in auditors' reports has been mandatory since 2003. The Norme d'Exercice Professionnel (NEP) 705: Justification des appréciations (Haut Conseil des Commissaires aux Comptes, 2006), explains that KAMs must be presented in a separate section of the report and include the identification of the KAM and, if possible, a reference to the notes of financial statements, a summary of the procedures performed by the auditor to support his/her assessment, and a conclusion. KAMs are generally related to the selection of accounting policies or their implementation, critical accounting estimates, and the presentation of the financial statements (NEP 705, §8).

The new model of the auditor's report for public-interest entities was introduced in the Netherlands in 2014, and is based on ISA 701 (Nadere Voorschriften Controle- en overige Standaarden (NV-COS): Het communiceren van kernpunten van de controle in de controleverklaring van de onafhankelijke accountant) (Royal Netherlands Institute of Chartered Accountants,

³ Regulation (EU) N° 537/2014 of the European Parliament and of the Council was adopted in April 2014, being effective for financial years starting on or after June 17, 2016.

2013). This new model is required for audits of public-interest entities, but is voluntary for other entities. The new auditor's report model includes a section with KAMs. The auditor must use this section to describe the main risks in the audit, how these risks were identified, and the audit activities that were carried out.

In the UK, the Financial Reporting Council (FRC) significantly changed the structure of the auditor's report in 2013, introducing disclosure requirements related to risks of material misstatement identified by the auditor which had the greatest effect on the audit strategy, resources required and the work done by the audit team, and the concept of materiality and how it is applied (International Standard on Auditing (UK and Ireland) 700) (Financial Reporting Council (FRC, 2013). Although the UK standard is slightly different as it requires additional disclosures in relation to materiality and the scoping of the audit, in practice, the overall aim is consistent.

Table 1 summarizes the similarities and differences between ISA 701 and national audit standards. It shows that the national rules are very similar.⁴

3. Literature review and hypotheses

3.1. KAM reporting

Prior research on KAM disclosure is mainly experimental and from the US, typically evaluating the decision-usefulness of KAM reporting. However, results are mixed. [Brasel, Doxey, Grenier, and Reffett \(2016\)](#) point out that KAMs will certainly not increase, but could decrease, the probability of jurors holding auditors liable. Equally, [Kachelmeier, Schmidt, and Valentine \(2017\)](#) find general support for the conclusion that KAM disclosures decrease assessments of auditor responsibility when the misstatement is in the same area as the KAM.

In contrast, [Gimbar et al. \(2016\)](#) reveal an increased auditor liability, particularly when KAMs are related to precise accounting standards. Similarly, [Backof, Bowlin, and Goodson \(2017\)](#) demonstrate a negative impact on the assessment of auditor negligence, but only when the KAM paragraph includes a description of the related audit procedure.

[Christensen, Glover, and Wolfe \(2014\)](#) demonstrate that a KAM on fair value estimates results in an increased likelihood that nonprofessional investors change their investment decision. On the other hand, [Carver and Trinkle \(2017\)](#) show that the disclosure of a KAM negatively affects the perceived readability of the auditor's report, but has no impact on its informational content for investors. Likewise, [Boolaky and Quick \(2016\)](#) find that KAMs on uncertainties related to an environmental claim and to the company's structured financial instruments do not impact the credit-granting decisions of German bank directors.

[Cade and Hodge \(2014\)](#) analyze the effect of expanding the audit report on managers' communication openness. Their results reveal that additional accounting-estimate details in the audit report reduce manager willingness to share private information with their auditors. A disclosure focused on audit procedures does not have the same adverse effect. [Kachelmeier, Rimkus, Schmidt, and Valentine \(2019\)](#) test the effects of disclosing a KAM, showing that such a disclosure lowers user perceptions of audit assurance and responsibility. This finding is robust to the presence or absence of disclosed KAM-related audit procedures. Using eye-tracking technology, [Sirois, Bédard, and Bera \(2017\)](#) discover that KAMs have an attention directing impact.

Archival research on KAM reporting is still limited. Based on a sample of French Justifications of Assessment from the years 2000–2011, [Bédard et al. \(2019\)](#) do not find significant financial market reactions to such disclosures. The authors also fail to demonstrate a significant effect on earnings management, audit fees, and the audit report lag. In a similar vein, based on a sample of UK non-financial companies, [Gutierrez, Minutte-Meza, Tatum, and Vulcheva \(2018\)](#) conclude that the expanded auditor's report provides little incremental information to investors. They also do not find evidence that the regulatory change affects audit fees and audit quality. Likewise, [Lennox et al. \(2019\)](#), who measure investor responses to KAMs, indicate that KAM disclosures lack incremental information content. They conclude that investors were already informed about the related risks before KAM reporting. [Sierra-García, Gambetta, García-Benau, and Orta-Pérez \(2019\)](#) analyze the impact of auditor and client characteristics on the magnitude and type of disclosed KAMs (i.e. entity-level-risk vs. account-level-risk KAMs) of FTSE 100 companies for the period 2013–2016. They reveal differences between the Big 4 audit firms. Audit fees are positively correlated with the number of entity-level-risk KAMs, and negatively correlated with the number of account-level-risk KAMs. To the best of our knowledge, archival research on the impact of the accounting standard precision on the extent and readability of KAM reports has not yet been conducted.

3.2. Impact of the precision of accounting standards on auditing

Literature on the impact of different types of accounting standards on auditing (rules- vs. principles-based accounting standards) is scarce and focuses on the effect on litigation against reporting companies and auditors ([Cornell, Magro, & Warne, 2017](#); [DiPiazza et al., 2008](#); [Donelson et al., 2012, 2016](#); [Johnson, 2008](#); [Kothari, Ramanna, & Skinner, 2010](#); [Schipper, 2003](#)) and auditor ability to constrain aggressive reporting ([Cohen et al., 2013](#); [Donelson et al., 2016](#); [Hackenbrack & Nelson,](#)

⁴ For details regarding the environmental setting of these countries see e.g. [Baker, Mikol, and Quick, \(2001\)](#); [Baker, Bédard, & Prat dit Hauret, 2008](#); [Meuwissen and Wallage \(2008\)](#), and [Turley \(2008\)](#).

Table 1
Similarities and differences between ISA 701 and national audit standards.

	IAASB	France	The Netherlands	UK
Standard	ISA 701 – Communicating Key Audit Matters	NEP 5 NEP-705. Justification des appréciations	ISA 701 (Nadere Voorschriften Controle- en overige Standaarden (NV-COS): Het communiceren van kernpunten van de controle in de controleverklaring van de onafhankelijke accountant Medium and large companies.	ISA (UK) 701 – Communicating key audit matters in the independent auditor's report
Scope	Listed firms.	All firms subject to statutory audits (including listed firms).		Firms subject to UK Corporate Code (including listed firms).
Effective date	Audits of financial statements for periods ending on or after December 15, 2016.	Audits of financial statements for periods ending after 2006 and before December 15, 2016.	Audits of financial statements for periods ending on or after December 15, 2014 and before December 15, 2016.	Audits of financial statements for periods beginning on or after October, 1, 2012 and before December, 15, 2016.
Definition	KAMs are matters that in the auditor's professional judgement, are of most significance in the audit of the financial statements of the current period.	Justification of assessments is an explanation of the assessments made by the auditor and a statement of reasons for the opinion expressed.	Key points of the audit are issues that were most significant in the professional opinion of the auditor in the audit of the financial statements of the current audit period.	Auditors describe risks of material misstatement that had the greatest effect on the audit and how the auditor addressed those risks.
Assessment	Auditors should consider areas of higher assessed risk of misstatement, significant auditor judgements relating to areas in the financial statements that involved significant management judgement, including accounting estimates that have been identified as having high estimation uncertainty, and the effect on the audit of significant events or transactions that occurred during the period.	Without prejudice to other assessments that the auditor considers necessary, the assessment relates to factors determining the understanding of accounts, in particular, assessments of: the options used in the choice of accounting methods or in their implementation methods when they have a major impact on the entity's profit or loss, financial position or overall presentation of the accounts; significant accounting estimates, particularly those lacking objective data and involving professional judgement in their assessment; the overall presentation of the annual and consolidated financial statements, whether it concerns the content of the appendix or the presentation of the summary statements.	Auditors should consider areas with increased or significant risk of material misstatement due to errors or fraud; significant judgements of the auditor in relation to areas in the financial statements that involved significant management judgements including estimates with high estimation uncertainty; or the effect on the audit of significant events or transactions that occurred during the period.	Less guidance for auditors about how to determine the risks but the factors considered should be similar.
Audit report	In a separate section of the auditor's report under the heading "Key Audit Matters," after the expression of the auditor's opinion.	In a separate section, after the section relating to the expression of the auditor's opinion.	In a separate section of the auditor's report under the heading "Key Audit Matters," after the expression of the auditor's opinion.	In a separate section of the auditor's report under the heading "Key audit matters", after the expression of the auditor's opinion.
Application and Other Explanatory Material	Included.	Not included.	Not included.	Not included.

1996; Jamal & Tan, 2010; Kadous & Mercer, 2016; Mayhew, Schatzberg, & Sevcik, 2001; Nelson et al., 2002; Peytcheva et al., 2014; Segovia et al., 2009; Ng & Tan, 2003; Trompeter, 1994).

Although the evidence is mixed, several previous papers show that the precision of accounting standards affects auditor behavior and litigation. Some argue that accounting standards with a higher level of precision safeguard firms from litigation and criticism (Donelson et al., 2012; Kothari et al., 2010; Schipper, 2003), and reduce after-the-fact disputes with regulatory entities. In fact, more precise accounting standards can indeed shield companies from litigation, because they can argue convincingly that they followed the rules in the standards (Donelson et al., 2012; Kothari et al., 2010; Schipper, 2003). The rules also provide a clear path for plaintiffs (Cornell et al., 2017; Donelson et al., 2012). Companies can hide behind the accounting rules or make mistakes and then blame the complexity of accounting standards. Accordingly, plaintiffs will tend to use accounting standards that are less precise due to the protection provided by rules-based accounting standards (Donelson et al., 2016).

Others claim that more precise accounting standards can become useless as the context changes and users develop new needs, and that this may even increase the likelihood of a lawsuit, as the violation of a clear specific rule is probably intentional (Donelson et al., 2012; Benston et al., 2006; Boone, Linthicum, & Poe, 2013). Other studies also show that auditors assume that the adoption of less precise accounting standards will result in more estimates and in greater legal liability (Cornell et al., 2017; DiPiazza et al., 2008; Johnson, 2008). Finally, the precision of rules-based accounting standards may help to establish intent. If the accounting standard has a clear rule, it is less plausible that managers would unintentionally violate that clear rule. Therefore, rules-based accounting standards tend to lead to more litigation (Donelson et al., 2012).

The effect of accounting standards on auditor behavior suggest that auditors are more likely to constrain management's aggressive reporting under less precise accounting standards (Cohen et al., 2013; Hackenbrack & Nelson, 1996; Jamal & Tan, 2010; Mayhew et al., 2001; Nelson et al., 2002; Ng & Tan, 2003; Segovia et al., 2009; Trompeter, 1994). Greater judgement flexibility and a sense of process accountability under less precise rules lead auditors to focus on the economic substance of the issue, and consequently constrain management's aggressive reporting under such an accounting system (Cohen et al., 2013; Peytcheva et al., 2014). In contrast, it would be more difficult for auditors to constrain aggressive reporting under more precise accounting standards. Kadous and Mercer (2016) also find that when the client engages in aggressive accounting, the flexibility of principles-based standards works in favor of auditors: mock juries return fewer verdicts against auditors in a principles-based regime.

However, the impact of the precision of accounting standards on the auditor's report, in general, and on the KAM section, in particular, has not yet been the subject of auditing research. Assuming that the precision of accounting standards influences auditor behavior, we may expect accounting standards characteristics to impact the disclosure of KAMs by auditors.

According to moral licensing theory, the disclosure of a KAM can reduce the skeptical judgement of auditors. Moral licensing theory states that, under certain circumstances, a person's virtue licenses them to act less than virtuously (Merritt, Effron, & Monin, 2010). Miller and Effron (2010) identify two different versions of licensing. The first one, moral credits, states that good deeds can be seen as moral credits that can be used to "buy" bad deeds. According to this version, people feel licensed to do bad deeds, because their past behavior has earned them that right. The second one, moral credentials, states that past good deeds change the meaning of subsequent behavior. Therefore, when the motivation for current behavior is ambiguous, it is clarified in line with past behavior.

The application of the moral licensing theory to auditing may result in an incentive for auditors to agree with the clients' accounting treatment, believing that the disclosure is sufficient to ensure that users of financial information are informed (Griffin, 2014). The disclosure of a KAM and the description of the audit procedures performed can also lead to the auditor's perception that adjustments to financial statements are less necessary (Asbhar & Ruhnke, 2019). Therefore, KAM disclosure can be seen as a kind of defense (Asbhar & Ruhnke, 2019), and is more relevant for KAM related to accounting standards for which auditors have more difficulty in constraining management's aggressive reporting, i.e., more precise accounting standards. For imprecise standards, it is more unclear whether the client has complied with GAAP (Gimbar et al., 2016).

Based on congruity theory, Ozlanski (2019) finds that the effect of KAM on investor perceptions of management's reporting credibility is observed when the KAM disclosure is governed by a precise accounting standard. Under more imprecise accounting standards, the perceptions of financial information users already incorporate the flexibility and uncertainty of those standards, so that the KAM disclosure is congruent with existing expectations. Therefore, we can assume that auditors have more incentive to disclose a KAM related to precise accounting standards, as a way of improving the quality of financial information provided.

Since it would be more difficult for auditors to constrain aggressive reporting under more precise accounting standards, we can expect auditors to tend to use KAMs as a way of providing sufficient information about the accounting treatment adopted. We therefore state the following hypothesis:

H1. *Accounting standards with a higher level of precision increase the likelihood of a KAM disclosure.*

3.3. Impact of the accounting standard precision on readability

Financial reports contain a large amount of textual information which is fundamental for providing useful information for decision making. The way managers communicate this information can reveal certain managerial characteristics or incentives which may have significant implications for understanding corporate decisions (Li, 2011).

In this context, with the aim of better understanding manager behavior, there is a growing trend of research applying textual analysis of corporate disclosures regarding information content, earnings quality, and stock market efficiency, among others (Davis, Piger, & Sedor, 2011; Hirshleifer & Teoh, 2003; Li, 2011). Some authors conclude that managers use complex disclosure in a strategic way to obfuscate bad performance, bad news, or earnings management practices (Li, 2008; Lo, Ramos, & Rogo, 2017). While other authors believe that financial reporting complexity⁵ may result from business operations or complex accounting standards and regulations (Bloomfield, 2008; Dyer, Lang, & Stice-Lawrence, 2017). On the assumption that financial reporting complexity is driven by accounting standards, Chychyla, Leone, and Minutti-Meza (2019) find that accounting expertise mitigates the adverse effects of it.

Nelson (2003) states that the precision of accounting standards influences preparers of financial reporting and the communication accuracy of a standard. Nelson argues that one way to increase such accuracy is to intensify its precision by including more rules. Nevertheless, Nelson notes that more rules can also increase the complexity of the standard with an adverse effect on its communication. In this context, we may expect the level of accounting standard precision to influence the way managers communicate financial information, with implications for financial reports' readability.

In prior literature, the effect of the accounting standard precision on corporate disclosure narratives is mainly analyzed with regard to full financial reports. Less is known regarding the influence of the standards' level of precision on auditor reports. However, auditor reports reinforce the financial communication and reliability of accounting information, and are considered to be frequently-used communication tools (Fakhfakh, 2015). Based on auditor reports of consolidated financial statements in Tunisia, Fakhfakh (2016) finds that the linguistic quality of these reports is fundamental to enhancing the credibility and legitimacy of auditors. Using the International Federation of Accountants (IFAC) illustrative reports, Fakhfakh (2013) provides evidence that auditor reports are not fully readable and understandable, thus limiting their informative value. Gold, Gronewold, and Pott (2012) find that the presence of explanations in ISA auditor's report does not reduce the expectation gap between financial statement users and auditors. Hay (1998) provides evidence that audit firm structures influence the readability of the auditor's report.⁶ According to Hay, structured audit firms are more efficient in auditing clients in stable environments, and therefore, users of these clients' financial reports are not as demanding regarding the readability of auditors' reports.

Therefore, based on previous literature regarding the readability of the full annual report, we may expect the level of precision and complexity of accounting standards underlying KAMs disclosure to have an impact on the readability of the auditor report. The direction of influence of the level of accounting standard precision on the readability of the auditor report will depend on the complexity of these accounting standards, which in turn will influence the communication of KAMs (Nelson, 2003).

Previous literature on the readability of the full annual report presented conflicting results regarding this topic. Studies on mandatory International Financial Reporting Standards (IFRS) adoption, which is characterized by being a more principles-based accounting system, confirm that the level of precision of accounting standards may influence textual characteristics. This debate includes, among other topics, the relevance of firms' narrative disclosure in the IFRS adoption setting. Some authors find that IFRS can lead to more complex annual report narrative disclosures, creating communications problems (Nelson, 2003; Richards & Van Staden, 2015). While others conclude that financial disclosures are more readable in the post-IFRS adoption period (Cheung & Lau, 2016; Lang & Stice-Lawrence, 2015) or that the IFRS adoption impacts on the content, nature and relevance of firm's narrative disclosure (Wee, Tarca, & Chang, 2014).

While principles-based accounting standards require more professional judgement and estimates, previous literature argues that more rules-based accounting standards are perceived to be more detailed and complex, and have numerous scope exceptions (Nelson, 2003; Schipper, 2003). Bradbury and Schröder (2012) conclude that rules-based standards have more rules, justifications, and scope exceptions than principles-based accounting standards. Therefore, these authors consider rules-based accounting standards more verbose and complex. Using the International Accounting Standards Board (IASB) framework, Morais (2020) provides evidence that rules-based standards tend to be amended and revised more than principles-based standards, which may increase the complexity of this type of accounting standards. However, rules-based standards could also lead to very specific and clearer disclosures, while principles-based standards may lead to more complex KAM reports, as they are based more on judgements and estimates (Richards & Van Staden, 2015). Thus, an opposite impact direction cannot be excluded.

Considering that opposing effects can occur regarding the influence of the precision level on the readability of auditors' report, we state our second hypothesis without making explicit the direction of such influence:

H2. The level of precision of accounting standards influences the readability of auditors' reports.

⁵ According to FRC (2009), complexity is anything that makes corporate reporting regulations or the reports themselves unnecessarily difficult to understand, implement, or analyze.

⁶ There is no precise definition of readability. Based on different concepts from the linguistic literature, Loughran and McDonald (2014) define readability as being the ability of individual investors and analysts to assimilate valuation-relevant information from a financial disclosure. We adopt this definition in the present paper.

4. Research design

4.1. Likelihood of KAM disclosure

To test whether the precision of an accounting standard increases the likelihood of a KAM disclosure, we use a dataset containing a separate observation for each accounting standard for each firm, resulting in 40 observations for each firm. KAMSTD is a dummy variable which takes the value of 1 if the auditor discloses a KAM for firm *i* with regard to an accounting standard *j*, and 0 otherwise. Therefore, we test our hypothesis that greater precision in a standard is associated with the likelihood of a KAM (H1), using the following logit model:

$$\begin{aligned} \text{Prob}(KAMSTD = 1) = & \beta_0 + \beta_1 RBC + \beta_2 AGE + \beta_3 MoU + \beta_4 SIZE + \beta_5 LEV + \beta_6 AUDITFEE + \beta_7 SEGMENT \\ & + \beta_8 TENURE + \beta_9 PROF + \beta_{10} FYE + \beta_{11} INDFI + \beta_{12} INDU + \beta_{13} COUNTRYD + \varepsilon \end{aligned} \quad (1)$$

All variables are defined in [Appendix A](#). To measure the level of accounting standard precision, we used the rules-based characteristics (RBC) following [Mergenthaler \(2009\)](#) and validated in [Donelson et al. \(2012\)](#). This score shows the presence of rules-based characteristics in an accounting standard: (1) level of detail as the total number of words in each accounting standard; (2) volume of implementation guidance as the total number of Standards Interpretation Committee (SIC)/International Financial Reporting Interpretations Committee (IFRIC) interpretations and application guidance for each accounting standard; (3) bright-line thresholds as the total number of such thresholds in each accounting standard; and (4) exceptions as the total number of exceptions in each accounting standard. For each criteria the difference between the observed value and the average value is scaled by the related standard deviation. The RBC score is then calculated as the sum of the four results. The higher the RBC score, the more rules-based characteristics the accounting standard contains. We used RBC scores computed through this methodology for International Accounting Standards (IAS) and IFRS in [Morais \(2020\)](#).

As in [Boone et al. \(2013\)](#), we included the variable AGE to control for differences in compliance uncertainties that arise due to the length of time the accounting standard has been in effect. We expect a negative coefficient, as newer standards tend to involve transactions that are more complex and are often more rules-based ([Donelson et al., 2012](#)).

Accounting standards included in the Memorandum of Understanding (MoU) between the Financial Accounting Standards Board (FASB) and the IASB are becoming closer to US accounting standards - which are more rules-based ([Donelson et al., 2012](#)). Therefore, we predict a positive coefficient for the variable MoU.

Previous studies show that larger companies also have more power to negotiate with audit firms in terms of audit fees ([Casterella, Francis, Lewis, & Walker, 2004](#); [Huang, Liu, Raghunandan, & Dasaratha, 2007](#)) and that large clients are able to impose more pressure on auditors to disclose fewer KAMs. However, we expect a positive relationship between larger companies (SIZE) and KAMs, due to the higher complexity of this type of firm.

In general, higher leverage (LEV) involves higher client financial risk. As the financial risk of a firm increases, auditors tend to review this firm more thoroughly, increasing their effort and fees ([Nelson, Ronen, & White, 1988](#)). An increase in auditor's effort to reduce liability risk tends to improve the audit procedures and, therefore, the identification of KAMs.

Regarding the impact of audit fees, the results may be the opposite. Previous literature found that a higher perceived client risk is associated with higher audit fees ([Lyon & Maher, 2005](#)). Using a text mining approach, [Yang, Yu, Liu, and Wu \(2017\)](#) show that audit fees are positively related to firm-specific financial, strategic, and operational risks. In this context, we predict a positive association between the probability of disclosure of a KAM and audit fees (AUDITFEE). Nevertheless, higher audit fees can be associated with less independence ([DeAngelo, 1981](#)), and consequently, auditors may be less likely to disclose a KAM.

We can expect an increase in the probability of KAM disclosure for more complex firms, as there are more areas of risk. Following previous studies ([Bédard, Hoitash, & Hoitash, 2008](#)), we use the number of segments (SEGMENT) as a proxy for complexity.

The literature found that when auditor tenure is longer, the quality of financial reporting is higher, the absolute value of unexpected accruals is lower, accruals are more persistent ([Johnson, Khurana, & Reynold, 2002](#)), and the likelihood of fraud is lower ([Carcello & Nagy, 2004](#)). Therefore, we expect a negative relationship between auditor tenure (TENURE) and the probability of KAM disclosure.

Profitability is generally associated with future viability. Therefore, firms with higher profitability tend to have fewer active problems and to receive an unqualified audit opinion ([Laitinen & Laitinen, 1998](#); [Loebbecke, Eining, & Willingham, 1989](#); [Beasley et al., 1999](#)). Thus, we expect less KAM disclosure in the case of firms with higher profitability (PROF).

The 31st of December is the most common fiscal year-end in Europe, the period around this date being known as the auditor's "busy season" ([Hay, Knechel, & Wong, 2006](#)). It may be difficult to carry out all the audit procedures during this period, which may lead auditors to disclose more KAMs in order to reduce auditor liability. Nevertheless, the opposite effect may also occur, considering that during the busy season, the pressure on auditors is higher, and consequently, auditors may detect fewer areas of risk. Therefore, we do not predict the direction of the association between the auditor's busy season (FYE) and the likelihood of a KAM disclosure.

Financial institutions are viewed by several authors as difficult to audit, due to their greater complexity, opacity, and agency conflicts (Hay et al., 2006; Simunic, 1980). Banks and insurance companies have specific assets and liabilities such as financial instruments and industry-specific provisions, for which measurement is complex and which are hence difficult to audit (Ettredge, Xu, & Yi, 2014; Fields, Fraser, & Wilkins, 2004). In this context, we would expect a higher probability of KAM disclosure due to the higher risk associated with these audits. Nevertheless, as financial institutions, and likewise utilities, are highly-regulated sectors with a possible joint effect between regulators and auditors in firm's monitoring, which may reduce risk-taking (Ghosh, Jarva, & Ryan, 2017), we expect firms in these two industries (INDFI, INDU) to have fewer KAM disclosures.

4.2. Readability of auditor's reports

To measure readability, several formulas have been proposed and are applied in several areas, such as education, health care, accounting, and finance (Fakhfakh, 2013; Henry & Leone, 2016; Loughran & McDonald, 2014). Examples of these indicators are the Flesch-Kincaid Grade Level, the Gunning Fog Index, and the SMOG Grade. These formulas measure readability, or predict the level of education necessary for understanding the text, based on linguistic criteria, such as average sentence length, complex words, average word length, and the number of sentences.

As in Li (2008), we first use the Gunning Fog Index (FOG) for measuring readability. The index approximates the number of years of formal education a reader needs to understand the text. A higher score indicates that the text is more difficult to read. Nevertheless, to ensure that our results are not dependent on a single measure, following Guay, Samuels, and Taylor (2016) we construct a readability index (INDREAD) that combines several established measures of readability, namely: Flesch Reading Ease, Gunning Fog Index, Flesch-Kincaid Grade Level, and SMOG Grade. A higher score for the Flesch Reading Ease means that the readability is higher. However, we define INDREAD in such way that higher values correspond to less readable texts. Appendix B contains information about these measures and presents the results of our principal component analysis. The analysis shows that only one factor has an eigenvalue higher than one (3.66), and that this factor (Gunning Fog Index) explains 91.5% of the variation in these measures.

To test whether the level of precision of accounting standards has any influence on auditor behavior, and consequently on the level of readability of auditor's reports, we estimate the following model:

$$\begin{aligned} \text{READ} = & \beta_0 + \beta_1 \text{SUMRBC} + \beta_2 \text{NKAM} + \beta_3 \text{SIZE} + \beta_4 \text{ARLENGTH} + \beta_5 \text{VOL} + \beta_6 \text{SEGMENT} + \beta_7 \text{DLOSS} \\ & + \beta_8 \text{RECINV} + \beta_9 \text{LEV} + \beta_{10} \text{PROF} + \beta_{11} \text{INDFI} + \beta_{12} \text{INDU} + \beta_{13} \text{COUNTRYD} + \varepsilon \end{aligned} \quad (2)$$

All variables are defined in Appendix A.

Larger firms (SIZE) are expected to have longer and more complex annual reports which are less readable (Li, 2008), meaning that it is more difficult to communicate the areas of risk in the auditor's report. Companies with greater stock returns volatility (VOL) should have more difficulty in communicating their business performance (Li, 2008), which may have an impact on the communication of risks in the auditor's report, i.e. less readability. In line with the volatility argument, we expect a positive coefficient for the variable SEGMENT, as more complex firms display a higher probability of having a KAM, and thus the communication of this information may be more difficult and less readable.

In previous literature, the length of a document is often related to its readability (Lang & Stice-Lawrence, 2015). Li (2008) finds that longer documents do seem indeed more difficult to read. In this context, we expect a positive coefficient between ARLENGTH and READ.

We expect a positive coefficient for firms with a negative net income (DLOSS), as firms with no profits have greater incentives to obscure bad news and provide less transparent information. Hence, the difficulty of reporting a KAM increases and the auditor report may be less readable (Lim, Chalmers, & Hanlon, 2018). In line with the argument for DLOSS, we expect a negative coefficient for PROF, as firms with higher profitability present more transparent information and, therefore, auditors are able to communicate areas of risk more easily, making the auditor's report more readable.

Higher leverage (LEV) firms are financially more complex, which may increase the difficulty of reporting the outcome of auditor's work and, therefore, the auditor's report may become less readable.

Revenue recognition is a tricky piece of financial accounting, has a direct impact on income, and truly challenges auditors. Therefore, it is not surprising that IAS 18 on revenue recognition is the second most commonly referred standard in the KAM sections of the sampled auditor reports (see Table 3). We include the variable RECINV, because receivables and inventory are closely related to revenue. The literature also refers to inventory and receivables as two areas that have a higher probability for misstatements (i.e. a higher inherent risk) and that are more difficult to audit. In a study on the implications of internal control on financial reporting, Feng, Li, McVay, and Skaife (2015) explore the effect of inventory-related material weaknesses in internal control on firm operations, because inventory is a critical component of firm strategy and risk. Mascha, Lamboy-Ruiz, and Janvrin (2018) find that Public Company Accounting Oversight Board (PCAOB) inspection reports identify higher internal control audit deficiencies regarding revenue, inventory, and accounts receivable. Based on a review of 23 studies on audit pricing published between 2004 and 2006, Wu, Wan, and Yan (2018) conclude that following conventional audit pricing theory 74% of these studies include the inventory variable to control for audit risk and/or audit complexity. Considering the

Table 2
Descriptive Statistics.

Panel A: Descriptive statistics for continuous variable					
	Mean	Median	Standard Deviation	Min	Max
NKAM	3.84	4.00	2.08	0.00	9.00
SIZE	16.91	16.73	1.91	4.24	21.46
LEV	0.23	0.22	0.15	0.00	0.69
AUDITFEE(%)	0.025	0.021	0.019	0.00	0.075
PROF	0.06	0.06	0.07	−0.26	0.37
ARLENGTH (number of words)	115,396	108,417	59,322	2506	282,720
VOL	0.07	0.66	0.03	0.03	0.21
SEGMENT	4.52	5.00	2.72	0.00	10.00
RECINV	0.21	0.17	0.17	0.00	0.92

Panel B : Mean, median and frequencies for dichotomous variables					
	Mean	Median	N ^a Firms coded = 1	N ^a Firms coded = 0	Total Firms
FYE	0.72	1	97	38	135
INDFI	0.18	0	25	110	135
INDU	0.04	0	6	129	135
DLOSS	0.05	0	7	128	135

Notes: Pooled sample descriptive statistics. All variables are defined in [Appendix A](#).

higher complexity and inherent risk associated with inventory and receivables in the auditing process ([Hay et al., 2006](#); [Hay, 2013](#); [Hohenfels & Quick, 2018](#); [Simunic, 1980](#)), we expect a negative relationship with the readability of auditors' reports.

Despite the higher complexity of firms in the financial and utilities sector, we expect firms in these two industries (INDFI, INDU) to have more readable auditor's reports. As these companies operate in a regulated sector, there is a possible joint effect between regulators and auditors in the monitoring of firms, resulting in a positive effect on the reduction of risk-taking ([Ghosh et al., 2017](#)).

5. Sample and data

We use a sample of FTSE 100, CAC 40, and AEX 25 companies that disclosed KAMs at the 2016 fiscal year-end. We chose these three indices because although the Regulation (EU) No 537/2014 is only effective for financial years starting on, or after June 17, 2016, firms listed in these three indices were disclosing KAMs in earlier auditor's reports. As already mentioned, the requirements related to KAM disclosures are similar in the three countries. We hand-collected information regarding the number of KAMs and the accounting standards associated with these KAMs. Firm-level characteristics, such as market value, total assets, earnings before interest and taxes (EBIT), audit fees, and leverage were obtained from Datastream for 2015 and 2016.

The analysis of linguistic characteristics and readability scores is assisted by a readability analyzer. This software provides several characteristics of the text (number of sentences, words per sentence, etc.) and also the readability scores used in our study (Flesch Reading Ease, Gunning Fog Index, Flesch-Kincaid Grade Level, and SMOG Grade). The electronic copy of the report in English was downloaded from financial reports to analyze all linguistic features. Header information was deleted.

We first began with a sample of 159 firms. However, financial statements for 6 firms were not available and 18 companies did not disclose any KAMs in the auditor's report. [Table 2](#) provides descriptive data for the sample of 135 companies. The mean number of KAMs for the companies in our sample is 3.8, with a minimum of 0, and a maximum of 9. 61, and 45% of firms disclosed more KAMs than the sample average. Our sample includes large firms, as it only includes the listed companies of three main European countries. Firms in the sample are not highly leveraged, with debt representing 23% of total assets on average. Financial institutions represent 18% of our sample. Regarding the regression models, the number of firms is lower due to missing values for independent variables.

As seen in [Table 3](#), the accounting standards most often cited in KAMs are IAS 36 – Impairments of Assets (63% of auditor's reports), IAS 18 – Revenues (46%), IAS 37 – Provisions, Contingent Liabilities and Contingent Assets (41%), and IAS – 12 Income Taxes (37%). The impairment of goodwill, revenue recognition, provisions, and taxation exposure are frequently disclosed as areas of risk by auditors.

Considering the correlation matrix, the un-tabulated results indicate that correlations between variables are low. The highest correlation value is −0.39, between SIZE and AUDITFEE, which suggests that our tests have no multicollinearity concerns.

[Table 4](#) shows descriptive statistics regarding the linguistic and readability characteristics of expanded auditor's reports for our sample. For all three countries, we analyzed the auditor's reports in English. With respect to linguistic characteristics, we observe that auditor's reports, on average, have less than 15 words per sentence (mean of 8.4 words per sentence), which represents a low level of difficulty ([Fakhfakh, 2015](#)). Additionally, the number of characters per word (mean of 5.4) indicates a moderate level of difficulty ([Fakhfakh, 2015](#)).

Table 3

KAMs by accounting standards.

	RBC	AGE	France (32 reports)	The Netherlands (21 reports)	Number of reports with a KAM The UK (82 reports)	Total (135 reports)
IAS 39 – Financial instruments: recognition and measurement	11.17	12	8 (21%)	1 (4%)	40 (41%)	49 (31%)
IAS 38 – Intangible assets	5.06	13	4 (10%)	2 (9%)	15 (15%)	21 (13%)
IFRS 3 – Business combinations	4.87	12	4 (10%)	11 (48%)	19 (20%)	34 (21%)
IAS 37 – Provisions, contingent liabilities and contingent assets	3.52	13	14 (36%)	5 (22%)	46 (47%)	65 (41%)
IAS 1 – Presentation of Financial Statements	3.42	13	0 (0%)	2 (9%)	14 (14%)	16 (10%)
IAS 18 – Revenue	2.55	13	5 (13%)	9 (39%)	59 (61%)	73 (46%)
IAS 8 – Accounting policies, changes in accounting estimates and errors	2.17	13	0 (0%)	1 (4%)	4 (4%)	5 (3%)
IAS 12 – Income taxes	2	13	13 (33%)	12 (52%)	34 (35%)	59 (37%)
IAS 36 – Impairment of assets	1.8	13	29 (74%)	13 (57%)	58 (60%)	100 (63%)
IFRS 4 – Insurance contracts	0.96	12	2 (5%)	6 (26%)	7 (7%)	15 (9%)
IAS 16 – Property, plant and equipment	0.52	13	0 (0%)	3 (13%)	19 (20%)	22 (14%)
IAS 19 – Employee benefits	0.12	13	8 (21%)	2 (9%)	30 (31%)	40 (25%)
IAS 11 – Construction contracts	–0.92	13	2 (5%)	1 (4%)	1 (1%)	4 (3%)
IFRS 5 – Non-current assets held for sale and discontinued operations	–0.96	12	0 (0%)	4 (17%)	4 (4%)	8 (5%)
IAS 2 – Inventories	–1.33	13	0 (0%)	0 (0%)	17 (18%)	17 (11%)
IAS 40 – Investment property	–1.56	13	1 (3%)	0 (0%)	3 (3%)	4 (3%)
IFRS11 – Joint arrangements	–1.86	4	0 (0%)	1 (4%)	0 (0%)	1 (1%)
IAS27 – Separate financial statements	–2.32	13	0 (0%)	1 (4%)	2 (2%)	3 (2%)
IFRS 13 – Fair value measurement	–2.37	4	0 (0%)	1 (4%)	1 (1%)	2 (1%)

Note: All variables defined in [Appendix A](#).

Our findings show that French auditor's reports are distinctly shorter, consistent with [Bédard et al. \(2008\)](#).⁷ The length of the auditor's report may indicate less relevant information ([Zeghal, Maingot, & Tassé, 1999](#)) or documents that are easy to read ([Guay et al., 2016](#)). Moreover, it should be noted that French firms, on average, only disclose 2.85 KAMs in 2016 as opposed to 4.1 KAMs for British and Dutch firms (untabulated values). Considering that the length of the auditor's report is dependent on the number of KAMs disclosed, we use the different readability formulas available in the literature, instead of the number of difficult words and sentence length, to conduct the readability analysis.

The results demonstrate that French reports are the easiest to read. The Flesch Reading Ease (FRE) scale ranges from 0 to 100. Higher FRE scores indicate easier-to-read documents ([Richards & Van Staden, 2015](#)). For French auditor's reports, the mean FRE score is 45 versus 41 for the UK and 36 for the Netherlands. T-tests reveal that these differences are statistically significant at the 1%-level.

The higher FRE score of France can be explained by the lower number of KAMs disclosed and the fact that, in general, the auditors did not disclose how they addressed the KAMs. These national differences can be explained by the influence of culture on the consistency of implementing standards. As [Cowperwaite \(2010\)](#) shows, France has a higher power-distance index and a higher uncertainty-avoidance index. These characteristics can affect the way auditors make professional judgments and communicate with others, such as in the auditor's report. Countries with a higher power distance index tend to have more centralized decision structures and greater concentration of authority. More barriers to communication may exist between the audit team and the client, and even between the audit team and the auditor responsible for the auditor's report. Therefore, the auditor's report tends to be more formal and rely less on professional experience and on subordinates. France also has a higher uncertainty-avoidance index, which may mean that auditors tend to reduce ambiguity and attempt to provide more clarity and structure.

The other formulas measure readability as the level of education needed to understand the document. The results suggest that at least an undergraduate university level of education is needed to understand the disclosures, and based on the majority of measures analyzed, France has auditor's reports that are easier to read, while reports from the Netherlands require a higher level of education.

⁷ The percentage of difficult words is based on the rare scale ([Zechmeister, Chronis, Cull, D'Anna, & Healy, 1995](#)).

Table 4
Linguistic and readability characteristics of auditors' reports.

Characteristics:	All			UK			France			Netherlands		
	Mean	Median	Standard Deviation	Mean	Median	Standard Deviation	Mean	Median	Standard Deviation	Mean	Median	Standard Deviation
N ^a Sentences	411.0	401.0	245.1	488.7	506.5	213.6	115.0	90.0	107.9	441.0	408.0	222.2
Words per sentence	8.4	8.2	1.8	8.2	7.8	1.7	9.6	9.1	1.7	7.8	7.7	1.5
Characters per word	5.4	5.4	0.6	5.5	5.4	0.7	5.1	5.4	0.5	5.5	5.5	0.1
% difficult words	0.3	0.3	0.3	0.3	0.3	0.0	0.3	0.3	0.1	0.3	0.3	0.0
Flesch Reading ease	40.9	40.2	8.2	40.6	40.9	4.8	45.4	37.8	15.1	35.9	37.4	4.9
Gunning Fog index	14.1	14.0	1.6	14.0	13.9	1.2	14.0	15.0	2.7	14.6	14.5	1.0
Flesch Kincaid Grade	9.7	9.7	1.4	9.7	9.6	1.0	9.3	10.4	2.4	10.2	10.0	0.9
Smog grade	11.7	11.5	1.1	11.5	11.5	0.9	12.0	11.9	1.6	11.7	11.5	0.9
N ^a Firms		135			82			32			21	

Note: Flesch Reading ease, Gunning Fog index, Flesch Kincaid Grade, and Smog grade are defined in [Appendix B](#).

Table 5

Association between the precision of an accounting standard and the likelihood of auditor disclosing a KAM.

Independent Variables:	Coefficient	Predicted Sign	Coefficient	P-Value
Intercept	β_0	?	-13.890	0.000
RBC	β_1	+	0.351	0.000
AGE	β_2	+	0.601	0.001
MoU	β_3	+	1.772	0.000
SIZE	β_4	+	0.167	0.004
LEV	β_5	+	0.100	0.849
AUDITFEE	β_6	?	3.018	0.500
SEGMENT	β_7	+	0.018	0.561
TENURE	β_8	-	-0.005	0.775
PROF	β_9	-	-2.165	0.026
FYE	β_{10}	?	-0.153	0.379
INDFI	β_{11}	-	-0.430	0.053
INDU	β_{12}	-	0.280	0.263
DUMMYUK	β_{13}	?	0.167	0.447
DUMMYFR	β_{14}	?	-0.455	0.054
N ^o of Observations			3968	
Pseudo-R ²			25.58%	

Notes: Presents results of estimating Eq. (1). Analysis based on a logit model where dependent variable is KAMSTD. Dataset in this table contains a separate observation for each accounting standard for each firm, resulting in 40 observations for each firm. All variables are defined in [Appendix A](#).

6. Analysis and results

Table 5 shows the results of the analysis of our model which was used to determine the factors influencing the likelihood of KAM disclosure by the auditors. The coefficient on RBC is positive and statistically significant at the 1%-level, indicating that it is more likely to have a KAM in accounting standards with a higher level of precision (with more rules-based characteristics). The RBC coefficient implies that an increase in rules-based characteristics score of a standard of one unit leads to an increase in the odds of a KAM by 40%. Therefore, our results confirm that more precise accounting standards increase the probability of having a KAM and thus, H1 is supported. This supports literature suggesting that managers are less likely to report aggressively when applying a less precise accounting standard than when applying a more precise accounting standard ([Agoglia et al., 2011](#)).

As expected, we find a positive and significant coefficient for MoU. Accounting standards included in the MoU between the FASB and the IASB are becoming more similar to US accounting standards, which are more rules-based ([Donelson et al., 2012](#)). Therefore, these results also support H1, our hypothesis that more precise accounting standards increase the likelihood of a KAM disclosure.

Regarding firm size, we conclude that larger firms (SIZE) are more likely to have KAM disclosures in their auditor's report ($\beta_4 = 0.167$ significant at the 1%-level). This supports the notion that the effect of complexity of larger firms overcompensates for the pressure that larger clients may have exerted on audit firms ([Huang et al., 2007](#)).

With regard to financial institutions (INDFI), despite the complexity of financial reporting associated with these entities, we observe that there is a lower probability of a KAM disclosure. The coefficient β_{11} is negative and statistically significant at the 5%-level. This result suggests that the regulator effect prevails in this sector.

The coefficient of AGE is positive and statistically significant, meaning that there is a higher probability of a KAM disclosure for topics included in older accounting standards. This can be explained by the fact that older accounting standards deal with transactions and events that occur more frequently.

The results also show that firms with higher profitability (PROF) have a lower probability of disclosing a KAM, as these firms have higher future viability and a lower probability of having qualified auditor's reports ([Beasley, Carcello, & Hermanson, 1999](#); [Laitinen & Laitinen, 1998](#); [Loebbecke et al., 1989](#)).

The coefficient of DUMMYFR is negative and statistically significant at the 10%-level, which means that it is less likely that an auditor in France will disclose a KAM than in the Netherlands.

Table 6 presents the results with regard to the testing of our second hypothesis, using the Gunning Fog Index and an index (INDREAD) that aggregates the four measure of readability presented above as dependent variables. The coefficient of SUMRBC for the Gunning Fog Index score and INDREAD are both positive and statistically significant at the 5%-level. Thus, in line with our second hypothesis, the findings suggest that accounting standards with a higher level of precision (more rules-based) lead to auditor's reports that are less readable.

[Donelson et al. \(2016\)](#) argue that more precise accounting standards are more complex and have numerous scope exceptions, which may interfere with the communication between auditors and stakeholders. Principle-based standards require substantially increased professional judgment ([Schipper, 2003](#)), which may facilitate the way auditors disclose KAMs and improve readability. In line with [Nelson \(2003\)](#), who argues that an increase in precision can increase the complexity of the standard, our results provide evidence that for this type of accounting standard, auditors have more difficulty in communicating areas of risk in their report.

Table 6

Association between the precision of accounting standards and the readability of auditors' report.

Independent Variables:	Coefficient	Predicted Sign	FOG		INDREAD	
			Coefficient	P-Value	Coefficient	P-Value
Intercept	β_0	?	2.428	0.000	-3.018	0.249
SUMRBC	β_1	+	0.005	0.032	0.042	0.032
NKAM	β_2	?	-0.021	0.067	-0.123	0.229
SIZE	β_3	+	0.003	0.776	0.053	0.595
ARLENGTH	β_4	+	0.017	0.550	0.206	0.440
VOL	β_5	+	-0.145	0.681	1.650	0.609
SEGMENT	β_6	+	0.004	0.435	0.036	0.508
DLOSS	β_7	+	0.010	0.827	0.345	0.475
RECINV	β_8	+	0.052	0.408	0.347	0.519
LEV	β_9	+	0.075	0.252	0.524	0.324
PROF	β_{10}	-	-0.059	0.775	0.394	0.835
INDFI	β_{11}	-	-0.073	0.082	-0.281	0.429
INDU	β_{12}	-	-0.087	0.130	-0.644	0.167
DUMMYUK		?	-0.037	0.245	-0.666	0.022
DUMMYFR		?	-0.054	0.331	-1.003	0.054
N ^a of firms			90		90	
R-squared			11.77%		17.32%	

Notes: Presents ordinary least squares regression results of estimating Eq. (2). All variables are defined in [Appendix A](#).

With regard to the two industry dummies INDFI and INDU, the signs of their coefficients are negative which means, as expected, higher readability. However, the coefficients are not significant.

The results also provide evidence that the way auditors write auditor's reports is likely to be a function of the culture and institutional factors of the country of the firm ([Li, 2011](#)). Auditor's reports from the UK and France are more readable than reports from the Netherlands.

Finally, apart from the variable PROF, for which we expected a negative sign, i.e. higher readability, but find a positive one, all other control variables have the expected direction. However, their coefficients are not significant, which means that there is no significant impact of the control variables on the readability of the auditor's report. Additional analyses (not tabulated) reveal that audit firm characteristics like audit fees or tenure do not have a significant impact. The same applies for audit firm dummies.⁸

7. Conclusions

The objective of this paper is to investigate whether the likelihood of a KAM depends on the level of precision of accounting standards, i.e., whether the accounting standards are more rules- or more principles-based. The results show that the likelihood of a KAM disclosure increases when the accounting standard is more rules-based. This study provides initial evidence from a sample of European companies that the precision of accounting standards affects KAM disclosures in auditor's reports.

Furthermore, the study analyses whether the level of precision of accounting standards has an impact on auditor communication. [Nelson \(2003\)](#) states that communication of the financial reporting process may be more complex under accounting standards with a higher level of more rules-based characteristics. Our results indicate that the disclosure of KAMs based on more precise accounting standards decreases the readability of auditor's reports.

These findings should be of interest to national and international accounting standards setters and the audit profession. The extent to which an accounting standard is more rules-based is an evolutionary process that may change over time. [Morais \(2020\)](#) provides evidence that IFRS are becoming more rules-based. Our study shows the potential implications of having more precise rules with regard to auditor behavior. Therefore, standard setters need to take into account that the level of precision of an accounting standard affects auditor behavior when making decisions as to what constitutes an optimal standard. The results are also relevant for audit firms, as they should be aware of a potential bias in reporting caused by the level of precision of an accounting standard. In addition, the findings should also be of interest to regulators and standard setters when developing international auditing standards. The paper also provides evidence which is relevant for the interpretation of auditor's reports by the users.

In addition, we find that the level of precision of accounting standards is associated with auditor's report readability. Based on previous literature which provides evidence that the readability of corporate disclosures may have implications for capital markets, and taking into account that auditor's reports play a fundamental role in investor decision-making, our paper may be useful to auditors by demonstrating what can affect their communication with stakeholders and users

⁸ Such a variable for a certain audit firm equals one if the financial statements were audited by this audit firm, and 0 otherwise.

in interpreting the auditor's report. Thus, this study contributes to a better understanding of issues related to effective communication.

Nevertheless, these results are subject to some limitations. First, we used a specific concept of rules-based standard, which considers the level of precision, the existence of exceptions and bright-line thresholds, and the interpretations and application guidance of each standard. Other factors may exist that characterize a rules-based standard. Second, our sample only includes large companies from three countries where companies had already been required for several years to disclose KAMs. Further research using data from periods after the implementation of the EU Regulation and from more countries may usefully extend our work. It is also important to extend the number of observations (by analyzing more years and/or more firms). Based on much larger samples, it would be of particular interest to further analyze country differences in KAM reporting and investigate the underlying reasons. Finally, although our measures of readability are widely used in the literature, there has recently been some debate regarding the applicability of such measures in the accounting and finance context. [Loughran and McDonald \(2014\)](#) state that the Fog Index is shown to be poorly specified in financial applications, and [Bonsall, Leone, Miller, and Rennekamp \(2017\)](#) propose a new measure of readability (the Bog Index). However, as we do not attempt to analyze the absolute value of these measures, but rather to compare them across firms, we believe that criticisms about the use of these measures are not a relevant limitation in our case ([Richards & Van Staden, 2015](#)).

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgements

The authors gratefully acknowledge financial support from FCT - Fundação para a Ciencia e Tecnologia (Portugal), national funding through research grant UIDB/04521/2020.

Appendix A. Variable Definitions

Variables	Definition
Panel A: Dependent Variables	
KAMSTD	Dummy variable equals 1 if the auditor discloses a KAM for firm <i>i</i> , with regard to an accounting standard <i>j</i> , and 0 otherwise.
READ	Measure of the readability of the auditor's report which can be the Gunning Fog Index (FOG) or the Readability Index – (INDREAD)
FOG	The Gunning Fog Index published in Gunning (1952) is a simple function of the average sentence length (in words) and complex words defined as the percentage of words with more than two syllables (see Appendix B).
INDREAD	Index that combines several established measures of readability, namely: Flesch Reading Ease, Gunning Fog Index, Flesch-Kincaid Grade Level, and SMOG Grade (see Appendix B), we define INDREAD in such way that higher values correspond to less readable texts.
Panel B: Dependent Variables	
RBC	Rules-based continuum score developed by Mergenthaler (2009) , being validated in Donelson et al. (2012) and computed regarding IAS and IFRS in Morais (2020) . This score shows the presence of rules-based characteristics in an accounting standard: (1) level of detail as the total number of words in each accounting standard; (2) volume of implementation guidance as the total number of SIC/IFRIC and application guidance for each accounting standard; (3) bright-line thresholds as the total number of bright-line thresholds in each accounting standard; and (4) exceptions as the total number of exceptions in each accounting standard. The higher the RBC score, the more rules-based characteristics the accounting standard contains.
AGE	Difference between 2016 and the year each standard was initially adopted by a regulation.
MoU	Dummy variable equals 1 if an IFRS was included in the Memorandum of Understanding between the FASB and the IASB (IAS 11, IAS 12, IAS 18, IAS 19, IAS 20, IAS 23, IAS 32, IAS 36, IFRS 3, IFRS 8, IFRS 10, IFRS 13), and 0 otherwise.
SIZE	Natural log of a firm's total assets.
LEV	Ratio of total debt to total assets.
AUDITFEE	Ratio of audit fee to total assets.
TENURE	Number of years of the duration of the current auditor tenure.
PROF	EBIT divided by total assets.
FYE	Dummy variable equals 1 for firms with fiscal year-end on the 31 st of December, and 0 otherwise.
INDFI	Dummy variable equals 1 for financial institutions, and 0 otherwise.
INDU	Dummy variable equals 1 for utilities entities, and 0 otherwise.
COUNTRYD	Country dummy variables, where DUMMYUK is for UK and DUMMYFR is for France.
SUMRBC	Sum of RBC of the accounting standards underlying the KAMs.
NKAM	Number of KAMs disclosed at the 2016 fiscal year-end.
ARLENGTH	Natural log of the number of words of the full annual report.
VOL	Standard deviation of the monthly stock returns in 2016.
SEGMENT	Number of business segments of the firm.
DLOSS	Dummy variable equals 1 if the net income is negative, and 0 otherwise.
RECINV	Proportion of total assets in accounts receivable and inventory to total assets.

Appendix B. Readability measures

1. – Flesch Reading Ease

The Flesch Reading Ease uses the total number of words, the number of syllables, and the sentence lengths to determine the reading ease of the text. This formula reports the results on a scale ranging from 0 to 100. The higher the scale score, the easier the material.

2. – Gunning Fog Index

The Fog Index published in Gunning (1952) is a simple function of the average sentence length (in words) and complex words defined as the percentage of words with more than two syllables. Lower values of the Fog Index indicate more readable documents (Loughran & McDonalds, 2014). The Fog scale may be interpreted as follows: Fog score ≥ 18 represents difficult texts; 14–18 (difficult); 12–14 (ideal); 10–12 (acceptable); and 8–10 (childish) (Li, 2008).

3. – Flesch-Kincaid Grade Level

The Flesch-Kincaid Grade Level is based on the number of words, the number of syllables, and the total number of sentences and provides the number of years of education that a reader must have to understand the text.

4. – SMOG Grade

The Smog formula uses the total number of sentences and the number of words of three and more syllables. It provides the number of years of education that a reader must have to understand the material.

As in Guay et al. (2016), we construct a readability index (INDREAD) as the first principal component of the four measures presented above. We adapted the first measure (Flesch Reading Ease) to have higher values of INDREAD, which corresponds to less-readable text. The principal component output is presented below:

Factor	Eigenvalue	Prop. of variation explained	Cumulative prop. of variation Explained	Readability Measures
1st	3.660	91.52%	91.50%	Fog Index
2nd	0.319	7.99%	99.49%	Flesch Reading Ease
3rd	0.019	0.47%	99.96%	Flesch Kincaid Grade
4th	0.001	0.04%	100.00%	Smog Grade

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