



# Understanding the determinants of the magnitude of entity-level risk and account-level risk key audit matters: The case of the United Kingdom



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## ABSTRACT

This study was conducted to analyse the influence of auditor and client characteristics on the magnitude and type of key audit matters (KAM) disclosed in the audit reports of the FTSE 100 companies in the UK during the period 2013–2016. A recently introduced standard requires auditors to reveal the main risks faced by the client and to describe how these are addressed in the audit. Our results show that Deloitte, EY and KPMG tend to report fewer entity-level-risk KAM (ELRKAM) than PwC, while KPMG and BDO report fewer account-level-risk KAM (ALRKAM) than PwC. In general, auditors of companies that pay higher audit services fees present more ELRKAM and fewer ALRKAM. Our findings also show that client characteristics are relevant to the number and type of KAM included in the audit report. Our results show that auditor and client characteristics are determinants of the number of KAM disclosed and, moreover, determine the type of KAM disclosed in the audit reports.

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## 1. Introduction

Recent financial scandals and crises have fostered much debate on the value of auditing and on the role played by auditors, especially regarding the need to improve the quality of communication between auditors and the users of their reports (Asare & Wright, 2012; Carson et al., 2013). In this respect, significant legislative reforms have been adopted to restore market confidence and underpin credibility in audit services (Chun, 2005; Clarke & Chantal, 2009).

Research into audit reporting has a long history (Francis, 2011; Maijor and Vanstraelen, 2012), and many studies have concluded that audit reports are often inadequate (Church, Davis, & McCracken, 2008; Guiral-Contreras, Gonzalo-Angulo, & Rodgers, 2007; Vanstraelen et al., 2012). Accordingly, some have proposed expanding their scope to enhance quality and provide greater informative value (Dobija & Cieslak, 2013; Kranacher, 2011; Turner et al., 2010).

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In response to the above and to users' demands, regulators and professional organisations have modified the global approach taken to audit reporting. Thus, the International Auditing and Assurance Standards Board (IAASB), after public consultations, proposed various changes to audit report standards. The discussion process on the IAASB standards concluded in December 2015 and the new International Standard on Auditing (ISA) 700 series introduces significant changes in audit report structure and content, creating a new style of communication between companies and the users of their financial information. This response from the IAASB reflects the belief that improved audit reporting will increase its communicative value.

The new ISA 701, *Communicating Key Audit Matters in the Independent Auditor's Report*, is a major development in this field. The inclusion of the Key Audit Matters (KAM) paragraph in the audit report, according to ISA 701, introduces a new concept in the audit report, one that extends the auditor's role and requires the disclosure of the most significant risks facing the client, in the auditor's opinion (IAASB, 2015). According to the IAASB, "Key audit matters are those matters that, in the auditor's professional judgment, were of most significance in the audit of the financial statements". This implies that the auditor should analyse the risks in accordance with ISA 315 and assess the internal control system quality (IAASB, 2016). In other words, it is the auditor's responsibility to communicate the KAM in the final audit report. The KAM, whenever they draw the auditor's attention following a risk-based audit approach, should be matters that have been previously discussed with those charged with governance. These matters are often related to complex areas in which there is a significant margin for managerial judgement concerning the financial information provided. The changes introduced by ISA 701 came into force for the auditing of financial statements for periods ending on or after 15 December 2016, although earlier adoption was also permitted. KAM communication is now compulsory for the audits of listed companies.

EU regulation No. 537/2014 requires the audit report to include a description of significant risks of material misstatement, a summary of audit procedures referring to such risks and if necessary, key observations in this respect (European Parliament and European Council, 2014). This disclosure of significant risks is comparable to the KAM disclosure required under ISA 701. On 1 June 2017, in the USA, the *Public Company Accounting Oversight Board* adopted a new audit report standard, AS 3101, *The Auditor's Report on an Audit of Financial Statements When the Auditor Expresses an Unqualified Opinion*, requiring the communication of Critical Audit Matters (CAM). These are defined as matters communicated to the audit committee, which relate to material accounts in the financial statements, even if they involved especially challenging auditor judgement. Additional requirements were that the tenure and role of the auditor should be disclosed. This standard will come into effect for audits of the fiscal year ending on or after 30 June 2019 for large accelerated filers and for the fiscal year ending on or after 15 December 2020 for all other companies within the scope of the standard.

The United Kingdom was one of the first countries to apply a KAM standard in the EU. It is useful to study the situation in the UK because the Financial Reporting Council (FRC) published the revised International Standards on Auditing (ISA) 700 (UK and Ireland) in 2013 (FRC, 2013), and this standard has been adopted by all the FTSE 100 companies included in the present study sample. The FRC now requires auditors to explain their work in greater detail, including an overview of the audit scope and to describe how the risk assessment was performed and the materiality determined. In addition, the auditor must identify the most significant risks to the overall audit strategy, and show how the resources and work of the audit team are allocated (Simnett and Huggins, 2014). The latter point motivates our research aim. In June 2016, the FRC published ISA 701 (UK and Ireland) (FRC, 2016), which came into effect for audits of financial statements for periods commencing on or after 17 June 2016. ISA 701 (UK and Ireland) is based on the prior ISA 701 issued by the IAASB. According to Asare and Wright (2016), the UK experience in applying this standard has been well received by auditors and has resulted in clearer and more specific audit reports being produced.

In the present study, we analyse the determinants of the different types of KAM reported, i.e., entity-level-risk KAM (ELRKAM) and account-level-risk KAM (ALRKAM). It is important to understand what determines the magnitude and type of KAM because decision-makers rely on the information included in the audit report, as do the financial markets and the community at large (Bédard, Gonthier-Besacier, & Schatt, 2014; Christensen, Glover, & Wolfe, 2014; Danescu & Spatacean, 2018; Lennox et al., 2017; Trpeska et al., 2017).

Taking into account the definition and nature of KAM, we argue that auditor characteristics and client characteristics are the main determinants of the number and type of KAM. Hence, we address the following research questions:

RQ 1: What is the relationship between the total number of KAM disclosed in the audit report and the characteristics of the auditor and of the client?

RQ 2: What is the relationship between the numbers of each KAM type (ELRKAM/ALRKAM) disclosed in the audit report and the characteristics of the auditor and of the client?

These research questions are considered using linear regression models, by means of a data panel method applied to the companies in the FTSE 100 index, according to publicly available financial information for the period 2013–2016. The KAM included in the audit reports are identified by content analysis, and the auditor and client characteristics are obtained from the companies' financial statements. Our results show that auditor and client characteristics are determinants of the number of KAM disclosed and, moreover, determine the type of KAM disclosed in the audit reports.

This study is novel in providing audit report users with new information about the expanded report content and how it relates with the auditor and client characteristics. Shareholders and investors can understand the propensity of auditors to

include certain type of KAM within an industry and may also call upon management to mitigate the risks identified as KAM. The results obtained will help regulators to concentrate regulatory efforts on the riskiest companies in an industry and to identify the auditors' approach to KAM reporting. Additionally, these results will provide insights on KAM reporting to auditors in other markets and encourage scholars to undertake new research in this field.

The remainder of this paper is organised as follows. After this brief introduction, section two presents the theoretical background and the literature review conducted. The third section explains the data source, describes the study sample and sets out the methodological approach adopted in this empirical study. The results obtained are then reported, in section four. Finally, we discuss these results and present the main conclusions drawn.

## **2. Theoretical background, literature review and research hypotheses**

### **2.1. Selecting KAM: the auditor's professional judgement**

According to ISA 701 (UK), the auditor should identify all the risks faced by the audited organisation that may be classed as KAM. In determining these areas or transactions of significant risk, the auditor must exercise appropriate professional judgement.

Gibbins (1984) views professional judgement as that which is exercised by persons with experience in the area and who do so as part of their work activity. In this respect, Mohd Sanusi et al. (2018) emphasise the importance of social cognitive factors in explaining variations in the performance of audit judgement tasks with differing levels of complexity.

Using the Hogarth theory (1980), Arnold, Bedard, Phillips, and Sutton (2012) model the judgement processes of financial report users in an XBRL environment, considering three stages of information assimilation: acquisition, evaluation and combination. According to Hogarth, judgement takes place within a system composed of three elements: the person, the task environment in which judgements are made and the resulting actions. Within the task environment is the person's schema, which is created by that person's memory and the characteristics of the judgemental task. Judgement follows the processing of information (Hogarth, 1980), a procedure that in turn is composed of acquisition, consideration and output.

Hogarth's theory can be used to explain how auditors reach judgements and select matters that should be regarded as KAM within an audit report. The auditor makes this judgement according to experience (memory), best practices, the pre-determined audit strategy and the entity's characteristics (the nature of the judgemental task). The auditor's experience is an important element in this judgement process, and so more experienced and specialised auditors are expected to be better equipped to perform this task. However, auditor expertise alone is not enough, and the auditor's client experience is crucial to the correct evaluation of KAM.

### **2.2. Client characteristics and the auditor's judgement**

In accordance with ISA 700 (UK and Ireland), auditors select KAM taking into account the client risks identified (FRC, 2013). Accordingly, studies have analysed the impact of the client's financial condition and characteristics on auditor judgements. Thus, Johnstone (2000) discusses how auditors consider the client characteristics prior to client acceptance and the performance of risk assessment. This study shows that clients are screened according to the risk characteristics perceived and the audit firm's risk of loss on the engagement. The main client acceptance factors identified are the client's financial condition, comparable industry performance and industry competition.

In a study of how industry type may affect materiality and risk assessment, Iskandar (1996) concludes that the business sector in which a client operates is an important contextual variable in materiality judgements and observes that "the close relationship between materiality and audit risk suggests that the type of industry may have a similar impact on risk assessment". Some industry sectors are regarded as more complex to audit than others (Pearson and Trompeter, 1994; Simunic, 1980). In this respect, Hay, Knechel, and Wong (2006) argue that financial institutions and utilities have greater assets but are generally easier to audit than companies with extensive inventories, receivables or knowledge-based assets. Kotchetova et al. (2006) examine how auditors assess strategic business risk and the link between the latter and the risk of material misstatement in a client's financial statement. These authors report that the more business risks are identified by the auditors, the greater the implications for the financial statement.

Other lines of research examine how client characteristics impact on the audit opinion. Basioudis, Papakonstantinou, and Geiger (2008) present evidence that auditors are more likely to issue modified audit opinions on clients whose financial condition is poor than on clients in a healthier position. In a study conducted in the UK, Hudaib and Cooke (2005) find that financially distressed companies are more likely to receive a going-concern modified audit opinion.

In view of the findings of these prior studies, we believe that client characteristics are the main factors influencing the auditor's judgement with respect to KAM (DeFond & Zhang, 2014; Prawitt et al., 2011; Velte, 2018; Wu et al., 2016).

### **2.3. The effects of KAM disclosure**

Several recent studies address the consequences and benefits of disclosing KAM in the expanded audit report, in areas such as communicative value, audit fees, capital markets, investors' reactions and auditor liability.

With respect to the communicative value of KAM disclosure, Köhler et al. (2016) report that for non-professional investors, KAM have no communicative value but that for professional investors they may significantly reflect the company's economic situation. According to Sirois et al. (2018), when KAM are communicated, participants pay more attention to related financial statement disclosures; moreover, the number of KAM mentioned is related to the information acquired. In the same line, Smith (2017) finds that earnings forecast dispersion decreased following the introduction of ISA 700 (UK and Ireland). On the other hand, Boolaky and Quick (2016) suggest that KAM reporting does not affect the perceptions and decisions of bank directors. Carver and Trinkle (2017) conclude that CAM disclosure reduces the readability of the audit report and decreases the perception of management credibility. Finally, Pelzer (2017) believes that investors may not understand CAM when they are disclosed in an audit report with an unqualified opinion. All these studies report evidence supportive of the communicative value of KAM in stakeholders' decision making.

Other studies analyse the relationship between audit services fees and KAM. Thus, Carcello and Li (2013) study the effects on audit services fees of requiring the engagement partner to sign the audit report in the UK, and report that audit services fees increased in the post-signature period due to the greater audit work involved. As KAM disclosure could increase audit effort, we would expect higher audit services fees in the post-KAM period, but Gutierrez, Minutti-Meza, Tatum, and Vulcheva (2016) find that although companies with long reports in the post-ISA 700 (UK and Ireland) period paid higher fees, the mere increase in disclosure did not affect this question.

Some researchers focus on the capital market and investors' reactions to the information provided by KAM. Bédard et al. (2014) analyse market reactions in France to the disclosure of Justifications of Assessments (JOA) (a concept similar to KAM) and report that JOA reduce information asymmetry for small companies. In this respect, Lennox et al. (2017) point out that investors do not believe that the new information provided by KAM increases informative content. In addition, Christensen et al. (2014) examine how non-professional investors react to CAM disclosed in the audit report, and conclude that investors aware of CAM are more likely to change their investment decision than those who read a traditional audit report. Kachelmeier et al. (2017), in a study conducted in the USA, find that CAM disclosure could reduce the auditor's legal exposure. This result corroborates an earlier study by Gimbar, Hansen, and Ozlanski (2016). However, other studies observe no or negative impact of CAM disclosure on auditor liability (Backof, Bowlin, & Goodson, 2017; Brasel, Doxey, Grenier, & Reffett, 2016).

In summary, most previous studies show that KAM disclosure does exert an influence on stakeholders' decision making, and therefore it would be useful to enhance our understanding of the determinants of the number and type of KAM included in the audit report.

## 2.4. Research hypotheses

In the context of relevant theory, prior findings and the research questions proposed, we argue that auditor characteristics (audit firm, specialisation and audit services and non-audit services fees and materiality) and client characteristics (financial variables) both impact on the auditor's identification and disclosure of KAM. In consequence, we pose the following hypothesis:

**H1.** : The total number of KAM disclosed in the audit report is determined by auditor and client characteristics.

However, in line with the ISA 701 definition of KAM, we also wish to identify the KAM that are related to client risk as a whole and those related to certain entries in the financial statement. To understand whether auditor and client characteristics determine the types of KAM included, we pose the second hypothesis:

**H2.** The number of each type of KAM included in the audit report is determined by auditor and client characteristics.

## 3. Research design

### 3.1. Empirical models

The above hypotheses are tested using a regression model obtained by the data panel method. This approach allows us to take into account individual effects, thus improving the estimation, and to control for time effects. Therefore, a linear regression model is used to identify client and auditor characteristics related to the magnitude and type of KAM disclosed in the audit report.

Several tests are conducted to identify the best statistical model for our purpose. First, we choose between pooled OLS and random effects, using the Breush-Pagan Lagrangian multiplier test; then between pooled OLS and fixed effects, using the F restrictive test; and finally between random and fixed effects, using the Hausman test. We conclude that the fixed effect approach is better than the others in all models (not included in the tables).

After determining which regression method is most appropriate for our model, we then examine its reliability, because even after taking into account temporal and spatial heterogeneity, the model might be poorly specified in other aspects. Therefore, to reveal possible problems, tests of serial correlation, cross-sectional independence and heteroskedasticity are also conducted.

Since serial correlation in linear data-panel models biases the standard error and makes the results less efficient, we need to identify serial correlation in the individual error term in the model (Drukker, 2003). This is done using the Wooldridge test,

which strongly rejects the null hypothesis of serial correlation, showing that our panel-data model is characterised by serial autocorrelation (not included in the tables).

The results obtained from the application of Pesaran's test (not included in the tables) show that the models do not present cross-sectional dependence.

We also perform the modified Wald test of groupwise heteroskedasticity in the residuals of a fixed effect regression model (not included in the tables). According to the results obtained, the null hypothesis is strongly rejected, and therefore our model presents this condition.

We address the existence of heteroskedasticity and serial correlation in all models using a linear regression with correlated panel-corrected standard errors (PCSEs).

The KAM included in the audit reports are identified by content analysis, in which, following Lennox et al. (2017), the KAM are classed into two groups: entity-level-risk KAM (ELRKAM) and account-level-risk KAM (ALRKAM).

**Hypothesis 1** is tested using the following model:

$$\begin{aligned} \#KAM_{i,t} = & \beta_0 + \beta_1 AUDIT FIRM_{i,t} + \beta_2 AUDIT FEES_{i,t} + \beta_3 NON - AUDIT FEES RATIO_{i,t} + \beta_4 MATERIALITY_{i,t} \\ & + \beta_5 SWITCH_{i,t} + \beta_6 SPECIALIST_i + \beta_7 SIZE_{i,t} + \beta_8 LEVERAGE_{i,t} + \beta_9 CURRENT RATIO_{i,t} + \beta_{10} ROA_{i,t} + \beta_{11} LOSS_{i,t} \\ & + \beta_{12} COMPLEXITY_{i,t} + \beta_{13} REVENUES_{i,t} + \beta_{14} INVENTORIES_{i,t} + \beta_{15} PPE_{i,t} + \beta_{16} GOODWILL_{i,t} + \beta_{17} INTANGIBLES_{i,t} \\ & + \beta_{18} INDUSTRY_{i,t} + CONTROLS (YEAR - END, YEARS) + u_{i,t} \end{aligned} \quad (1)$$

**Hypothesis 2** is tested using the following models:

$$\begin{aligned} \#ELRKAM_{i,t} = & \beta_0 + \beta_1 AUDIT FIRM_{i,t} + \beta_2 AUDIT FEES_{i,t} + \beta_3 NON - AUDIT FEES RATIO_{i,t} + \beta_4 MATERIALITY_{i,t} \\ & + \beta_5 SWITCH_{i,t} + \beta_6 SPECIALIST_i + \beta_7 SIZE_{i,t} + \beta_8 LEVERAGE_{i,t} + \beta_9 CURRENT RATIO_{i,t} + \beta_{10} ROA_{i,t} + \\ & \beta_{11} LOSS_{i,t} + \beta_{12} COMPLEXITY_{i,t} + \beta_{13} GOODWILL_{i,t} + \beta_{14} INDUSTRY_{i,t} + CONTROLS (YEAR - END, YEARS) + u_{i,t} \end{aligned} \quad (2a)$$

$$\begin{aligned} \#ALRKAM_{i,t} = & \beta_0 + \beta_1 AUDIT FIRM_{i,t} + \beta_2 AUDIT FEES_{i,t} + \beta_3 NON - AUDIT FEES RATIO_{i,t} + \\ & \beta_4 MATERIALITY_{i,t} + \beta_5 SWITCH_{i,t} + \beta_6 SPECIALIST_i + \beta_7 REVENUES_{i,t} + \beta_8 INVENTORIES_{i,t} + \beta_9 PPE_{i,t} \\ & + \beta_{10} INTANGIBLES_{i,t} + \beta_{11} INDUSTRY_{i,t} + CONTROLS (YEAR - END, YEARS) + u_{i,t} \end{aligned} \quad (2b)$$

$$u_{i,t} = \mu_i + e_{i,t} \quad (3)$$

Equation (3) allows us to model  $u_{i,t}$  as two components.  $\mu_i$  is a non-observable variable effect and could represent any of the following scenarios:

- $\mu_i = 0$ ;
- $\mu_i$  is a fixed effect that is different for each client;
- $\mu_i$  is a random effect.

### 3.2. Sample selection

The study sample is composed of the companies listed in the Financial Times Stock Exchange 100 (FTSE 100) index and which published financial information for the period 2013–2016. We prefer this index because the companies included are those with the highest market capitalisation.

The population under analysis constitutes 400 company-years. The final sample of companies is obtained applying the following criteria: companies operating in the financial sector are excluded (23 company-years) due to their distinctive operating and regulatory nature, as are companies that did not provide the necessary financial information or KAM data (6

**Table 1**  
Composition of the sample.

FTSE 100 Index companies	OBSERVATIONS
Listed throughout study period (2013–2016)	400
Dual-listed (1 company)	-4
No expanded audit report (6 companies)	-24
Operating in financial sector (23 companies)	-92
<b>Total sample with KAM disclosure (70 companies)</b>	<b>280</b>

company-years). These non-disclosing companies are non-UK organisations, exempt from the KAM requirements. Furthermore, one company-year is excluded because it is dual listed. The final sample, thus, is composed of 280 company-years; Table 1 summarises its composition.

### 3.3. Study variables

#### 3.3.1. Dependent variables

The dependent variable #KAM is the total number of matters mentioned in the KAM section of the audit report. A similar variable is used in previous studies of this question. Thus, Bédard et al. (2014) use JOA (Justification of assessment, which is the French version of KAM) and Lennox et al. (2017) use RMM (Risk of material misstatement).

Following Lennox et al. (2017), we distinguish two types of KAM<sup>1</sup>: 1) entity-level-risk KAM (#ELRKAM); the number of KAM related to client risk as a whole. This category includes KAM related to tax, litigation/regulatory provisions, acquisition accounting, controls, IT and other entity-level KAM; 2) account-level-risk KAM (#ALRKAM); the number of KAM related to specific items in the financial statement. This category includes KAM related to revenues, intangibles, property, plant and equipment (PPE), pension schemes, inventories, financial assets, supplier rebates and asset impairment.

#### 3.3.2. Explanatory variables

To identify the auditor and client characteristics that influence the disclosure of KAM, we consider a set of variables derived from prior studies of the audit process.

The categorical variable AUDIT FIRM identifies the audit firm among those habitually employed by FTSE 100 companies, namely BDO, Deloitte, EY, KPMG and PwC. These are ranked from 0 to 4. If we include a categorical variable that represents the auditors in the regression, together with an intercept, then this variable will be linearly dependent on the intercept and the regression cannot be solved due to the categorical variable trap. Accordingly, one auditor must be excluded. PwC is excluded, as this auditor discloses the highest number of KAM. Hence, we compare the coefficients of the other auditors with that of PwC.

The variable AUDIT FEES reflects what is charged by the auditor to the client for audit services, and is log-transformed to avoid problems of scale (Bédard et al., 2014; Hay et al., 2006). This variable is considered because the new-format audit report may result in additional costs; for example, the auditor may have to perform additional procedures in order to counter the increased reputation risk associated with KAM disclosure. Thus, we would expect higher audit services fees to be charged to companies with more KAM. The non-audit fees ratio (NAF RATIO), measured as non-audit services fees to total fees paid to the auditor (Holland & Lane, 2012), is included as a control for objectivity, because provision of this service might compromise the auditor's independence (Causholli, Chambers, & Payne, 2014; Quick and Warming-Rasmussen, 2015). We expect clients paying higher non-audit services fees to show fewer KAM as the non-audit services outcome provides companies with useful information to mitigate and address its risks.

The variable MATERIALITY corresponds to the relationship between client risk and KAM disclosure because a lower materiality level means that a lower level of misstatements is tolerable by the auditor, which in turn means more effort (IAASB, 2009). It is measured as the ratio of total materiality disclosed in the audit report divided by total assets (Gutierrez et al., 2016). We expect that the lower the materiality, the more KAM will be disclosed, because this reflects higher audit risk, and hence increases the amount of audit evidence required.

Other specific variables included are related to auditor characteristics. SWITCH is a dummy variable that takes the value 1 if the client has changed its auditor since the previous year and zero otherwise (Brown & Knechel, 2016). There is no clear sign for the relationship between KAM and SWITCH, since the incoming auditor might be more conservative and include a higher number of KAM or (for example) be less experienced and include a lower number of KAM. Previous studies in this field control for auditor specialisation, which is obtained as the industry market share based on sales, using a simple proportion. The variable SPECIALIST takes the value of 1 when the incumbent auditor is a specialist in the industry where the client operates and 0 otherwise. Auditors are considered specialists if they are industry leaders, usually defined as having a market share >30% using three different measures: audit fees, sales and assets (Audouset-Coulier et al., 2016; Neal and Riley, 2004). This study uses sales to define the auditor industry specialist (after testing the other two measures and finding no significant differences). We expect auditor industry specialists to include a higher number of KAM in their audit reports, due to their better understanding of the client and the industry.

In addition, our analysis incorporates variables to reflect the effects of the client characteristics on KAM disclosure (Lawrence et al., 2011; Prawitt et al., 2011). Thus, we include client size (SIZE), measured as the natural logarithm of total assets to avoid problems of scale (Goodwin-Stewart & Kent, 2006; Prawitt et al., 2011). We expect that the larger the client, the higher the number of KAM that will be disclosed. As a proxy for solvency, the study uses the variable LEVERAGE, defined as total debts divided by total assets (Beasley & Salterio, 2001; Klein, 2002; Wu et al., 2016). This variable captures the effect of potential financial problems. Highly leveraged companies will need to disclose a higher number of KAM. In addition, CURRENT

<sup>1</sup> The KAM coding procedure is available upon request.

**Table 2**  
Type of KAM disclosed in the audit report.

ELRKAM	TOTAL
Tax	148
Litigation/provisions	135
Other	103
Acquisition accounting	92
Controls	30
IT	16
<b>Total ELRKAM</b>	<b>524</b>
<hr/>	
ALRKAM	
Revenues	202
Intangibles	178
Property, plant and equipment	96
Pension schemes	86
Inventories	72
Financial assets	52
Supplier rebates	31
Impairment of assets	24
<b>Total ALRKAM</b>	<b>741</b>
<b>Total KAM</b>	<b>1265</b>

*RATIO* is used as a proxy for liquidity (Hay et al., 2006; Ho & Hutchinson, 2010). This variable is measured as the ratio of total current assets to total current liabilities. We expect that companies with a lower liquidity risk will report a lower number of KAM. Profitability is reflected by *ROA*, measured as profit before taxes divided by total assets (Velte, 2018). We assume that client performance will be positively related to KAM disclosure. *LOSS* is a dichotomous variable that takes the value 1 if the client incurred losses during the previous year and zero otherwise (DeFond & Zhang, 2014; Lai and Gul, 2008; Zaman et al., 2011). Finally, the natural logarithm of the number of subsidiaries is used as a proxy for *COMPLEXITY* (André, Broye, Pong, & Schatt, 2016; Davis & Hay, 2012). We expect complex clients to require more audit effort, and so their audit reports will feature a greater number of KAM.

Additionally, we include the following financial statement accounts as a proxy for the complexity of the client's transactions and business: *REVENUES*, *INVENTORIES*, *PROPERTY, PLANT AND EQUIPMENT (PPE)*, *GOODWILL* and *INTANGIBLES*. In each case, the item is measured as the natural logarithm of the corresponding financial statement caption, to avoid problems of scale. Finally, *INDUSTRY* is a categorical variable that reflects the business sector in which the client operates: basic materials, consumer goods, consumer services, healthcare, industrials, technology and telecommunications, and utilities, oil and gas. Consumer services are excluded from the model because this is the reference sector for the variable.

### 3.3.3. Control variables

The following control variables are included (Bédard et al., 2014). *YEAR-END* is a dummy variable that takes the value of 1 for 31 December year-end companies, and zero otherwise. This variable controls for the impact of the busy season in the number of KAM the auditors include in the audit report. *YEARS* is a categorical variable corresponding to the period referred to by the data, and is ranked from 2013 to 2016. The year 2013, the first of KAM disclosure, is excluded from the model, as it is taken as a reference in the categorical variable. An increasing or decreasing trend of the KAM magnitude and type throughout the sample-years could imply that the additional information provided by KAM year after year is used by the client to manage its risks and by auditors to identify risks. This could provide evidence of an informational and disciplinary role of KAM with clients and auditors.

### 3.4. Data sources

The financial data we analyse are obtained from the Thomson Reuters EIKON<sup>2</sup> database and from the audited financial statements provided on each company's website. The KAM data are derived from the audit report published for each of these companies.

### 3.5. Descriptive statistics

Table 2 shows the types of KAM disclosed in the audit reports of the companies analysed for the period 2013–2016. The most common type of KAM identified by the auditors is related to revenue recognition, which usually involves complex

<sup>2</sup> Thomson Reuters Eikon is a set of software products provided by Thomson Reuters to monitor and analyse financial information. It provides access to real time market data, news, fundamental data, analytics, trading and messaging tools.

**Table 3**

FTSE 100 sample companies distributed by number of KAM.

#KAM	#OBS.	TOTAL KAM	AUDIT FEES (£M)	NAF RATIO	TOTAL ASSETS (£M)	LEVERAGE	CURRENT RATIO	ROA (%)
1	5	5	9.102	0.254	96,740.20	0.371	1.274	4.14
2	17	34	0.513	0.461	55,619.08	0.257	1.568	11.05
3	59	177	1.249	0.412	12,607.79	0.319	1.161	7.59
4	64	256	1.333	0.570	17,956.32	0.339	1.460	7.24
5	70	350	1.445	0.314	20,312.86	0.351	1.524	6.74
6	31	186	1.966	0.288	34,197.05	0.364	1.670	5.45
7	20	140	2.984	0.320	59,353.65	0.391	1.025	4.03
8	10	80	4.173	0.272	95,694.49	0.397	1.187	-0.74
9	3	27	4.244	0.336	36,136.67	0.542	0.770	4.24
10	1	10	0.200	0.207	23,063.00	0.303	1.310	5.98
<b>Total</b>	280	1265	1.749	0.397	25,817.20	0.344	1.391	6.62

contract arrangements, long-term contracts or potential management pressure to reach annual profit targets. This group is followed in order of frequency by KAM related to intangibles, the audit valuation of which is problematic because these accounts are subject to material management judgement. Tax issues are the third group of KAM identified by the auditors of the FTSE 100 companies. Taxation is a key judgemental area for auditors because when their client operates in a number of tax jurisdictions it can give rise to uncertain tax treatment, for example with respect to transfer pricing, thereby requiring the use of estimates and assumptions which may be challenged by the tax authorities. The fourth common area of KAM identified by auditors is that of litigation and regulatory provisions. This question is viewed as crucial due to the magnitude of potential exposure, and the inherent complexity and judgement involved in deciding whether to make provisions and disclosure. Other types of KAM that are addressed by auditors include acquisition accounting, PPE, the valuation of inventories and financial assets, pension schemes, internal control systems and IT issues.

**Table 3** shows the distribution of the sample by number of KAM disclosed. The following mean values are recorded for the sample companies: total assets GBP 25.8 billion; current ratio 1.40; leverage 0.344; ROA 6.62%. The average audit fee paid by the sample companies is GBP 1.749 million and the mean non-audit fee ratio is 0.397. **Table 3** also reveals that 61.89% of the companies disclose 3–5 KAM in their audit reports. The average audit fee paid by these companies and their average total assets are both below the sample average.

**Table 4** presents the sample distribution by number of ELRKAM. Specifically, 55.34% of the sample disclose 2 or 3 ELRKAM in their audit reports. It is interesting to note that the companies which do not disclose this type of KAM pay a lower average audit fee (GBP 0.326 million) and have a lower level of assets than the sample average (GBP 10.24 billion) but are not less profitable (average ROA: 6.06%).

**Table 5** shows the sample distribution by number of ALRKAM and reveals that 60% of the sample disclose 3 or 4 ALRKAM. In contrast to the preceding statistics, the companies that pay the lowest average audit fee (GBP 0.823 million) disclose higher numbers of ALRKAM (4), while the smallest company (by total assets) discloses six.

**Table 6** shows the sample distribution by auditors. The audit firm with the largest number of companies in the sample (95 company-years) is PwC, followed by KPMG (77 company-years) and Deloitte (69 company-years). On average, 4.52 KAM are disclosed in each audit report. PwC discloses 5.20 KAM in each report (and is the only Big 4 company to exceed the average number of KAM disclosed), followed by Deloitte (4.39), EY (4.34) and KPMG (3.88).

**Table 7** shows the sample distribution by industry sector. The industries presenting above-sample-average numbers of KAM are utilities, oil & gas (5.62 KAM), technology and telecommunications (5.10 KAM), basic materials (4.83 KAM) and healthcare (4.75 KAM). The lowest value is recorded for the consumer services industry (3.90 KAM).

#### 4. Results

**Tables 8 and 9** show the Pearson correlations and the variance inflation factor (VIF) for the dependent and independent variables used to test hypotheses H<sub>1</sub> and H<sub>2</sub>. Although the correlations are significant, they do not seem to be strong enough to cause multicollinearity problems in the models (Gujarati & Porter, 2003). The general rule for cut-off points is that the VIF should not exceed 10 and that the tolerance values should not be less than 0.10 (Hair, Black, Babin, & Anderson, 2010).

With respect to hypothesis H<sub>1</sub>, **Table 10** presents the results obtained on the relationship between the client and auditor characteristics and the total number of KAM. The goodness of fit, the Prob > chi<sup>2</sup> and the Wald chi<sup>2</sup> test are significant for all models. The R<sup>2</sup> for Model 1 is 34.48%, for Model 2a it is 38.24% and for Model 2b it is 29.10%.

The results for Deloitte (coefficient: -0.927; p ≤ 0.01), EY (coefficient: -1.05; p ≤ 0.01), and KPMG (coefficient: -1.22; p ≤ 0.01) are all negative and significant, from which we conclude that Deloitte, EY and KPMG disclose fewer KAM in their audit reports than do PwC. The variable AUDIT FEES is not significant, and therefore is not related to the number of KAM identified by the auditors. This is consistent with Bédard et al. (2014) and Gutierrez et al. (2016), who suggested that the fees paid to the auditor do not vary with the number of KAM disclosed. Similarly, the NAF RATIO shows that non-audit fees are not related to the number of KAM. On the other hand, MATERIALITY (coefficient: -1.14; p ≤ 0.01) is statistically significant and

**Table 4**

FTSE 100 sample companies distributed by number of ELRKAM.

#ELRKAM	#OBS.	TOTAL ELRKAM	AUDIT FEES (£M)	NAF RATIO	TOTAL ASSETS (£M)	LEVERAGE	CURRENT RATIO	ROA (%)
0	31	0	0.326	0.304	10,236.68	0.373	1.765	6.06
1	92	92	1.194	0.448	14,721.51	0.321	1.180	7.75
2	82	164	1.733	0.397	23,490.31	0.331	1.597	6.31
3	42	126	2.014	0.386	32,553.24	0.384	1.457	5.98
4	25	100	2.908	0.315	66,082.05	0.362	1.073	2.11
5	6	30	7.039	0.204	102,375.91	0.401	1.087	12.90
6	2	12	2.850	0.203	10,326.50	0.321	1.470	15.87
<b>Total</b>	280	524	1.749	0.397	25,817.20	0.344	1.391	6.62

negative, meaning that materiality is lower when more KAM are reported. This is consistent with the assumption that the higher the audit risk, the lower the materiality (IAASB, 2009).

With respect to the client characteristics, the variable *LEVERAGE* (coefficient:  $-0.048$ ;  $p \leq 0.01$ ) presents a significant inverse association with the number of KAM disclosed; thus, highly liquid companies tend to report fewer KAM. *LOSS*, which reflects the client's profitability, presents a significant positive association with KAM (coefficient:  $0.865$ ;  $p \leq 0.10$ ), and this is interpreted as meaning that less profitable companies disclose a higher number of KAM. Finally, the relationship between *COMPLEXITY* and KAM is negative and significant (coefficient:  $-0.144$ ;  $p \leq 0.01$ ), meaning that more complex companies present fewer KAM. This result is not consistent with our expectation.

The results show that *REVENUES* (coefficient:  $0.224$ ;  $p \leq 0.10$ ), *INVENTORIES* (coefficient:  $0.066$ ;  $p \leq 0.05$ ), *PPE* (coefficient:  $0.072$ ;  $p \leq 0.05$ ), and *GOODWILL* (coefficient:  $0.092$ ;  $p \leq 0.01$ ) have a positive and significant association with KAM. However, the relation for *INTANGIBLES* (coefficient:  $-0.110$ ;  $p \leq 0.05$ ) is inverse and significant, meaning that in this type of business the risk is concentrated on specific transactions.

The industries *HEALTHCARE*, *INDUSTRIALS*, *TECHNOLOGY & TELECOMMUNICATIONS* and *UTILITIES & GAS & OIL* all present a positive, significant relation with the number of KAM disclosed in the audit report, in contrast to the *CONSUMER SERVICES* sector. Geiger, Raghunandan, and Rama (2006) identify pharmaceuticals, computing, electrical and electronic equipment, computer services, and research, development and testing services as 'risky' industries. Our results, too, show that technological companies are associated with a higher number of risks identified by the auditor.

The *YEAR-END* variable is positive and significant. Thus, the companies presenting 31 December year-end results disclose a higher number of KAM. Finally, for *YEARS*, there is a statistically significant and positive relationship for 2015.

The results support hypothesis H<sub>1</sub>, in that auditor and client characteristics appear to be determinants of the magnitude of KAM disclosed by auditors.

Table 10 also shows the results for Model 2a on the relationship between the client and auditor characteristics and the number of ELRKAM. Deloitte (coefficient:  $-1.07$ ;  $p \leq 0.01$ ), EY (coefficient:  $-0.795$ ;  $p \leq 0.01$ ) and KPMG (coefficient:  $-0.841$ ;  $p \leq 0.01$ ) all present a significant inverse relation with the number of ELRKAM in the audit report, meaning that these audit firms identify fewer ELRKAM (and Deloitte, fewest of all) than PwC. Furthermore, the *AUDIT FEES* variable (coefficient:  $0.174$ ;  $p \leq 0.05$ ) is positively and significantly related to the dependent variable; thus, companies paying higher audit service fees tend to show more ELRKAM. This result is contrary to previous findings (Bédard et al., 2014; Gutierrez et al., 2016). No significant relation was observed between either *MATERIALITY* or *NAF RATIO* and the number of ELRKAM.

For the client characteristic variables, *SIZE* (coefficient:  $0.124$ ;  $p \leq 0.01$ ), *CURRENT RATIO* (coefficient:  $0.118$ ;  $p \leq 0.01$ ), *ROA* (coefficient:  $0.033$ ;  $p \leq 0.01$ ) and *LOSS* (coefficient:  $0.846$ ;  $p \leq 0.01$ ) are positively and significantly related to the number of ELRKAM, which means that larger companies, those which have more liquidity, are more profitable or which presented losses during the year disclose a greater number of ELRKAM. However, *LEVERAGE* (coefficient:  $-0.007$ ;  $p \leq 0.05$ ) and *COMPLEXITY* (coefficient:  $-0.037$ ;  $p \leq 0.05$ ) present a significant inverse relation with ELRKAM. Therefore, companies with less solvency and/or less complexity disclose a higher number of ELRKAM.

*GOODWILL* represents the acquisition accounting associated with the complexity of the organisation, as a complex client will usually be involved in business combinations. According to our results, there is a positive, significant relation between *GOODWILL* and the dependent variable (coefficient:  $0.080$ ;  $p \leq 0.01$ ).

The relations for the *CONSUMER GOODS*, *INDUSTRIALS*, *TECHNOLOGY & TELECOMMUNICATIONS* and *UTILITIES & GAS & OIL* business sectors are positive and significant, showing that companies in these areas are more likely to disclose a higher number of ELRKAM than those in the *CONSUMER SERVICES* sector.

The relationship for *YEAR-END* is positive and significant, showing that companies presenting their year-end results on 31 December reveal a larger number of ELRKAM. The coefficients for *YEARS* are all negative and statistically significant, with lower coefficients in more recent years. This is interpreted as meaning that the magnitude of ELRKAM decreased over the study period.

The above results support our hypothesis H<sub>2</sub>, in that certain client and auditor characteristics are significantly associated with the number of ELRKAM disclosed.

The results obtained for Model 2b (see Table 10) illustrate the relationship between client characteristics, auditor characteristics and the number of ALRKAM disclosed. Regarding *AUDIT FIRM*, the relations obtained for KPMG (coefficient:  $-0.467$ ;  $p \leq 0.05$ ) and BDO (coefficient:  $-0.835$ ;  $p \leq 0.05$ ) are negative and significant. Hence, these auditors tend to report fewer

**Table 5**

FTSE 100 sample companies distributed by number of ALRKAM.

#ALRKAM	#OBS.	TOTAL ALRKAM	AUDIT FEES (£M)	NAF RATIO	TOTAL ASSETS (£M)	LEVERAGE	CURRENT RATIO	ROA (%)
0	5	0	8.980	0.301	96,039.74	0.389	1.340	5.59
1	42	42	1.438	0.446	24,723.35	0.316	1.204	8.30
2	84	168	1.731	0.414	24,509.26	0.315	1.297	8.42
3	84	252	1.949	0.412	20,149.91	0.339	1.587	6.12
4	47	188	0.823	0.360	21,300.26	0.405	1.597	4.77
5	17	85	2.106	0.277	55,850.71	0.404	0.836	1.71
6	1	6	0.900	0.000	8292.50	0.335	0.730	1.39
<b>Total</b>	<b>280</b>	<b>741</b>	<b>1.749</b>	<b>0.397</b>	<b>25,817.20</b>	<b>0.344</b>	<b>1.391</b>	<b>6.62</b>

**Table 6**

FTSE 100 sample companies distributed by auditor.

AUDIT FIRM	#OBS.	TOTAL KAM	AVERAGE KAM
BDO	4	17	4.25
Deloitte	69	303	4.39
EY	35	152	4.34
KPMG	77	299	3.88
PwC	95	494	5.20
<b>Total</b>	<b>280</b>	<b>1265</b>	<b>4.52</b>

**Table 7**

FTSE 100 sample companies distributed by industry.

INDUSTRY	#OBS.	TOTAL KAM	AVERAGE KAM
Basic materials	36	174	4.83
Consumer goods	56	243	4.34
Consumer services	88	344	3.91
Healthcare	20	95	4.75
Industrials	36	172	4.78
Technology & telecommunications	20	102	5.10
Utilities & gas & oil	24	135	5.62
<b>Total</b>	<b>280</b>	<b>1265</b>	<b>4.52</b>

**Table 8**

Pearson correlations.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
A-#KAM	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
B-#ELRKAM	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
C-#ALRKAM	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
D-AUDIT FIRM	-.28*	-.24*	-.12*	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
E-AUDIT FEES	.24*	.41*	-.10*	-.10*	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
F-NAF RATIO	-.08*	-.06*	-.05*	-.08*	-.05*	1	—	—	—	—	—	—	—	—	—	—	—	—	—	
G-MATERIALITY	-.30*	-.09*	-.31*	.13*	-.28*	.02	1	—	—	—	—	—	—	—	—	—	—	—	—	
H-SWITCH	-.05*	-.05*	-.01	.05*	-.01	-.07*	-.03	1	—	—	—	—	—	—	—	—	—	—	—	
I-SPECIALIST	.27*	.34*	.004	-.59*	.26*	-.04*	-.14*	-.05*	1	—	—	—	—	—	—	—	—	—	—	
J-SIZE	.36*	.37*	.10*	-.15*	.64*	-.10*	-.48*	-.003	.31*	1	—	—	—	—	—	—	—	—	—	
K-LEVERAGE	.16*	.07*	.15*	-.10*	.26*	-.007	-.14*	-.09*	.11*	.21*	1	—	—	—	—	—	—	—	—	
L-CURRENT RATIO	-.01	-.04*	.02	.14*	-.09*	-.07*	.08*	-.04*	-.14*	-.19*	-.20*	1	—	—	—	—	—	—	—	
M-ROA	-.21*	-.06*	-.22*	.09*	-.19*	.10*	.64*	-.009	-.17*	-.33*	-.11*	.05*	1	—	—	—	—	—	—	
N-LOSS	.20*	.18*	.08*	-.05*	.17*	-.05*	-.23*	-.05*	.15*	.21*	.07*	-.05*	-.52*	1	—	—	—	—	—	
O-COMPLEXITY	.12*	.26*	-.11*	-.06*	.51*	-.05*	-.25*	-.01	.21*	.43*	.03	-.10*	-.22*	.07*	1	—	—	—	—	
P-REVENUES	.36*	—	.19*	-.12*	.56*	-.14*	-.44*	.03	.28*	.61*	.07*	-.22*	-.28*	.21*	.28*	1	—	—	—	
Q-INVENTORIES	.26*	—	.27*	-.02	.29*	-.14*	-.26*	.05*	.01	.48*	-.06*	.14*	-.14*	.09*	.18*	.59*	1	—	—	
R-PPE	.33*	—	.19*	-.04*	.52*	-.16*	-.46*	.002	.17*	.57*	.26*	-.11*	-.27*	.19*	.16*	.57*	.44*	1	—	
S-GOODWILL	.15*	.27*	—	-.17*	.42*	-.05*	-.16*	.02	.22*	.36*	.09*	-.56*	-.08*	.10*	.34*	.47*	.13*	.19*	1	
T-INTANGIBLES	.15*	—	-.03*	-.22*	.43*	-.06*	-.29*	.04	.24*	.50*	.20*	-.66*	-.13*	.12*	.29*	.56*	.21*	.31*	.48*	1

\*Significant at 5%.

See key in Table 10 for the definition of the variables.

**Table 9**  
VIF and tolerance values.

Model 1			Model 2a			Model 2b		
Variable	VIF	1/VIF	Variable	VIF	1/VIF	Variable	VIF	1/VIF
REVENUES	6.98	0.143	SIZE	2.18	0.458	REVENUES	4.20	0.238
SIZE	6.23	0.160	AUDIT FEES	2.14	0.467	PPE	2.77	0.361
INTANGIBLES	5.84	0.171	MATERIALITY	2.03	0.491	INTANGIBLES	1.70	0.588
GOODWILL	4.30	0.232	GOODWILL	1.90	0.526	INVENTORIES	1.61	0.622
PPE	3.35	0.298	ROA	1.77	0.563	AUDIT FEES	1.58	0.631
CURRENT RATIO	2.37	0.421	CURRENT RATIO	1.56	0.642	MATERIALITY	1.32	0.758
AUDIT FEES	2.34	0.426	COMPLEXITY	1.46	0.684	NAF RATIO	1.06	0.939
MATERIALITY	2.24	0.445	NAF RATIO	1.04	0.961			
INVENTORIES	1.87	0.536	LEVERAGE	1.03	0.968			
ROA	1.82	0.549						
COMPLEXITY	1.77	0.566						
LEVERAGE	1.12	0.890						
NAF RATIO	1.09	0.920						
Mean VIF	3.18		Mean VIF	1.68		Mean VIF	2.03	

ALRKAM than PwC. Similarly, there is a significant inverse relation between AUDIT FEES (coefficient:  $-0.268; p \leq 0.01$ ) and ALRKAM, such that companies which pay lower audit services fees disclose a larger number of ALRKAM. There is no significant association for NON-AUDIT FEES. The relation for MATERIALITY (coefficient:  $-0.917; p \leq 0.01$ ) is significant and negative, and therefore the lower the materiality the larger the ALRKAM. This finding is consistent with the situation normally attributed to companies at risk, i.e., the higher the audit risk, the lower the materiality.

REVENUES (Coefficient: 0.123;  $p \leq 0.01$ ), and INVENTORIES (coefficient: 0.084;  $p \leq 0.01$ ) are positively and significantly related to ALRKAM. However, the variable INTANGIBLES (coefficient:  $-0.711; p \leq 0.01$ ) presents a significant inverse relation to ALRKAM.

Each of the industry sectors considered presents a significant inverse relation with the number of ALRKAM disclosed in the audit report, except for TECHNOLOGY & TELECOMMUNICATIONS and UTILITIES & OIL & GAS, which are positive and significant.

The coefficients for YEARS are positive, statistically significant and higher in more recent years. Hence, the magnitude of the ALRKAM disclosed in audit reports increased during the study period.

These results support hypothesis H<sub>2</sub>, showing that some auditor and client characteristics influence the number of ALRKAM disclosed.

## 5. Discussion and conclusions

The new structure for audit reports, required under ISA 700 (UK and Ireland), represents the most significant change in this field in recent times, not only because this standard requires additional information to be provided to the financial markets, but also because it obliges auditors to make part of their work public, overturning the former opacity in this regard. Assessing client risk is crucial to the success of an audit, which is why standard-setters now require auditors to unveil their part in this process. However, the new standard does not ask the auditor to perform additional procedures, merely to reveal the procedures currently employed. Thus, the black box is becoming grey.

Previously, researchers have analysed the KAM relevance for decision-makers and the majority of them find that KAM have an informative value. As KAM bring new information to the audit report, it is useful to understand which auditors include more KAM, what types of KAM they report and which clients they report on. The novel aspect of our study is to analyse the relationship between auditor and client characteristics and the magnitude and type of KAM disclosed in the audit report of the FTSE 100 companies during the period 2013–2016.

Reporting more or less KAM of a certain type could be viewed as the auditor being more or less specific in this area, for example, by breaking down certain risks and disclosing them separately. But the disclosure of more KAM could also provide more information about the client characteristics served by the auditor. According to our findings, the clients of Deloitte, EY and KPMG are usually less complex and regulated than those of PwC, and hence, they receive less KAM.

Companies paying higher fees tend to have more ELRKAM and fewer ALRKAM. This appears logical, as higher fees are usually paid by larger, riskier or more complex companies, although business complexity might be concentrated in a small number of accounts within the financial statement.

The more structural characteristics of the clients are often determinants of ELRKAM. This is consistent with the auditor focusing on the financial statement accounts that reflect the risks inherent to the client. The type of business transaction is a relevant factor in determining ALRKAM.

The industry sector in which the client operates is another variable that can determine the number of ALRKAM. An interesting aspect of our findings is the fact that over the study period ELRKAM presented a decreasing trend, while that of ALRKAM rose. These differing patterns could imply that the number of KAM, by types disclosed, evolves in response to the joint effects of: a) the informational and disciplinary role played by KAM disclosure, with the audit client making use of this

**Table 10**

Linear regression, correlated panel-corrected standard errors.

	MODEL 1 (#KAM)	MODEL 2a (#ELRKAM)	MODEL 2b (#ALRKAM)
AUDIT FIRM (REFERENCE: PWC)			
DELOITTE	-.927* (.251)	-.107* (.279)	.093 (.216)
EY	-1.05* (.356)	-.795* (.244)	-.208 (.288)
KPMG	-1.22* (.206)	-.841* (.242)	-.467** (.212)
BDO	-.663 (.594)	.420 (.321)	-.835** (.366)
AUDIT FEES	.0178 (.071)	.174** (.082)	-.268* (.039)
NAF RATIO	-.082 (.1030)	-.056 (0.89)	-.021 (.038)
MATERIALITY	-1.14* (.350)	-.265 (.197)	-.917* (.165)
SWITCH	-.186 (.253)	-.036 (.132)	-.184 (.256)
SPECIALIST	-.231 (.238)	-.081 (.198)	-.150 (.193)
SIZE	-.075 (.096)	.124* (.033)	—
LEVERAGE	-.048* (.007)	-.007** (.003)	—
CURRENT RATIO	.059 (.064)	.118* (.037)	—
ROA	.020 (.014)	.033* (.010)	—
LOSS	.865*** (.453)	.846* (.292)	—
COMPLEXITY	-.144* (.031)	-.037** (.011)	—
REVENUES	.224*** (.124)	—	.123* (.043)
INVENTORIES	.066** (.033)	—	.084* (.014)
PPE	.072** (.031)	—	.034 (.024)
GOODWILL	.0923* (.0153)	.080* (.008)	—
INTANGIBLES	-.110** (.046)	—	-.711* (.009)
INDUSTRY (REFERENCE: CONSUMER SERVICES)			
BASIC MATERIALS	.089 (.165)	-.286 (.193)	-.370* (.131)
CONSUMER GOODS	-.112 (.170)	.237** (.118)	-.456* (.071)
HEALTHCARE	.464** (.280)	.230 (.205)	.147 (.190)
INDUSTRIALS	.438** (.177)	.239* (.091)	-.011 (.188)
TECHNOLOGY & TELECOMM.	1.18* (.267)	.550* (.137)	.363*** (.188)
UTILITIES & GAS & OIL	1.12* (.135)	.554* (.055)	.388* (.077)
YEAR-END	.355* (.100)	.318* (.086)	-.071 (.070)
YEARS (REFERENCE: 2013)			
2014	-.007 (.026)	-.146* (.0131)	.153* (.014)
2015	-.116** (.062)	-.224* (.023)	.131* (.041)
2016	-.041 (.086)	-.333* (.039)	.298* (.037)
_cons	1.925*** (1.12)	-.2095* (.487)	2.606** (.477)
R <sup>2</sup>	0.3448	0.3824	0.291
Wald chi <sup>2</sup>	44866.98	319244.98	9858543.83
Prob > chi <sup>2</sup>	0.0000*	0.0000*	0.0000*
Observations	280	280	280

(Standard errors in parentheses) \*Significant at 1% \*\*Significant at 5% \*\*\*Significant at 10%.

Key: #KAM is the total number of matters mentioned in the key audit matter section of the audit report. #ELRKAM is the number of KAM related to overall company risk. #ALRKAM is the number of KAM related to specific items in the financial statement. AUDIT FIRM is a categorical variable to identify the audit firms: BDO, Deloitte, EY, KPMG and PwC (PwC is the reference). AUDIT FEES is the natural logarithm of the audit services fees. Non-audit fees ratio (NAF RATIO) is measured as non-audit fees to total fees paid to the auditor. MATERIALITY is measured as the ratio of total materiality amount disclosed in the audit report divided by total assets. SWITCH is a dummy variable that takes the value of 1 if the company has changed its auditor since the previous year and zero otherwise. SPECIALIST is a dummy variable that takes the value of 1 if the incumbent auditor has a market share >30% in the industry where the client operates and zero otherwise. SIZE is the natural logarithm of total assets. LEVERAGE is measured as total debts divided by total assets. CURRENT RATIO is measured as total current assets divided by total current liabilities. ROA is measured as profit before taxes divided by total assets. LOSS is a dummy variable that takes the value of 1 if the company has incurred losses during the previous year and zero otherwise. COMPLEXITY is the natural logarithm of the number of subsidiaries. REVENUES, INVENTORIES, PPE, GOODWILL and INTANGIBLES are measured as the natural logarithm of each item. INDUSTRY is a categorical variable ranked for each of the following business sectors: basic materials, consumer goods, consumer services, healthcare, industrials, technology and telecommunications, and utilities, oil and gas (consumer service is the reference). YEAR-END is a dummy variable that takes the value of 1 for company with 31 December year-end and zero otherwise. YEARS is a categorical variable ranked from 2013 until 2016 (2013 is the reference).

new information to adjust risk management procedures, as a result of which the auditor will report fewer ELRKAM and more ALRKAM; and b) the additional experience that auditors gain in identifying KAM and discussing them with management, which leads them to consider that a certain risk may not actually be an ELRKAM, as it is more focused on a specific account or transaction, which converts it into an ALRKAM.

These findings have important implications for shareholders, investors, regulators, auditors and scholars, all of whom may take them into consideration when reading and analysing the KAM included in audit reports. Shareholders and investors can use these results to compare the incumbent auditor with others regarding the amount and type of KAM included in the audit report and how the financial condition of the company is related to KAM disclosure. Moreover, this information could enable investors to call upon managers to improve risk management within the client in order to alleviate the KAM identified by the auditor. For regulators, the results shed light on the relationship between auditor type and expected KAM disclosure and also about the type of KAM to be expected in a given industry sector. To better understand how the number and type of KAM in a company evolve, regulators could require auditors to explain whether each KAM is a new one or is a modified version of one

included in the previous year. Although some FTSE 350 company auditors are already stating whether or not the KAM is a new one, this is not yet a regulatory requirement. The auditor could also specify whether there were KAM included in the previous year's report but not in the current one. This additional disclosure requirement would help analysts to understand how the magnitude and type of KAM are evolving in each company. The results of our study also contribute to clarifying the UK audit market and provide information to auditors in other countries where KAM disclosure in audit reports will also be required, and may encourage scholars to undertake new research efforts in this field.

In short, this study contributes to the audit literature and opens up a new line of research in relation to KAM disclosure. Nevertheless, further investigation is needed to extend the results presented here. We believe there are important opportunities for academic research in this field. For example, it would be very useful to analyse the consequences of KAM reporting on the quality and cost of audits, and also to study countries where such disclosure is required for public/non-public interest companies, as is the case in Spain (ICAC, 2016).

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## References

- André, P., Broye, G., Pong, C., & Schatt, A. (2016). Are joint audits associated with higher audit fees? *European Accounting Review*, 25(2), 245–274.
- Arnold, V., Bedard, J. C., Phillips, J. R., & Sutton, S. G. (2012). The impact of tagging qualitative financial information on investor decision making: Implications for XBRL. *International Journal of Accounting Information Systems*, 13(1), 2–20.
- Asare, S. K., & Wright, A. M. (2012). Investors', auditors', and lenders' understanding of the message conveyed by the standard audit report on the financial statements. *Accounting Horizons*, 26(2), 25–44.
- Asare, S. K., & Wright, A. M. (2016). Inferring remediation and operational risk from material weakness disclosures. *Behavioral Research in Accounting*, 29(1), 1–17.
- Audouset-Coulier, S., Jeny, A., & Jiang, L. (2016). The validity of auditor industry specialization measures. *Auditing: A Journal of Practice & Theory*, 35(1), 139–161.
- Backof, A., Bowlin, K., & Goodson, B. (2017). *The impact of proposed changes to the content of the audit report on jurors' assessments of auditor negligence*. Working paper, Available on the internet at <http://papers.ssrn.com/sol3/papers.cfm?abstractid=2446057> Accessed 17.01.2017.
- Basioudis, I. G., Papakonstantinou, E., & Geiger, M. A. (2008). Audit fees, non-audit fees and auditor going-concern reporting decisions in the United Kingdom. *Abacus*, 44(3), 284–309.
- Beasley, M., & Salterio, S. (2001). The relationship between board characteristics and voluntary improvements in audit committee composition and experience. *Contemporary Accounting Research*, 18(4), 1–34.
- Bédard, J., Gonthier-Besacier, N., & Schatt, A. (2014). Costs and benefits of reporting KAM in the audit report: The French experience. In *International symposium on audit research*. available on the internet at: <http://documents.escdijon.eu/pdf/cig2014/ACTESDUCOLLOQUE/BEDARDGONTHIERBESACIERSCHATT> Accessed 18.01.2017.
- Boolaky, P. K., & Quick, R. (2016). Bank director's perceptions of expanded auditor's report. *International Journal of Auditing*, 20, 158–174.
- Brasel, K., Doxey, M. M., Grenier, J. H., & Reffett, A. (2016). Risk disclosure preceding negative outcomes: The effects of reporting critical audit matters on judgments of auditor liability. *The Accounting Review*, 91(5), 1345–1362.
- Brown, S. V., & Knechel, W. R. (2016). Auditor-client compatibility and audit firm selection. *Journal of Accounting Research*, 54(3), 725–775.
- Carcello, J. V., & Li, C. (2013). Costs and benefits of requiring an engagement partner signature: Recent experience in the United Kingdom. *The Accounting Review*, 88(5), 1511–1546.
- Carson, E., Fargher, N. L., Geiger, M. A., Lennox, C. S., Raghunandan, K., & Willekens, M. (2013). Audit reporting for going concern uncertainty: A research synthesis. *Auditing: A Journal of Practice & Theory*, 32(1), 353–384.
- Carver, B. T., & Trinkle, B. S. (2017). Nonprofessional investors' reactions to the PCAOB's proposed changes to the standard audit report. available on the internet at: <https://ssrn.com/abstract=2930375> Accessed 18.01.2017.
- Causholli, M., Chambers, D. J., & Payne, J. L. (2014). Future nonaudit service fees and audit quality. *Contemporary Accounting Research*, 31(3), 681–712.
- Christensen, B. E., Glover, S. M., & Wolfe, C. J. (2014). Do critical audit matter paragraphs in the audit report change nonprofessional investors' decision to invest? *Auditing: A Journal of Practice & Theory*, 33(4), 71–93.
- Chun, R. (2005). Corporate reputation: Meaning and measurement. *International Journal of Management Reviews*, 7, 91–109.
- Church, B. K., Davis, S. M., & McCracken, S. (2008). The auditor's reporting model: A literature overview and research synthesis. *Accounting Horizons*, 22(1), 69–90.
- Clarke, T., & Chantal, J. (2009). *European corporate governance reading and perspectives*. New York, NY: Routledge.
- Danescu, T., & Spatcean, O. (2018). Audit opinion impact in the investors' perception—empirical evidence on Bucharest Stock Exchange. *Audit Financiar*, 16(149), 111–121.
- Davis, M., & Hay, D. (2012). An analysis of submissions on proposed regulations for audit and assurance in New Zealand. *Australian Accounting Review*, 22(3), 303–316.
- DeFond, M., & Zhang, J. (2014). A review of archival auditing research. *Journal of Accounting and Economics*, 58(2–3), 275–326.
- Dobija, D., & Cieslak, I. (2013). Extended audit reporting. An insight from the auditing profession in Poland. available on the internet at <http://ssrn.com/abstract=2215605> Accessed 18.01.2017.
- Drukner, D. M. (2003). Testing for serial correlation in linear panel-data models. *STATA Journal*, 3(2), 168–177.
- European Parliament. (2014). Regulation (EU) No. 537/2014 of the European Parliament and of the Council of 16 April 2014 on specific requirements regarding statutory audit of public-interest entities and repealing Commission Decision 2005/909/EC.
- Financial Reporting Council. (2013). *International Standard on Auditing (UK and Ireland) 700. The independent auditor's report on financial statements*. London, England: Financial Reporting Council.
- Financial Reporting Council. (2016). *Communicating key audit matters in the independent auditor's report*. London, England: Financial Reporting Council.
- Francis, J. (2011). A framework for understanding and researching audit quality. *Auditing: A Journal of Practice & Theory*, 30(2), 125–152.
- Geiger, M. A., Raghunandan, K., & Rama, D. V. (2006). Auditor decision-making in different litigation environments: The Private Securities Litigation Reform Act, audit reports and audit firm size. *Journal of Accounting and Public Policy*, 25(3), 332–353.
- Gibbins, M. (1984). Propositions about the psychology of professional judgment in public accounting. *Journal of Accounting Research*, 103–125.

- Gimbar, C., Hansen, B., & Ozlanski, M. E. (2016). The effect of critical audit matter paragraphs and accounting standard precision on auditor liability. *The Accounting Review*, 91(6), 1629–1646.
- Goodwin-Stewart, J., & Kent, P. (2006). The relation between external audit fees, audit committee characteristics and internal audit. *Accounting and Finance*, 46(3), 387–404.
- Guiral-Contreras, A., Gonzalo-Angulo, J. A., & Rodgers, W. (2007). Information content and recency effect of the audit report in loan rating decisions. *Accounting and Finance*, 47, 285–304.
- Gujarati, D. N., & Porter, D. C. (2003). *Basic econometrics* (4<sup>th</sup> ed.). New York: McGraw-Hill.
- Gutierrez, E., Minutti-Meza, M., Tatum, K. W., & Vulcheva, M. (2016). *Consequences of changing the auditor's report: Evidence from the UK*. Working Paper. Universidad de Chile, University of Miami, and Florida International University, 2016, available on the internet at <https://papers.ssrn.com/sol3/papers.cfm> Accessed 18.01.2017.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis: A global perspective* (7<sup>th</sup> ed.). Upper Saddle River, NJ: Pearson-Prentice Hall.
- Hay, D., Knechel, W. R., & Wong, N. (2006). Audit fees: A meta-analysis of the effect of supply and demand attributes. *Contemporary Accounting Research*, 23(1), 141–191.
- Hogarth, R. M. (1980). *Judgment and choice: The psychology of decision* (2<sup>nd</sup> ed.). New York: Wiley.
- Ho, S., & Hutchinson, M. (2010). Internal audit department characteristics/activities and audit fees: Some evidence from Hong Kong firms. *Journal of International Accounting, Auditing and Taxation*, 19(2), 121–136.
- Holland, K., & Lane, J. (2012). Perceived auditor independence and audit firm fees. *Accounting and Business Research*, 42(2), 115–141.
- Hudaib, M., & Cooke, T. E. (2005). The impact of managing director changes and financial distress on audit qualification and auditor switching. *Journal of Business Finance & Accounting*, 32(9–10), 1703–1739.
- ICAC. (2016). *Resolución del 23 de diciembre de 2016, del Instituto de Contabilidad y Auditoría de Cuentas, por la que se publica la modificación de Hacienda determinadas Normas Técnicas de Auditoría y del Glosario de Términos*. Madrid: Instituto de Contabilidad y Auditoría de Cuentas, Ministerio de Economía y Hacienda.
- International Auditing, & Assurance Standard Board (IAASB). (2009). *International Standard on Auditing 320. Materiality in planning and performing audit*. New York, NY: International Federation of Accountants.
- International Auditing, & Assurance Standard Board (IAASB). (2015). *International Standard on Auditing 701. Communicating key audit matters in the independent auditor's report*. New York, NY: International Federation of Accountants.
- International Auditing, & Assurance Standard Board (IAASB). (2016). *Identifying and assessing the risks of material misstatement through understanding the entity and its environment*. *International Standard on Auditing* (Vol. 315). New York, NY: International Federation of Accountants.
- Iskandar, T. M. (1996). Industry type: A factor in materiality judgements and risk assessments. *Managerial Auditing Journal*, 11(3), 4–10.
- Johnstone, K. M. (2000). Client acceptance decisions: Simultaneous effects of client business risk, audit risk, auditor business risk, and risk adaptation. *Auditing: A Journal of Practice & Theory*, 19(1), 1–25.
- Kachelmeier, S. J., Schmidt, J., & Valentine, K. (2017). *The disclaimer effect of disclosing critical audit matters in the auditor's report*. available on the internet at <http://ssrn.com/abstract=2481284> Accessed 18.01.2017.
- Klein, A. (2002). Audit committee, board of director characteristics, and earnings management. *Journal of Accounting and Economics*, 33(2), 375–400.
- Köhler, A. G., Ratzinger-Sakel, N. V., & Theis, J. C. (2016). *The effects of key audit matters on the auditor's report's communicative value: Experimental evidence from investment professionals and non-professional investors*. available on the internet at [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2838162](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2838162) Accessed 18.01.2017.
- Kotchetova, N., Kozloski, T. M., & Messier, W. F., Jr. (2006). *Linkages between auditors' risk assessments in a risk-based audit*. available on the internet at [https://business.illinois.edu/files/accy/events/symposium/audit/proceedings/proceedings\\_2006/papers/KKM\\_BPA\\_August2006.pdf](https://business.illinois.edu/files/accy/events/symposium/audit/proceedings/proceedings_2006/papers/KKM_BPA_August2006.pdf) Accessed 20.02.2018.
- Kranacher, M. (2011). The audit reporting process: An opportunity for fundamental change. *The CPA Journal*, 22, 69–90.
- Lai, K. W., & Gul, F. A. (2008). Was audit quality of laventhol and horwath poor? *Journal of Accounting and Public Policy*, 27(3), 217–237.
- Lawrence, A., Minutti-Meza, M., & Zhang, P. (2011). Can Big 4 versus non-Big 4 differences in audit-quality proxies be attributed to client characteristics? *The Accounting Review*, 86(1), 259–286.
- Lennox, C. S., Schmidt, J. J., & Thompson, A. M. (2017). *Is the expanded model of audit reporting informative to investors? Evidence from the UK*. Working Paper. The University of Texas at Austin.
- Maijor, S., & Vanstraelen, A. (2012). Research opportunities in auditing in the EU, revisited. *Auditing: A Journal of Practice & Theory*, 31(1), 115–126.
- Mohd Sanusi, Z., Iskandar, T. M., Monroe, G. S., & Saleh, N. M. (2018). Effects of goal orientation, self-efficacy and task complexity on the audit judgment performance of Malaysian auditors. *Accounting, Auditing & Accountability Journal*, 31(1), 75–95.
- Neal, T. L., & Riley, R. R., Jr. (2004). Auditor industry specialist research design. *Auditing: A Journal of Practice & Theory*, 23(2), 169–177.
- Pearson, T., & Trompeter, G. (1994). Competition in the market for audit services: The effect of supplier concentration on audit fees. *Contemporary Accounting Research*, 11(1), 91–114.
- Pelzer, J. R. E. (2017). *Understanding barriers to critical audit matter effectiveness*. available on the internet at <http://diginole.lib.fsu.edu/islandora/object/fsu%3A360417> Accessed 18.01.2017.
- Prawitt, D. F., Sharp, N. Y., & Wood, D. A. (2011). Reconciling archival and experimental research: Does internal audit contribution affect the external audit fee? *Behavioral Research in Accounting*, 23(2), 187–206.
- Public Company Accounting Oversight Board. (2017). AS 3101: *The auditor's report on an audit of financial statements when the auditor expresses an unqualified opinion*. available on the internet at <https://pcaobus.org/Standards/Auditing/Pages/AS3101.aspx> Accessed 22.01.2018.
- Quick, R., & Warming-Rasmussen, B. (2015). An experimental analysis of the effects of non-audit services on auditor independence in appearance in the European Union: Evidence from Germany. *Journal of International Financial Management & Accounting*, 26(2), 150–187.
- Simnett, R., & Huggins, A. (2014). Enhancing the auditor's report: To what extent is there support for the IAASB's proposed changes? *Accounting Horizons*, 28(4), 719–747.
- Simunic, D. A. (1980). The pricing of audit services: Theory and evidence. *Journal of Accounting Research*, 22(3), 161–190.
- Sirois, L. P., Bédard, J., & Bera, P. (2018). The informational value of key audit matters in the auditor's report: Evidence from an eye-tracking study. *Accounting Horizons*, 32(2), 141–162.
- Smith, K. (2017). Tell me more: A content analysis of expanded auditor reporting in the United Kingdom. available on the internet at <https://ssrn.com/abstract=2821399> Accessed 20.01.2018.
- Trpeska, M., Atanasovski, A., & Lazarevska, Z. B. (2017). The relevance of financial information and contents of the new audit report for lending decisions of commercial banks. *Accounting and Management Information Systems*, 16(4), 455–471.
- Turner, J. L., Mock, T. J., Coram, P. J., & Gray, G. L. (2010). Improving transparency and relevance of auditor communications with financial statement users. *Current Issues in Auditing*, 4(1), A1–A8.
- Vanstraelen, A., Schelleman, C., Meuwissen, R., & Hofmann, I. (2012). The audit reporting debate: Seemingly intractable problems and feasible solutions. *European Accounting Review*, 21(2), 193–215.
- Velte, P. (2018). Does gender diversity in the audit committee influence key audit matters' readability in the audit report? UK evidence. Corporate Social Responsibility and Environmental Management. <https://doi.org/10.1002/csr.1491> (in press).
- Wu, C. Y. H., Hsu, H. H., & Haslam, J. (2016). Audit committees, non-audit services, and auditor reporting decisions prior to failure. *The British Accounting Review*, 48(2), 240–256.
- Zaman, M., Hudaib, M., & Haniffa, R. (2011). Corporate governance quality, audit fees and non-audit services fees. *Journal of Business Finance & Accounting*, 38(1–2), 165–197.