

The Key Audit Matters and the Audit Cost: Does Governance Matter?

Abstract

Purpose

This paper investigates the relationship between Key audit matters and audit costs and whether board size and independence affect this relationship. Furthermore, it examines the moderating effect of corporate governance on the relationship between Key audit matters and audit costs.

Methodology

We hypothesise that disclosing more KAMs in the audit report is positively associated with audit costs due to the greater effort. The agency theory suggests that firms with good governance will mitigate the agency conflict of interest and improve financial reporting quality. Thus, good governance might moderate the relationship between reported KAMs and audit costs. We use a quantitative approach. We are using a sample of the UK FTSE all-share non-financial firms from 2014 to 2018 for the UK Financial Times Stock Exchange all-share non-financial firms.

Findings

We provide evidence of a significant positive relationship between Key audit matters and audit costs. The relationship is relatively higher when considering the independent directors' percentage as a moderating factor. These results came consistent with the agency theory literature. However, we found no empirical evidence to support a moderating effect of board size on the relationship between KAMs and audit cost.

Originality

The paper contributes to the literature assessing the regulatory changes related to audit reform and adds to the debate on the impact on audit costs. Our paper underlines governance factors as a moderating role in this relationship between Key audit matters and audit costs.

Practical and social implications

Our finding benefits the regulatory setters to better understand the consequences of the new auditing standards. It has theoretical and practical implications for regulators, standard setters, professional bodies, shareholders, and academics.

Keywords: KAMs; board size; independent directors; audit fees, UK.

1- Introduction

There is an ongoing debate regarding the consequences of policies to improve audit report transparency (Klevak et al., 2020; Chiang et al., 2021). An independent audit report is a vital communication tool for the firm's financial performance delivered from the auditor to the stakeholders (Tangruenrat, 2015). The audit report aims to assure the shareholders, investors, creditors and analytics (Suttipun, 2020). The new audit report regulations became a trend in international research (Srijunpetch, 2017) and mandated the disclosure of Key Audit Matters (kAMs). Previous literature has examined the impact of KAMs on corporate narrative disclosure (Elmarzouky et al., 2022), highlights the importance of investigating audit pricing (Chen et al., 2019), the role of KAMs in predicting corporate bankruptcy (Elmarzouky et al., 2022), the impact of KAMs on the audit quality (Suttipun, 2021), the audit committee and corporate scandal (McLaughlin et al., 2021), and the impact of gender diversity on the readability of the KAMs (Velte, 2018). To date, the impact of KAMs on audit cost and the role of governance in this relationship does not receive enough attention or been empirically tested.

Recently, the literature suggests that for audit firms to comply with the new audit regulations on Key Audit Matters would require the auditor to perform additional procedures, apply further compliance training and implement further quality control checks (Chalmers 2013; Overend 2013; ACCA 2018; Klevak et al., 2020). The auditor would pass this additional effort to the clients through audit costs. The audit cost will increase with the increasing demand to encourage auditors to disclose more information. Furthermore, the agency theory literature suggests that firms with good governance practices will enhance the management's engagement to disclose more information for the interest of the stakeholders (Shohaieb et al., 2022; Elmagrhi et al., 2020; Waresul Karim et al., 2013; Alnabsha at al., 2018). Noticeably, corporate governance is used in the literature to mitigate the conflict of interest between the management and the stakeholders (Buertey et al., 2020; Hammami et al., 2020). Without strong governance, management is motivated to disclose information based on personal gains rather than the stakeholder's interest (Elmagrhi et al., 2020).

The rationale for choosing the governance practice as a moderating role between the audit disclosure and the corporate disclosure is based on the rational agency theory. The firm's level of corporate governance mechanism will determine how it will disclose information. So, management might take advantage of the weak governance to disclose the information in the management interest, while good governance practice will mitigate the agency problem (Buerthey et al. 2020; Elmagrhi et al. 2020). Firms with a strong governance mechanism expect more auditors' efforts (Boonyanet, & Promsen, 2020). With strong governance, we propose that auditors face an additional challenge to satisfy the governance needs as an agent for the stakeholders, and they will disclose more risk-related information, which will lead to additional audit costs.

From the theoretical debate in the literature on the consequences of KAMs on audit costs, KAMs will lead to higher audit costs. This cost will be more sensitive when considering the moderating effect of board size and the percentages of independent directors on the board of directors as the main fundamental factors of the governance mechanism (Asbahr, & Ruhnke, 2019; Chen et al., 2019; Widmann et al., 2020).

The aims of this paper are three-fold. First, we aim to explore the association between KAMs and audit costs. Second, we attempt to examine the moderating effect of board size and the percentage of independent directors on the board of directors as fundamental corporate governance on the relationship between KAMs and audit cost. Third, we aim to examine the strength of the association between the KAMs and the audit cost over sub-samples based on the mean of KAMs.

Our paper has several contributions. First, we have a theoretical contribution. We applied the agency theory assumption in our paper in the context of audit risk disclosure and audit literature. Mitigating the agency conflict between the management and the stakeholders is vital for firm survival (Fama & Jensen, 1983; Jensen & Meckling, 1976). Auditing may reduce the incentive problem and the agency conflict to enhance financial reporting (Watts & Zimmerman, 1983). We contribute by applying the agency theory to the context of the KAMs as a new section added to enhance the independent audit report. We also used the previous literature assumptions to build our arguments regarding the cost of adopting the KAMs. Previous research suggests that the existence of KAMs will require the

auditor to perform more procedures, compliance training and quality control checks (Chalmers 2013; Overend 2013). The KAMs will require more discussion with the audit committee. These extra checks may lead to an additional cost (Reid et al., 2019). Second, to the best of our knowledge, this is the first study to explore the moderator effect of board size and the percentage of independent directors in the board of directors as fundamental corporate governance on the relationship between the KAMs and the audit cost. We reviewed factors that may account for governance strength. Following recent governance studies (Asbahr, & Ruhnke, 2019; Chen et al., 2019; Widmann et al., 2020), we use the board size and the percentages of independent directors in the board of directors as the main fundamental factors of the governance mechanism. Previous research in the Netherlands investigates the managers' economic incentives for increasing the level of voluntary risk disclosure due to internal control without considering the auditing risk reporting (Deumes & Knechel, 2008). We argue that strong corporate governance would lead to more auditor efforts to satisfy client needs. Therefore, we explore how board size and the percentage of board independence may add to the relationship between KAMs and audit costs. Consistent with our finding that strong corporate governance would lead to higher audit quality; finally, we contribute to the literature on auditing and corporate governance; we have a unique empirical contribution by providing empirical evidence of the consequences of KAMs for a large sample. To the best of our knowledge, we are the first to examine the KAMs consequences for all the UK FTSE all-share non-financial firms over five years from the fiscal year 2014 to the fiscal year 2018.

The rest of the paper is structured as follows: in section 2, we provide the literature review and hypotheses development. In section 3, we explain the research method. In section 4, we demonstrate our empirical results and robustness check. In section 5, we run some additional analyses. In section 6, we provide an overall conclusion.

2- Literature Review and Hypotheses Development

Key Audit Matters (KAMs) and the Audit Cost

Theoretically, previous literature argues that KAMs are associated with audit fees (Reid et al., 2019; Chen et al., 2020). Because of the KAMs, audit efforts and costs

may increase for many reasons (Jung et al., 2016). First, PwC and EY argue that the KAMs require new extended, detailed, informative audit reports. This requires more compliance training and quality control checks (Chalmers 2013; Overend 2013). Second, the extended audit report contains more information regarding the audit process. Independent auditors are likely to feel more accountability, so they will invest more efforts in examining the financial statements and performing more procedures around the KAMs. These extra checks may lead to an additional cost (Reid et al., 2019). Finally, those KAMs may require more discussion with the audit committee and the management. The debate on the association between the KAMs and audit fees is endless. The association between the KAMs and audit fees has been researched in the literature. Gutierrez et al. (2018) and Reid et al. (2019) argued that there is an increase in audit fees due to the increased independent audit report length and the audit report requirements. This means the new requirements for KAMs will increase the audit cost. (Reid et al., 2016) suggest a slight increase in the audit fees by 6%, which may be because of the average yearly increase. This also supports our hypothesis that adopting the KAMs is not free from cost. Also, studies like (Chen et al. 2019) found a positive association between the KAMs and auditor efforts. Thus, the audit cost might increase due to the audit efforts.

Other studies, such as Sirois, Bédard, & Bera (2018) and Gold & Heilmann (2019), suggest that independent auditors are not required to carry out additional checks. The new audit regulations ISA 700 and ISA 701 require the auditor only to disclose more information about how the auditor's opinion is formed. Lennox, Schmid, and Thompson (2018), Reid et al. (2019), Sirois et al. (2018) and Gold & Heilmann (2019) suggest that audit fee are not likely to increase after the implementation of the ISA 701. This means firms adopting KAMs will not face additional costs to comply with the requirements. Likewise, KAMs do not have any changes in the audit effort because the auditors are already doing this step to ensure the quality of auditing, and the KAMs are just disclosing what they usually are doing (Asbahr & Ruhnke, 2019), and audit fees will not be affected as no more efforts were required (Sierra-García et al., 2019). So, the auditor is still performing the same procedure, and no new information is required. The only additional factor in the extended report is the disclosure of detailed information. However, Reid et al. (2019) found this relation between the KAMs and the audit cost insignificant; they

mention in the limitation that the auditor may have borne some additional costs related to the new standards but did not pass along these costs to the firm as audit fees. Previous literature argues that the pressure on the auditor may also increase audit fees (Jati & Suprasto, 2020). So, the firm management will pay a cost for adopting the KAMs.

We are motivated to assess the cost associated with the new audit regulation requirements. We investigate the possibility of any additional cost the firm will face to fulfil the new audit regulations. We argue that the KAMs in the audit report will require the auditor to make more efforts to comply with ISA 701. Thus, our hypothesis is:

H1: *Ceteris paribus*, there is a positive relationship between KAMs and audit cost.

Moderating Role of Board Size and the Association Between KAMs and Audit Cost.

Agency theory suggests that more board directors will be more motivated and more effective in providing more information to the stakeholders (Buerthey et al. 2020; Elmagrhi et al. 2020). Previous research suggests that corporate internal control systems have failed to deal with the recent stakeholders' requirements, and internal control needs enhancement (Jensen,1993). Firms with a large board will be associated with good governance practices, mitigating agency conflict. Previous literature investigates the governance of the disclosure practice from a different perspective, such as the impact of the board of directors' size on corporate narrative risk disclosure (Elshandidy and Neri, 2015; Allini et al., 2016; Salem et al., 2019) and between the board of directors size and forward-looking disclosures (Wang and Hussainey, 2013). Previous literature also investigates the board of directors size as one of the leading corporate governance mechanisms (Allini et al., 2016; Salem et al., 2019; Albitar et al., 2020). Other research suggests that internal control will enhance risk reporting (Deumes & Knechel, 2008). To the best of our knowledge, we are the first to investigate the role of good governance in the relationship between KAMs and audit costs. Agency theory suggests that more board directors will be more motivated and more effective in providing more information to the stakeholders (Buerthey et al. 2020; Elmagrhi et al. 2020). Previous research suggests that corporate internal control systems have failed to

deal with the recent stakeholders' requirements, and internal control needs enhancement (Jensen,1993). Firms with a large board will be associated with good governance practices, mitigating agency conflict. Previous literature investigates the governance of the disclosure practice from a different perspective, such as the impact of the board of directors' size on corporate narrative risk disclosure (Elshandidy and Neri, 2015; Allini et al., 2016; Salem et al., 2019) and between the board of directors size and forward-looking disclosures (Wang and Hussainey, 2013). Previous literature also investigates the board of directors size as one of the leading corporate governance mechanisms (Allini et al., 2016; Salem et al., 2019; Albitar et al., 2020). Other research suggests that internal control will enhance risk reporting (Deumes & Knechel, 2008). To the best of our knowledge, we are the first to investigate the role of good governance in the relationship between KAMs and audit costs. The management performance is positively correlated with the board of directors size (Chau and Gray, 2010; Samaha et al., 2015; Salem et al., 2019; Albitar et al., 2020), which means more information disclosed and more risk topics that auditors required to investigate and more efforts from the auditors, which will not come free of cost. High-performance management leads to more subjective accounting issues to investigate. We argue that a large board means more expertise (Buerthey et al. 2020), which will enhance the management performance and require more efforts from the auditors to satisfy the client's needs. As the agency theory literature suggests, board size positively correlates with high management performance (Elmagrhi et al., 2020). Therefore, auditors are likely to spend more effort to satisfy firm management with more directors in the board of directors size. Feedback from audit committee members shows that disclosure of KAMs has improved corporate Governance (ACCA, 2018). Thus, we argue that the increase in the board size as a moderator is associated with an increase in the relationship between KAMs and audit costs. So, we hypothesise that:

H2: Ceteris paribus, Board size moderates the association between KAMs and audit cost.

The Moderating Role of Independent directors in the Association Between KAMs and Audit Cost.

Agency theory suggests that more independent directors on the boards will be more motivated and more effective in limiting the opportunism of managers

because they have no monetary benefit to the company other than the ownership of director fees (Abrahamson and Park, 1994). Previous literature suggests that the percentage of independent directors on the board is vital to the governance mechanism power (Allini et al., 2016; Elshandidy et al., 2015; Shan, 2019). A higher percentage of independent directors on the board means good governance practice, which will mitigate agency conflict and increase management efficiency (Buerthey et al. 2020; Elmagrhi et al. 2020). The independent directors will oversight the management performance (Srinidhi, Gul, & Tsui, 2011). The independent directors will enhance the management risk reporting behaviour (Deumes & Knechel, 2008). This will require more efforts from the auditors to satisfy the customer and provide more information in the audit report to disclose more information and provide a relatively lengthy report. These extra audit efforts are likely to come at a cost. So, adopting KAMs will not come free of cost. We argue that the increase in the percentage of independent directors on the board as a moderator is associated with an increase in the relationship between KAMs and audit costs. So, we hypothesise that:

H3: *Ceteris paribus*, Board independence moderates the association between KAMs and audit cost.

3- Research method

Sample and Data Collection

We use the UK FTSE all-share sample for our paper. We collected the FTSE all-share firms list from the Bloomberg terminal in February 2020. We downloaded the annual reports from the firm's websites. We also used an audit analytics database to collect the KAMs in the audit report and the audit fees. We use hand-collected data from the annual reports. The initial sample includes all the UK FTSE All-share non-financial firms for over five years, from 2014 to 2018, since the KAMs became mandatory till the latest available annual reports. So, our sample includes all the annual reports published after KAMs became mandatory in the UK. We started in 2014 as the new audit standard (UK ISA 700) became Mandatory in the UK in September 2013. We excluded the financial firms because they follow different disclosure regulations. We also excluded any firm with missing necessary data for our analysis. We collect the financial data from Audit

Analytics, Bloomberg and Eikon databases. We used STATA 16 for the statistical analysis.

We chose the UK because the UK has been at the forefront of the global EAR reforms and has adopted KAMs since 2013. We included all the available data since 2014; this helped to generate enough sample size and make our finding more generalised as the time frame will make the consequences of the KAMs clearer on our data.

Table 1 shows our initial and final samples. Our FTSE All-share sample started with 623 firms¹. After considering the missing data, we excluded financial firms with different disclosure regulations. Our sample is 312 with 1560 firm years of observation.

Insert table 1 here

Table 2 demonstrates the KAMs. The table shows the frequency and the percentage of the number of risk topics disclosed in the annual reports. We used the Audit Analytics database to collect the data for KAMs and audit fees. We manually collected the missing data from FTSE all-share annual reports. The results show that in 26% of the firms, auditors report three risk topics, 21% report four risk topics and 20% report two risk topics. The usual risk topics discussed in the independent audit reports were 2 to 5. The lowest KAMS was zero, with 83 firms did not report any KAMS. The range of the KAM was 10 KAMs topics within the independent audit report.

Insert table 2 here

Models and Variables Measurement

Table 3 shows a list of the variable measurement. Regression analysis can infer causal relationships between the independent and dependent variables. We use regression analysis to estimate the relationship between our dependent and independent variables. This allows us to estimate the conditional expectation of the dependent variable when the independent variables take on a given set of values. We used a regression model to test our hypotheses using the FTSE All-share non-financial listed firms over five years from 2014 to 2018. Audit costs could be in the shape of audit delays or audit fees. As the dependent variable, we used the audit fees as a proxy for audit costs. We used the KAMS (Key Audit

¹ The FTSE All-share list accessed on 28th February 2020 from Bloomberg terminal.

Matter) as an independent variable measured by the number of risk topics highlighted in the independent audit report.

Key Audit Matters

The KAMs disclosure is the number of risk topics highlighted in the independent audit report. Following prior studies on KAMs and auditor report in the UK (e.g., Sierra-Garcia et al., 2019; Zhang & Shailer, 2021; and Abdelfattah et al., 2021), we consider the RMM (risk material misstatement) as KAMs. Hence, they are technically the same, representing the risk topics in the audit report.

Audit Costs

We measured our dependent variable audit cost using the natural logarithm of audit fees. As explained in the hypothesis development section, we expect a significant positive relationship between the number of KAMs and the Audit cost. Thus, we predict that the sign of β_1 is positive.

Research Model

We use a multivariate regression model to examine the association between KAMs and audit cost.

To capture the year and the industry effect, we have created a dummy variable for the year, and the industry fixed effect. We used the industry classification to create the dummies based on the SIC one-digit industry classification, data for industry classification collected from Data-stream.

$$\text{Audit cost}_{i,t} = \beta_0 + \beta_1 \text{KAMs}_{i,t} + \beta_2 \text{GC}_{i,t} + \beta_3 \text{BIG4}_{i,t} + \beta_4 \text{Lev}_{i,t} + \beta_5 \text{CFO}_{i,t} + \beta_6 \text{FS}_{i,t} + \beta_7 \text{ROE}_{i,t} + \beta_8 \text{Beta}_{i,t} + \beta_9 \text{BS}_{i,t} + \beta_{10} \text{IND}_{i,t} + \beta_{11} \text{NAF}_{i,t} + \text{Year Fixed Effects} + \text{Industry Fixed Effects} + \varepsilon_{i,t}$$

Audit cost: Measured by the natural logarithm of the total audit fees (Reid et al., 2019).

KAMs: Measured by the number of risk topics in the independent audit report.

Going Concern (GC): captured by a dummy variable equals 1 if the auditor issued a going concern opinion in the auditor report, 0 otherwise. We use the Going Concern as a proxy for the probability of going bankrupt. We follow the literature for audit-related variables (Lennox et al., 2019; Reid et al., 2019; Abdelfattah et al., 2021).

Auditor type (BIG4): Measured by whether a Big 4 firm audits the company. We

use a dummy variable to control for the auditor type. Auditor type has been used in the literature to control the audit cost (Reid et al., 2019).

Financial Leverage (Lev): Measured by total debt divided by total assets at the end of the financial year. Leverage is used as a proxy for the firm unsystematic risk. Previous literature suggests an association between financial leverage and audit cost (Lennox, Schmidt, & Thompson, 2019; Reid et al., 2019).

Cash flow from operation (CFO): Measured by Cash flow from operations divided by total assets at the end of the financial year. Cash flow from operation is used as a proxy for the firm complexity. Previous literature suggests an association between cash flow from operation and audit cost (Reid et al., 2019; Behrend et al., 2020).

Firm size (FS): Firm size is measured by the natural logarithm of total assets. Total assets are used as a proxy for firm size. The literature suggests a positive relationship between firm size and audit fees (Gunn et al., 2017; Behrend et al., 2020). The bigger the firm, the more effort the auditor needs to process his professional duties (Campa, 2013).

Return on Equity (ROE): Return on Equity is used as a proxy for firm profitability (Choi et al., 2010). A firm with high profit is associated with high audit costs (Corbella et al., 2015). We included the ROE to control for the firm profitability.

Beta: Used as a proxy for the firm systematic risk. Although some literature suggests that the relationship between Beta and audit cost is insignificant (Firth, 2002), there is a debate in the recent literature around the firm risk and audit fees (Gunn et al., 2017; Behrend et al., 2020), we control for firm risk using Beta for accounting for the association between firm risk and audit fees.

Board size (BS): Used to control the corporate governance mechanism. Board size is the number of members on the board of directors. We control for the board size and run additional analyses to see the moderating role of board size on the association between KAMs and audit cost.

Independent directors (IND): Used to control the impact of corporate governance. Board independence is measured by the percentage of independent directors on the board. Independent directors are those who are entirely independent of the management. We control for board independence and run

additional analyses to see the moderating role of board independence on the association between KAMs and audit cost.

Non-audit fees (NAF): The percentage of non-audit fees to audit fees. Non-audit fees are paid to the auditors for providing non-audit services to the corporation. We follow the recent literature that suggests considering audit-related variables when investigating audit-related research (Goddard & Masters, 2000; Abdelfattah et al., 2021; Behrend et al., 2020) So, we control for the non-audit fees.

We also include year-fixed and industry-fixed effects to capture and control differences in audit fees across industries and years.

Insert table 3 here

4- Empirical results

Descriptive statistics

Table 4 shows descriptive statistics of the variables we used in our paper. The table includes the variables' mean, STD, min and maximum values. The table shows that the mean of Ln audit cost is 13.744 with a maximum value of 17.786 and minimum value of 11.019. which express that audit costs vary from one firm to another. It also shows that the mean value of KAMs equals 3 with maximum and minimum values of 10, and 0, respectively. Further, the mean value of Going Concern is 0.04, which means around 4% of the firms issued a going concern. Also, the mean value of the leverage is 0.176, the Ln. Total assets are 7.3, beta 0.616, cash flow from operation is 17.5, and return on equity 18.07, while the mean for non-audit fees, the board size, and the percentage of independent directors in the board are 25.9%, 8.9 and 58% respectively.

Insert table 4 here

Correlation Matrix

Table 5 shows the correlation matrix for the dependent and independent variables. This is to help to check the statistical relationship between the independent variables. It shows the correlation between the Audit cost and KAMs, as well as the correlations among the other control variables: going Concern, auditor type, firm leverage, cash flow from operations, firm size, return on equity, Beta, the board size, independent board directors, and Non-audit fees. We found that the correlation with going Concern, firm size, Beta, the board size, independent board

directors, and Non-audit fees are significantly positive. In comparison, the correlation with return on equity is not significant. The correlation sign for these variables follows our expectations. We also found a significant positive correlation between the audit cost with board size and independent board directors, consistent with the literature (Deumes & Knechel, 2008; Jensen, 1993). So, a larger board associate with higher audit costs. Also, a company with a higher percentage of independent directors on the board is associated with higher audit costs.

Insert table 5 here

Table 6 shows the variance inflation factor (VIF) results. The VIF estimates how much the variance of a regression coefficient is inflated due to multi-collinearity in the model. The VIF test detects multi-collinearity in regression analysis (Daoud, 2017). Multi-collinearity is when there is a correlation between independent variables. If there is any multi-collinearity, this will affect our regression results. We checked if there was any Multi-collinearity between our variables. The results shown in table (4) suggest that our independent variables are not correlated as from VIF results; the $VIF < 10$ for all our variables (Daoud, 2017). The results do not appear to be a concern in explaining the regression results, which were tested separately.

Insert table 6 here

Multivariate Analysis

In the multivariate section, we present and explain the empirical results for our regression models. The rationale for choosing these regression models is: Our sample contains panel data, so we run ordinary least square (OLS) regression to test the association between our variables (Winship et al. 2016). We run both fixed and random effects to check the regression for better-informed results (Bell et al., 2019). The random effect is used as suggested by the result of the Hausman test. Fixed effect model results were tested for omitted variable bias (Winship et al. 2016). It is recognised that fixed-effects models have an advantage over random-effects models when analysing panel data because they control for all level 2 characteristics, measured or unmeasured "omitted variables" (Allison 2009;

Halaby 2004; Wooldridge 2010). We provide the fixed effect model to reduce the risk of potential omitted variables bias. As we are only interested in analysing the impact of variables that vary over time (KAMs and Governance), the fixed effect model will explore the relationship between predictor and outcome variables more effectively. Omitting variables may cause failure to reject the hypothesis when, in fact, it should be accepted variables (Bartov et al., 2000). In order to reduce the effect of the outliers, we run the robust regression. Robust regression is an alternative to least squares regression when data are contaminated with outliers or detecting influential observations (Rousseeuw & Leroy, 2005).

Our regression models suggest the same relationship between KAMs and audit costs. The regression results demonstrate that at 99% confidence intervals, there is a significant positive relationship between KAMs in the audit report and audit cost. The fixed, random, and robust regression results remain significantly positive.

Disclosing more risk information in the audit report requires some additional cost. Therefore, more risk topics in the audit report mean the firm is riskier from the independent auditor's point of view. Thus, more work is required despite the debate that the auditor must disclose more risk-related information but not make more efforts or carry out any additional tasks rather than disclose what has been done. The results also suggest that the coefficient is significant. Thus, we found evidence suggesting that the audit fee is significant with KAMs. The multiplicative factor (coefficient) is 0.155, 0.734, 0.844, and 0.155 for OLS, fixed, random and robust regression. This coefficient means every additional audit risk disclosure will increase the logarithm of audit fees by 0.155, 0.734, 0.844, and 0.155 units using OLS, fixed effect, random effect and robustness appropriately. The results provide evidence that the new auditor reporting requirements result in a significant change in audit cost. It is certainly possible that the auditor bore some additional costs related to the new standards. The result suggests that these costs were passed along to the client as audit fees. This supports our argument in line with the previous literature (Reid et al., 2019; Sirois et al., 2018; Gold & Heilmann, 2019).

Further, Table 7 shows that auditor type is positively associated with audit fees with a coefficient of 0.147 using OLS regression, same for the cash flow with a coefficient of 0.0921 under the OLS model. In contrast, this relationship between auditor type, cash flow, and audit cost became insignificant under the fixed or

random effect models. Firm size is positively associated with the audit cost at a significant level of 99% with coefficients 0.462, 0.619, 0.592 and 0.462, respectively. This means everyone an additional unit to the firm size will increase the audit cost by 0.462, 0.619, 0.592 and 0.462 units; This came in consistence with the recent literature (Reid et al., 2019; Chen et al., 2019). Also, the evidence provided by PwC and EY, who argue that the KAMs require more compliance training and quality control check, will lead to an additional cost (Chalmers 2013; Overend 2013). Bigger firms with more stakeholders require more effort from the auditors. Thus, more audit fees. The table also suggests no association between the risk factor and the audit cost. To measure and control for stock volatility and systematic risk, we use Beta; the Capital IQ database estimates the slope of the 52-week regression line of the stock's percentage price change relative to its benchmark's percentage price change. The firm leverage suggests a positive relationship with audit fees. The leverage coefficient means every additional risk factor will increase the audit fees by 0.000456, 0.000577, 0.000531 and 0.000456 units using OLS, fixed effect, random effect and robust appropriately. The riskier the firm, the more subjective information is in the annual report (Elzahar et al., 2012). So, more auditing work needs to be done. In contrast, the profitability measured by the return on equity is insignificant to the audit cost. This is consistent with the previous literature (Khlif et al., 2016).

Regarding the governance mechanism, we provide evidence that board size and independent directors' percentage significantly affect audit costs. The coefficient means every additional board size will increase the logarithm of audit fees by 0.0513, 0.0396, 0.0392 and 0.0513 units using OLS, fixed effect, random effect and robustness appropriately. Furthermore, for the board independency, the coefficient means every one per cent extra independent directors will increase the logarithm of audit fees by 0.0100, 0.0645, 0.0676 and 0.0100 units using OLS, fixed effect, random effect and robust appropriately. This also came in line with the previous literature as larger board and higher board independence will be more efficient and more effective governance mechanisms (Buertey et al. 2020; Elmagrhi et al. 2020)., which will always associate with more efforts from the auditor to satisfy the client by producing value relevant information.

Insert table 7 here

Table 8 and Table 9 below show the Hausman test results. The P-value is significant at 99%. The table suggests that we cannot reject the null hypothesis. This means the difference in difference is coefficients systematic, So the results suggest running the random effect test.

Insert table 8 here

Insert table 9 here

In table 10, we run the regression using the corporate governance characteristics of both board size and independent directors in the board of directors as a moderating effect for the relation between the KAMs and the audit fees. Previous literature provides empirical evidence on using corporate governance as a moderating effect in the disclosure context (Buerter et al. 2020; Elmagrhi et al. 2020). The agency theory literature suggests that more governance mechanism power is likely associated with higher firm performance (Elmagrhi et al., 2020). Good governance will mitigate the agency conflict and pursue the managers to provide more information in the interest of the stakeholders (Buerter et al. 2020). Thus, a more detailed annual report is to be audited. In contradiction, when we used the firm board size as a moderating variable with KAMs, the results were insignificant. However, using the percentage of independent directors in the board of directors as a moderating effect with the KAMs, the results came significant at a 99% confidence level consistent with the literature and supported our hypotheses (Deumes & Knechel, 2008; Jensen, 1993). Also, the evidence provided by the agency theory literature that the internal control will lead to more disclosure and the independent auditors is an essential element in this internal control mechanism which leads to an increase in the relationship between the internal control and the audit fees (Fama & Jensen, 1983; Jensen & Meckling, 1976; Watts & Zimmerman, 1983).

The coefficient of 11 suggests that the interaction between the KAMs and the board independency likely increases the audit fees by 11 units higher. It is found that the corporate governance mechanisms with the KAMs have a stronger interaction associated with the audit fees. Stronger governance required more work from the auditor. For the auditor to satisfy the client will require more effort and risk topics to disclose in the independent audit report. So, the auditor will accelerate the audit cost. All control variables remained in the same relation with

the audit cost. The analysis found that firms with a higher percentage of independent directors are more likely to have higher audit costs than firms with lower percentages of independent directors on the board of directors. The firms with bigger board size associated with more KAMs has no association with audit fees. We, however, do not find evidence suggesting any association between the moderating effect of board size and the KAMs with the audit cost. We suggest that "lack of evidence of an association is not necessarily evidence of a lack of association"; we cannot conclusively state that there are no significant audit costs associated with the moderating effect of independent directors in the board and the KAMs (DeFond 2010).

Insert table 10 here

Robustness Check

In table 11, we perform the robustness check of our analysis using a sub-sampling technique. The rationale for running a subsampling test is to avoid any bias in the OLS results and to provide a robust analysis that confirms the reliability of our model (Fidler et al., 2006; Camponovo et al., 2012). We calculated the mean for the KAMs. We divided our sample observation into two groups. The first group for the firms that the auditor disclosed a number of KAMs less or equal to the mean of the KAMs. The second group for the firms that the auditor disclosed a number of KAMs higher than the mean of the KAMs.

We run the regression for firms with audit reports containing less than or equal to the mean of KAMs (3) and those with audit reports containing more than the mean of KAMs separately. This is to investigate how risk disclosed by the auditor's KAMs could affect the audit cost when considering different risk topics in the audit reports. We investigate whether contemplating different KAMs numbers will change the impact of the audit cost. This is to confirm the association between the KAMs and the audit cost. Our results suggest that; Both the significant level and the coefficient are higher when the KAMs are bigger than three (the mean). In the firms with KAMs lower than the mean, the relationship with audit cost is significant at 95% confidence intervals. While the firms with KAMs disclosed in the audit report higher than the mean are positively associated with the audit cost

at 99% confidence intervals and with a better coefficient. The coefficient is 0.0915 for the firms with KAMs less than or equal to three. This suggests that for every additional risk topic disclosed by the auditor, the natural logarithm of audit fees is likely to increase by 0.0915 units. At the same time, the coefficient is 0.223 for the firms with more than three risk topics disclosed by the auditors. This suggests that for every one KAMs disclosed by the auditor, the audit fees are likely to increase by 0.223. This came in conscience with our hypothesis. This also confirms that the KAMs most likely drive the audit fees. Firms with fewer KAMs will have less association between the KAMs and audit fees and vice versa.

The firms with more risk topics require more effort from the auditors than those in the auditor's professional judgment do not have many risk topics. The additional KAMs usually reflected in the audit cost (DeFond, & Zhang, 2014). However, it contradicts the argument that the audit fees are bid for and agreed upon before the auditor's work starts. However, we argue that the auditor will bid for and accept audit fees based on the firm characteristics and the risk topics that need to be investigated. Therefore, auditors will charge the client more when assessing the required work. Both firm size and the percentages of the executive directors in the board of directors remain positively significant with the audit cost across the sub-samples. By looking at the auditor type, the relationship with audit fees is insignificant when the $KAM \leq 3$, which is becoming significant at 99% with a coefficient of 0.000581. This means that when the KAM is more than the mean, firms audited by one of the BIG4 firms are associated with higher audit costs. This also came consistent with the literature (Reid et al., 2019). Board size also suggests a coefficient of 0.459 for the firms with less than three risk topics disclosed by the auditors and 0.04650 for the firms with more than three risk topics disclosed by the auditors, this support that the KAMs drive the audit cost. Same for the board independence, the coefficient increased from 0.00907 to 0.00933 for the KAM under and above the mean. Interestingly, all our control variable remains the same as in the original model. Our results suggest that, By looking at the non-audit fees, the coefficient for the firm with ≤ 3 KAMs and those with > 3 KAMs are 0.0125 and 0.00741, respectively. Firms with more KAMs than the mean are likely to have a lower association between non-audit fees and audit fees, as the non-audit fees are a proxy for auditor independence. Beta and ROE results remain the

original model; both have an insignificant relationship with the audit cost. This is consistent with the previous literature (Khlif et al., 2016).

Insert table 11 here

Additional Analysis

We used 2SLS (2 Stage Least Square) and GMM (Generalised Method of Moments) to tackle the endogeneity. 2SLS is a method to reduce the endogeneity effect in the regression model (Winship et al. 2016). Going Concern will likely impact the audit fees by increasing the KAMs numbers, so we used Going Concern as our instrumental variable. On the other hand, GMM also covers this problem with minimum standard error. Both methods are used widely to solve the endogeneity problem. While the 2SLS uses only the lagged levels as the possible instruments, the GMM applies complete exogenous differences and lagged levels as the instruments. GMM is more of an econometric trick than a proper solution for endogeneity (Lee, 2007). Table 12 illustrates that our main model results remain significant. The KAMs are positively associated with audit costs at a 99% confidence level. The coefficient is positive for 2SLS and GMM are 0.155 and 0.0677, respectively. Firm size, board size and independence remain positively associated with audit fees.

Insert table 12 here

5- Conclusion

This paper aims to investigate the cost associated with the new audit regulation ISA 701 (KAMs) by examining the relationship between the number of risk topics disclosed by the auditor and the audit fees. We also aim to investigate the moderating effect of corporate governance, namely board size and the percentage of board independence, on the relationship between the KAMs and the audit cost. We also explore whether this relationship will be stronger when the auditor discloses KAMs above the mean of KAMs. We used various regression models to test our hypothesis. Our paper applied to the UK FTSE All-share non-financial firms for over five years, from 2014 to 2018. We used both data available on audit analytics and hand-collected data to collect the KAMs in the audit reports.

Our paper contributes theoretically and empirically to the current literature. We add knowledge to the agency theory literature. An essential factor in the firm's survival is agency problem control (Fama & Jensen, 1983). Pioneer research in the agency theory integrates elements from the theory of agency and defines the concept of agency costs (Jensen & Meckling, 1976). An independent auditor is a monitoring tool that reduces the incentive problem and agency conflict and increases the firm value (Watts & Zimmerman, 1983). The KAMs is a new section added to enhance the independent audit report. To the best of our knowledge, we are the first to apply the agency theory in the KAMs disclosure literature. Our finding suggests that adopting the new KAMs requirements is not cost-free. KAMs likely to increase the audit fees. We also contribute to the literature by providing evidence that corporate governance will enhance the audit work and associate with more audit costs. This study provides empirical support for the predictions of agency theory. As such, our paper extends this complementary theory's applicability and predictive power.

The results suggest an audit cost associated with compliance with ISA 701 KAMs, the firms with more KAMs associate with higher audit fees and the firms with fewer risk topics in the audit reports associate with lower audit fees. Our result suggests that the relationship between the KAMs and the audit fees is always statically positively significant. Additionally, the significant level is higher for firms with audit reports that contain more risk topics. This aligns with our previous arguments and is consistent with the literature (Chen et al., 2019; Asbahr et al., 2019). The auditor should investigate more risk topics, more audit efforts and more audit fees. Our results also suggest that the relationship is stronger when the KAMs exceed the mean of KAMs. Our results provide evidence that with a higher percentage of independent directors on the board, the association between the KAMs and the audit cost is gigantically higher than the firm with lower percentages of independent directors on the board. This is consistent with previous literature suggesting that internal control enhances management reporting (Deumes and Knechel 2008; Jensen 1993). Our paper does not suggest any stronger relationship between the KAMs and the audit cost when using the number of directors on the board as a mediator effect variable.

Our results are highly beneficial to the standard setters and the management. The

regulators will better understand the consequences of adopting the KAMs; such a movement will not come free of cost. The regulators will evaluate and weigh out the cost with the target benefit. Also, the management will have a better idea regarding corporate governance's role in enhancing the audit disclosure, but it will be associated with higher costs. The FRC will benefit from our paper's outcome as they will better understand the consequences of adopting UK ISA700 and UK ISA701.

Our paper has some limitations as opportunities for future research. This paper is applied in the UK context. Further research might consider a different country or a cross-countries analysis, especially since the KAMs has been mandatory in many other countries across Europe. We also focused on the FTSE All-share non-financial firms; future research might consider the financial firms or different market capitalisations such as FTSE AIM. Additional audit costs might occur because of KAMs, but the auditors did not carry it to the client. As our paper focuses on the direct impact on the firm audit fees due to adopting KAMs, future research might consider other audit outcomes, such as the audit delay. Future research might also control for the average yearly increase in audit fees. Finally, future research might consider other governance mechanisms, such as audit committee characteristics and the personal characteristics of directors.

Endnotes

The data supporting this study's findings are available from the corresponding author upon reasonable request.

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Tables

Table 1: the sample

Total FTSE All-share	623
Financial firms	(249)
Non-financial firms	374
Missing	(62)
Firms in the final sample	312
Firm-Year Observations	1560

The table presents the sample

Table 2: KAMS within FTSE all-share

KAMS	Freq.	Per cent	Cum.
0	83	5.37	5.37
1	91	5.89	11.25
2	307	19.86	31.11
3	400	25.87	56.99
4	340	21.09	78.07
5	193	12.48	90.56
6	86	5.56	96.12
7	36	2.33	98.45
8	19	1.23	99.68
9	4	0.26	99.94
10	1	0.06	100
Total	1560		

Table 2 presents KAMs frequency over the sample

Table 3; Variable measurement

Study variable	Explanation
Dependent variables	
Audit cost	Measured by the natural logarithm of total audit fees
Independent variables	
KAMs	Number of risk topics in the audit report
Controls	
Going concern	If going concern issue presence = 1, if absence = 0
Auditor type	Indicator variable equal to 1 if the firm is audited by a Big 4 firm in year t, 0 otherwise.
Leverage	Total debt divided by total assets at the end of the financial year.
Cash flow from operation	Cash flow from operations divided by total assets at the end of the financial year.
Non-audit fees %	Percentage of non-audit fees to audit fees
Firm Size	Natural log of total assets for firm size
ROE	Measure of Profitability = (EBIT ÷ Equity)
Beta	Measure of the volatility and systematic risk. Capital IQ database estimates the slope of the 52-week regression line of the percentage price change of the stock relative to the percentage price change of its benchmark.
Board size	Number of members on the board of directors
Independent directors %	The proportion of independent directors on the board.

Table 3 show the list and the explanation for the model variables measurement.

Table 4 Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
.Audit cost	1436	13.744	1.306	11.019	17.786
KAMs	1560	3.328	1.684	0	10
Going concern	1476	0.04	0.196	0	1
Auditor type	1551	0.561	0.496	0	1
Leverage	1428	0.176	0.168	0	0.291
Cashflow from operation	933	17.518	1.738	10.043	21.193
Firm size	1474	7.289	1.594	4.17	11.764
ROE	1425	18.074	32.681	-60.553	224.465
Beta	1476	0.616	0.523	-2.551	3.979
Board size	1147	8.877	2.294	3	22
Ind board members	1150	58.146	14.367	0	100
Non-audit fees %	1436	25.948	19.945	0	81

Table 4 presents the descriptive statistics for our model's variables. (The mean, STD, minimum and maximum).

Table 5: Pairwise correlation

Variables	1	2	3	4	5	6	7	8	9	10	11	12
AC	1.00											
KAMs	0.50	1.00										
G C	0.04*	0.15	1.00									
BIG4	0.07	0.01	0.04	1.00								
Leverage	0.19	0.22	0.21	0.02	1.00							
CFO	0.68	0.33	0.03	0.01	0.15	1.00						
FS	0.57*	0.41	0.02	-0.01	0.13	0.77	1.00					
ROE	-0.05	-0.02	-0.19	-0.04	0.34	0.05	-0.11	1.00				
Beta	0.29*	0.21*	0.26*	0.06	0.15	0.31	0.32	-0.10	1.00			
BS	0.50*	0.31*	0.00	0.00*	0.06*	0.45	0.57	0.02	0.12	1.00		
Ind	0.28*	0.14*	0.03*	-0.03	-0.01	0.29	0.31	0.01	0.09	0.06	1.00	
NAF	0.13*	-0.04	0.02*	-0.01	0.03	-0.01	-0.04	-0.05	-0.04	0.01	-0.11	1.00

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 5 presents the correlation matrix. C: Audit cost, KAMs: Key Audit matters, GC: Going concern, BIG4: audit type, CFO: cash flow from operation, FS: firm size measured by logarithm of total assets, ROE, Beta, , BS: board size, IND; board independence, NAF: non-audit fees.

Table 6: Variance inflation factor

	VIF
KAMs	1.32
Going concern	1.62
BIG4	1.99
Leverage	1.58
Cash flow	1.22
Firm size	1.99
ROE	1.89
Beta	1.22
Board size	1.21
Board independence	1.65
Non-audit fees	1.16
Mean VIF	1.533

Table 6 presents the VIF results.

Table 7: Regression analysis

VARIABLES	OLS	Fixed effect	Random effect	Robust
KAMs	0.155*** 0.0193	0.0734*** 0.0131	0.0844*** 0.0124	0.155*** 0.0184
Going concern	0.0110 0.216	-0.0590 0.111	-0.0720 0.109	0.0110 0.220
Auditor type	0.147*** 0.0563	-0.0409 0.0882	0.0573 0.0650	0.147** 0.0590
Leverage	0.000456* 0.000254	0.000577*** 0.000171	0.000531*** 0.000161	0.000456* 0.000253
Cash flow	0.0921*** 0.0272	0.0149 0.0154	0.0227 0.0149	0.0921*** 0.0278
Firm size	0.462*** 0.0351	0.619*** 0.0305	0.592*** 0.0260	0.462*** 0.0341
ROE	-0.00168 0.000980	-0.000575 0.000638	-0.000753 0.000604	-0.00168** 0.000757
Beta	0.0399 0.0575	-0.0513 0.0323	-0.0446 0.0310	0.0399 0.0562
Board size	0.0513*** 0.0151	0.0396*** 0.0123	0.0392*** 0.0112	0.0513*** 0.0153
Ind board members	0.0100*** 0.00223	0.00645*** 0.00176	0.00676*** 0.00160	0.0100*** 0.00200
Non-audit fees	0.00992*** 0.00150	0.0133*** 0.000892	0.0128*** 0.000854	0.00992*** 0.00144
Constant	6.947*** 0.353	7.782*** 0.281	7.719*** 0.249	6.947*** 0.355
R-squared	0.700	0.744	0.706	0.700

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 7 presents the regression analysis results. We run a fixed effect, random effect and robust check.

Table 8: Hausman test

VARIABLES	Hausman Test Audit fees
KAMs	0.0241*** 0.319
Going concern	0.0633 0.061
BIG4	0.040** 1.762
Leverage	0.0064** 0.005
Cash flow	7.721 -1.762
Firm size	0.0087*** 0.533
ROE	-0.0224 0.320
Beta	0.143 0.5562
Board size	0.0141*** 0.654
IND_Board	0.0147*** 2.307
Non-audit fees	0.0131*** 0.128
Constant	-0.013006** 0.5595
Observations	804
R-squared	0.488

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 8 presents the Hausman test regression analysis results.

Table 9: Hausman specification test

	Coef.
Chi-square test value	0.0834
P-value	0

Table 9 presents the P-value for the Hausman test.

Table 10: Moderating effect of board size and board independent

VARIABLES	Audit fees	Audit fees
KAMs	0.0062***	0.0180***
	0.0342	0.0455
c.KAMs#c. boardsize	-0.786	
	0.685	
c.KAMs#c.IND		0.0188***
		0.193
Going concern	0.0110	-0.0590
	0.216	0.111
Auditor type	0.147***	-0.0409
	0.0563	0.0882
Leverage	0.00147*	0.00581***
	0.0254	0.00171
Cash flow	0.0621***	0.0132
	0.0272	0.0154
ROE	758.9	688.8
	471.4	465.6
Beta	0.0346*	0.0532*
	0.1554	0.01724
Non-audit fees	0.036***	0.038***
	0.191	0.154
Constant	-0,365***	-0,0617
	0.2633	0.2331
R-squared	0.792	0.801

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 10 presents the moderating effect regression results KAMs: c. KAMs#c. board size: the interaction between board size and KAMs. c.KAMs#c.IND: the interaction between board independency and KAMs.

Table 11: Audit fees by Sub-sample Group

VARIABLES	KAM > 3 Audit fees	KAM ≤ 3 Audit fees
KAMs	0.223*** 0.0509	0.0915** 0.0368
Going concern	-0.123 0.489	0.0237 0.231
Auditor type	0.281*** 0.0832	0.000581 0.0759
Leverage	0.000667 0.000501	0.000399 0.000293
Cash flow	0.0875** 0.0406	0.0793** 0.0371
Firm size	0.472*** 0.0532	0.487*** 0.0485
ROE	-0.00115 0.00151	-0.00205 0.00131
Beta	0.0395 0.0927	0.0306 0.0721
Board size	0.0465* 0.0235	0.0459** 0.0195
Ind board members	0.00933*** 0.00333	0.00907*** 0.00299
Non-audit fees	0.00741*** 0.00215	0.0125*** 0.00209
Constant	6.713***	7.569***
R-squared	0.522	0.508
	0.602	0.694

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 11 presents the regression results using sub-sampling for KAM ≤ 3 and KAMs > 3 KAMs.

Table 12: 2SLS and GMM regression results

VARIABLES	2SLS Audit fees	GMM Audit fees
L. Audit fees		0.204***
		0.0533
KAMs	0.155***	0.0677***
	0.0191	0.0167
Going concern	0.0110	-0.113
	0.214	0.125
Auditor type	0.147***	-0.0815
	0.0558	0.0960
Leverage	0.000456*	0.000539***
	0.000251	0.000202
Cash flow	0.0921***	-0.0198
	0.0270	0.0173
Firm size	0.462***	0.686***
	0.0348	0.0388
ROE	-0.00168*	0.000116
	0.000971	0.000739
Beta	0.0399	-0.0413
	0.0570	0.0363
Board size	0.0513***	0.0463***
	0.0150	0.0156
Ind board members	0.0100***	0.00646***
	0.00221	0.00220
Non-audit fees	0.00992***	0.0136***
	0.00149	0.00111
Constant	6.947***	4.964***
	0.350	0.776
R-squared	0.700	

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 12 presents 2SLS and GMM regression results KAMs.