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## **Audit Partner Gender and the COVID-19 Pandemic: The Impact on Audit Fees and Key Audit Matters**

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# **Audit Partner Gender and the COVID-19 Pandemic: The Impact on Audit Fees and Key Audit Matters**

## **Abstract**

**Purpose:** This study analyzes the influence of the COVID-19 pandemic on audit fees and the reporting of key audit matters (KAMs). Additionally, it also looks into potential differences in the behavior of male and female audit partners during this period, adding to the existing research on gender's effect on different elements of the audit process.

**Design/methodology/approach:** This study used a sample of all FTSE 350 firms from before the COVID-19 pandemic and during the pandemic. It analyzed the data using OLS (Ordinary Least Squares) regression analysis to test its hypotheses.

**Findings:** This paper provides early evidence on the impact of the COVID-19 pandemic on audit fees and key audit matter disclosures in the UK. The results show an increase in audit fees during the pandemic and greater detail in the reporting of key audit matters, with no significant difference between male and female audit partners. These findings will be of interest to audit firms and regulators as they assess the performance of auditors during the pandemic and evaluate the expanded audit report's effectiveness in providing sufficient information to financial statement users.

**Originality/value:** The study provides first-of-its-kind empirical evidence on how auditors in the UK reacted to the COVID-19 pandemic. The findings will be of interest to audit firms, regulators, such as the Financial Reporting Council, and other stakeholders as they evaluate the performance of auditors during the crisis period. The results will help regulators assess the effectiveness of the expanded audit report in providing sufficient information during a time of heightened risk and scrutiny.

**Keywords:** COVID-19; key audit matters; female audit partners; audit fees; UK

## 1. Introduction

The COVID-19 pandemic presented businesses with major challenges and triggered an economic crisis, causing global financial markets to become volatile. The scrutiny of the external auditor was intensified during the pandemic as investors sought high-quality assurances on financial reporting. However, working-from-home restrictions and remote engagements made it difficult for auditors to provide high-quality assurances, especially in gathering audit evidence for areas like inventory. Auditors also faced timing issues when obtaining client information, increasing the likelihood of audit failure and putting pressure on the profession to retain credibility after recent scandals.

The obstacles auditors faced during the period provided the motivation for this study, which was to understand the impact of the pandemic on audit quality. More specifically, this paper aims to examine the impact of COVID-19 on audit fees and key audit matter disclosures. Evidence on the audit fee during the most recent economic crisis in 2008 was mixed (Xu, et al., 2013; Zhang & Huang, 2013; Alexeyeva & Svanstrom, 2015; Chen, et al., 2019). However, with considerable company liquidity and performance concerns, an amendment to the audit fee is expected to reflect the additional business risk facing the auditor during this period (Chen, et al., 2019). To limit their exposure to litigation, auditors are likely to direct more attention to assessing the client's going concern assumptions, as well as additional audit procedures to reduce the risk of failing to detect material misstatements and/or incorrect audit opinion, with these increased efforts being reflected in the audit fee (Albitar, et al., 2020; Johnsson & Persson, 2021). Therefore, this paper aims to investigate whether auditors priced their services differently in this particularly challenging period for businesses.

In the aftermath of the 2008 financial crisis, the value of auditors' reports was subject to criticism (Church et al., 2008). As a response, the UK Financial Reporting Council (FRC) mandated auditors of listed companies to adopt an expanded audit report in 2013 with the aim of enhancing auditor communication and providing users with more information to make better informed decisions (Minutti-Meza, 2021). The expanded audit report requires auditors to disclose key audit matters (KAMs), which are defined as "those matters that, in the auditor's professional judgment, were of most significance in the audit of the financial statements of the current period. Key audit matters are selected from matters communicated with those charged with governance" (Financial Reporting Council, 2020, p. 3). When forming these disclosures, auditors typically consider three broad topic areas: (1) high-risk areas of material misstatements or other significant risks identified by the auditor, (2) financial statement areas subject to a large amount of auditor and management judgement, often regarding accounting estimates, and (3) significant events or transactions that occurred during the year (Financial Reporting Council, 2020).

Therefore, the pandemic itself is likely to be categorized as a key audit matter, but the event also introduced various other significant risk areas to the audit, particularly regarding judgements

surrounding going concern assessments, asset valuation and revenue recognition (Johnsson & Persson, 2021; Kend & Nguyen, 2022). Therefore, as many financial statement users were seeking high-quality assurances during this time, the key audit matters section of the auditor's report provides an interesting area of focus. This paper aims to examine the number of key audit matters reported and the level of detail accompanying these disclosures to determine whether auditor's communication was altered during the pandemic, to meet the needs of financial statement users.

This study seeks to determine if there are any significant differences in the behavior of male and female audit partners during the COVID-19 pandemic. There is evidence in the literature that suggests males and females exhibit different behavioral traits such as risk-aversion and overconfidence, which could result in varying audit outcomes (Feng et al., 2020; Jianakoplos & Bernasek, 1998; Khatib et al., 2021a, 2021b; Levin et al., 1988; McLaughlin et al., 2021; Owusu et al., 2020; Powell & Ansic, 1997). In the auditing context, these gender-related traits may impact audit fees, with several studies finding that female audit partners charge higher audit fees (Ittonen & Peni, 2012; Hardies et al., 2015; Nekhili et al., 2018). Furthermore, these gender differences have also been found to affect the disclosure of Key Audit Matters (KAMs), with Abdelfattah et al. (2021) finding that female audit partners disclosed a greater number of KAMs and reported them more comprehensively than male audit partners.

Using a sample of FTSE 350 listed companies, this paper found audit fees had increased by approximately 14% during the pandemic, suggesting auditors exerted more effort on engagements in response to the heightened client risk during the period. In addition, the models employed in this study found there was no significant change in the number of key audit matters disclosed by auditors during the pandemic, however, audit partners did disclose considerably more detail in relation to the most significant risks of the engagement. Interestingly, this study found no significant differences between the behaviour of male and female audit partners during the pandemic, contributing further evidence to the ongoing debate on female audit partners representation in the UK auditing profession.

This study makes a contribution to the literature by being the first to examine the impact of COVID-19 on audit fees and key audit matters in the UK. It adds to the existing literature by providing early evidence on the subject and sheds light on the implementation of the expanded audit report in the UK. The findings will also inform the ongoing debate on the difference in audit quality between male and female audit partners. The results will be of interest to accounting regulators such as the Financial Reporting Council as it provides insight into auditors' response to COVID-19 and the level of effort exerted and auditor disclosures. The results on key audit matters disclosures will be particularly relevant to regulators in assessing the value of the expanded audit report.

In the next Section, a review of existing literature on the key areas of this study is provided, which lead to the various hypotheses being formed. Thereafter, details of the research method employed in this study and the underlying methodological assumptions are given. Section four consists of the presentation and discussion of the results of the three regression models used in this dissertation. Finally, the conclusion discusses the implications of the findings which presents some thoughts on future research opportunities.

## 2. Extant Literature and Hypotheses Development

A major economic downturn brings additional risks to an audit engagement. In response, auditors are expected to adapt their behaviour, adjusting the detection risk threshold by exerting more effort on engagements to ensure sufficient audit work has been carried out in order to provide the audit opinion and maintain levels of high audit quality (Alkaraan, 2021, 2022; Alkaraan et al., 2022; Alkaraan & Floyd, 2020; Chen et al., 20019; El-Dyasty & Elamer, 2021a, 2021b, 2021c, 2022). The audit fee is said to be a function of the total costs of the engagement (Simunic, 1980), therefore, increasing levels of audit effort in response to the additional risks posed by clients should be reflected in a subsequent increase in the audit fee. Although there was some evidence of fee pressure during the global financial crisis, overall, the majority of evidence suggested auditors increased their audit fees in the crisis period (Xu, et al., 2013; Zhang & Huang, 2013; Alexeyeva & Svanstrom, 2015). Therefore, based on the actions of auditors in similar economic conditions, the first hypothesis can be formed:

***Hypothesis 1a (H<sub>1a</sub>):*** *Audit partners charged higher fees during the COVID-19 pandemic.*

Furthermore, as the audit partner is responsible for the overall engagement, individual characteristics, such as the gender of the audit partner, may also influence certain aspects of the auditing process, including the audit fee. As documented above, female audit partners were previously found to charge higher audit fees (Ittonen & Peni, 2012; Hardies, et al., 2015; Nekhili, et al., 2018). This perceived female fee premium was attributed to traits suggesting females are more risk-averse compared to males (Levin, et al., 1988; Powell & Ansic, 1997; Jianakoplos & Bernasek, 1998; Croson & Gneezy, 2009), hence demanding higher levels of audit effort on engagements or an inclusion of a risk premium. Female audit partners may also be extra motivated to avoid audit failure during this period, as they are often held to a higher standard than males, often requiring additional work to be undertaken (Elmagrhi et al., 2019; Elmarzouky et al., 2021a, 2021b, 2022; Elmarzouky et al., 2022a; 2022b; Elsayed et al., 2022, 2023; Elsayed & Elshandidy, 2021; Hao, et al., 2021). Therefore, with the COVID-19 pandemic introducing large levels of risk into the audit process, a gender difference in the charged audit fees may also be observed:

***Hypothesis 1b (H<sub>1b</sub>):*** *Female audit partners charged higher fees during the COVID-19 pandemic than male audit partners.*

With the pandemic introducing various risks to the audit process, this may have implications for the key audit matters disclosures by the audit partner, as they serve as a purpose to communicate the significant risks of an engagement to the user. Key areas of judgement, including going concern, asset valuation and revenue recognition, were likely to receive significant audit attention during the pandemic which may result in additional disclosures. Although the expanded audit report did not exist during the previous financial crisis, auditors had a higher propensity to issue going concern opinions in 2008-2009 (Xu, et al., 2013; Geiger, et al., 2014), providing an indication to how auditors may report during the pandemic.

Additionally, Kend and Nguyen (2022) found auditors disclosed a greater number of audit procedures related to KAM risks during the pandemic, to inform users of the auditor's response to the significant risks. In a period of such uncertainty, audit partners may also be inclined to utilise the key audit matters disclosures as a mechanism to reduce liability on engagements (Ahmed et al., 2022; Albitar et al., 2021; Alshbili & Elamer, 2020; Amin et al., 2022; Brasel, et al., 2016; Eldaly et al., 2022; Kachelmeier, et al., 2020). To understand whether auditor communication of key audit matters was affected during the pandemic, this study aims to test the following hypotheses:

***Hypothesis 2a (H<sub>2a</sub>):*** *Audit partners disclosed more Key Audit Matters during the COVID-19 pandemic*

***Hypothesis 3a (H<sub>3a</sub>):*** *Audit partners disclosed more detailed Key Audit Matters during the COVID-19 pandemic.*

Similar to audit fees, the gender of the audit partner may also influence the nature and extent of key audit matter disclosures, particularly with this documented higher-risk aversion associated with females. Previous audit reporting studies have found females to disclose more key audit matters and report them in greater detail (Abdelfattah, et al., 2021). With this considered, the final hypotheses for this study can be formed:

***Hypothesis 2b (H<sub>2b</sub>):*** *Female audit partners disclosed more Key Audit Matters during the COVID-19 pandemic than male audit partners*

***Hypothesis 3b (H<sub>3b</sub>):*** *Female audit partners disclosed more detailed Key Audit Matters during the COVID-19 pandemic than male audit partners.*

### 3. Methods

#### 3.1. Sample

The sample used for this study consists of UK listed companies included in the FTSE 350 index. The COVID-19 pandemic significantly affected the global economy from March 2020, and therefore analysis will span two defined periods: pre-COVID (two company financial years prior to 31 March 2020), and the COVID period (company financial years on/or after 31 March 2020<sup>1</sup>). Auditors of all listed companies are mandated to communicate key audit matters (KAMs) in the independent auditor's report, and so the sample only included listed companies. Using a stock exchange index eliminates any selection bias in forming the sample. The FTSE 350 also captures a greater pool of female audit partners and non-Big Four audit firms which provides scope for broader analysis of the results in this study.

Financial information variables were collated from DataStream and FAME, and auditor-related information (gender and key audit matters disclosures) were manually extracted from companies' annual reports. The gender of the audit partner was verified through an internet search (audit firm website) or social media platforms (LinkedIn). In addition, the length of the KAM disclosures was calculated using an online word-counter to ensure an accurate measurement was made.

Insert Table 1 here

Consistent with previous papers, financial institutions and utility companies were removed from the sample (Ittonen & Peni, 2012; Nekhili, et al., 2018; Abdelfattah, et al., 2021; Xu, et al., 2013), providing an initial sample of 218 companies with 872 firm-year observations. Financial institutions and utility companies are often removed from quantitative studies as these particular industries are associated with unusually high leverage ratios (Fama & French, 1992) and strict financial regulation. Unlike a typical company, these characteristics do not indicate financial distress in these industries, and hence inclusion in this study may skew the results. After removing companies with missing control variables and audit report data, the final sample amounted to 205 companies with 678 firm-year observations, with details of the selection procedures outlined in Table 1. Several firms included in the initial sample became a publicly listed company during the period, and therefore these observations had to be removed due to the lack of audit report data, as key audit matters are not mandatory for non-listed companies.

Table 2 provides a breakdown of the sample observations based on audit partner gender in each period. Across the entire sample, 16.4% of engagements were conducted by female audit partners, including only 14.9% of engagements from the largest UK listed companies (FTSE 100). These statistics highlight that although the proportion of engagements controlled by females has increased during the pandemic, the profession still remains heavily male-dominant.

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<sup>1</sup> Due to the early nature of this paper, not all companies in the sample have reported their financial results for 2021 and therefore a symmetrical sample of the two periods cannot be selected.

Insert Table 2 here

### 3.2. Research Model Specification for H<sub>1</sub>

Using the collected data, three regression models were employed to test the various hypotheses. The models were based on two previous studies: Ittonen and Peni (2012) who looked at the gender effect on the audit fee, and Abdelfattah, et al. (2021) who explored the gender effect on the reporting of key audit matters.

Model 1 will examine the relationship between the audit fee and the gender of the audit partner during the COVID-19 pandemic, in order to test H<sub>1a</sub> and H<sub>1b</sub>. This audit fee model was adapted from Ittonen and Peni (2012) to include additional COVID-19 test variables. Other control variables that can also affect audit fees are also included in the model, such as firm characteristics and auditor-related variables.

$$\begin{aligned}
 FEE_{i,t} = & \beta_{0,t} + \beta_1 GENDER_{i,t} + \beta_2 COVID_{i,t} + \beta_3 (GENDER_{i,t} \times COVID_{i,t}) + \beta_4 INVREC_{i,t} \\
 & + \beta_5 LEV_{i,t} + \beta_6 LOSS_{i,t} + \beta_7 SIZE_{i,t} + \beta_8 ROA_{i,t} + \beta_9 CHANGE_{i,t} + \beta_{10} BIG4_{i,t} \\
 & + \beta_{11} NAFEE_{i,t} + \varepsilon_{i,t}
 \end{aligned}$$

1

The study aims to examine the effect of the gender of the audit partner and COVID-19 on audit fees in the UK. The dependent variable is the audit fee (FEE) charged by the audit partner. The first independent variable is the gender of the audit partner (GENDER), where a positive coefficient for GENDER is expected to indicate a fee premium charged by female audit partners. The second independent variable is a COVID-19 dummy variable (COVID), which is set to 1 if the financial period was during the COVID-19 pandemic and 0 otherwise. A positive coefficient for COVID is expected, as audit fees are expected to increase during the pandemic due to increased business risk. The joint variable of (GENDER x COVID) is also considered to examine the gender effect on audit fees during the COVID-19 pandemic.



Table 3 provides a description of each variable included in the three regression models, in addition to the method used to measure the variable for each firm  $i$  at time  $t$ . Several firm-related control variables were inputted into the regression model to consider other factors that may affect the audit fee. These variables include inventory and receivables intensity ratio (*INVREC*), leverage (*LEV*), return on assets (*ROA*), reporting of a loss (*LOSS*) and firm size (*SIZE*). Based on previous studies, large, complex, and financially distressed clients require greater audit effort in response to the higher audit risks (Simunic, 1980; Hay, et al., 2006; Bell, et al., 2001). Additionally, auditor-related characteristics were incorporated into the model, including the appointment of a new auditor during the year (*CHANGE*), auditor size (*BIG4*), and non-audit fees (*NAFEE*), all of which prior research has found to impact the audit fee (Hay, et al., 2006).

Insert Table 3 here

### 3.3. Research Model Specification for H<sub>2</sub>

The second research model will examine the relationship between the number of key audit matter disclosures and audit partner gender during the pandemic, to test H<sub>2a</sub> and H<sub>2b</sub>. The regression model was formed by Abdelfattah, et al. (2021), that also studied the relationship between auditor gender and key audit matter disclosures which was adapted to allow for analysis during the pandemic. A variety of firm and auditor-related control variables were also incorporated into Model 2, to capture the other factors that may influence the number of key audit matters disclosed by the audit partner.

$$\begin{aligned}
 KAM_{i,t} = & \beta_{0,i,t} + \beta_1 GENDER_{i,t} + \beta_2 COVID_{i,t} + \beta_3 (GENDER_{i,t} \times COVID_{i,t}) + \beta_3 RISK_{i,t} \\
 & + \beta_4 GCO_{i,t} + \beta_5 FEE_{i,t} + \beta_6 NAFEE_{i,t} + \beta_7 CHANGE_{i,t} + \beta_8 SIZE_{i,t} + \beta_9 ROA_{i,t} \\
 & + \beta_{10} QUICK_{i,t} + \beta_{11} LOSS_{i,t} + \beta_{12} LEV_{i,t} + \beta_{13} SEGMENTS_{i,t} + \varepsilon_{i,t}
 \end{aligned}$$

2

For Model 2, the dependent variable consists of the number of key audit matters (*KAM*) disclosed in the independent auditor's report<sup>2</sup>. Similar to Model 1, the gender of the audit partner, *GENDER*, is used as a key independent variable to determine whether this auditor characteristic influences the number of KAMs disclosed in the auditor's report. In addition, the variable for *COVID* allows for analysis regarding auditor reporting disclosure during the pandemic (H<sub>2a</sub>). The joint test variable (*GENDER*  $\times$  *COVID*) will allow for comparison to see the gender effect of the number of key audit matters disclosed during the COVID-19 pandemic (H<sub>2b</sub>). Detailed descriptions of the variables are documented within

<sup>2</sup> Consistent with Abdelfattah, et al. (2021) this study will use the natural logarithm of the total number of KAMs plus one, to control for auditor reports with only one KAM disclosed.

Table 3.

### **3.4. Research Model Specification for H<sub>3</sub>**

Model 3 will examine the association between the length of the key audit matters disclosures and audit partner gender during the pandemic, to test H<sub>3a</sub> and H<sub>3b</sub>. Model 3 was also based on the paper of Abdelfattah, et al. (2021), and hence considers identical variables to control for other firm or auditor-related effects, as described in

Table 3.

$$\begin{aligned}
LENGTH_{i,t} = & \beta_{0,i,t} + \beta_1 GENDER_{i,t} + \beta_2 COVID_{i,t} + \beta_3 (GENDER_{i,t} \times COVID_{i,t}) + \beta_4 KAM_{i,t} \\
& + \beta_5 RISK_{i,t} + \beta_6 GCO_{i,t} + \beta_7 FEE_{i,t} + \beta_8 NAFEE_{i,t} + \beta_9 CHANGE_{i,t} + \beta_{10} SIZE_{i,t} \\
& + \beta_{11} ROA_{i,t} + \beta_{12} QUICK_{i,t} + \beta_{13} LOSS_{i,t} + \beta_{14} LEV_{i,t} + \beta_{15} SEGMENTS_{i,t} + \varepsilon_{i,t}
\end{aligned}$$

3

The dependent variable in Model 3 is the length of the key audit matters section of the auditor's report (*LENGTH*), measured by the natural logarithm of the number of words, to reflect the level of detail of the report. Again, this will be measured against the gender of the audit partner (*GENDER*), the reporting period (*COVID*) and the joint variable (*GENDER*  $\times$  *COVID*) to determine whether these characteristics and events subsequently lead to more detailed auditor disclosure regarding key audit matters, which would be indicated with a positive coefficient.

## 4. Results and Discussion

### 4.1. Descriptive Statistics

The descriptive statistics of all variables are presented in

**Table 4**, separated into the two defined periods: Pre-COVID and COVID.

**Table 4** shows the statistics for all 678 observations. The average number of key audit matters disclosed increased from 3.67 to 3.97 ( $p < 0.05$ ), ranging from a minimum of 1 to a maximum of 9 KAMs in both periods. There were five observations with 9 KAMs, which included three FTSE 100 companies, all from different industries. Male audit partners, on average, charged higher audit fees (*FEE*) than females in both periods, gender differences which are statistically significant (untabulated). However, the average audit fee charged by females did significantly increase by £0.747m ( $p < 0.10$ ) during the pandemic, compared to a minimal increase of £0.071m from male audit partners.

Table 5 presents the Pearson correlation matrix between the independent and control variables included within the three regression models. Excluding the 0.665 correlation between *GENDER* and *GENDER X COVID*, which contains a large degree of multicollinearity, there are no significant correlations between the variables in this study.

Insert Table 4 here

Insert Table 5 here

## 4.2. Regression Results

### 4.2.1. Analysis of Audit Fees

Table 6 presents the OLS regression results for Model 1, that will test Hypothesis 1a ( $H_{1a}$ ) and Hypothesis 1b ( $H_{1b}$ ), meaning the key variables of interest are *COVID* and *GENDER X COVID*. The control variables included in the model hold adequate levels of explanatory power for audit fees, as shown with the adjusted  $R^2$  value of 58%, which is slightly lower than previous audit fee studies (Ittonen & Peni, 2012; Hardies, et al., 2015; Xu, et al., 2013).

Table 6 shows some surprising and conflicting results. The significant negative coefficient for *GENDER* (-0.276,  $p < 0.05$ ) suggests that across the sample period, male audit partners charged a fee premium of 27.6% compared to female partners, after controlling for auditor and client characteristics. This result contradicts previous studies that found a fee premium for female-led engagements (Ittonen & Peni, 2012; Hardies, et al., 2015). These studies attributed the premium to a lower risk tolerance by females leading to greater audit effort. The current result suggests that female partners may be more efficient and spend less time on audits, resulting in lower fees charged. On the other hand, it could be that male partners negotiate higher fees due to an aggressive negotiation style. Further research is needed to understand these differences and their impact on audit quality.

Insert Table 6 here

The study found support for Hypothesis 1a ( $H_{1a}$ ) that audit fees during the pandemic increased. The *COVID* variable had a positive and significant coefficient (0.136) at the  $p < 0.10$  level, indicating audit fees increased by approximately 13.6%. This result is consistent with previous studies on the global financial crisis and suggests auditors incorporated heightened audit and business risks due to the pandemic into the audit fee. This increase in fees may have been driven by an increase in audit hours or the inclusion of an additional risk premium. The findings also suggest auditors increased their effort levels during the pandemic, especially in response to significant risks. Working-from-home restrictions imposed on auditors and clients may have also impacted the audit fee charged. Client's internal controls may have been weakened with the restrictions, and therefore auditors may have allocated more hours on engagements to counter for the increased risk of an internal control deficiency (Hogan & Wilkins,

2008). Additionally, the transition to fully remote audits may also contribute to an increase in the number of hours charged to specific engagements by the audit team (Albitar et al., 2020).

The increase in audit fees during the pandemic may not only be due to increased auditor effort but also from factors such as mandatory auditor rotation and lack of competitive audit tenders that gives auditors a negotiation advantage to charge higher fees. The weak significance level ( $p < 0.10$ ) of the COVID variable could also be due to some clients successfully negotiating lower audit fees.

The coefficient for GENDER X COVID (0.127) is positive but not statistically significant, meaning the hypothesis of female audit partners charging higher fees during the pandemic period cannot be fully supported. The positive coefficient may be explained by female audit partners being more risk-averse during a period of heightened risk (Levin, et al., 1988; Jianakoplos & Bernasek, 1998; Powell & Ansic, 1997; Croson & Gneezy, 2009). However, the admission of multicollinearity into the model may impact the significance of these findings. This result is similar to Alexeyeva and Svanstrom (2015), who also found no significant association between audit partner gender and audit fees during the global financial crisis.

In summary, the results of Model 1 provide support for Hypothesis (H<sub>1a</sub>), with an increase in audit fees being found for the pandemic period. However, no significant gender variation in the charging of audit fees during this period could be substantiated in this study, thus, Hypothesis (H<sub>1b</sub>) cannot be supported. Future research may wish to investigate the impact of this implied increase of auditor efforts on other proxies of audit quality.

#### **4.2.2. Analysis of the Number of Key Audit Matters**

provides the regression results of Model 2, that will test Hypothesis 2a (H<sub>2a</sub>) and Hypothesis 2b (H<sub>2b</sub>). The adjusted R<sup>2</sup> value of 28% is slightly lower than previous expanded audit reporting studies (Abdelfattah, et al., 2021), but still provides some useful insights to auditor disclosures during the pandemic.

A negative coefficient was found for *GENDER* (-0.142), which was also significant at the  $p < 0.01$  level, suggesting across the entire sample, female audit partners disclosed fewer key audit matters than male audit partners, a result which does not conform with Abdelfattah, et al. (2021). This result contradicts the idea that women perceive more risks than men as presented in previous gender audit partner studies (Ittonen, et al., 2013; Hardies, et al., 2016; Abdelfattah, et al., 2021). It is possible that male audit partners viewed the disclosure of multiple KAMs as a mechanism to reduce their legal liability on engagements (Brasel, et al., 2016; Kachelmeier, et al., 2020), whereas female audit partners were potentially more concerned about providing more valuable information within the audit report, and only reported those considered to be the truly significant risks.

The results suggest there was no significant change in the number of Key Audit Matters (KAMs) disclosed during the COVID-19 pandemic, once other variables were controlled for. The coefficient and p-value for the COVID variable (-0.001,  $p = 0.981$ ) support this conclusion. However, other studies have reported an increase in the number of KAMs disclosed in 2020. The reason for the insignificant change in the number of KAMs may be due to the limited number of matters (Abdelfattah, et al., 2021) that can be reported by the auditor and multiple risks may be reported under one broad KAM topic.

Insert Table 7 here



The coefficient for *GENDER X COVID* is positive (0.010), however, the result is insignificant with a p-value of 0.868, meaning Hypothesis 2b ( $H_{2b}$ ) cannot be supported. Although the result is statistically insignificant, the positive coefficient does provide an indication of a slight gender variation in the reporting of risks during the pandemic, which aligned with previous studies that found evidence that female auditors were more risk averse (Gold, et al., 2009; Ittonen & Peni, 2012; Ittonen, et al., 2013; Hardies, et al., 2015; Hardies, et al., 2016; Nekhili, et al., 2018; Abdelfattah, et al., 2021).

In summary, the results of Model 2 indicate there was no significant change in the number of key audit matters disclosed in the COVID-19 pandemic, nor was there any documented variation between male and female audit partners in the pandemic, therefore neither Hypothesis 2a ( $H_{2a}$ ) or Hypothesis 2b ( $H_{2b}$ ) can be supported.

#### 4.2.3. Analysis of the Length of Key Audit Matters

The results of Model 3 are presented in **Error! Reference source not found.**, that will test Hypothesis 3a ( $H_{3a}$ ) and Hypothesis 3b ( $H_{3b}$ ) regarding the length of key audit matter disclosures. The extension of the model used by Abdelfattah, et al. (2021), to include additional pandemic-related test variables, led to an exceptional adjusted  $R^2$  value of 76%, compared to 56% in the original study, indicating the variables inputted into the model in this paper provide a strong basis to explain the length of these auditor disclosures.

The results in Table 7 show that the coefficient for gender is significantly positive (0.124) with a p-value less than 0.01, according to Abdelfattah et al. (2021). This indicates that, when controlling for various auditor and client-related variables, female audit partners tend to report more detailed key audit matter disclosures compared to male audit partners. Female partners reported 12.4% longer KAM disclosures than male partners, despite reporting fewer KAMs overall. The additional detail provided by female partners is believed to be an attempt to demonstrate their efforts on engagements and reduce legal liability, as well as to display higher levels of competence in their positions as audit partners (Brasel et al., 2016; Kachelmeier et al., 2020). This increased transparency may be driven by the need to justify their positions as audit partners (Eagly & Carli, 2003).

The COVID-19 pandemic had a significant impact on audit partners' reporting of key audit matters, with a positive coefficient found for COVID (0.144,  $p < 0.01$ ). This confirms Hypothesis 3a, showing that auditors during the pandemic reported key audit matters in greater detail, consistent with findings by Kend and Nguyen (2022). However, there was no significant difference in the length of KAM disclosures between male and female audit partners during the pandemic (*GENDER X COVID* coefficient -0.019,  $p = 0.740$ ), hence Hypothesis 3b cannot be supported.

Therefore, as the results from **Error! Reference source not found.** provide evidence that auditors disclosed more detailed key audit matters during the COVID-19 pandemic, Hypothesis 3a ( $H_{3a}$ ) can be

supported. However, once again, no gender variation of auditor behaviour during the pandemic can be substantiated from these findings, providing no support for Hypothesis 3b ( $H_{3b}$ ). Future studies may wish to analyse the type of KAMs disclosed by the auditor during the pandemic, to understand the nature of the significant risks that auditors identified and communicated during this period.

### **4.3. Additional Analysis**

After considering the unexpected insignificant change in the number of key audit matters during the pandemic (

), some additional analysis was conducted to further explore the numbers behind this finding. Table was constructed to present the average number, and length of KAMs for each year in the study, categorised further by the gender of the audit partner (also presented in chart form in Appendix 1).

Analysis of the average number of key audit matters shows a clear trend, with a substantial increase in 2020 compared to 2019, followed by a decline to near pre-pandemic disclosure levels in 2021. Looking at the pattern of male and female audit partners separately, the average number of KAMs reported by females declined in 2019, whereas males increased, which provides context for the significantly negative coefficient found for *GENDER* across the whole sample. In terms of behaviour during the pandemic, it appears that both sub-samples of auditors reacted in a similar way, with female audit partners having a larger increase and smaller decline than male audit partner, and therefore explains the positive, albeit insignificant, coefficient of *GENDER X COVID* found in

. This aligns with the findings of a number of studies that found female auditors to be more risk-averse compared to males (Ittonen, et al., 2013; Ittonen & Peni, 2012; Hardies, et al., 2015; Hardies, et al., 2016; Nekhili, et al., 2018; Abdelfattah, et al., 2021; Gold, et al., 2009).

Insert Table 8 here

The length of key audit matters increased during 2020 due to the impact of the pandemic, leading to more detailed auditor disclosures. Despite fewer key audit matters being reported on average, female audit partners had a higher average length of disclosure in 2021 compared to male partners. The pandemic was expected to lead to an increase in the number of key audit matters, but the results of Table 8 were surprising as there was no significant increase. The regression results may have been skewed by the decline in 2021, and the most noticeable changes in audit reporting may only be captured using the first audit engagement of the pandemic.

## 5. Conclusion

This paper studied the impact of the COVID-19 pandemic on the audit fee and key audit matter disclosures, using a sample of FTSE 350 listed companies, consisting of 678 firm-year observations spanning the period 2018-2021. In addition, the gender of the audit partner was of key interest to this study, after a series of papers in previous literature have documented a gender difference in various aspects of the audit process (Ittonen & Peni, 2012; Hardies, et al., 2015; Abdelfattah, et al., 2021). This empirical study found audit fees had increased by around 14% during the pandemic, implying auditors responded to the additional client risk factors with an increase of audit effort, consistent with the behaviour of auditors during the previous economic crisis (Xu, et al., 2013; Zhang & Huang, 2013; Alexeyeva & Svanstrom, 2015; Chen, et al., 2019). The results from this study also show although there were no significant changes in the number of key audit matters, audit partners did report in considerably more detail during the pandemic. Therefore, there is evidence to suggest auditor communication was enhanced during the crisis period, which is aligned with a key objective of the newly introduced expanded audit report.

The analyses relating to the gender of the audit partner showed that there were no statistically significant differences between male and female audit partners during the pandemic in the three models employed in this study. However, over the entire sample period, there were some gender variations found. Firstly, male audit partners charged higher audit fees, even after client characteristics such as company size were controlled for. Similarly, male audit partners disclosed a greater number of KAMs, however, female audit partners provided substantially more detailed key audit matters, demonstrating the effect gender can have on the audit process.

To our knowledge, this study is the first to provide empirical evidence of the UK auditing profession during the COVID-19 pandemic, and therefore the findings will be of particular interest to audit regulators, such as the UK Financial Reporting Council, as they begin to reflect on the performance of auditors during the pandemic. Regulators can assess the appropriateness of this behaviour during this period of heightened risk and scrutiny, particularly surrounding the audit reporting elements to gauge whether the expanded audit report in its current form is providing sufficient information to users, or whether further reforms are required. This paper will allow audit firms to reflect on their own reaction to the pandemic to evaluate whether sufficient resources were assigned to engagements, and also whether suitable disclosures were provided to financial statement users in order to enable informed decision-making. This paper also contributes to the growing strand of literature on the effect of audit partner gender on various aspects of the audit process. The finding of no gender variation in behaviour during the pandemic should encourage firms to promote more female auditors to partner level, as there seems to be little indication of female-led engagements being of lower quality in this period and

therefore the documented female underrepresentation issue should be addressed in the audit profession in the years to come.

This study acknowledges its limitations and provides potential for future research opportunities. The COVID-19 pandemic is ongoing and this study only provides preliminary analysis for early stages of the pandemic. Future research could span a wider sample period and include multiple countries to provide a more global observation of the impact of COVID-19 on the audit process. The results could also be supplemented by future qualitative research, such as interviews with male and female audit partners to understand changes in approach during the pandemic.

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## Appendices

### Appendix 1: Additional Analysis of Key Audit Matters (Chart Form)



## Tables

**Table 1** Sample Selection Procedures

	Firms	Observations
Non-financial and utility companies listed in the FTSE350 index	218	872
(-) Observations with missing control variables		138
(-) Observations with missing audit report data		56
<b>Total Observations</b>	<b>205</b>	<b>678</b>

**Table 2** Breakdown of Sample Observations by Audit Partner Gender and Period

<b>Panel A: Observations from the FTSE 350 index</b>						
Period	Engagements with Male Audit Partner		Engagements with Female Audit Partner		All Engagements	
	No.	%	No.	%	No.	%
Pre-COVID	345	85.8%	57	14.2%	402	59.3%
COVID	222	80.4%	54	19.6%	276	40.7%
<b>Total</b>	<b>567</b>	<b>83.6%</b>	<b>111</b>	<b>16.4%</b>	<b>678</b>	<b>100%</b>

  

<b>Panel B: Observations from the FTSE 100 index</b>						
Period	Engagements with Male Audit Partner		Engagements with Female Audit Partner		All Engagements	
	No.	%	No.	%	No.	%
Pre-COVID	131	88.5%	17	11.5%	148	60.0%
COVID	80	80.0%	20	20.0%	100	40.0%
<b>Total</b>	<b>211</b>	<b>85.1%</b>	<b>37</b>	<b>14.9%</b>	<b>248</b>	<b>100%</b>

**Table 3** Description of Regression Variables

<b>Variable</b>	<b>Expected sign</b>	<b>Description</b>	<b>Measurement</b>
<b>Dependent Variables</b>			
<b>FEE</b>		Audit Fees	Natural logarithm of the total audit fees charged to the company
<b>KAM</b>		Number of Key Audit Matters Disclosed	Natural logarithm of the number of key audit matters plus one
<b>LENGTH</b>		Length of the Key Audit Matters Disclosure	Natural logarithm of the number of words of the key audit matter disclosure
<b>Independent Variables</b>			
<b>GENDER</b>	+	Gender of the Audit Partner	Equals 1 if partner is female and 0 otherwise
<b>COVID</b>	+	Financial Year-End During the Defined COVID-19 Pandemic Period	Equals 1 if during period and 0 otherwise
<b>Control Variables</b>			
<b>INVREC</b>	+	Inventory and Receivable Intensity Ratio	Ratio of the sum of inventories and receivables to total assets
<b>LEV</b>	+	Leverage	Ratio of total debt to total assets
<b>LOSS</b>	+	Reported a Loss During the Year	Equals 1 if reported loss and 0 otherwise
<b>SIZE</b>	+	Company Size	Natural logarithm of the total assets of the company
<b>ROA</b>	-	Return on Assets	Ratio of earnings before interest and tax (EBIT) to total assets of the company
<b>CHANGE</b>	+	Change of Auditor During the Year	Equals 1 if the auditor had changed and 0 otherwise
<b>BIG4</b>	+	Big-Four Auditor	Equals 1 if audited by Big-Four audit firm and 0 otherwise
<b>NAFEE</b>	-	Non-Audit Fee	Natural logarithm of non-audit fees/Ratio of non-audit fees to total audit fees charged to the company
<b>RISK</b>	+	Company Risk	Stock price volatility of the company during the year
<b>GCO</b>	+	Going Concern Opinion	Equals 1 if GCO is issued by the auditor and 0 otherwise
<b>QUICK</b>	+	Quick Ratio	Ratio of the current assets minus inventories to current liabilities
<b>SEGMENTS</b>	+	Business Segments	Number of business segments disclosed in the financial statements

**Table 4** Descriptive Statistics

Variable	Pre-COVID					COVID					Diff. in Mean	t-test	
	Mean	Median	Max	Min	SD	Mean	Median	Max.	Min	SD			
<b>FEE (£000s)</b>	2833	1000	37232	81	5241	2947	1365	39466	107	4915	114	0.29	
<b>KAM</b>	3.67	3	9	1	1.58	3.97	4	9	1	1.69	0.30	2.32	**
<b>LENGTH</b>	1592	1343	8585	312	941	2055	1854	10390	358	1214	463	5.34	***
<b>INVREC</b>	0.205	0.169	0.934	0.0003	0.184	0.186	0.149	0.955	0.002	0.179	-0.020	-1.39	*
<b>LEV</b>	0.235	0.243	0.861	0	0.154	0.305	0.293	1.283	0.002	0.185	0.070	5.17	***
<b>LOSS</b>	0.114	0	1	0	0.319	0.286	0	1	0	0.453	0.172	5.44	***
<b>SIZE</b>	14.81	14.64	19.68	11.02	1.52	14.90	14.82	19.51	11.45	1.44	0.09	0.78	
<b>ROA</b>	0.115	0.084	3.260	-0.226	0.211	0.076	0.061	0.857	-0.188	0.104	-0.039	-3.20	***
<b>CHANGE</b>	0.092	0	1	0	0.289	0.065	0	1	0	0.247	-0.027	-1.29	*
<b>BIG4</b>	0.970	1	1	0	0.170	0.960	1	1	0	0.196	-0.010	-0.69	
<b>NAFEE %</b>	0.167	0.125	0.857	0	0.159	0.140	0.105	0.852	0	0.138	-0.027	-2.36	***
<b>RISK</b>	22.67	21.67	54.08	8.66	6.87	25.10	24.64	53.13	10.94	6.93	2.42	4.49	***
<b>GCO</b>	0.005	0	1	0	0.070	0.033	0	1	0	0.178	0.028	2.45	***
<b>QUICK</b>	1.10	0.92	9.65	0.08	0.83	1.25	1.05	9.19	0.11	0.99	0.15	2.04	**
<b>SEGMENTS</b>	3.19	3	9	1	1.59	3.12	3	9	1	1.49	0.07	-0.58	

**Notes:** \*, \*\*, \*\*\* indicate  $p < 0.10$ ,  $0.05$  and  $0.01$  respectively. Variables are defined as follows: audit fees (*FEE*), audit partner (*GENDER*), the pandemic period (*COVID*), the length of the key audit matters section of the auditor's report (*LENGTH*), inventory and receivables intensity ratio (*INVREC*), leverage (*LEV*), return on assets (*ROA*), firm risk (*RISK*), reporting of a loss (*LOSS*) and firm size (*SIZE*), the appointment of a new auditor during the year (*CHANGE*), auditor size (*BIG4*), the number of business segments (*SEGMENTS*), the issuance of a going concern opinion (*GCO*) and non-audit fees (*NAFEE*). Table 3 fully defines all the variables used.

**Table 5** Pearson Correlation Matrix

<b>Variables</b>	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>	<b>(7)</b>	<b>(8)</b>	<b>(9)</b>	<b>(10)</b>	<b>(11)</b>	<b>(12)</b>	<b>(13)</b>	<b>(14)</b>	<b>(15)</b>
<b>(1) GENDER</b>	1														
<b>(2) COVID</b>	0.072	1													
<b>(3) (GENDER X COVID)</b>	0.665	0.355	1												
<b>(4) INVREC</b>	-0.121	-0.053	-0.105	1											
<b>(5) LEV</b>	0.051	0.201	0.093	-0.390	1										
<b>(6) LOSS</b>	0.047	0.218	0.155	-0.221	0.214	1									
<b>(7) SIZE</b>	-0.060	0.030	-0.020	-0.157	0.219	0.099	1								
<b>(8) ROA</b>	0.080	-0.109	-0.032	0.151	-0.073	-0.251	-0.276	1							
<b>(9) CHANGE</b>	-0.015	-0.048	-0.008	0.015	0.071	-0.002	-0.001	0.021	1						
<b>(10) BIG4</b>	0.083	-0.027	0.055	0.036	-0.071	-0.100	0.043	0.021	-0.153	1					
<b>(11) NAFEE</b>	0.063	-0.088	-0.004	-0.148	0.082	0.169	0.056	-0.060	0.045	0.015	1				
<b>(12) RISK</b>	-0.045	0.170	0.016	0.077	-0.093	0.182	-0.229	-0.007	0.013	-0.146	0.065	1			
<b>(13) GCO</b>	0.038	0.107	0.048	-0.103	0.188	0.180	0.034	-0.082	0.005	-0.040	0.009	0.156	1		
<b>(14) QUICK</b>	-0.055	0.081	-0.026	-0.069	-0.104	0.035	-0.186	0.092	-0.040	0.024	0.073	0.053	-0.051	1	
<b>(15) SEGMENTS</b>	0.011	-0.022	0.019	-0.096	0.055	0.051	0.260	-0.088	0.014	-0.091	-0.004	-0.047	-0.006	-0.023	1

**Notes:** Variables are defined as follows: audit fees (*FEE*), audit partner (*GENDER*), the pandemic period (*COVID*), the length of the key audit matters section of the auditor's report (*LENGTH*), inventory and receivables intensity ratio (*INVREC*), leverage (*LEV*), return on assets (*ROA*), firm risk (*RISK*), reporting of a loss (*LOSS*) and firm size (*SIZE*), the appointment of a new auditor during the year (*CHANGE*), auditor size (*BIG4*), the number of business segments (*SEGMENTS*), the issuance of a going concern opinion (*GCO*) and non-audit fees (*NAFEE*). Table 3 fully defines all the variables used.

**Table 6** Regression Results for Audit Fees

<b>Variables</b>	<b>Coefficient</b>	<b>t-stat</b>	<b>p-value</b>	
<b>GENDER</b>	-0.276	-2.389	0.017	**
<b>COVID</b>	0.136	1.924	0.055	*
<b>(GENDER X COVID)</b>	0.127	0.759	0.448	
<b>INVREC</b>	0.098	0.522	0.602	
<b>LEV</b>	0.490	2.395	0.017	**
<b>LOSS</b>	-0.148	-1.729	0.084	*
<b>SIZE</b>	0.634	28.805	0.000	***
<b>ROA</b>	0.362	1.932	0.054	*
<b>CHANGE</b>	0.141	1.235	0.217	
<b>BIG4</b>	-0.087	-0.501	0.616	
<b>NAFEE</b>	0.004	0.255	0.799	
<b>INTERCEPT</b>	-2.408	-6.443	0.000	***
<b>Adjusted R<sup>2</sup></b>	59%			
<b>F-stat</b>	88.743***			
<b>Observations</b>	678			

**Notes:** \*, \*\*, \*\*\* indicate p<0.10, 0.05 and 0.01 respectively. Variables are defined as follows: audit fees (*FEE*), audit partner (*GENDER*), the pandemic period (*COVID*), the length of the key audit matters section of the auditor's report (*LENGTH*), inventory and receivables intensity ratio (*INVREC*), leverage (*LEV*), return on assets (*ROA*), firm risk (*RISK*), reporting of a loss (*LOSS*) and firm size (*SIZE*), the appointment of a new auditor during the year (*CHANGE*), auditor size (*BIG4*), the number of business segments (*SEGMENTS*), the issuance of a going concern opinion (*GCO*) and non-audit fees (*NAFEE*). Table 3 fully defines all the variables used.



**Table 7** Regression Results

<b>Variables</b>	<b>Number of Key Audit Matters</b>		<b>Length of Key Audit Matters</b>	
	<b>Coefficient</b>	<b>t-stat</b>	<b>Coefficient</b>	<b>t-stat</b>
<b>GENDER</b>	-0.142***	-3.321	0.124***	3.145
<b>COVID</b>	-0.001	-0.024	0.144***	5.895
<b>(GENDER X COVID)</b>	0.010	0.166	-0.019	-0.332
<b>KAM</b>			1.165***	32.922
<b>RISK</b>	0.005***	2.678	0.006***	3.460
<b>GCO</b>	0.230**	2.458	0.039	0.454
<b>FEE</b>	0.153***	9.712	0.016	1.067
<b>NAFEE</b>	0.151*	1.883	-0.003	-0.038
<b>CHANGE</b>	0.042	1.001	0.001	0.026
<b>SIZE</b>	-0.036***	-2.805	0.069***	5.895
<b>ROA</b>	-0.075	-1.080	-0.143**	-2.256
<b>QUICK</b>	-0.029**	-2.208	0.024**	1.985
<b>LOSS</b>	0.117***	3.598	0.080***	2.678
<b>LEV</b>	0.104	1.423	-0.109	-1.626
<b>SEGMENTS</b>	-0.011	-1.358	0.020***	2.704
<b>INTERCEPT</b>	0.856***	5.716	4.157***	29.748
<b>Adjusted R<sup>2</sup></b>	28%		76%	
<b>F-stat</b>	19.794***		145.790***	
<b>Observations</b>	678		678	

**Notes:** \*, \*\*, \*\*\* indicate  $p < 0.10$ ,  $0.05$  and  $0.01$  respectively. Variables are defined as follows: audit fees (*FEE*), audit partner (*GENDER*), the pandemic period (*COVID*), the length of the key audit matters section of the auditor's report (*LENGTH*), inventory and receivables intensity ratio (*INVREC*), leverage (*LEV*), return on assets (*ROA*), firm risk (*RISK*), reporting of a loss (*LOSS*) and firm size (*SIZE*), the appointment of a new auditor during the year (*CHANGE*), auditor size (*BIG4*), the number of business segments (*SEGMENTS*), the issuance of a going concern opinion (*GCO*) and non-audit fees (*NAFEE*). Table 3 fully defines all the variables used.

**Table 8** Additional Analysis of Key Audit Matters Disclosures

Year	Male Audit Partner		Female Audit Partner		Total	
	Avg.No. of KAMs	Avg.Length of KAMs	Avg.No. of KAMs	Avg.Length of KAMs	Avg.No. of KAMs	Avg.Length of KAMs
2018	3.67	1526	3.07	1330	3.59	1499
2019	3.87	1718	2.79	1339	3.72	1663
2020	4.27	2192	3.57	2015	4.14	2160
2021	3.75	1802	3.16	1828	3.61	1808