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# Why Do Female Lead Auditors Charge a Fee Premium? Evidence from the UK Audit Market

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## Abstract

Existing research documents a fee premium for female partner led audits (Ittonen & Peni, 2012; Hardies et al., 2015; Burke et al., 2019; Lee et al., 2019; Hardies et al., 2021). We take this work forward by investigating a possible justification for the observed premium by examining how auditor gender is related to audit report lag and whether the female partner audit fee premium is driven by audit report lag. We find that firms audited by a female lead auditor have a significantly shorter audit report lag but pay a significantly higher audit fee. In further analysis, we find that the fee premium for a female partner led audits is higher for clients receiving a more timely audit opinion. Our findings are consistent with female lead auditors delivering more timely audits and audit clients being prepared to pay a premium for such timeliness. Our study extends our understanding of the importance of gender in the auditing process and the value clients see in audits led by female auditors. Given the relatively low proportion of female lead auditors, our findings should also encourage audit firms to appreciate the economic value of female lead auditors and to actively facilitate their progression to senior roles.



*Keywords:* auditor gender; audit timeliness; audit fees.

## 1. Introduction

There is a growing body of research investigating how audit partner characteristics impact both the process and the outcome of the statutory audit (Lennox & Wu, 2018). One characteristic attracting significant attention is gender. This is motivated by arguments that female lead auditors are more diligent and conservative than their male colleagues and are expected to influence the audit process accordingly (Ittonen & Peni, 2012; Hardies et al., 2016; Goodwin & Wu, 2016; Burke et al., 2019; Lee et al., 2019).

An area where evidence points towards a significant gender impact is audit fees, with a number of studies finding that when the lead audit partner is female the statutory audit fee is significantly higher than in the case of male audit partners (Ittonen & Peni, 2012; Hardies et al., 2015; Burke et al., 2019; Lee et al., 2019; Hardies et al., 2021). Even though some empirical work has sought to address the reasons behind the observed premium with Hardies et al. (2021) suggesting this may be due to discrimination while Lee et al. (2019) suggest that female lead auditors may be engaged in more complex audits, there remains little by way of rigorous and consistent evidence on the issue. The purpose of this study is to investigate whether the observed female partner led audit fee premium can be explained by female lead auditors undertaking more timely audits. Specifically, we are interested to ascertain whether the female partner led audit fee premium is partly due to the receipt of a more timely audit opinion and thereby consistent with audit clients being prepared to pay a premium for more timely audit reports.

Our study makes a number of significant contributions to our understanding of the impact of lead auditor gender in audit pricing. First, we extend the studies of Ittonen and Peni (2012), Hardies et al. (2015), Burke et al. (2019) and Lee et al. (2019) to ascertain whether the female partner led audit fee premium also exists in the UK. This replication is important as it allows us to appreciate and understand whether the female partner led audit fee premium is generalisable across countries or is more jurisdiction specific. Second, we extend the existing literature on audit report lag (*ARL)* by examining the impact of audit partner gender on the timeliness of the audit. This is a key contribution

as the existing literature on the *ARL,* with the notable exception of Burke et al. (2019), has focused exclusively on client and audit firm characteristics (for example, see Abernathy et al., 2017; Durand, 2019) and, therefore, has not sought to incorporate the characteristics of individual auditors who supervise the audit process and are ultimately accountable for the timelines of the audit[1]. This is an important investigation since the arguments that suggest a potential gender impact on other aspects of the audit process are likely to be no less relevant in relation to the *ARL*.

Third, the aforementioned contributions allow us to go beyond the identification of a female partner led audit fee premium by undertaking a rigorous and empirical explanation for its existence. In developing our study, we specifically seek to add to Burke et al. (2019) in three key respects. First, while Burke et al. (2019) focus on initial disclosures over the first five months of the Public Company Accounting Oversight Board's Rule 3211 requiring the disclosure of auditor details, our study covers the period 2009-2016, essentially covering the first eight years of similar disclosures in the UK. The longer time period allows us to undertake a more comprehensive analysis over a more sustained period, thus addressing one of the specific recommendations for further work made by Burke et al. (2019). Second, while Burke et al. (2019) include the impact of female lead auditors as one aspect of their comprehensive study on the impact of Rule 3211, our sole focus is on the relationship between gender, audit timeliness and audit fees. This allows us to undertake a more bespoke and focused empirical analysis. Third, unlike Burke et al. (2019), given that endogeneity is a key issue in gender studies because auditor gender selection may not be random, we use propensity score matching (PSM) and difference-in-differences (DID) methodologies to control for self-selection bias and unobservable omitted variable bias, respectively.

We undertake our analysis on a sample of UK listed firms from 2009 to 2016. The UK has required disclosure of the name of the lead audit partner in companies' annual reports since 2008[2]. This allows us not only to identify the gender of the lead auditor but to do so over an extended period

[1] It is important to highlight that this paper intends to follow the existing literature and use *ARL*, timeliness and audit efficiency interchangeably.

[2] Section 503 of the Companies Act 2006 requires an engagement partner to sign the auditor's report in his or her name for financial years beginning on or after 6 April 2008.

which allows us to observe changes in the identity of lead auditors and investigate the gender impact of this on the *ARL* and on audit fees. Our analysis shows that clients audited by female lead auditors have a significantly shorter *ARL* but pay a significantly higher audit fee. We also find that clients audited by female lead auditors and receiving more timely audit opinions pay an audit fee premium compared to other firms. This evidence shows that the female partner led audit fee premium is at least partially explained by more timely audits and it is reasonable to assume that this arises due to female lead auditors being able to complete audits in a more timely manner and audit clients' willingness to pay higher audit fees for the early completion of audits. We check the robustness of our results using propensity score matching and difference-in-differences methodologies to address the concerns of self-selection bias and unobservable omitted variable bias. These additional analyses and other sensitivity tests offer robust support for our findings.

The paper is structured as follows. The next section begins by summarising the audit framework in the UK. It goes on to review the relevant literature around the impact of auditor gender on audit fees and the *ARL*. This allows us to motivate our hypotheses. Section 3 introduces the sample, data sources, and explains our research approach. Our empirical analysis and results are presented in section 4 while section 5 contains our conclusions.

## 2. Literature review and hypotheses development

### *2.1 The UK Audit Market*

The UK audit market operates in an environment of significant regulation, the main sources of which are the government, the Financial Reporting Council (FRC) and the Accounting Profession. The government's influence is via primary legislation, most notably through successive versions of the Companies Acts as well as supplementary legislation that has sought to incorporate various EU audit directives into UK law. The FRC enjoys delegated powers from the government to oversee the regulation of auditing as well as the regulation of auditors, some of which is delegated to the

professional accountancy bodies[3]. Specifically, the FRC is responsible for the recognition, supervision and de-recognition of the accountancy bodies that are responsible for supervising the work of auditors and offering an audit qualification. The FRC, in turn, delegates certain regulatory tasks to the accountancy bodies. This delegation includes, *inter alia*, audit registration, continuing professional development, certain aspects of audit monitoring and enforcement. In general, while over-arching audit regulation is underpinned by primary legislation, the UK's overall principles-based approach to financial regulation still applies. Specifically, in contrast to the US, the UK does not have any equivalents to the Security and Exchange Commission (SEC) or the Sarbanes-Oxley Act (SOX).

In the UK, most shareholder-owned companies are expected to be subject to a statutory audit undertaken by an independent auditor. The only exemptions refer to small companies, typically defined as failing to reach size thresholds in relation to turnover/assets/employees. The purpose of the statutory audit is to form and express an opinion as to whether the financial statements show a true and fair view in accordance with the relevant financial reporting framework and comply with the Companies Act 2006. The audit opinion is included as one element of the audit report which is typically included immediately before the company's audited financial statements. In addition to the audit opinion, the audit report also includes information on how the audit was planned and carried out as well as significant narrative around key audit matters of relevance to each company. The audit report concludes with sign-off by the lead audit engagement partner in his/her name on behalf of the audit firm as well as noting the date and location of the audit report.

There is no guidance on the appropriate length for an audit report, although the FRC has noted that larger listed companies tend to have longer reports (FRC, 2022). Similarly, there are no rules around how quickly an audit should be completed after a company's financial year-end. This

[3] These professional accountancy bodies include the Association of Chartered Certified Accountants (ACCA), Institute of Chartered Accountants in England and Wales (ICAEW), Institute of Chartered Accountants of Scotland (ICAS), Chartered Institute of Public Finance and Accountancy (CIPFA), Chartered Institute of Management Accountants (CIMA) and Chartered Accountants Ireland.

contrasts with the US where the SEC requires listed companies to satisfy specific filing deadlines depending on market size, ranging from 60 days for large accelerated filers to up to 90 days for non-accelerated filers. For the purposes of the current study this distinction is important since the absence of specific filing deadlines allows our UK-based study to capture the relationship between gender, audit fees and the length of the audit report lag in a setting where audit timeliness is not prescribed.

*2.2. Auditor Gender, Fees and Timeliness*

A number of studies have investigated the impact of gender on audit fees with many providing evidence that female lead auditors have a positive impact. Ittonen and Peni (2012) investigate the impact of lead auditor gender in a sample of listed companies in Finland, Denmark and Sweden and find that firms with female audit engagement partners pay higher audit fees. Hardies et al. (2015) examine the impact of female lead auditors on audit fees in Belgium and confirm the findings of Ittonen and Peni (2012) that firms with a female lead auditor pay significantly higher audit fees. In a subsequent study, incorporating both public and private Belgian firms, Hardies et al. (2021) confirm the existence of a female partner led audit fee premium. Recent US-based studies by Burke et al. (2019) and Lee et al. (2019) also report that female audit partners are associated with higher audit fees than their male counterparts.

The growing and relatively consistent evidence of a female partner led audit fee premium has encouraged researchers to consider why such a premium exists. Underpinning much of this enquiry is the expectation that female lead auditors are expected to be more risk averse, undertake more diligent audit preparation and possess less confidence than their male colleagues (Ittonen & Peni, 2012; Hardies et al., 2015). Indeed, in a study of Finnish and Swedish listed firms, Ittonen et al. (2013) find that firms with female audit engagement partners are associated with smaller abnormal accruals. In a similar vein, in a study of audits in Finland, Karjalainen et al. (2018) find that female lead auditors are more likely to issue modified audit opinions than their male counterparts suggesting that female lead auditors are more conservative. In a Belgian study, Hardies et al. (2016) find that

female lead auditors are more likely than their male colleagues to issue going concern opinions and this effect is stronger when the audit client is especially important or is a high-risk client. The authors interpret their findings as evidence that female lead auditors deliver higher audit quality because they are more independent (making them issue more going concern opinions to important clients) and more risk-averse (making them issue more going concern opinions to high-risk clients). Furthermore, in supplementary analysis, Hardies et al. (2016) also report that female lead auditors have lower rates of audit error, indicating greater financial reporting accuracy.

While the abovementioned studies provide evidence of higher quality audits by female lead auditors, none of these studies simultaneously examine the link between auditor gender and audit fees so it is unclear whether the increase in audit quality documented in these studies is associated with variations in fee levels. In order to address this knowledge gap, more recent studies have tried to explain the female partner led audit fee premium by focusing on differences in audit outputs, specifically measures of audit quality. Examples of this approach include Hardies et al. (2021) in the case of Belgian audits and Lee et al. (2019) and Burke et al. (2019) in the case of US audits. Hardies et al. (2021) seek to explain their finding of a female partner led audit fee premium in terms of discrimination, specifically identifying greater female partner led audit fees in offices with a greater proportion of male audit partners as well as in offices with a greater likelihood of male lead auditors auditing more prestigious clients. However, at the root of this explanation is a belief that higher female partner led audit fees represent higher quality audits, while at the same time such high-quality female lead auditors are discriminated against.

Lee et al. (2019) focus on SEC Comment Letters. They find that female lead auditors are associated with higher audit quality, in this case measured by the levels of discretionary accruals and the likelihood of restatements. This is interesting as it suggests that a possible reason for the female partner led audit fee premium may be higher quality audits. However, as noted by Burke et al. (2019), an important consideration in the Lee et al. (2019) study is that, as the focus is on Comment Letters, the clients involved are likely to be larger and more risky in any case so additional care and

thoroughness around these particular audits might be expected hence making female lead auditors' expected diligence and risk aversion especially salient. Burke et al. (2019) also explore the source of the female partner led audit fee premium by investigating the association between auditor gender and audit quality, represented by both discretionary accruals and audit delay. However, despite the presence of a female partner led audit fee premium, the authors fail to link gender to any of their two audit output measures.

Our objective is to take forward Burke et al.'s (2019) study in the context of UK listed companies. In particular, we investigate whether the female partner led audit fee premium may be partially explained by more timely audits as measured by the *ARL*. A reasonably substantial literature has grown up seeking to explain the *ARL* with studies focusing particularly on the impact of audit client and audit firm characteristics. In terms of client characteristics, there is broad empirical support for the notion that the *ARL* is impacted by size, complexity and financial performance with studies reporting relatively consistent evidence that larger and more complex audit clients have longer *ARLs* as do clients experiencing weaker financial performance (Abernathy et al., 2017; Habib & Muhammadi, 2018; Durand, 2019). In addition to audit client characteristics, *ARL* studies have also sought to understand the impact of audit firm and audit engagement characteristics with larger and industry specialist auditors associated with a reduced *ARL* while longer audit tenure is associated with a reduced *ARL* (Abernathy et al., 2017; Habib et al., 2019; Durand, 2019).

A significant weakness of existing *ARL* research is the absence of any consideration for the role of individual audit lead partners in influencing the *ARL*. This is surprising in view of the importance of individual audit partners in leading and executing audits. Similarly, as discussed above, there is now also a growing literature on the impact of gender on audit fees. In view of this there is every reason to believe that the gender of the lead audit partner may impact the *ARL* and this, in turn, may impact the audit fee.

In terms of our expectations regarding the nature of the effect of female lead auditors on the *ARL*, there are clear tensions as to the likely impact. On the one hand, existing theory and evidence

points to female lead auditors being more cautious, efficient and thorough in undertaking audits (O'Donnell & Johnson, 2001) resulting in higher quality audits (Ittonen et al., 2013; Hardies et al., 2016; Garcia-Blandon et al., 2019). Indeed, Khlif and Achek (2017) highlight the importance of perceived behavioural differences between female and male lead auditors in terms of planning, risk tolerance and overconfidence, all of which may result in greater scepticism by female lead auditors. On the face of it, this suggests that female lead auditors are likely to be associated with a longer *ARL* due to the additional time required to ensure a more thorough audit.

On the other hand, while clients may be anxious to have a high-quality audit, they may not be prepared to sacrifice timeliness as they have a keen interest in both high quality and timely audits. Indeed, it is reasonable to expect that a key component of clients' expectations around audit quality is viewed in terms of audit timeliness, with a desire to publish accurate and reliable financial information in a timely manner. This suggests that clients may see a key aspect of audit quality being timeliness, more specifically, a shorter *ARL*. In addition, to the extent that the length of the ARL is driven by client complexity, volume of work, and client preparedness, we would expect female lead auditors to use their audit-related communication and negotiation skills (Wood et al., 1985; Schubert, 2006; Ittonen & Peni, 2012) as well as their ability to get access to voluntary information (Gul et al., 2009; Owusu et al., 2022) to ensure a timely completion of the audit. Furthermore, female lead auditors may also undertake more interim audit tests with the possibility of meeting the agreed deadlines because they are less comfortable in missing the set deadlines and, as a result, they are more likely to achieve more timely audits. In summary, we might expect female lead auditors not only to be of high quality but we also expect them to be more efficient in planning and conducting the audit. Which of these apparently competing tensions wins out is an empirical question and one which this study seeks to answer.

The second aspect of our study is seeking to understand how auditor gender and the *ARL* jointly impact audit fees in UK listed companies. As discussed earlier, there is now a significant amount of research reporting the existence of a female partner led audit fee premium. There is also

some evidence that female lead auditors are associated with higher quality audits with this being largely explained by increased diligence and care exhibited by female lead auditors (Lee et al., 2019). Taken together, this might lead to an expectation that female lead auditors take longer to complete the audit which would justify higher audit fees. This argument suggests that the higher quality audits female lead auditors are expected to undertake are likely to take longer and thereby cost more. However, there are at least two reasons why female lead auditors may not necessarily be associated with a longer *ARL* but still obtain higher fees. First, a key aspect of female lead auditors' qualities is their ability to more efficiently undertake audits and this is expected to lead to a shorter *ARL* which may be rewarded by a higher audit fee (O'Donnell & Johnson, 2001). Second, while we know relatively little about the actual auditor-client negotiation process, it is reasonable to argue that audit clients, aware of the potential for female lead auditors to deliver higher quality audits, are prepared to value the quality of such audits in terms of timeliness. In other words, clients may be prepared to pay a premium for more timely audits while also being satisfied that audit quality is not being sacrificed. This focuses on the ability of female lead auditors to negotiate and convince clients that paying a premium for a higher quality and a more timely audit is worthwhile. Which of these tensions wins out is precisely the empirical question we seek to answer in this study.

*2.3. Hypotheses development*

Unlike the impact of auditor gender on audit fees, which has received a considerable amount of empirical attention, how auditor gender affects the ARL has attracted little research attention. The only available evidence on the issue is the work undertaken by Burke et al. (2019) who report that auditor gender does not affect audit delay. This finding leads us to predict that the ARL is unrelated to auditor gender. However, given that female lead auditors are expected to be more cautious, efficient and thorough in undertaking audits (O'Donnell & Johnson, 2001), one can argue that female lead auditors are likely to spend more time completing the audit, thereby leading to a longer ARL. On the other hand, to the extent that the audit is driven by client complexity, volume of work, and client

preparedness, it is reasonable to expect female lead auditors to use their audit related communication and negotiation skills (Wood et al., 1985; Schubert, 2006; Ittonen & Peni, 2012) as well as their ability to get access to voluntary information (Gul et al., 2009; Owusu et al., 2022) to ensure a timely completion of the audit. Based on the above seemingly contradictory arguments, our first hypothesis is stated in a null form as follows:

*$H_1$ The length of a client's audit reporting lag is not affected by lead auditor gender.*

The earlier discussion shows that there is increasing evidence of female lead auditors undertaking more expensive audits than their male counterparts. This has led researchers to seek explanations for the female partner led audit fee premium. One such study is the work of Hardies et al. (2020) who report that the female partner led audit fee premium is driven by gender discrimination. We contribute to the debate on the observed differences in the audit pricing of female and male lead engagement partners by examining whether the female partner led audit fee premium is influenced by the length of the ARL.

Based on the existing literature, we expect the attributes of female lead auditors (i.e., communication and organisational skills as well as access to voluntary information) to contribute to the timely completion of audits (Wood et al., 1985; Schubert, 2006; Gul et al., 2009; Ittonen & Peni, 2012; Owusu et al., 2022), enhancing the overall positive perception and increasing the overall value of audits as perceived by audit clients. Consequently, clients audited by female lead auditors may be willing to pay higher audit fees for a more timely audit. This view is consistent with prior research (e.g., Lee et al., 2009; Habib et al., 2018) in that audit clients value the early completion of audits and are willing to pay higher audit fees for a more timely audit opinion as they benefit from faster access to financial information, satisfying regulatory deadlines, making informed business decisions, and minimising business disruption. In addition, the consistent early completion of audits by female lead auditors may lead to increased demand for their services, thereby commanding higher audit fees as

they will have a reputation for issuing more timely audit opinions. Therefore, one can expect the fee premium for female partner led audits to be higher for more timely audit completions.

Alternatively, to the extent that a well-managed audit process can lead to more timely audits, these may result in lower audit fees for audits led by female auditors. This is especially so when audit clients of female partner led audits are less complex, smaller in size, and display stronger performance (Abernathy et al. 2017; Habib & Muhammadi, 2018; Durand, 2019). These arguments point to the expectation that clients may pay lower audit fees for audits undertaken by female lead auditors associated with shorter audit report lags. On the other hand, because female lead auditors are associated with more cautious, efficient, thorough, and potentially more time-consuming audits (O'Donnell & Johnson, 2001), this may be a justification for the documented female partner led audit fee premium. As a result, one can argue that the fee premium will be higher for female partner led audits associated with longer audit report lags. Given these contradictory conclusions, our hypothesis two is stated in a null form as follows:

*$H_2$ The audit fee premium is not influenced by the length of the audit reporting lag for clients with female lead auditors.*

## 3. Sample, data and method

### *3.1 Sample and data sources*

In April 2008, UK regulators introduced a rule requiring the disclosure of the lead auditor's name. Since the identity of the lead auditor is critical for our study, we begin developing our sample by identifying all firms listed on the London Stock Exchange from 2009 to 2016 (inclusive). As shown in Table 1, we delete 1,248 observations related to firms that are not headquartered in the UK as well as 3,264 observations related to firms operating in the financial sector. Excluding non-UK firms is important as many of them are not subject to UK audit regulation and many also use foreign currencies as the basis of valuation in their financial disclosures. Similar to most prior studies, we exclude financial companies because of differences in regulations and accounting policies between financial and non-financial firms, which make comparisons extremely difficult. At the next stage we

delete 3,622 observations with missing audit and financial data. This includes observations where the name of the audit engagement partner, the date of the audit report, the value of audit fees as well as other financial information is not available.

We source our data from two primary sources - Financial Analysis Made Easy (FAME) provides the names of the lead audit partner, data on audit fees, non-audit fees, name of audit firm, audit firm changes and the number of client subsidiaries, while Thomson Reuters Worldscope database provides the remaining financial data. In addition, we hand collect the audit report date and the address of the auditor from the audit report section of each company's accounts. This process helps us to confirm and, in some cases, find the missing names of the lead audit partner that we could not find in the FAME database. Our final sample consists of 5,010 firm-year observations audited by 678 unique audit engagement partners. Details of our sample selection process is summarised in Table 1.

*INSERT TABLE 1 HERE*

*3.2 Empirical models*

To test $H_{1,}$ whether *ARL* is affected by auditor gender, we follow prior *ARL* studies (e.g., Knechel & Payne, 2001; Tanyi et al., 2010; Sharma et al., 2017) and employ the following ordinary least squares (OLS) regression model in equation (1):

$$SQARL = \beta_0 + \beta_1 FEMALE + \beta_2 LNTA + \beta_3 LEV + \beta_4 ROA + \beta_5 INVT + \beta_6 REC + +\beta_7 BMV + \beta_8 LOSS + \beta_9 ZMJ\_Z + \beta_{10} LNNAS + \beta_{11} BIG4 + \beta_{12} LONDON + \beta_{13} AFSWITCH + \beta_{14} BUSY + \beta_{15} EXTRAORD + \beta_{16} GCO + \beta_{17} SUBS + \beta_{18} FORGN + \beta_{19} AFSPEC + \beta_{20} APSPEC + \beta_{21} YEAR\_FE + \beta_{22} IND\_FE + \varepsilon \quad (1)$$

where our dependent variable in equation (1) is the square root of audit report lag (*SQARL*). Following prior literature (e.g., Ashton et al., 1989; Bamber et al., 1993; Krishnan & Yang, 2009; Knechel & Sharma, 2012; Sharma et al., 2017), we measure *ARL* as the number of days between the company's financial year-end date and the audit report date. Consistent with Kennedy (2008) and Sharma et al.

(2017), we use the square root function and transform the computed audit report lag in days to satisfy the normal distribution assumption of the regression model.

We use *FEMALE* as our main explanatory variable in equation (1) and, as in previous research (Ittonen et al., 2013; Garcia-Blandon et al., 2019; Owusu & Zalata, 2023), we review the names of the lead auditors downloaded from the FAME database/signed audit reports to determine their gender. We then set *FEMALE* to 1 if a client is audited by a female lead auditor and zero if a client is audited by a male lead auditor[4]. We follow previous literature (e.g., Ashton et al., 1989; Bamber et al., 1993; Habib & Bhuiyan, 2011; Sharma et al., 2017; Durand, 2019) and include a set of control variables that have been found to influence the *ARL*. Specifically, we control for firm size (*LNTA*), leverage (*LEV*), return on assets (*ROA*), percentage of inventory to total assets (*INVT*), percentage of receivables to total assets (*REC*), book to market value of equity (*BMV*), loss (*LOSS*), risk of bankruptcy (*ZMJ_Z*), non-audit fees (*LNNAS*), Big 4 audit firm (*BIG4*), audit firm change (*AFSWITCH*), busy audit period (*BUSY*), extraordinary items (*EXTRAORD*), going concern comments (*GCO*), number of subsidiaries (*SUBS*), foreign subsidiaries (*FORGN*), industry specialist audit firm (*AFSPEC*) and industry specialist audit partners (*APSPEC*). Given that audit firms located in London may have more specialist audit resources and are more likely to complete more timely audits than non-London firms, we control for audits undertaken by London-based auditors (*LONDON*). We also control for year (*YEAR_FE*) and industry (*IND_FE*) fixed effects to account for differences in *ARL* across years and industries.

To test $H_{2,}$ whether the female partner led audit fee premium is affected by the length of *ARL* for clients audited by female lead auditors more than it is for clients audited by male lead auditors, we estimate an interaction effect of a shorter *ARL* versus a longer *ARL* and *FEMALE* on *LNAFEE* using the following OLS regression model in equation (2)[5]:

[4] Consistent with the approach of Owusu and Zalata (2022), eight auditors with gender-neutral first names were excluded from our sample due to the difficulty in differentiating between female and male lead auditors.
[5] This approach is similar to prior literature (e.g., Pettit, 1972; Kane et al., 1984) that employs dummy variables to determine the interaction effects.

$$LNAFEE = \beta_0 + \beta_1 SARL + \beta_2 FEMALE + \beta_3 SARL \times FEMALE + \beta_4 LNTA + \beta_5 LEV + \beta_6 ROA + \beta_7 INVT + \beta_8 REC + +\beta_9 BMV + \beta_{10} LOSS + \beta_{11} ZMJ\_Z + \beta_{12} LNNAS + \beta_{13} BIG4 + \beta_{14} LONDON + \beta_{15} AFSWITCH + \beta_{16} BUSY + \beta_{17} EXTRAORD + \beta_{18} GCO + \beta_{19} SUBS + \beta_{20} FORGN + \beta_{21} AFSPEC\ \beta_{22} LNSALES + \beta_{23} CATA + \beta_{24} QUICK + \beta_{25} OCF + \beta_{26} APSPEC + \beta_{27} YEAR\_FE + \beta_{28} IND\_FE + \varepsilon \quad (2)$$

where our dependent variable *LNAFEE* in equation (2) is audit fees. Consistent with previous literature (e.g., Hay et al., 2006; Hardies et al., 2015; Sharma et al., 2017), we measure *LNAFEE* as the natural logarithm of audit fees. Our key variable of interest, *SARL*×*FEMALE*, denotes the interaction between a shorter *ARL* (*SARL*) and female lead auditors, where *SARL* is set to 1 if a client's *ARL* is less than the sample median and zero otherwise. For brevity, we do not discuss all other variables that have been considered under equation (1) with the exception of the natural logarithm of sales (*LNSALES*), current assets in total assets (*CATA*), current assets in relation to current liabilities (*QUICK*) and operating cash flow (*OCF*) that have been found in prior studies to affect audit fees (e.g., Ittonen & Peni, 2012; Hardies et al., 2015; Kharuddin et al. 2019; Hardies et al., 2021).

As in Hardies et al. (2021), all our regressions are based on firm level clustered robust standard errors to accommodate residual dependence caused by firm specific effects. All variables we use are defined in Table 2.

*INSERT TABLE 2 HERE*

## 4. Empirical results

### *4.1 Descriptive analysis*

Table 3 presents the descriptive statistics at the lead audit partner level. Our results show that about 9% (91%) of clients in our sample are audited by female lead auditors (male lead auditors). This evidence shows that the UK listed company audit market is dominated by male lead audit partners, consistent with Garcia-Blandon et al. (2019) and Hardies et al. (2021) who report similar findings across their samples of Spanish and Belgian firms, respectively. Translating this into real numbers, and as Panel A of Table 3 shows, from our sample of 5,010 firm-year observations between 2009 and 2016, we have 465 clients audited by female lead auditors. Of these clients, 283 are audited

by female lead auditors of Big 4 firms and the remaining 182 are audited by female lead auditors of non-Big 4 firms. As in clients audited by female lead auditors, the majority of clients audited by male lead auditors, 2,928, are partners of Big 4 firms relative to 1,617 clients audited by male lead auditors of non-Big 4 firms.

In Panel B of Table 3, we separate our observations into auditor gender by audit firm industry specialisation. As shown in Panel B, the proportion of clients audited by female lead auditors with industry specialist audit firms (18%) and non-industry specialist audit firms (82%) are similar to industry specialist audit firms (18%) and non-industry specialist audit firms (82%) in the case of male lead auditors. Using the market value calculated by the Financial Times Stock Exchange (FTSE) group, Panel C of Table 3 shows auditor gender by client size. We find that fewer FTSE 350 clients (114 out of 465) are audited by female lead auditors than non-FTSE 350 clients (351 out of 465). This translates into 25% and 75%, respectively. The proportion of clients audited by female lead auditors by client size is relatively similar in percentage terms to the proportions for male lead auditors with 28% for FTSE 350 clients and 72% for non-FTSE 350 clients, respectively. In Panel D of Table 3, we show that 58% of audits undertaken by female lead auditors are based in London offices, compared to 53% of male lead auditors.

*INSERT TABLE 3 HERE*

Table 4 contains descriptive statistics for our sample firms. As Panel A of Table 4 shows, the mean audit reporting lag in our full sample of audit clients is 86 days. Our sample clients pay an average of £630,000 (£321,000) as audit fees (non-audit fees). The mean revenue (assets) for clients in our sample is £1,938,640 (£2,494,580). On average, 64% of our sample clients are audited by Big 4 audit firms while 5% of our sample clients experience a change of auditor. The assets in our sample clients were financed by 76% of total liabilities while the mean return on assets is positive, suggesting that, on average, our sample audit clients are profitable. On average, current assets (excluding inventory) is valued higher than current liabilities while the mean level of cash flow from operations

is 6% of total assets. Around 47% of our sample clients are audited by London-based auditors while 69% have their financial year end between December and March (inclusive). On average, 26% of audit clients in our sample report negative earnings and the mean book value of our sample is lower than the market value. Around 13% of our sample clients report extraordinary items while 4% are in receipt of going concern comments. On average, 18% of the audit clients in our sample are audited by industry specialist audit firms while 3% are audited by industry specialist audit partners.

*INSERT TABLE 4 HERE*

### *4.2 Univariate analysis*

Table 4 also presents the results of tests for differences in *ARL*, audit fees and the control variables between clients audited by female and male lead auditors. As Panel B of Table 4 shows, the mean *ARL* for clients audited by female lead auditors is shorter (82 days) than those firms audited by male lead auditors (86 days) and the difference is statistically significant at the 5% level of significance. On average, clients audited by female lead auditors paid audit fees of £355,120 as opposed to £658,140 for male lead auditors. Our sample clients audited by female lead auditors are smaller than those clients audited by male lead auditors. However, clients audited by female lead auditors are more profitable than clients audited by male lead auditors. On average, our sample clients are less likely to be audited by female lead auditors in London-based audit firms and when they buy more non-audit services. The latter finding is consistent with the perception of female lead auditors being more conservative in so far as this conservatism may be associated with lower levels of non-audit services being simultaneously purchased. Our sample clients are more likely to be audited by industry specialist female lead auditors than by industry specialist male lead auditors. Collectively, and as shown in Panel B of Table 4, the majority of our sample client characteristics suggest significant differences between clients audited by female lead auditors and those audited by male lead auditors.

Table 5 reports Pearson correlations between all the variables that we use in our analysis. While female lead auditors are negatively and significantly associated with *SQARL*, the association between female lead auditors and *LNAFEE* is positive and statistically significant. These results suggest that clients audited by female lead auditors pay a fee premium for a timely audit opinion. However, real inferences can only be made after the inclusion of the relevant control variables in a multivariate analysis. As Table 5 demonstrates, and with the exception of *BUSY* and *EXTRAORD* for *SQARL* and *INVT* for *LNFEE*, all the control variables included in our analysis are significantly correlated with *SQARL* and *LNAFEE*. The strongest correlations exist between *QUICK* and *LEV* (0.695), *LNNAS* and client size measures (*LNSALES* = 0.643; *LNTA* = 0.667), *BIG4* and *LNTA* (0.621), and *SUBS* and *LNNAS* (0.607). However, and as suggested by Sharma et al. (2017) and more recently by Owusu et al. (2022), these coefficients are below the 0.80 threshold to trigger multicollinearity problems. In addition, all the variance inflation factor (VIF) values from the regression models for both *LNAFEE* and *SQARL* are lower than the threshold of 10 (Kennedy, 2008). These suggest that our data is not affected by serious multicollinearity problems.

*INSERT TABLE 5 HERE*

### *4.3 Auditor gender, audit fees and audit report lag*

Before testing whether *ARL* is affected by auditor gender, we first use our current sample to confirm the findings of previous studies which suggest that female lead auditors charge a fee premium. Thus, we estimate the following OLS regression model:

$$LNAFEE = \beta_0 + \beta_1 FEMALE + \beta_2 LNTA + \beta_3 LEV + \beta_4 ROA + \beta_5 INVT + \beta_6 REC + +\beta_7 BMV + \beta_8 LOSS + \beta_9 ZMJ\_Z + \beta_{10} LNNAS + \beta_{11} BIG4 + \beta_{12} LONDON + \beta_{13} AFSWITCH + \beta_{14} BUSY + \beta_{15} EXTRAORD + \beta_{16} GCO + \beta_{17} SUBS + \beta_{18} FORGN + \beta_{19} AFSPEC \beta_{20} LNSALES + \beta_{21} CATA + \beta_{22} QUICK + \beta_{23} OCF + \beta_{24} APSPEC + \beta_{25} YEAR\_FE + \beta_{26} IND\_FE + \varepsilon \quad (3)$$

where all the definitions and measurements of the variables in equation (3) are discussed under both equations (1) and (2). The regression results are reported in Table 6. Consistent with recent studies

(Ittonen & Peni, 2012; Hardies et al., 2015; Burke et al., 2019; Lee et al., 2019; Hardies et al., 2021), Model 1 of Table 6 shows that a female lead auditor has a positive impact on audit fees (coefficient = 0.059; *t*-value = 2.01; significant at the 5% level), thereby supporting previous research findings that clients pay an audit fee premium when they are audited by female lead auditors. Our results are also economically meaningful, in that, holding all other variables fixed, audit fees (*LNAFEE*) paid to female partner led audits increases by around 6% [(exp (0.059)-1) × 100 = 6.1%) when compared to male led audits.

In Model 2 of Table 6, we focus on the relationship between lead auditor gender and *ARL* and find that a female lead auditor has a negative impact on *ARL* (coefficient = -0.348; *t*-value = -3.59; significant at the 1% level). Thus, $H_1$ which is in a null form is rejected in favour of a shorter *ARL* for clients audited by female lead auditors. This evidence is contrary to the finding of Burke et al. (2019) who document no differences in the timeliness of female and male partner led audits. Our result provides an alternative explanation in that audit clients benefit from efficient and timely audit opinions, especially when the lead engagement partner is a female. This evidence is consistent with the argument that female lead auditors' communication and negotiation skills (Wood et al., 1985; Schubert, 2006; Ittonen & Peni, 2012) allied with their ability to get access to voluntary information (Gul et al., 2009; Owusu et al., 2022) leads to more timely audits. In general, the signs and the significant levels of the control variables are consistent with prior *ARL* literature (e.g., Habib & Bhuiyan, 2011; Sharma et al., 2017; Lai, 2019). Specifically, the results show that *ARL* is shorter for larger clients and when clients are audited by industry specialist audit firms and audit partners. We also find that *ARL* is shorter for clients purchasing more non-audit services and when they are audited by Big 4 firms. In contrast, *ARL* is longer for clients with a larger account receivables balance, more subsidiaries, loss-making firms, firms with going concern comments, and when firms switch their audit firm.

Collectively, our results suggest that a female lead auditor has a significant positive impact on audit fees and a significant negative impact on *ARL*. That is, our evidence shows that early completion

of audits may be a reason for the female partner led audit fee premium. The next subsection investigates whether this is actually the case.

*INSERT TABLE 6 HERE*

### *4.4 Female lead auditors, audit report lag, and audit fees*

Our results reported in subsection 4.3 suggest that female lead auditors are associated with a shorter *ARL* and higher audit fees. However, it is not clear whether the female partner led audit fee premium is because of clients receiving more timely audit opinions. Even though Hardies et al. (2021) find that the female partner led audit fee premium is driven by gender discrimination, we contribute to the debate on the observed differences in the audit pricing of female and male lead engagement partners by investigating whether clients audited by female lead auditors pay a fee premium for a more timely audit opinion. If the observed female partner led audit fee premium is because of a more timely audit opinion, then we should observe the interaction between a shorter *ARL* and female lead auditors (*SARL*×*FEMALE*) in equation (2) to be positive and statistically significant. Alternatively, if the observed female partner led audit fee premium is because of reasons other than a more timely audit opinion, then the interaction effect of *SARL*×*FEMALE* on audit fees should be minimal and unobservable.

We report our analysis investigating whether the audit fee premium is more affected by *SARL* for clients audited by female lead auditors than it is for firms audited by male lead auditors and the results are reported in Table 7. The result in Model 1 of Table 7 shows that the coefficient on *SARL* is positive and statistically significant at the 5% level. This result suggests that a shorter *ARL* increases audit fees. The result in Model 1 of Table 7 also confirms our earlier finding that clients audited by female lead auditors pay an audit fee premium.

In Model 1 of Table 7, we show that the coefficient on the interaction term (0.063) *SARL*×*FEMALE* is positive and statistically significant at the 5% level[6]. This finding is consistent

[6] Alternatively, we split our sample into two groups, including firms with a shorter *ARL* versus firms with a longer *ARL* using the sample median and re-estimated equation (3). Our results (untabulated) are qualitatively similar to those reported

with the argument that clients pay higher audit fees as a premium for more timely audit opinions (Lee et al., 2009). The finding suggests that our $H_{2,}$ which is in a null form, is rejected in favour of higher audit fees for a more timely audit opinion when clients are audited by female lead auditors. Overall, these results provide an alternative explanation, specifically, that female lead audit partners charge a fee premium, especially when accompanied by a shorter *ARL*. Essentially, we find that the fee premium for female partner led audits is higher for clients receiving a more timely audit opinion.

*INSERT TABLE 7 HERE*

### *4.5 Robustness tests*

Our baseline regression results suggest that clients audited by female lead auditors are associated with a shorter *ARL* and higher audit fees and that the fee premium for female partner led audits is higher for clients that receive more timely audit opinions. However, endogeneity is a key issue in gender studies because auditor gender selection may not be random, which, in turn, may lead to a self-selection bias. In particular, audit clients may discriminate based on gender or female lead auditors may self-select into the audits of certain types of clients. As Panel B of Table 4 shows, clients audited by female lead auditors are significantly different in many respects compared to clients audited by male lead auditors. Because *ARL* and audit fees only become observables following individual auditor selection, the alternative individual lead auditor choice becomes unobservable making the choice of female lead auditor an endogenous variable. To mitigate these issues, we employ propensity score matching (PSM) and difference-in-differences (DID) methodology to check the robustness of our baseline regression results.

under Table 7. For example, in the *LNAFEE* regression for firms with a shorter *ARL*, the coefficient on *FEMALE* = 0.077; *t*-value = 2.71; *p*-value < 0.01 compared to those firms with a longer *ARL* – coefficient on *FEMALE* = 0.023; *t*-value = 1.52; *p*-value > 0.10.

*4.5.1. Propensity score matching*

We follow previous literature (e.g., Hardies et al., 2015; DeFond et al., 2017; Alhadab & Clacher, 2018) and use PSM developed by Rosenbaum and Rubin (1983) to address the concerns of self-selection bias. First, we match a client audited by a female lead auditor with a client audited by a male lead auditor to control for differences in firm characteristics (Rosenbaum & Rubin, 1983). Using all the control variables in equations (1) and (3), the matching procedure allows us to create propensity scores via a logistic regression to model the likelihood of clients being audited by female lead auditors. Next, we match without replacement, each client audited by a female lead auditor with a client audited by a male lead auditor. This procedure allows us to create a pseudo random sample consisting of two groups of audit clients – a treatment group (i.e., clients audited by female lead auditors) and a control group (i.e., clients audited by male lead auditors). In effect, the differences in audit fees and *ARL* can only be attributed to the treatment effect but not pre-existing client characteristics. The matching process for the full sample yielded a final sample of 930 firm-year observations, with 465 clients audited by female lead auditors and 465 clients audited by male lead auditors.

Table 8 reports our PSM analyses controlling for self-selection bias. First, we confirm the success of our matching using a test for differences in the post-matched client characteristics. As Panel A of Table 8 shows, the differences in the post-matched subsamples (i.e., columns 3 and 4) for the audit fee model are statistically insignificant between the treatment group and the control group. These suggest that the observed differences across most of the client characteristics in the pre-matched subsamples reported in Panel B of Table 4 have been removed, indicating the success of our matching[7]. We then use the matched sample and re-estimate equations (1) and (3). The matched-sample regression results tabulated under Model 1 of Panel B show a significant positive coefficient on (0.066) *FEMALE* for audit fees. In Model 2 of Panel B, we find a significant negative coefficient

[7] We undertake similar matching process for the *ARL* model (equation [1]) but for brevity the test for differences in firm characteristics are untabulated. Our post-matched subsample differences are qualitatively similar to those reported in Panel A of Table 8.

on (-0.316) *FEMALE* for *ARL*. Thus, the results in Panel B of Table 8 offer robust support for our baseline regression results that female lead auditors are associated with a shorter *ARL* and higher audit fees.

In Panel C of Table 8, we repeat the PSM process to check the robustness of our baseline regression results on whether the audit fee premium for female partner led audits is higher for clients that receive more timely audit opinions. We re-estimate equation (2) and our matched-sample regression results reported in Model 1 of Panel C show that the coefficient on the interaction term (0.088) *SARL*×*FEMALE* is positive and statistically significant at 5% level, providing robust support for our baseline regression results that the premium for female partner led audits is higher for clients receiving a more timely audit opinion[8].

*INSERT TABLE 8 HERE*

### *4.5.2 Additional sensitivity tests*

We perform a number of additional sensitivity tests. First, to the extent that our baseline regression results may be affected by potential outliers, we winsorise all our continuous variables at 1st and 99th percentile and re-estimate equations (1) and (3) and the results are reported in Table 9. In Model 1 (2) of Table 9, the coefficient on *FEMALE* remains positive (negative) and statistically significant at 5% (1% level), suggesting that our baseline regression results reported under Table 6 are not affected by potential outliers[9].

Second, as in prior research (e.g., Krishnan & Yang, 2009; Knechel & Sharma, 2012; Knechel et al., 2012; Whitworth & Lambert, 2014; Lai, 2019), we employ the natural logarithm of the number of days (*LNARL*) between the audit client's financial year-end date and the audit report date as an alternative measure of the *SQARL*. Using *LNARL* as our dependent variable, we re-estimate equation (1) and the results are reported in Model 1 of Table 10. The results show that female lead auditor

[8] As in prior auditor gender literature (e.g., Hardies et al., 2015), we employ DID to address the concerns of unobservable omitted variable bias and the results (untabulated) are qualitatively similar to those reported under Tables 6 and 7.
[9] In addition, we re-estimate equation (2) using the winsorised variables and the results (untabulated) are qualitatively similar to those reported under Table 7.

continues to have a negative and significant impact on *ARL*. Our results are also economically significant, in that, holding all other variables fixed, the *ARLs* for female partner led audits are lower by about 8% [(exp (0.074)-1) × 100 = 7.7%) when compared to male led audits. Similar to Habib and Bhuiyan (2011) and Dao and Pham (2014), we use the number of days (*ARLDAYS*) between the audit client's financial year-end date and the audit report date as an alternative measure to *SQARL* and re-estimate equation (1). Although, the magnitudes of the coefficients are higher, our results reported in Model 2 of Table 10 show that female lead auditor is negatively and significantly associated with *ARL*. These results reveal that our main results reported under Model 2 of Table 6 are not affected by the alternative definitions of *ARL*.

Third, given that Big N audit firms are expected to be more experienced, invest more resources in auditing and more concerned about their reputation than non-Big N audit firms (e.g., DeFond & Jiambalvo, 1993; Becker et al., 1998; Francis et al., 1999; Zang, 2012), we group our sample into auditor gender by audit firm size (i.e., Big 4 vs. non-Big 4 audit firms) to investigate whether our baseline regression results are influenced by differences in audit firm size. We re-estimate the regression models and our results (untabulated) show that while female lead auditors in both Big 4 (n = 3,211) and non-Big 4 (1,799) firms are negatively and significantly associated with *ARL* at the 1% level, female lead auditors in both groups also receive a fee premium for timely audit reports. However, the magnitude of fee premium in Big 4 audit firms is higher than is the case for non-Big 4 audit firms.

Extant research suggests that industry specialist auditors are associated with a shorter *ARL* (e.g., Habib & Bhuiyan, 2011) and higher audit fees (e.g., Zerni, 2012) than non-industry specialist auditors. In our fourth sensitivity test, we group our sample into auditor gender by industry specialist audit firms (i.e., industry specialist auditors vs. non-industry specialist auditors) to investigate whether our baseline regression results are sensitive to audit firm specialisation. We re-estimate the regression models and find that female lead auditors in both industry specialist audit firms (n = 1,002) and non-industry specialist audit firms (n = 4,008) are negatively and significantly associated with

*ARL* and positively and significantly associated with audit fees, suggesting that our baseline regression results are not sensitive to female lead auditors in industry specialist audit firms.

Finally, prior research suggests that *ARL* and audit fees are sensitive to audit client size (Sharma et al., 2017). Using the market value calculated by the FTSE group, we group our sample into auditor gender by client size (i.e., FTSE 350 index clients [n = 1,372] vs. non-FTSE 350 index clients [n = 3,638]) to investigate whether our results are influenced by differences in audit client size. Our results from all the regression models (untabulated) are qualitatively similar to the baseline regression results. Therefore, we conclude that our baseline regression results are not sensitive to potential outliers, alternative definitions of *ARL*, audit firm size, audit firm specialisation or client size.

*INSERT TABLE 9 HERE*

*INSERT TABLE 10 HERE*

## 5. Conclusion

Recent research documents a female partner led audit fee premium (Ittonen & Peni, 2012; Hardies et al. 2015; Burke et al., 2019; Lee et al., 2019; Hardies et al., 2020) but there remains limited evidence to explain why this should be so. Even though Hardies et al. (2021) provide evidence that suggests the female partner led audit fee premium is driven by gender discrimination, we contribute to the debate on the observed differences in the audit pricing of female and male lead engagement partners by investigating whether clients audited by female lead auditors pay a fee premium for a more timely audit opinion. We undertake our analysis on a sample of UK listed firms from 2009 to 2016. The UK is an ideal setting for our investigation because the rule requiring the disclosure of the name of the lead audit partner in companies' annual reports has been in existence since April 2008. This allows us not only to identify the name and gender of the lead auditor but to do so over an extended period, allowing us to observe changes in lead auditors and investigate the gender impact on both audit fees and the *ARL* in our sample firms.

Our findings can be summarised as follows: Clients audited by female lead auditors have significantly shorter *ARLs* but pay significantly higher audit fees. We also find that clients audited by female lead auditors, and receiving a more timely audit opinion, pay a fee premium compared to other firms. This evidence shows that the female partner led audit fee premium is at least partially explained by more timely audits. We check the robustness of our results using PSM and DID methodology to address the concerns of self-selection bias and unobservable omitted variable bias. These additional analyses and other sensitivity tests offer robust support for our findings.

Our findings contribute to both the *ARL* and audit fee literatures by documenting the importance of lead auditor gender in influencing the *ARL* as well as showing how this directly impacts the level of audit fee. In relation to the *ARL*, our results illustrate the importance of incorporating audit partner characteristics in *ARL* research in addition to the more traditional focus on audit client and audit firm characteristics. In relation to audit fees, we extend the work of Hardies et al. (2021) by providing new evidence to explain the observed differences in the audit pricing of female and male lead engagement partners. More broadly, our findings add to the emerging evidence on the importance of auditor characteristics generally, as well as gender specifically, in various aspects of the auditing process (Lennox & Wu, 2018). Our findings are consistent with the notion that female lead auditors are more efficient without losing effectiveness (O'Donnell & Johnson, 2001). Furthermore, our study also highlights the importance of audit timeliness for audit clients and illustrates their willingness to pay an audit fee premium for more timely audits. This feeds into the wider literature on the value to clients and their stakeholders of more timely audits.

From a practical perspective our findings highlight the economic value of female lead auditors. This is very important in terms of encouraging more women to enter the auditing profession and also illustrating to audit firms and their clients the clear benefits that women bring to the audit process. This is important since the number of female lead auditors in our sample is small, only 9.28% of the total audit engagements, reflecting a gender imbalance when compared to the wider society. The findings presented in this study should encourage audit firms to ensure they possess adequate internal

processes and procedures to facilitate female advancement. Our study illustrates the very strong business case for this. Finally, from an audit demand perspective, our study shows the clear benefits to audit clients of having female auditors leading their audits.

Our findings are, however, subject to some limitations. Even though we document strong evidence that female lead auditors are paid more for a timely audit, we are unable to provide any insights into the mechanics of this. In particular, our findings suggest a rich interaction between female lead auditors/audit firms and their clients; where such clients are prepared to pay higher fees for a female partner led audit completed more timely but not for a similar audit by a male lead auditor. While this suggests clients may have greater confidence in female lead auditors, it does not explain why male lead auditors are unable to also charge more for a timely audit. Further qualitative research is needed to ascertain the precise drivers of client decision-making as well as obtaining insights into the negotiation around the audit process and the impact of gender on that. Relevant questions include: are female lead auditors' better negotiators? Are they more credible? Does the relative lack of female lead auditors, whom we document as being more efficient, mean that they command a premium? In answering these questions, a greater understanding of the mechanics driving the results illustrated in this paper will become clear.

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# LIST OF TABLES

**Table 1**
Details of sample selection

| Description | Sample Size for ARL and Audit Fee Analyses |
|---|---|
| Firm-Year observations 2009-2016 | 13,144 |
| Less observations from non-UK companies | (1,248) |
| Less observations from financial firms | (3,264) |
| Less observations with missing audit partner name, audit report date, audit fees and other financial data | (3,622) |
| **Final Firm-Year observations** | **5,010** |

**Table 2**
Variable Definitions

| Variable | Definition |
|---|---|
| *FEMALE* | binary variable = 1 if the audit client is audited by a female lead auditor, and zero otherwise |
| *SQARL* | square root of the number of days between a company's financial year-end and the audit report date |
| *SARL* | binary variable = 1 if an audit client's *ARL* is less than the sample median and zero otherwise |
| *AFEE* | audit fee in thousand pounds |
| *LNAFEE* | natural logarithm of audit fee |
| *SALES* | total sales in thousand pounds |
| *LNSALES* | natural logarithm of total sales |
| *TA* | total assets in thousand pounds |
| *LNTA* | natural logarithm of total assets |
| *LEV* | total liabilities scaled by total assets |
| *ROA* | the percentage of net income to lagged total assets |
| *CATA* | current assets scaled by total assets |
| *QUICK* | current assets (less inventories) scaled by current liabilities |
| *INVT* | the percentage of inventory to total assets |
| *REC* | the percentage of receivables to total assets |
| *OCF* | total cash flows from operations scaled by lagged total assets |
| *BMV* | book value per share scaled by market value per share |
| *LOSS* | binary variable = 1 if the firm had reported losses, and 0 otherwise |
| *ZMJ_Z* | probability of bankruptcy estimated from Zmijewski's bankruptcy prediction model |
| *NAS* | non-audit fees in thousand pounds |
| *LNNAS* | natural logarithm of non-audit fees |
| *BIG4* | binary variable = 1 if the audit client is audited by a big 4 auditor, and 0 otherwise |
| *LONDON* | binary variable = 1 if the audit client's auditor is based in London, and 0 otherwise |
| *AFSWITCH* | binary variable = 1 if the audit client experienced an audit firm switch, and 0 otherwise |
| *BUSY* | Binary variable = 1 if the audit client's financial year-end is between December and March, and 0 otherwise |
| *EXTRAORD* | binary variable = 1 if the firm had reported extraordinary items, and 0 otherwise |
| *GCO* | binary variable = 1 if the audit client had received a going concern comment, and 0 otherwise |
| *SUBS* | natural logarithm of total subsidiaries |
| *FORGN* | total foreign subsidiaries scaled by total subsidiaries |
| *AFSPEC* | binary variable = 1 if the audit firm is an industry specialist, and 0 otherwise |
| *APSPEC* | binary variable = 1 if the audit engagement partner is an industry specialist, and 0 otherwise |
| *YEAR_FE* | year fixed effects indicator variables |
| *IND_FE* | industry fixed effects indicator variables |

**Table 3**

Descriptive Statistics at Audit Partner Level

Panel A: Auditor Gender by Audit Firm Size

| | Big 4 Auditors n = 3,211 | Non-Big 4 Auditors n = 1,799 | Total n = 5,010 |
|---|---|---|---|
| *Female lead Auditors* | 283 (61%) | 182 (39%) | 465 (100%) |
| *Male lead Auditors* | 2,928 (64%) | 1,617 (36%) | 4,545 (100%) |

Panel B: Auditor Gender by Industry Specialist Auditors

| | Industry Specialist Auditors n = 897 | Non-Industry Specialist Auditors n = 4,113 | Total n = 5,010 |
|---|---|---|---|
| *Female lead Auditors* | 85 (18%) | 380 (82%) | 465 (100%) |
| *Male Auditors* | 812 (18%) | 3,733 (82%) | 4,545 (100%) |

Panel C: Auditor Gender by Client Size

| | FTSE 350 Auditors n = 1,372 | Non-FTSE 350 Auditors n = 3,638 | Total n = 5,010 |
|---|---|---|---|
| *Female lead Auditors* | 114 (25%) | 351 (75%) | 465 (100%) |
| *Male lead Auditors* | 1,258 (28%) | 3,287 (72%) | 4,545 (100%) |

Panel D: Auditor Gender by Location

| | London City Auditors n = 2,670 | Non-London City Auditors n = 2,340 | Total n = 5,010 |
|---|---|---|---|
| *Female lead Auditors* | 272 (58%) | 193 (42%) | 465 (100%) |
| *Male lead Auditors* | 2,398 (53%) | 2,147 (47%) | 4,545 (100%) |

**Table 4**

Test for Differences in ARL, Audit Fees and Control Variables between Audit Clients Audited by Female and Male Lead Auditors

| Variable | Panel A: Full Sample | | | Panel B: Test for Differences in Mean | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Full Sample (n = 5,010) | | | (1) Female Auditors (n = 465) | | | (2) Male Auditors (n = 4,545) | | | t-test |
| | Mean | Median | Std. Dev. | Mean | Median | Std. Dev. | Mean | Median | Std. Dev. | (1)-(2) |
| *ARLDAYS* | 86 | 76 | 36 | 82 | 77 | 29 | 89 | 76 | 37 | 2.44** |
| *SQARL* | 9.083 | 8.718 | 1.787 | 8.912 | 8.775 | 1.530 | 9.100 | 8.718 | 1.810 | 2.17** |
| *AFEE* | 630.01 | 134.00 | 2171.54 | 355.12 | 94.00 | 641.72 | 658.14 | 138.00 | 2268.83 | 2.87*** |
| *LNAFEE* | 5.077 | 4.899 | 1.455 | 4.829 | 4.543 | 1.381 | 5.102 | 4.927 | 1.461 | 3.85*** |
| *SALES* | 1938.64 | 86.04 | 13500.00 | 448.40 | 49.28 | 888.79 | 2091.11 | 91.95 | 14100.00 | 2.51** |
| *LNSALES* | 11.450 | 11.363 | 2.522 | 10.915 | 10.805 | 2.468 | 11.506 | 11.429 | 2.521 | 4.82*** |
| *TA* | 2494.58 | 120.50 | 14100.00 | 722.99 | 96.55 | 1541.13 | 2675.83 | 125.10 | 14800.00 | 2.85*** |
| *LNTA* | 11.923 | 11.699 | 2.296 | 11.636 | 11.478 | 2.093 | 11.952 | 11.737 | 2.314 | 2.84*** |
| *LEV* | 0.760 | 0.214 | 0.766 | 0.506 | 0.404 | 0.873 | 0.769 | 0.210 | 0.666 | -6.59*** |
| *ROA%* | 0.995 | 4.986 | 29.521 | 3.369 | 4.670 | 31.444 | 0.690 | 5.022 | 29.304 | -2.28** |
| *CATA* | 0.435 | 0.419 | 0.242 | 0.411 | 0.389 | 0.246 | 0.437 | 0.421 | 0.241 | 2.22** |
| *QUICK* | 1.738 | 1.072 | 3.276 | 2.482 | 1.284 | 5.253 | 1.662 | 1.061 | 2.992 | -5.15*** |
| *INVT%* | 9.816 | 3.164 | 15.045 | 6.755 | 1.616 | 11.007 | 10.129 | 3.482 | 15.365 | 4.62*** |
| *REC%* | 13.430 | 10.445 | 13.178 | 12.321 | 9.637 | 12.867 | 13.543 | 10.587 | 13.206 | 1.91* |
| *OCF* | 0.062 | 0.076 | 0.191 | 0.083 | 0.073 | 0.244 | 0.060 | 0.076 | 0.185 | -2.47** |
| *BMV* | 1.723 | 0.509 | 1.008 | 1.796 | 0.637 | 1.953 | 1.716 | 0.502 | 1.013 | -1.63 |
| *LOSS* | 0.258 | 0.000 | 0.437 | 0.249 | 0.000 | 0.433 | 0.259 | 0.000 | 0.438 | 0.43 |
| *ZMJ_Z* | 7.878 | -13.955 | 137.482 | 3.924 | -12.657 | 164.310 | 8.283 | -14.049 | 134.450 | 0.65 |
| *NAS* | 320.82 | 55.00 | 1375.21 | 178.70 | 29.00 | 416.40 | 335.36 | 59.00 | 1436.93 | 2.34** |
| *LNNAS* | 3.815 | 4.007 | 2.176 | 3.361 | 3.367 | 2.109 | 3.862 | 4.078 | 2.178 | 4.74*** |
| *BIG4* | 0.641 | 1.000 | 0.480 | 0.609 | 1.000 | 0.489 | 0.644 | 1.000 | 0.479 | 1.53 |
| *LONDON* | 0.467 | 0.000 | 0.499 | 0.415 | 0.000 | 0.493 | 0.472 | 0.000 | 0.500 | 2.36** |
| *AFSWITCH* | 0.054 | 0.000 | 0.226 | 0.045 | 0.000 | 0.208 | 0.055 | 0.000 | 0.228 | 0.89 |
| *BUSY* | 0.685 | 1.000 | 0.465 | 0.662 | 1.000 | 0.473 | 0.687 | 1.000 | 0.464 | 1.08 |
| *EXTRAORD* | 0.129 | 0.000 | 0.335 | 0.108 | 0.000 | 0.310 | 0.131 | 0.000 | 0.338 | 1.45 |
| *GCO* | 0.038 | 0.000 | 0.192 | 0.039 | 0.000 | 0.193 | 0.038 | 0.000 | 0.191 | -0.07 |
| *SUBS* | 3.329 | 3.178 | 1.462 | 3.062 | 2.773 | 1.484 | 3.356 | 3.219 | 1.458 | 4.15*** |
| *FORGN* | 0.307 | 0.266 | 0.281 | 0.256 | 0.121 | 0.280 | 0.312 | 0.276 | 0.281 | 4.05*** |
| *AFSPEC* | 0.179 | 0.000 | 0.383 | 0.183 | 0.000 | 0.387 | 0.179 | 0.000 | 0.383 | -0.22 |
| *APSPEC* | 0.034 | 0.000 | 0.181 | 0.090 | 0.000 | 0.287 | 0.028 | 0.000 | 0.165 | -7.13*** |

This table contains descriptive statistics for the variables in the regression models and the tests for differences between means of client firms audited by female auditors and client firms audited by male auditors.

*, **, *** denote significant at 0.10, 0.05 and 0.01 levels, respectively.

All variables are defined in Table 2.

**Table 5**

Correlation Matrix from SQARL to APSPEC (n = 5,010)

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *1. SQARL* | 1 | | | | | | | | | | | | | | | | | |
| *2. LNAFEE* | -.531*** | 1 | | | | | | | | | | | | | | | | |
| *3. FEMALE* | -.031** | .054*** | 1 | | | | | | | | | | | | | | | |
| *4. LNSALES* | -.568*** | .356*** | -.068*** | 1 | | | | | | | | | | | | | | |
| *5. LNTA* | -.571*** | .488*** | -.040*** | .567*** | 1 | | | | | | | | | | | | | |
| *6. LEV* | .089*** | .139*** | .093*** | -.202*** | -.092*** | 1 | | | | | | | | | | | | |
| *7. ROA* | -.243*** | .186*** | .032** | .305*** | .261*** | -.010 | 1 | | | | | | | | | | | |
| *8. CATA* | .119*** | -.199*** | -.031** | -.091*** | -.323*** | -.008 | -.071*** | 1 | | | | | | | | | | |
| *9. QUICK* | .113*** | -.158*** | .073*** | -.261*** | -.122*** | .695*** | -.037*** | .153*** | 1 | | | | | | | | | |
| *10. INVT* | .053*** | .010 | -.065*** | .161*** | .063*** | -.054*** | .076*** | .472*** | -.113*** | 1 | | | | | | | | |
| *11. REC* | .057*** | .078*** | -.027* | .045*** | -.249*** | -.117*** | .043*** | .505*** | -.089*** | -.011 | 1 | | | | | | | |
| *12. OCF* | -.234*** | -.208*** | .035** | .346*** | .261*** | -.037*** | .360*** | -.092*** | -.087*** | .025* | .042*** | 1 | | | | | | |
| *13. BMV* | -.072*** | -.062** | .023 | -.104*** | -.013 | .094*** | -.015 | -.165*** | .034** | .037*** | -.132*** | -.018 | 1 | | | | | |
| *14. LOSS* | .330*** | .226*** | -.006 | -.387*** | -.303*** | .066*** | -.487*** | .027* | .103*** | -.109*** | -.082*** | -.424*** | .101*** | 1 | | | | |
| *15. ZMJ_Z* | .257*** | -.213*** | -.009 | -.344*** | -.275*** | .247*** | -.221*** | .067*** | .201*** | -.087*** | -.070*** | -.245*** | .037*** | .488*** | 1 | | | |
| *16. LNNAS* | -.462*** | .312*** | -.067*** | .643*** | .667*** | -.117*** | .149*** | -.133*** | -.112*** | -004 | -.062*** | .171*** | -.077*** | -.182*** | -172*** | 1 | | |
| *17. BIG4* | -.467*** | .599*** | -.022 | .581*** | .612*** | -.066*** | .139*** | -.107*** | -.084*** | .057*** | -.090*** | .164*** | -.090*** | -.187*** | -.150*** | .500*** | 1 | |
| *18. LONDON* | -.088*** | .342*** | -.033** | .189*** | .309*** | .002 | .014 | -.182*** | .015 | -.103*** | -.158*** | .021 | .036** | .025* | .013 | .177*** | .025* | 1 |

Table 5 (Continued)

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *19. AFSWITCH* | .076*** | -.037*** | -.013 | -.038*** | -.032** | -.025 | -.054*** | .001 | -.009 | -.018 | .011 | -.052*** | -.011 | .029** | .047*** | -.076*** | -.010 | .010 |
| *20. BUSY* | .007** | .140*** | -.015 | .059*** | .099*** | .018 | -.038*** | -.083*** | .024* | -.097*** | -.040*** | -.034** | .029** | .046*** | .042*** | .092*** | .065*** | .133*** |
| *21. EXTRAORD* | -.026 | .137*** | -.020 | .068*** | .068*** | -.041*** | -.041*** | .000 | -.012 | -.065*** | -.003 | -.044*** | .018 | .081*** | .030** | .118*** | .043*** | .092*** |
| *22. GCO* | .230*** | .101*** | .001 | -.176*** | -.135*** | .015 | -.198*** | -.032** | .012 | -.052*** | -.044*** | -.156*** | .054*** | .235*** | .193*** | -.103*** | -.125*** | .048*** |
| *23. SUBS* | .492*** | .230*** | -.058*** | .056*** | .088*** | -.134*** | .200*** | -.171*** | -.174*** | .068*** | -.044*** | .194*** | -.065*** | -.273*** | -.225*** | .607*** | .505*** | .284*** |
| *24. FORGN* | .086*** | .339*** | -.057*** | .164*** | .180*** | .022 | .012 | -.026 | .055*** | -.126*** | -.009 | .028*** | -.053*** | .019 | -.006 | .193*** | .165*** | .203*** |
| *25. AFSPEC* | -.161*** | .232*** | .010 | -.188*** | .-208*** | .068*** | -.029** | .098*** | .063*** | .081*** | .008 | -.034** | .018 | .029** | -.044*** | -.172*** | -.172*** | -.068*** |
| *26. APSPEC* | -.067*** | .107*** | .100*** | -.118*** | -.107*** | .003 | -.087*** | .030** | .028*** | -.025 | -.002 | -.085*** | -.005 | .052*** | .085*** | -.095*** | -.123*** | .002 |

Table 5 (Continued)

| | (19) | (20) | (21`) | (22) | (23) | (24) | (25) | (26) |
|---|---|---|---|---|---|---|---|---|
| *19. AFSWITCH* | 1 | | | | | | | |
| *20. BUSY* | .008 | 1 | | | | | | |
| *21. EXTRAORD* | .008 | .033** | 1 | | | | | |
| *22. GCO* | .022 | .034** | .007 | 1 | | | | |
| *23. SUBS* | -.027 | .084*** | .100*** | -.137*** | 1 | | | |
| *24. FORGN* | -.007 | .091*** | .038*** | .031*** | .192*** | 1 | | |
| *25. AFSPEC* | .053*** | -.039*** | -.039*** | .015 | -.232*** | -.060*** | 1 | |
| *26. APSPEC* | .019 | -.035** | .006 | .044*** | -.116*** | .029** | .039*** | 1 |

This table contains Pearson Correlation matrix for the dependent, independent and control variables.
*, **, *** denote significant at 0.10, 0.05 and 0.01 levels, respectively.
All variables are defined in Table 2.

**Table 6**

Audit Fees and Audit Report Lag Regression Results

| Variable | Model 1 Dependent Variable = *LNAFEE* | | | Model 2 Dependent Variable = *SQARL* | | |
|---|---|---|---|---|---|---|
| | Expected Sign | Coeff. | t-value | Expected Sign | Coeff. | t-value |
| *Intercept* | | -11.379 | -1.20 | | 12.997 | 19.41*** |
| *FEMALE* | + | 0.059 | 2.01** | ? | -0.348 | -3.59*** |
| *LNTA* | + | 0.237 | 11.74*** | - | -0.289 | -6.56*** |
| *LEV* | + | 13.855 | 1.89* | + | 32.940 | 0.56 |
| *ROA* | - | -11.011 | -2.11** | + | 25.276 | 0.72 |
| *INVT* | - | -0.004 | -2.84*** | + | 0.002 | 0.61 |
| *REC* | + | 0.002 | 3.55*** | + | 0.005 | 2.07** |
| *BMV* | - | -0.012 | -1.67* | - | -0.014 | -0.35 |
| *LOSS* | + | 0.152 | 5.98*** | + | 0.432 | 5.28*** |
| *ZMJ_Z* | + | -2.440 | -1.96* | - | 2.277 | 0.56 |
| *LNNAS* | + | 0.070 | 8.94*** | - | -0.068 | -2.94*** |
| *BIG4* | + | 0.109 | 3.03*** | - | -0.514 | -4.56*** |
| *LONDON* | + | 0.188 | 5.97*** | ? | -0.052 | -0.55 |
| *AFSWITCH* | - | -0.051 | -1.86* | + | 0.374 | 4.29*** |
| *BUSY* | + | 0.095 | 2.82*** | + | 0.116 | 1.66* |
| *EXTRAORD* | + | 0.143 | 4.61*** | + | 0.034 | 0.42 |
| *GCO* | + | 0.130 | 2.96*** | + | 0.968 | 5.09*** |
| *SUBS* | + | 0.247 | 13.26*** | + | 0.056 | 1.68* |
| *FORGN* | + | 0.641 | 10.16*** | + | 0.077 | 0.40 |
| *AFSPEC* | + | 0.667 | 11.22*** | - | -0.158 | -5.36*** |
| *APSPEC* | + | 0.062 | 2.38** | - | -0.182 | -1.96* |
| *LNSALES* | + | 0.148 | 8.92*** | | - | - |
| *CATA* | + | 0.215 | 2.28** | | - | - |
| *QUICK* | + | 0.007 | 0.67 | | - | - |
| *OCF* | - | -0.154 | -2.65*** | | - | - |
| *YEAR_FE* | | YES | | | YES | |
| *IND_FE* | | YES | | | YES | |
| *Adjusted* $R^2$ | | 0.907 | | | 0.436 | |
| *N* | | 5,010 | | | 5,010 | |

This table contains the regression results of the audit report lag and audit fees analyses. The dependent variables are audit fees (*LNAFEE*) in model 1, and the square root of audit report lag (*SQARL*) in model 2.

*, **, *** denote significant at the 0.10, 0.05 and 0.01 levels, respectively.

The OLS regression models are estimated with firm level clustered robust standard errors.

All variables are defined in Table 2.

**Table 7**

Female Lead Auditors, Shorter Audit Report Lag, and Audit Fees

| Variable | Model 1<br>Dependent Variable = *LNAFEE* | | |
|---|---|---|---|
| | Expected Sign | Coeff. | t-value |
| *Intercept* | | -11.634 | -2.25*** |
| *SARL* | + | 0.040 | 2.22** |
| *FEMALE* | + | 0.085 | 2.52** |
| *SARL × FEMALE* | ? | 0.063 | 1.97** |
| *LNTA* | + | 0.238 | 11.82*** |
| *LEV* | + | 14.173 | 2.09** |
| *ROA* | - | -11.264 | -2.09** |
| *INVT* | - | -0.004 | -6.09*** |
| *REC* | + | 0.002 | 3.05*** |
| *BMV* | - | -0.012 | -1.75* |
| *LOSS* | + | 0.149 | 8.35*** |
| *ZMJ_Z* | + | -2.496 | -2.09** |
| *LNNAS* | + | 0.071 | 9.35*** |
| *BIG4* | + | 0.114 | 6.34*** |
| *LONDON* | + | 0.189 | 5.88*** |
| *AFSWITCH* | - | -0.053 | -1.88* |
| *BUSY* | + | 0.089 | 6.38*** |
| *EXTRAORD* | + | 0.143 | 7.40*** |
| *GCO* | + | 0.129 | 3.73*** |
| *SUBS* | + | 0.248 | 13.91*** |
| *FORGN* | + | 0.641 | 10.57*** |
| *AFSPEC* | + | 0.679 | 9.36*** |
| *APSPEC* | + | 0.062 | 1.74* |
| *LNSALES* | + | 0.148 | 9.61*** |
| *CATA* | + | 0.218 | 4.92*** |
| *QUICK* | + | 0.007 | 1.13 |
| *OCF* | - | -0.151 | -2.85*** |
| *YEAR_FE* | | YES | |
| *IND_FE* | | YES | |
| *Adjusted* $R^2$ | | 0.907 | |
| *N* | | 5,010 | |

This table contains the regression results of the impact of female lead auditors and a shorter versus a longer audit report lag on audit fees analyses. The dependent variable is audit fees (*LNAFEE*) in model 1.

*, **, *** denote significant at the 0.10, 0.05 and 0.01 levels, respectively.

The OLS regression models are estimated with firm level clustered robust standard errors.

All variables are defined in Table 2.

**Table 8**

PSM Analyses for Audit Fees and Audit Report Lag

Panel A: Test for Differences in Audit Client Characteristics

| Variables | Propensity Score Matched sample for Audit Fees Model | | | |
|---|---|---|---|---|
| | (1) Treatment (Mean) | (2) Control (Mean) | (3) Diff (Mean) | (4) Diff (*t*-stat) |
| *LNTA* | 11.634 | 11.848 | -0.214 | -1.50 |
| *LEV* | 3.566 | 4.686 | -1.120 | -1.61 |
| *ROA* | 4.004 | 1.790 | 2.214 | 1.32 |
| *INVT* | 6.787 | 6.808 | -0.021 | -0.03 |
| *REC* | 12.400 | 12.579 | -0.179 | -0.21 |
| *BMV* | 0.787 | 0.759 | 0.028 | 0.44 |
| *LOSS* | 0.247 | 0.258 | -0.011 | -0.38 |
| *ZMJ_Z* | 2.142 | 2.211 | -0.069 | -0.25 |
| *LNNAS* | 3.379 | 3.339 | 0.040 | 0.27 |
| *BIG4* | 0.613 | 0.615 | -0.002 | -0.07 |
| *LONDON* | 0.411 | 0.457 | -0.046 | -1.39 |
| *AFSWITCH* | 0.046 | 0.048 | -0.002 | -0.16 |
| *BUSY* | 0.660 | 0.647 | 0.013 | 0.41 |
| *EXTRAORD* | 0.108 | 0.110 | -0.002 | -0.11 |
| *GCO* | 0.039 | 0.043 | -0.004 | -0.33 |
| *SUBS* | 3.063 | 3.155 | -0.092 | -0.94 |
| *FORGN* | 0.255 | 0.250 | 0.005 | 0.30 |
| *AFSPEC* | 0.022 | 0.013 | 0.009 | 1.01 |
| *APSPEC* | 0.091 | 0.082 | 0.009 | 0.47 |
| *LNSALES* | 10.933 | 11.078 | -0.145 | -0.87 |
| *CATA* | 0.412 | 0.407 | 0.005 | 0.32 |
| *QUICK* | 2.160 | 2.759 | -0.599 | -1.42 |
| *OCF* | 0.083 | 0.068 | 0.015 | 1.13 |
| *N* | 465 | 465 | | |

Panel B: Matched-Sample Regressions

| Variable | Model 1 Dependent Variable = *LNAFEE* | | | Model 2 Dependent Variable = *SQARL* | | |
|---|---|---|---|---|---|---|
| | Expected Sign | Coeff. | t-value | Expected Sign | Coeff. | t-value |
| *Intercept* | | -0.922 | -1.86* | | 33.254 | 1.74* |
| *FEMALE* | + | 0.066 | 1.99** | ? | -0.316 | -2.73*** |
| *LNTA* | + | 0.231 | 6.90*** | - | -0.293 | -4.31*** |
| *LEV* | + | 6.516 | 1.67* | + | -26.893 | -1.68* |
| *ROA* | - | 0.001 | 0.27 | + | 21.353 | 1.76* |
| *INVT* | - | 0.003 | 1.36 | + | 0.006 | 1.17 |
| *REC* | + | 0.006 | 2.33** | + | 0.015 | 1.93* |
| *BMV* | - | 0.011 | 0.46 | - | 0.016 | 0.31 |
| *LOSS* | + | 0.188 | 3.44*** | + | 0.226 | 1.86* |
| *ZMJ_Z* | + | 0.002 | 0.54 | - | 4.733 | 1.08 |
| *LNNAS* | + | 0.079 | 5.01*** | - | -0.101 | -2.87*** |
| *BIG4* | + | 0.170 | 3.01*** | - | -0.470 | -2.54** |
| *LONDON* | + | 0.197 | 4.11*** | ? | 0.036 | 0.36 |
| *AFSWITCH* | - | -0.027 | -2.35** | + | 0.982 | 3.35** |
| *BUSY* | + | 0.068 | 2.33** | + | 0.148 | 0.91 |
| *EXTRAORD* | + | 0.133 | 1.86* | + | 0.167 | 1.08 |
| *GCO* | + | 0.295 | 2.33** | + | 0.810 | 1.96* |
| *SUBS* | + | 0.257 | 9.27*** | + | 0.067 | 1.88* |
| *FORGN* | + | 0.649 | 629*** | + | 0.194 | 0.63 |
| *AFSPEC* | + | 0.194 | 2.65*** | - | -0.505 | -1.99** |
| *APSPEC* | + | 0.028 | 2.35** | - | -0.410 | -2.66*** |
| *LNSALES* | + | 0.116 | 4.61*** | | - | - |
| *CATA* | + | 0.201 | 1.68* | | - | - |
| *QUICK* | + | -0.003 | -0.78 | | - | - |
| *OCF* | - | -0.012 | -0.47 | | - | - |
| *YEAR_FE* | | YES | | | YES | |
| *IND_FE* | | YES | | | YES | |
| *Adjusted* $R^2$ | | 0.891 | | | 0.437 | |
| *N* | | 930 | | | 930 | |

Panel C: Matched-Sample Regressions for Female Lead Auditors, Shorter Audit Report Lag, and Audit Fees

| Variable | Model 1<br>Dependent Variable = *LNAFEE* | | |
|---|---|---|---|
| | Expected Sign | Coeff. | t-value |
| *Intercept* | | -0.872 | -4.41* |
| *SARL* | + | 0.115 | 2.32** |
| *FEMALE* | + | 0.063 | 2.10** |
| *SARL × FEMALE* | ? | 0.088 | 2.44** |
| *LNTA* | + | 0.347 | 15.94*** |
| *LEV* | + | 14.061 | 1.66* |
| *ROA* | - | -8.005 | -2.27** |
| *INVT* | - | -0.002 | -1.82* |
| *REC* | + | 0.007 | 4.14*** |
| *BMV* | - | -0.042 | -2.17** |
| *LOSS* | + | 0.140 | 3.13*** |
| *ZMJ_Z* | + | -1.922 | -1.72* |
| *LNNAS* | + | 0.068 | 6.31*** |
| *BIG4* | + | 0.125 | 2.95*** |
| *LONDON* | + | 0.165 | 4.65*** |
| *AFSWITCH* | - | -0.028 | -2.33** |
| *BUSY* | + | 0.015 | 2.44** |
| *EXTRAORD* | + | 0.104 | 2.01** |
| *GCO* | + | 0.323 | 3.93*** |
| *SUBS* | + | 0.196 | 10.46*** |
| *FORGN* | + | 0.727 | 10.58*** |
| *AFSPEC* | + | 0.513 | 7.42*** |
| *APSPEC* | + | 0.064 | 2.15** |
| *LNSALES* | + | 0.070 | 4.34*** |
| *CATA* | + | 0.383 | 3.79*** |
| *QUICK* | + | -0.019 | -3.47*** |
| *OCF* | - | -0.123 | -0.79 |
| *YEAR_FE* | | YES | |
| *IND_FE* | | YES | |
| *Adjusted* $R^2$ | | 0.892 | |
| *N* | | 930 | |

This table contains the PSM analyses of the audit report lag and audit fees. Panel A reports post-matched sample test for differences in firm characteristics for the audit fee model (for brevity, untabulated for the SQARL model). Panel B presents the matched-sample regression results for the audit reporting lag and audit fees. Panel C reports the interaction effect of a shorter audit report lag and female auditors on audit fees. The dependent variable is audit fees (*LNAFEE*) in model 1.

*, **, *** denote significant at the 0.10, 0.05 and 0.01 levels, respectively.

The matched-sample regressions are estimated with firm level clustered robust standard errors.

All variables are defined in Table 2.

**Table 9**

Addressing Potential Outliers Concern for Audit Report Lag and Audit Fees

| Variable | Model 1 Dependent Variable = *LNAFEE* | | | Model 2 Dependent Variable = *SQARL* | | |
|---|---|---|---|---|---|---|
| | Expected Sign | Coeff. | t-value | Expected Sign | Coeff. | t-value |
| *Intercept* | | -0.738 | -4.56*** | | 12.943 | 29.83*** |
| *FEMALE* | + | 0.063 | 2.31** | ? | -0.354 | -3.84*** |
| *LNTA* | + | 0.232 | 11.34*** | - | -0.298 | -7.42*** |
| *LEV* | + | 0.112 | 2.02** | + | 0.166 | 1.12 |
| *ROA* | - | -0.234 | -1.76* | + | 0.118 | 1.66* |
| *INVT* | - | -0.005 | -3.24*** | + | 0.001 | 0.20 |
| *REC* | + | 0.002 | 1.70* | + | 0.014 | 2.35** |
| *BMV* | - | -0.013 | -1.76* | - | -0.010 | -0.21 |
| *LOSS* | + | 0.082 | 3.43*** | + | 0.380 | 4.28*** |
| *ZMJ_Z* | + | -0.102 | -2.88*** | - | 0.003 | 2.04** |
| *LNNAS* | + | 0.069 | 9.12*** | - | -0.083 | -3.61*** |
| *BIG4* | + | 0.120 | 3.42*** | - | -0.497 | -4.48*** |
| *LONDON* | + | 0.191 | 6.17*** | ? | -0.051 | -0.56 |
| *AFSWITCH* | - | -0.056 | -2.10** | + | 0.327 | 3.96*** |
| *BUSY* | + | 0.084 | 2.68*** | + | 0.123 | 1.39 |
| *EXTRAORD* | + | 0.152 | 5.15*** | + | 0.058 | 0.72 |
| *GCO* | + | 0.105 | 2.46** | + | 0.759 | 4.95** |
| *SUBS* | + | 0.243 | 13.18*** | + | 0.050 | 1.88* |
| *FORGN* | + | 0.654 | 10.59*** | + | 0.171 | 0.94 |
| *AFSPEC* | + | 0.604 | 4.00** | - | -0.132 | -1.78* |
| *APSPEC* | + | 0.065 | 2.51** | - | -0.113 | -1.66* |
| *LNSALES* | + | 0.152 | 8.79*** | | - | - |
| *CATA* | + | 0.192 | 2.11** | | - | - |
| *QUICK* | + | 0.006 | 0.88 | | - | - |
| *OCF* | - | -0.168 | -1.83 | | - | - |
| *YEAR_FE* | | YES | | | YES | |
| *IND_FE* | | YES | | | YES | |
| *Adjusted* $R^2$ | | 0.909 | | | 0.461 | |
| *N* | | 5,010 | | | 5,010 | |

This table contains the regression results of the audit report lag and audit fees analyses addressing potential outliers concern. The dependent variables are audit fees (*LNAFEE*) in model 1, and the square root of audit report lag (*SQARL*) in model 2.

*, **, *** denote significant at the 0.10, 0.05 and 0.01 levels, respectively.

The OLS regression models are estimated with firm level clustered robust standard errors.

All variables are defined in Table 2.

**Table 10**

Alternative Measures of Audit Report Lag

| Variable | | Model 1<br>Audit Report Lag in Log Days<br>Dependent Variable = *LNARL* | | Model 2<br>Audit Report Lag in Days<br>Dependent Variable = *ARLDAYS* | |
|---|---|---|---|---|---|
| | Expected Sign | Coeff. | t-value | Coeff. | t-value |
| *Intercept* | | 5.231 | 39.79*** | 159.329 | 11.09*** |
| *FEMALE* | ? | -0.074 | -3.48*** | -8.118 | -4.32*** |
| *LNTA* | - | -0.065 | -7.92*** | -5.189 | -5.66*** |
| *LEV* | + | 0.078 | 0.62 | 9.269 | 0.65 |
| *ROA* | + | 0.062 | 0.88 | 7.352 | 0.64 |
| *INVT* | + | 0.001 | 0.67 | 0.001 | 0.10 |
| *REC* | + | 0.003 | 2.18** | 0.064 | 0.61 |
| *BMV* | - | -0.011 | -0.38 | -0.685 | -0.85 |
| *LOSS* | + | 0.089 | 5.21*** | 9.235 | 5.16*** |
| *ZMJ_Z* | - | 0.013 | 0.62 | 1.634 | 0.65 |
| *LNNAS* | - | -0.016 | -3.25*** | -1.823 | -3.77*** |
| *BIG4* | - | -0.110 | -4.77*** | -10.036 | -4.30*** |
| *LONDON* | ? | -0.015 | -0.79 | -0.701 | -0.34 |
| *AFSWITCH* | + | 0.065 | 3.94*** | 6.964 | 3.71*** |
| *BUSY* | + | 0.033 | 1.70* | 2.415 | 1.28 |
| *EXTRAORD* | + | 0.012 | 0.71 | 1.140 | 0.69 |
| *GCO* | + | 0.147 | 4.89*** | 18.152 | 4.65*** |
| *SUBS* | + | 0.010 | 1.88* | 1.269 | 1.93* |
| *FORGN* | + | 0.031 | 0.82 | 2.821 | 0.72 |
| *AFSPEC* | - | -0.202 | -1.79* | -32.177 | 1.90* |
| *APSPEC* | - | -0.028 | -1.80* | -1.178 | -1.69* |
| *YEAR_FE* | | YES | | YES | |
| *IND_FE* | | YES | | YES | |
| *Adjusted* $R^2$ | | 0.680 | | 0.410 | |
| *N* | | 5,010 | | 5,010 | |

This table contains the regression results of the alternative measures of audit report lag analyses. The dependent variables are audit report lag in log of days (*LNARL*) in model 1, and audit report lag in days (*ARLDAYS*) in model 2.
*, **, *** denote significant at the 0.10, 0.05 and 0.01 levels, respectively.
The OLS regression models are estimated with firm level clustered robust standard errors.
All variables are defined in Table 2.