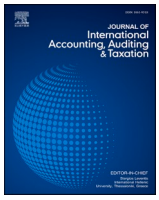
Journal of International Accounting, Auditing and Taxation 57 (2024) 100650

Contents lists available at ScienceDirect

Journal of International Accounting, Auditing and Taxation



Why do female lead auditors charge a fee premium? evidence from the UK audit market

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ARTICLE INFO

Keywords:
Auditor gender
Audit timeliness
Audit fees

ABSTRACT

Existing research documents a fee premium for audits led by female partners (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 United Kingdom companies 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 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 with 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.

1. Introduction

A growing body of research investigates 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; Goodwin & Wu, 2016; Hardies et al., 2016; Burke et al., 2019; Lee et al., 2019).

One area where evidence points toward a significant gender impact is audit fees, with several studies finding that when the lead audit partner is female rather than male, the statutory audit fee is significantly higher (Ittonen & Peni, 2012; Hardies et al., 2015; Burke et al., 2019; Lee et al., 2019; Hardies et al., 2021). Some empirical work has sought to address the reasons behind the observed premium: Hardies et al. (2021) suggest that it may be due to discrimination, while Lee et al. (2019) suggest that female lead auditors may be engaged in more complex audits. Still, there is little 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 performing more timely audits. Specifically, we are interested in ascertaining 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' willingness to pay a premium for more timely audit reports.

Our study makes several 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 United Kingdom (UK). This replication is important as it allows us to understand whether the female partner-led audit fee premium exits across countries or is more jurisdiction specific. Second, we extend the 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

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https://doi.org/10.1016/j.intaccaudtax.2024.100650

Available online 11 September 2024

ARL, with the notable exception of Burke et al. (2019), has focused exclusively on client and audit firm characteristics (e.g., 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 for a potential gender impact on other aspects of the audit process are also likely to be relevant to the ARL.

Third, these contributions allow us to go beyond the identification of a female partner-led audit fee premium by offering a rigorous and empirical explanation for its existence. In developing our study, we 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 of 2009–2016, essentially covering the first eight years of similar disclosures in the UK. The longer time period allows us to perform a more comprehensive analysis over a more sustained period and thereby address 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, we focus solely 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), we use propensity score matching (PSM) and difference-in-differences (DID) methodologies to control for self-selection bias and unobservable omitted variable bias, respectively. Controlling for these factors is important because endogeneity is a key issue in gender studies, as auditor gender selection may not be random,

We analyze a sample of UK-listed firms from 2009 to 2016. The UK has required companies to disclose the name of the lead audit partner in their annual reports since 2008.[2] This allows us to identify the gender of the lead auditor over an extended period, which enables us to observe changes in the identity of lead auditors and investigate the impact of the lead auditor's gender 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 relative to other firms, clients that are audited by female lead auditors and receive more timely audit opinions pay an audit fee premium. 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 female lead auditors can complete audits in a more timely manner and audit clients are willing 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 summarizing the audit framework in the UK. It then reviews the relevant literature on the impact of auditor gender on audit fees and the ARL. This allows us to motivate our hypotheses. Section 3 introduces the sample and data sources and explains our research approach. Our empirical analysis and results are presented in section 4. Section 5 contains our conclusions.

2. Literature review and hypotheses development

2.1. The UK audit market

The UK audit market is highly regulated, mainly by 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 European Union (EU) audit directives into UK law. The FRC enjoys government-delegated power to oversee the regulation of auditing and auditors, some of which is delegated to the professional accountancy bodies.[3] Specifically, the FRC is responsible for the recognition, supervision, and derecognition of the accountancy bodies responsible for supervising the work of auditors and offering an audit qualification. In turn, the FRC delegates certain regulatory tasks to the accountancy bodies. This delegation includes, among other things, audit registration, continuing professional development, and certain aspects of audit monitoring and enforcement. In general, while overarching audit regulation is underpinned by primary legislation, the UK's overall principles-based approach to financial regulation still applies. In contrast to the United States (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 subject to a statutory audit performed by an independent auditor. The only exemptions are for small companies, which are typically defined as those 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 one element of the audit report; it typically appears immediately before the company's audited financial statements. It also includes information on how the audit was planned and carried out, as well as significant narrative about key audit matters relevant to the company. Finally, the audit report is signed by the lead audit engagement partner on behalf of the audit firm, and the date and location of the audit report are noted.

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 on how quickly an audit should be completed after a company's financial year-end. This contrasts with the US, where the SEC requires listed companies to satisfy filing deadlines depending on market size. These deadlines range from 60 days for large accelerated filers to up to 90 days for non-accelerated filers. This distinction is important for our UK-based study, since the absence of filing deadlines allows us 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

Several 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 Denmark, Finland, 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

[1] Following the existing literature, we use the terms 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 financial years beginning on or after 6 April 2008.

[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 (CAI).

Ittonen and Peni (2012) that firms with a female lead auditor pay significantly higher audit fees. In a subsequent study of 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 more risk averse, more diligent in their audit preparation, and less confident 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. Similarly, 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, which suggests 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 (which makes them issue more going concern opinions to important clients) and more risk-averse (which makes 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, which indicates greater financial reporting accuracy.

While these studies provide evidence of higher-quality audits by female lead auditors, none of them 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. 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. They identify greater female partner–led audit fees in offices with a greater proportion of male audit partners, as well as in offices where male lead auditors are more likely to audit 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 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, which they measure by the level of discretionary accruals and the likelihood of restatements. This is interesting as it suggests that the female partner–led audit fee premium may be due to higher-quality audits. However, Burke et al. (2019) point out that as Lee et al. (2019) focus on comment letters, the clients involved in their study are likely to be larger and riskier. In that case, additional care and thoroughness around these audits might be expected, which makes 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 either of their two audit output measures.

Our objective is to extend Burke et al.'s (2019) study to the context of UK listed companies. 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 sought to explain the ARL, focusing 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. Studies report relatively consistent evidence that larger and more complex audit clients have longer ARLs, as do clients with 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. Larger auditors, industry specialist auditors, and longer auditor tenure are associated with a reduced ARL (Abernathy et al., 2017; Durand, 2019; Habib et al., 2019).

A significant weakness of existing ARL research is that it does not consider the effect of individual audit lead partners on the ARL. This is surprising given the importance of individual audit partners in leading and executing audits. Similarly, as discussed above, there is now 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.

There are clear tensions regarding the likely impact of female lead auditors on the ARL. On the one hand, existing theory and evidence suggest that female lead auditors are more cautious, efficient, and thorough (O'Donnell & Johnson, 2001), which results 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 behavioral differences between female and male lead auditors in terms of planning, risk tolerance, and overconfidence, all of which may result in greater skepticism by female lead auditors. 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, as they desire to publish accurate, reliable financial information in a timely manner, they may see timeliness—more specifically, a shorter ARL—as a key aspect of audit quality. 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 to increase the likelihood of meeting the set deadlines because they are less comfortable with missing deadlines; as a result, they may be more likely to achieve more timely audits. In summary, we might expect female lead auditors not only to be of high quality but also to be more efficient in planning and conducting the audit. Which of these apparently competing explanations wins out is an empirical question and one we seek to answer.

We also seek 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, largely because they exhibit more diligence and care (Lee et al., 2019). Taken together, these findings might suggest that female lead auditors take longer to complete the audit, which would justify higher audit fees. This argument suggests that higher-quality audits by female lead auditors are likely to take longer and thereby cost more. However, there are at least two reasons why female lead auditors may obtain higher fees without being associated with a longer ARL. First, a key aspect of female lead auditors' qualities is their ability to conduct audits more efficiently, which is expected to lead to a shorter ARL that 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 surmise that audit clients, who are aware of the potential for female lead auditors to deliver higher-quality audits, may be prepared to pay a premium for more timely audits while also being satisfied that audit quality is not being sacrificed. Female lead auditors may be able to

negotiate and convince clients that paying a premium for a higher-quality and more timely audit is worthwhile. Which of these explanations 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, the effect of auditor gender on the ARL has attracted little research attention. The only available evidence on the issue is the work of 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 conducting audits (O'Donnell & Johnson, 2001), one can argue that female lead auditors are likely to spend more time completing the audit, which can lead 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. In response to these seemingly contradictory arguments, our first hypothesis is stated in null form as follows:

H1. The length of a client's audit reporting lag is not affected by lead auditor gender.

As explained above, there is increasing evidence that female lead auditors conduct 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.

Basing our predictions on the existing literature, we expect the attributes of female lead auditors (i.e., communication and organizational 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), increasing the overall value of their 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. Clients who receive timely audits benefit from having faster access to financial information, satisfying regulatory deadlines, making informed business decisions, and minimizing business disruption. In addition, the consistent early completion of audits by female lead auditors may lead to increased demand for their services, allowing them to command higher audit fees. Therefore, one might expect the fee premium for female partner–led audits to be higher for more timely audit completions.

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. 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 the clients of female partner–led audits are less complex, are smaller in size, and display stronger performance (Abernathy et al., 2017; Habib & Muhammadi, 2018; Durand, 2019). These arguments suggest that clients may pay lower audit fees for audits led by female auditors associated with shorter audit report lags. Given these contradictory conclusions, our hypothesis two is stated in null form as follows:

H2. 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 Table 1 shows, 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. Like most prior studies, we exclude financial companies due to 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, and other financial information are not available.

We source our data from two primary sources. Financial Analysis Made Easy (FAME) provides the names of the lead audit partner, the audit fees, the non-audit fees, the name of the audit firm, audit firm changes, and the number of client subsidiaries. Thomson Reuters Worldscope database provides the remaining financial data. 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 the names of the lead audit partner and, in some cases, find the names that were missing from 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 are summarized in Table 1.

3.2. Empirical models

To test H1 on 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):

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

The 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;

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**

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 ARL in days to satisfy the normal distribution assumption of the regression model.

We use *FEMALE* as our main explanatory variable in equation (1). 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. *FEMALE* is coded 1 if a client is audited by a female lead auditor, and 0 if a client is audited by a male lead auditor.[4] Following previous literature (e.g., Ashton et al., 1989; Bamber et al., 1993; Habib & Bhuiyan, 2011; Sharma et al., 2017; Durand, 2019), we include a set of control variables 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.

Next, we test H2 on 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]:

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

The 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 coded 1 if a client's ARL is less than the sample median, and 0 otherwise. 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*) are all 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 the residual dependence caused by firm-specific effects. For brevity, we do not discuss the other variables included in equation (1), as all variables used are defined in Table 2.

[4] Consistent with the approach of Owusu and Zalata (2022), we excluded eight auditors with gender-neutral first names due to the difficulty of determining whether they were female or male.

[5] This approach is similar to that of prior literature (e.g., Pettit, 1972; Kane et al., 1984) that employs dummy variables to determine the interaction effects.

Table 2
Variable definitions.

Variable	Definition
FEMALE	binary variable coded 1 if the audit client is audited by a female lead auditor, and 0 otherwise
ARLDAYS	the number of days between a company's financial year-end date and the audit report date
LNARL	natural logarithm of the number of days between a company's financial year-end date and the audit report date
SQARL	square root of the number of days between a company's financial year-end and the audit report date
SARL	binary variable coded 1 if an audit client's ARL is less than the sample median, and 0 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 coded 1 if the firm 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 coded 1 if the audit client is audited by a Big 4 auditor, and 0 otherwise
LONDON	binary variable coded 1 if the audit client's auditor is based in London, and 0 otherwise
AFSWITCH	binary variable coded 1 if the audit client experienced an audit firm switch, and 0 otherwise
BUSY	Binary variable coded 1 if the audit client's financial year-end is between December and March, and 0 otherwise
EXTRAORD	binary variable coded 1 if the firm reported extraordinary items, and 0 otherwise
GCO	binary variable coded 1 if the audit client 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 coded 1 if the audit firm is an industry specialist, and 0 otherwise
APSPEC	binary variable coded 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

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. This finding is consistent with those of Garcia-Blandon et al. (2019) and Hardies et al. (2021), who report similar findings across their samples of Spanish and Belgian firms, respectively. As Panel A of Table 3 shows, from our sample of 5,010 firm-year observations between 2009 and 2016, 465 clients are audited by female lead auditors. Most clients are audited by Big 4 firms. Of the 465 clients with female lead auditors, 283 use Big 4 firms and 182 use non-Big 4 firms. Of the clients audited by male lead auditors, 2,928 use Big 4 firms and 1,617 use non-Big 4 firms.

In Panel B of Table 3, we separate our observations by auditor gender and audit firm industry specialization. As Panel B shows, the proportions of clients audited by female lead auditors with industry specialist audit

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 lead 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%)

firms (18 %) and non-industry specialist audit firms (82 %) are similar to the proportions of clients audited by male lead auditors with industry specialist audit firms (18 %) and non-industry specialist audit firms (82 %). Using the market value calculated by the Financial Times Stock Exchange (FTSE) group, Panel C of Table 3 shows auditor gender by client size. Fewer FTSE 350 clients (114 out of 465 (25 %)) are audited by female lead auditors than non-FTSE 350 clients (351 out of 465 (75 %)). 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. 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 audits by male lead auditors.

Table 4 contains descriptive statistics for our sample firms. 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) in 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 of our sample clients were financed by 76 % of total liabilities. The mean return on assets is positive, suggesting that on average, our sample audit clients are profitable. On average, current assets (excluding inventory) are valued higher than current liabilities, while the mean level of cash flow from operations is 6 % of total assets. Around 47 % of 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 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, and 4 % receive going concern comments. On average, 18 % of the audit clients are audited by industry specialist audit firms, while 3 % are audited by industry specialist audit partners.

4.2. Univariate analysis

Table 4 also presents the results of the tests for differences in ARL, audit fees, and control variables between clients audited by female and male lead auditors. The mean ARL for clients audited by female lead auditors is shorter (82 days) than that for 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 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 that female lead auditors are more conservative, insofar as this conservatism may be associated with lower levels of simultaneously purchased non-audit services. Our sample clients are more likely to be audited by industry specialist female lead auditors than by industry specialist male lead auditors. Most client characteristics exhibit 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 used 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, we can make real inferences only after we include the relevant control variables in a multivariate analysis. As Table 5 demonstrates, with the exception of *BUSY* and *EXTRAORD* for *SQARL* and *INVT* for *LNAFEE*, all our control variables are significantly correlated with *SQARL* and *LNAFEE*. The strongest correlations are 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, the coefficients are below the 0.80 threshold to trigger multicollinearity problems (Sharma et al., 2017; Owusu et al., 2022). 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; Ullah et al., 2022; Ullah et al., 2024). These findings suggest that our data is not affected by serious multicollinearity problems.

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 suggesting that female lead auditors charge a fee premium. Thus, we estimate the following OLS regression model:

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

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 previous 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). Thus, our results support previous research findings that clients pay an audit fee premium when they are audited by female lead auditors. Our results are also economically meaningful. Holding all other variables fixed, audit fees (*LNAFEE*) paid

Table 4
Test for differences in ARL, audit fees, and control variables between audit clients audited by female and male lead auditors.

Variable	Full Sample			Test for Differences in Mean between Female and Male						
	Full Sample (n = 5,010)			Female Lead Auditors (n = 465)			(2) Male Lead 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***

Notes: 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 lead auditors and client firms audited by male lead auditors. *, **, and *** denote significance at the 0.10, 0.05, and 0.01 levels, respectively. All variables are defined in Table 2.

for female partner-led audits are about 6 % higher [(exp (0.059)-1) × 100 = 6.1 %) than those of 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 as measured by *SQARL* (coefficient = -0.348; *t*-value = -3.59; significant at the 1 % level). Thus, H1 is rejected because we find 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 of a timely completion of an audit: 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), lead to more timely audits. In general, the signs and the significance 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 for clients audited by industry specialist audit firms and audit partners. We also find that ARL is shorter for clients who purchase more non-audit services and for clients audited by Big 4 firms. In contrast, ARL is longer for clients with a larger account receivables balance, those with more subsidiaries, loss-making firms, firms with going concern comments, and firms that 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.

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 due to 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 due to a more timely audit opinion, then the interaction between a shorter ARL and female lead auditors (*SARL*×*FEMALE*) in equation (2) should be positive and statistically significant. Alternatively, if the observed female partner-led audit fee premium is due to reasons other than a more timely audit opinion, then the interaction effect of *SARL*×*FEMALE* on audit fees should be minimal and unobservable.

Table 7 reports our results on whether the audit fee premium is more affected by *SARL* for clients audited by female lead auditors than for clients audited by male lead auditors. The result in Model 1 of Table 7 shows that the coefficient on *SARL* is positive and statistically significant at the 5 % level. This 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 (0.063) on the interaction term, *SARL*×*FEMALE*, is positive and statistically significant

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

	(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

	(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

Notes. This table contains the Pearson correlation matrix for the dependent, independent, and control variables. *, **, and *** denote significance at the 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	

Notes: *, **, and *** denote significance at the 0.10, 0.05, and 0.01 levels, respectively. The OLS regression models are estimated with robust standard errors clustered at the firm level. All variables are defined in Table 2.

at the 5 % level.[6] This finding is consistent with the argument that clients pay higher audit fees as a premium for more timely audit opinions (Lee et al., 2009). Thus, our H2, which is in a null form, is rejected in favor 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: female lead audit partners charge a fee premium, especially when their audits are accompanied by a shorter ARL. Essentially, we find that the fee premium for female partner–led audits is higher for clients that receive a more timely audit opinion.

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 may in turn lead to a self-selection bias. For example, audit clients may discriminate based on gender, or female lead auditors may self-select into auditing certain types of clients. As Panel B of Table 4 shows, clients audited by female lead auditors are significantly different in many respects from clients audited by male lead auditors. Because ARL and audit fees become observable only after individual auditor selection, the alternative individual lead auditor choice becomes unobservable, which makes the choice of female lead auditor an endogenous variable. To mitigate these issues and check the robustness of our baseline regression results, we employ propensity score matching (PSM) and difference-in-differences (DID) methodology.

4.5.1. Propensity score matching

We follow previous literature (e.g., Hardies et al., 2015; DeFond et al., 2017; Alhadab & Clacher, 2018; Owusu et al., 2023) and use the PSM method 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, not to pre-existing client characteristics. The matching process for the full sample yields 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 results suggest that the procedure removed the observed differences across most of the client characteristics in the pre-matched subsamples reported in Panel B of

[6] Alternatively, we split our sample into two groups, firms with below-median ARL and firms with above-median ARL, and we re-estimate equation (3). Our results (untabulated) are qualitatively similar to those reported in 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. For firms with a longer ARL, the coefficient on *FEMALE* = 0.023; *t*-value = 1.52; *p*-value > 0.10.

Table 7
Female lead auditors, shorter audit report lag, and audit fees.

Variable	Model 1 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	

Notes: 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. *, **, and *** denote significance at the 0.10, 0.05, and 0.01 levels, respectively. The OLS regression models are estimated with robust standard errors clustered at the firm level. All variables are defined in Table 2.

Table 4, 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 (0.066) on *FEMALE* for audit fees. In Model 2 of Panel B, we find a significant negative coefficient (−0.316) on *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 (0.088) on the interaction term *SARL×FEMALE* is positive and statistically significant at the 5 % level. This finding provides robust support for our baseline regression results showing that the premium for female partner-led audits is higher for clients that receive a more timely audit opinion.[8]

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

[8] As in prior auditor gender literature (e.g., Hardies et al., 2015), we employ DID to address the concern of unobservable omitted variable bias. The results (untabulated) are qualitatively similar to those reported in Tables 6 and 7.

4.5.2. Additional sensitivity tests

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

Second, following 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 report the results in Model 1 of Table 10. The results show that female *FEMALE* continues to have a negative and significant impact on ARL. Our results are also economically significant. When we hold all other variables fixed, the ARLs of female partner–led audits are about 8 % [(exp (0.074)-1) × 100 = 7.7 %) lower than the ARLs of 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, the results reported in Model 2 of Table 10 show that *FEMALE* 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 be 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 receive a fee premium for timely audit reports. However, the fee premium in Big 4 audit firms is larger than the fee premium 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 specialization. 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. Thus, our baseline regression results do not appear to be 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). We investigate whether our results are influenced by differences in audit client size as follows. Using the market value calculated by the FTSE group, we divide our sample by auditor gender and client size (i.e., FTSE 350 index clients [n = 1,372] vs. non-FTSE 350 index clients [n = 3,638]). Our results from all the regression models (untabulated) are qualitatively similar to the baseline regression results. Therefore, we conclude that our baseline regression

[9] In addition, we re-estimate equation (2) using the winsorized variables, and the results (untabulated) are qualitatively similar to those reported in Table 7.

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 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***

(*continued on next page*)

Table 8 (*continued*)

Panel C. Matched-Sample Regressions for Female Lead Auditors, Shorter Audit Report Lag, and Audit Fees			
Variable	Model 1 Dependent Variable = *LNAFEE*		
	Expected Sign	Coeff.	t-value
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	

Notes: 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 lead auditors on audit fees. *, **, and *** denote significance at the 0.10, 0.05, and 0.01 levels, respectively. The matched-sample regressions are estimated with robust standard errors clustered at the firm level. All variables are defined in Table 2.

Table 9
Addressing the concern of potential outliers 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	

Notes: This table contains the regression results of the audit report lag and audit fees analyses addressing the concern of potential outliers. The dependent variables are audit fees (*LNAFEE*) in Model 1, and the square root of audit report lag (*SQARL*) in Model 2. *, **, and *** denote significance at the 0.10, 0.05, and 0.01 levels, respectively. The OLS regression models are estimated with robust standard errors clustered at the firm level. All variables are defined in Table 2.

Table 10
Regression results using alternative measures of audit report lag.

Variable		Model 1 Audit Report Lag in Log Days Dependent Variable = *LNARL*		Model 2 Audit Report Lag in Days 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	

Notes: *, **, and *** denote significance at the 0.10, 0.05, and 0.01 levels, respectively. The OLS regression models are estimated with robust standard errors clustered at the firm level. All variables are defined in Table 2.

results are not sensitive to potential outliers, alternative definitions of ARL, audit firm size, audit firm specialization, or client size.

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 is limited evidence to explain why this is so. Whereas Hardies et al. (2021) provide suggestive evidence 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. We analyze 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 lead audit partner's name in companies' annual reports has been in effect 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. Thus, we can 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 summarized as follows: Clients audited by female lead auditors have significantly shorter ARLs but pay significantly higher audit fees. We also find that relative to other firms, clients that are audited by female lead auditors and receive a more timely audit opinion pay a fee premium. 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 the ARL and audit fee literatures by documenting the importance of lead auditor gender in influencing the ARL, as well as showing how it directly affects the size of the 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 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 highlights the importance of audit timeliness for audit clients and illustrates their willingness to pay an audit fee premium for more timely audits. This finding contributes to the wider literature on the value of more timely audits to clients and their stakeholders.

From a practical perspective, our findings highlight the economic value of female lead auditors. This is very important in encouraging more women to enter the auditing profession and in 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 that they have 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.

However, our findings are 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 underlying mechanisms. Our findings suggest a rich interaction between female lead auditors/audit firms and their clients, as these clients are prepared to pay higher fees for a more timely female partner-led audit but not for a similar audit by a male lead auditor. While this suggests that clients may have greater confidence in female lead auditors, it does not explain why male lead auditors are unable to charge more for a timely audit. Further qualitative research is needed to ascertain the precise drivers of client decision-making and gain insights into the negotiation around the audit process and the impact of gender on that negotiation. 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? The answers to these questions would help us understand the mechanisms driving the results documented in this paper.

Declaration of competing interest

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

Data availability

Data will be made available on request.

Acknowledgements

We are very grateful to Robert Larson (Editor-in-Chief) and two anonymous referees for their constructive comments and suggestions.

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