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Abstract

In this paper, we investigate gender differences in the workload allocation process. Using a sample of 3,747 partner-year observations and 107,192 firm-year observations from Belgium, we find that female partners are associated with lower levels of workload in terms of the number of clients they serve. Our results also show that female partners audit fewer new clients. We find that the gender effect on workload is particularly strong for partners in the earlier stages of their careers. For experienced partners, we do not find gender differences in their workload, suggesting that differences between males and females in terms of workload eventually disappear. Further, we find that female auditors have clients with higher audit quality, but when controlling for workload this effect becomes smaller and even disappears in the full and Non-Big 4 sample. Our results suggest that differences in the workload allocation process can be a contributing factor to different levels of audit quality that female partners provide compared to their male counterparts. That is male auditors audit significantly more clients, which may constitute a risk factor for the audit quality they provide.

Keywords: Workload, audit quality, gender differences, new client allocation

1. Introduction

The workload allocation process of assigning engagement partners in audit firms is an important topic of research (Lennox & Wu, 2018). This allocation process is not a unilateral decision made by the audit firm, but an outcome of the negotiation and compromise between audit firms and audit partners. Both audit firms and engagement partners must consider partners' workload, because too many clients can be an important risk factor to audit effectiveness and efficiency (Lindberg & Maletta, 2003; PCAOB, 2014, p26). Thus, ideally, audit firms should carefully manage partners' workloads and try to make a relatively balanced allocation of clients across their partners, regardless of their gender. However, the determination of workload depends on both the audit firms' judgement of their partners and the partners' own preferences. In this determination process, female and male partners may be treated differently or self-select to act differently, resulting in systematic differences in workload allocation across gender.

Although we have seen an increase in the number of studies on gender in the auditing context, the workload allocation process and differences across gender in workload has still received scant attention (Hardies & Khalifa, 2018). The current evidence hints that female partners have a positive effect on audit quality, depending on the type of clients that they audit (Breesch & Branson, 2009; Hardies & Khalifa, 2018; Harymawan et al., 2019). These studies provide the initial evidence of gender effect on audits. We argue that these findings could be influenced by the allocation of clients to female and male auditors.

Specifically, we argue that the affinity bias in the audit firm, work-life pressure, and the different evaluation standards and status recognition concerns may differ between the gender.

This, in turn, can affect the workload allocation decision made by audit firms or affect female partners' choices in terms of workload. First, the male-dominated leadership may allow men in the top position to share more resources with their male colleagues (i.e., affinity bias toward to male partners). This bias may result in difficulties for female partners to compete for extra clients and assignments (Gneezy et al., 2003). Second, next to their profession, females may also value other aspects of their life, resulting in different perceptions of work-life balance pressure for female partners and male partners (Powell & Mainiero, 1992). This different work-life balance pressure may lower female auditors' ambition to receive a higher status in the audit firm by extending their client portfolio (Vianen & Fischer, 2002). Last, for female partners, "doing the job well" might be evaluated more strictly than their male counterparts (Bauer & Baltes, 2002; Rivera & Tilcsik, 2019). To be evaluated as a "good performer", female partners may need to focus more on performance improvement behavior and improvement of audit quality, rather than bringing in new clients or extending their personal client portfolio. For this reason, they may constrain their portfolio. Males, on the contrary, might focus on revenue generation, which might lead to extending their portfolio up to the point that may lead to additional risk.

Given these factors, we anticipate that the workload allocation determination process may differ for female and male partners. That is, females might be assigned a significantly lower levels of workload compared to male partners, which might result in different levels of audit quality they provide. We first test the association between partner's gender and workload – the direct outcome of workload allocation determination, measured by the number of clients per

partner per year (*H1a*). This step allows us to obtain the initial evidence of whether female partners are treated differently than their male counterparts. Then, in the second stage, we investigate the allocation itself by examining the effect of gender on clients that are new to the audit firms (*H1b*). In the last step, we test the impact of workload on audit quality (*RQ*). That is, are lower levels of the workload associated with better audit quality, or in other words, do high levels of workload constitute a risk to audit quality?

We collect data for the period of 2013 to 2020 for the entire Belgian market. The Belgian data gives us a unique advantage as it contains auditor information for the whole Belgian market, including all private and publicly listed companies that require to have an auditor. This allows us to estimate the amount of workload a partner has accurately. For *H1a*, we use the sample of 3,747 partner-year-firm observations to test for potential differences in workload between female and male audit engagement partners at the portfolio level. Our measure for workload is the number of clients that are assigned to each partner per year. For *H1b*, we further test the association between partner's gender and new client allocation using a smaller sample of 3,056 partner-year-firm observations[1]. Next, we test our *RQ* using the sample of 107,192 client-year observations. For audit quality, we look at the client's financial report quality, as measured by the level of earnings management (i.e., absolute discretionary accruals).

Our results show that female partners have significantly lower levels of workload than male partners. The results of a regression analysis, where we control for other factors such as the size, risk and financial condition of the current portfolio, show that the level of workload

[1] We lose the observations in year 2013 due to the lagged partner portfolio characteristics.

for females is 20.31% lower than that of males. This gender effect is stronger in Non-Big 4 firms, where females have 24.04% fewer clients than their male counterparts, whereas for Big 4 the difference equals 15.97%[2]. Furthermore, we find that female partners are negatively associated with new client allocation, and this effect is stronger in Non-Big 4 firms. Furthermore, since the issues with work-life balance are anticipated to be more pronounced in the early stages of a partner's career, our findings indicate that the gender effect on workload is driven by partners with less experience. This highlights the crucial role of work-life balance consideration in determining workload. However, for more experienced partners, we do not longer find gender differences in workload, suggesting that the gender gap in terms of workload eventually disappears. In Big 4 firms, the average workload of highly experienced female partners even surpasses that of their experienced male counterparts. We further find important gender differences in the type of clients audited by male and female audit partners in terms of the average size of the portfolio and the proportion of risky clients. Additionally, female partners' portfolios are more likely to have more clients in the same industry[3].

We also find that a higher level of workload is negatively associated with audit quality. Further analysis reveals that female partners deliver higher audit quality, an effect which has been documented in prior research (Hardies et al., 2016; Harymawan et al., 2019). However, we find that the gender effect on audit quality is weaker when controlling for the workload. In particular, when doing so we do not find a statistically significant gender effect on audit quality

[2] The coefficient on gender is -0.227, -0.174, and -0.275 for the full sample, BIG 4 sample, and Non-BIG 4 sample, respectively. According to the log-transformed, these coefficients can be transformed into 20.31%, 15.97% and 24.04%, respectively. The example for the calculation is (exp (-0.227) – 1) * 100 = 20.31%.

[3] The results of a regression analysis for H1b show that female partners have 16.46% lower number of new clients compared with their male counterparts; the statistic is 18.86% in Non-Big 4 firms and 12.80% in Big 4 firms.

in the full sample and sample of Non-Big 4 clients. For Big 4 clients, we continue to find a weaker association between partner gender and audit quality. Overall, our results hint at the fact that this gender effect could be driven by systematic differences in workload allocation. That is, female partners deliver higher audit quality because they consciously manage their portfolio and keep it at a manageable level. An alternative explanation is that female partners are treated differently compared to male partners. That is, male partners strive more heavily for an extended set of clients, which potentially compromises their audit quality. This gender quality difference effect due to workload seems to manifest itself particularly in Big 4 audit firms.

This study answers the call of Francis (2011) to open up the "black box" of the auditing firm's organizational operations by examining the factors that affect the workload allocation process. First, by creating a new model at the partner portfolio level, we document significant gender differences in the workload allocation process. More specifically, females are associated with lower levels of workload compared to their male counterparts. In doing so, we document still important differences in workload allocation. While one would expect audit firms to try to balance the workload among partners, such a balance does not exist when one considers workload allocation. This problem exists both in Big 4 and Non-Big 4 firms.

It is further important to stress that these workload differences across gender have important consequences for audit quality. Using the entire Belgium audit market, our study offers unique empirical evidence on whether the systematic differences in workload allocation impact audit quality – the excessive workload can be an important risk factor to the quality that

audit partners provide. Second, prior literature finds that female partners offer superior quality, but only for certain types of clients (e.g., high-risk or important clients) (Almer et al., 2021; Hardies et al., 2016; Harymawan et al., 2019; Yang et al., 2018). We contribute to this ongoing debate on why female auditors are having a different effect on audit quality. The fact that they constrain their portfolio might explain these quality differences that prior literature has shown.

Lastly, our results can bring insights to audit firms and audit regulators in terms of gender inequality, partner portfolio management, and audit quality control systems. Our results suggest that serving a greater number of clients can have a negative effect on audit quality. However, we are not suggesting that audit firms should blindly set upper limitations on partner portfolios or allocate more clients to female partners. Instead, our results on workload allocation suggest that audit firms should be cautious about the negative effect of workload when partners handle too many clients. Internal control mechanisms within audit firms can also monitor and manage the risk portfolio of a partner. Handling too many clients can constitute an extra risk to the audit firm. Audit firms need to judge whether such an extensive portfolio is manageable at the individual level and may need to consider reallocation or reassignment of clients if audit quality cannot be guaranteed and explore whether trying to spread workloads more evenly can offer higher audit quality.

The remainder of the paper is as follows. Section 2 provides the background and some of the prior work on gender differences and workload. We also develop our hypotheses in Section 2. In Section 3, we describe our sample and the research method. Section 4 presents the primary

results. The supplementary and sensitivity analyses are presented in Section 5. Section 6 offers a conclusion.

2. Background and hypotheses development

2.1. Background on gender effects and workload allocation

The workload allocation in audit firms is an important topic of research. To date, however, it has received scant attention (Lennox & Wu, 2018). The determination process of how to assign the right partner to the right client is still a black box. Audit firms need to not only consider partners' expertise, specific knowledge, and timing but also consider maintaining an appropriate workload balance among the partners they employ so that everyone has a manageable set of clients. Yet, this determination may not be objective, but reflects the combination of the audit firm's judgment and the audit partner's self-preference. In this judgment and self-determination process, we argue that female partners may be treated or self-select to behave differently from their male counterparts in terms of workload allocation.

While gender seems to affect audit outcomes[4], research about why females outperform their male counterparts is largely absent. We argue that these gender-related consequences can be explained by the different workload allocations of female auditors. Hardies et al., (2021) document female partners encounter discrimination in terms of non-prestigious clients assigned when they work for male-dominated audit firms; however, the overall differences in terms of

[4] Prior literature has examined the performance of female auditors in terms of audit quality and audit fees. The results show that female auditors perform better than males, but only under certain conditions. For instance, female partners tend to deliver higher audit quality for high-risk or important clients (Hardies et al., 2016; Harymawan et al., 2019) but deliver lower audit quality when clients have low audit risk (Yang et al., 2018).

workload allocation are still overlooked. Therefore, in this study, we focus on the gender effect in terms of the overall workload that partners have and investigate whether females systematically having fewer clients affects the audit quality they deliver.

First, we investigate whether female and male partners are treated or self-select to behave differently in terms of workload. Workload, as measured by the number of engagements allocated to each engagement partner, is the direct outcome of workload allocation decisions. The workload an auditor receives is critical for both female and male partners to develop expertise and management skills (Anderson, 1982; Anzai & Simon, 1979; Choo, 1996; Sarah E. Bonner & Barry L. Lewis, 1990). By interacting with different clients, auditors can learn to perform the job better by acquiring different skill sets at each engagement. However, high levels of workload can also lead to people sacrificing diligence on their job, such that audit quality might be sacrificed (Goodwin & Wu, 2016; López & Peters, 2011; Persellin et al., 2019). We argue that the differences in workload across gender can explain why females have a different audit outcome relative to their male counterparts. That is, they might have fewer assignments compared to male partners who may take excess clients. As a result, they might have fewer assignments compared to male partners who may take up excess clients. In doing so, female partners can still acquire the necessary expertise but, at the same time, deliver higher audit quality.

Second, we investigate the workload allocation itself by examining the effect of gender on the allocation of new clients. Partners can extend their portfolio by bringing more new clients into their portfolio or by accepting the allocation decision made by the board of audit

firms. A high degree of interaction with new clients provides greater opportunities to extend social networks and develop managerial skill sets (Abdolmohammadi et al., 2004). This can also help partners maintain competitive advantages, bargaining positions, and even high economic advantages in audit firms (Kacanski et al., 2021; Knechel et al., 2013; Løwendahl et al., 2001). However, engaging with more new clients when they already have a high workload may result in even higher levels of workload, which may constitute additional risks to audit effectiveness and efficiency (Lindberg & Maletta, 2003; PCAOB, 2014, p26). We also anticipate that female and male partners may react differently in terms of taking up new clients into their portfolios.

In sum, we conduct the following steps. First, we anticipate that females will likely have lower levels of workload compared to their male counterparts. Second, we argue that female partners may be judged differently, or self-select to behave differently when considering the new client acceptance. Last, we anticipate that having a more manageable portfolio in terms of workload can be beneficial for audit quality.

2.2. Workload allocation differences across female and male partners.

We anticipate female partners will be associated with a lower level of workload based on the affinity bias in audit firms, work-life balance pressures, status recognition concerns, and the different evaluation standards that females experience on the work floor.

First, prior sociology literature shows that women in the workforce may have less authority on the job. Even when females hold positions of authority, these positions are often lower in the hierarchy (DiTomaso et al., 2007). This finding is in line with the glass ceiling in

audit firms: where the male/female ratio is balanced at lower levels of the organization, this difference is skewed towards males at the top of the company[5]. This male-dominated leadership may result in affinity bias that allows powerful men at the top to gravitate toward the people or groups they feel have the same backgrounds and interests unconsciously (McPherson et al., 2001). To maintain their exclusive group, the male-dominated leadership may subconsciously share more interests and provide more support with their male colleagues. The fact that women are less likely to take part in such exclusive groups might prevent women from reaching the top levels, which can exacerbate the effect of affinity bias (Evans & Maley, 2021; Hardies et al., 2013). For instance, a study of Hardies et al. (2021) shows that in a male-dominated audit firm, male partners often receive the more prestigious clients and assign their non-prestigious clients to their female counterparts. As a result of this, resources may be skewed towards male partners, and barriers may exist for female auditors to experience an equal level of support. This unbalanced support and skewed resource allocation may translate into different portfolio development for females compared to males, resulting in different levels of workload. Thus, we anticipate that while males and females should be able to handle similar levels of workload, the male-oriented culture may lead to male partners receiving more clients than their female counterparts when it comes to assigning clients to individual audit partners.

Second, female partners may also self-select to engage with fewer clients because of the pressure of work-life balance. Women perceive more pressure from society and family: they

[5] In recent years, more than half of accountants and auditing are women in the U.S, which is a dramatic increase from 39% in 1983 to 62% in 2021. The number seems that women have already successfully entered and made throughout this male-dominated industry. However, women are still shut out of leadership positions, and only around 32% of female partners represent CPA firms according to U.S statistics, which is not consistent with the number of female employees in accounting professions.

often interact with other parts of their life while working. Additionally, their non-work life is often perceived as important as their work-life (Powell & Mainiero, 1992). As a result, compared to male partners, female partners may be less busy with their career advancement because of work-life balance conflicts (Jonnergård et al., 2010). While female audit partners may have broken through the glass ceiling as "partners" and are more likely to be as ambitious as their male colleagues, they can still perceive work-life balance pressures which might prevent them from taking up many clients into their workload (Vianen & Fischer, 2002).

Compared with females, male partners may be more ambitious in extending their portfolio. (Huberman et al., 2004) in a cross-country experiment find that males perform more aggressively and react more strongly to status symbols than females. This status-seeking behavior can be reflected in male partners' pursuit of extending their portfolios. That is, males may be more likely to bring more clients into their portfolio with less consideration of the portfolio risk. Such a big portfolio that generates more audit fees can increase visibility among senior partners and may bring an individual a higher level of status (Gustafsod, 1998; Pham, 2005). This can also offer partners credibility in an audit firm: an extensive network of clients can help audit firms attract new clients, which could create potential value for audit firms. Thus, we anticipate that male partners may compete more to extend their portfolio, resulting in an unbalanced workload across gender (Gneezy et al., 2003).

Third, different evaluation standards may also apply to females compared to males, which can temper their ambition to extend their portfolio. That is, female auditors' performance might be assessed more strictly compared to male colleagues (Bauer & Baltes, 2002; Quadlin, 2018;

Rivera & Tilcsik, 2019). They will focus more on "doing the job well" rather than extending their personal network by adding more clients to their portfolio (Hetty van Emmerik et al., 2006; Klyver & Terjesen, 2007). Conversely, for male partners, the revenue-generating process by extending their portfolio to a large set of clients might be valued more positively, even though it might endanger audit quality. This potential difference in evaluation standards may encourage female partners to focus more on providing better audits by consciously controlling the number of clients in their portfolios. Therefore, they may constrain their portfolio to a more manageable set, resulting in a lower workload than their male counterparts.

Given the factors above, we predict our first hypothesis:

H1a: Female audit partners are associated with lower levels of workload compared to male audit partners.

Next, we investigate the differences between female and male partners at the allocation level. While female and male partners should have the same chance to obtain new clients, we anticipate that female partners may still be disadvantaged when it comes to receiving new clients in their portfolios. First, given the priority on "doing the job well", female partners may be more hesitant to accept new clients in their portfolio. These new clients may require female partners to skew their effort and time towards them, which may compromise the other clients' audits (Goodwin & Wu, 2016; López & Peters, 2011; Persellin et al., 2019; Sundgren & Svanström, 2014). Thus, female partners may be less likely to accept new clients to maintain their credibility of "doing the job well" in the audit firm. Second, the work-life pressure may also prevent female partners from accepting more new clients into their portfolios. Last,

compared with their female colleagues, male partners may be more likely to bring more new clients into their portfolio in terms of network and status concerns. As a result, given that they still face barriers in the audit profession, next to having lower levels of workload, we suspect that females compared to males might not catch up when it comes to assignments of new clients.

Given the factors above, we predict our second hypothesis:

H1b: Female audit partners are associated with fewer new clients compared to male audit partners.

2.3. Workload and audit quality

Engaging with more clients plays a key role in developing a partner's expertise and specialization (Anderson, 1982; Choo, 1996; Sarah E. Bonner & Barry L. Lewis, 1990). For instance, by interacting with clients, partners develop professional knowledge and skill sets in the area where they are seeking to position themselves.

However, if the workload is very high, the auditor, who is constrained by his/her working hours, might have to cut corners and may not perform audits carefully. When workload is high, auditors might have to sacrifice the audit procedures, which may hamper audit quality. For audit partners, the increase in the number of clients can pose a threat to their professional skepticism because they cannot devote sufficient time and effort to get sufficient evidence to support their judgment decisions. It can also encourage auditors to sacrifice auditor professional skepticism by strongly relying on the client-provided evidence (Bierstaker & Wright, 2001; Munro & Stewart, 2011) and by not further scrutinizing the evidence in sufficient detail as more tasks need to be handled within the same working hours. They may

also be more likely to act less on doubtful evidence, accept weak client explanations and consider less risk when they face time-related pressure (Coram et al., 2004; Leanne C. Gundry & Gregory A. Liyanarachchi, 2007). This skeptical judgement is important for audit quality in terms of financial reporting quality (Nagy, 2005), fraud risk assessments (Carpenter & Reimers, 2013; Payne & Ramsay, 2005), and evidence assessment (Hurtt et al., 2008).

Additionally, higher levels of workload can also lead auditors at a lower hierarchy to compromise on audit efforts when they feel the engagement partner for whom they work is constrained in terms of time. A reduction in the interaction and communication between engagement partners and relatively lower-ranked auditors is possible with an increased number of clients of audit partners. Fewer interactions can induce more obedience pressure. (DeZoort & Lord, 1994) document that auditors are more likely to breach their professional standards and less likely to question their superior's behavior when they face obedience pressure from superiors. Therefore, a high workload of audit partners can contribute to this audit quality-threatening behavior. In other words, audit quality might be sacrificed when partners face high levels of workload.

While a certain number of clients can be good for developing expertise, we suspect that higher levels of workload might lead people to sacrifice audit quality. Therefore, we formulate the following research question:

RQ: Do the higher level of the workload of engagement partners is negatively associated with audit quality

Given that female partners might constrain their portfolio to a more manageable set, we suspect that workload management could be a factor that explains why females render better audit quality. Next to exploring our research question, we also analyse whether the gender effect on audit quality (i.e., females delivering higher audit quality) still materializes when we control for the workload. We suspect that workload management is an important reason for why females perform better. That is, compared to female partners, males might take up (too) many clients, which might hamper their ability to deliver high audit quality (in terms of the financial reporting quality of their clients).

3. Research context, data, and design

3.1 Data selection

We use data from the Belgian setting for our study, because in Belgium all public and private firms of a certain size are required to have an auditor and are required to publish their financial statements with the Belgian National Bank[6]. In addition, the names of the audit firm and the engagement partner are disclosed in these financial statements (Dekeyser et al., 2021), allowing us to observe the entire portfolio of each partner and to get a complete picture of a partner's workload.

Our sample collection starts with all audited firms in Belgium from 2013 to 2020, for which we retrieve information on their auditor's identity from the historical copies of the Bel-

[6] Only "large" firms in Belgium are required to appoint a statutory auditor if more than one of the following criteria is exceeded or is listed on the stock exchange: a) annual average workforce: 50 employees; b) total assets: 4,500,000 EURO; c) turnover: 9,000,000 EURO (Source: https://www.nbb.be/en/central-balance-sheet-office/drawing/size-criteria/size-criteria-companies). This threshold is not very high. In other words, many small private firms are still required to appoint statutory audits.

first data[7]. This resulted in 891 unique audit partners. We exclude 230 single practitioners since there is no workload allocation process within single practitioners' firms[8]. This yields 661 partners who audit 28,297 unique clients from 2013 to 2020. We further remove 19 partners for which all clients have missing information or are active in the finance and insurance industry. We then collect audit partners' experience information from the Instituut van de Bedrijfsrevisoren[9] and remove 40 partners for which we could not identify the experience, resulting in 602 partners and a partner-year-firm sample of 3,747 observations. We identify auditor gender by *Namsor*[10], an application which predicts gender based on the country of origin and first and last name. Furthermore, two Belgian researchers reviewed and corrected the classification results. For auditors whose gender is identified as uncertain, we confirmed their gender through online resources manually (e.g., LinkedIn and bios on audit firms' websites).

For the estimation of abnormal accruals, we identify 269,235 client-year observations for 28,297 unique clients[11]. We eliminated observations with missing information needed for calculating abnormal accruals (n = 82,345). Then, we remove observations without industry code and clients in industries with less than six observations per industry-year (n = 326), resulting in a sample of 186,564 for which we calculate abnormal accruals.

Financial information for the clients of the partners is retrieved from Bel-first, resulting in a sample of 164,987 client-year observations. From this sample, we remove observations

[7] Bel-first only contains their most recent value of non-historical variables. To get the completed yearly auditor information, we downloaded the historical copies of Bel-first stored in KU Leuven.
[8] Single practitioners are auditors who do not belong to any audit firms in a certain year.
[9] Instituut van de Bedrijfsrevisoren only provides the lasted information relative to auditor registration. For the rest auditors who may be removed from the registration, we use the historical records to collect the data.
[10] *Namsor* is an online application that allows us to check audit partner's name for their gender. Link: https://namsor.app/
[11] Some clients do not have auditor information in the estimation sample.

with missing total assets (n = 10,571) and drop observations with missing audit fees (n = 35,042). The clients active in the finance and insurance industry are excluded from our data (n = 11,081).[12] We also exclude observations without audit partner experience information from our sample (n = 1,101). The final sample for our *H1a* is 107,192 client-year observations with 3,747 partner-year observations. Table 2 presents the sample selection process.

3.2 Empirical models and variables description

We test *H1a* with the following estimated model (1):

$$LOG\_NUM_{i,t} = \alpha_0 + \beta_1 * GENDER_i + Controls_{i,t} + Fixed\ Effects + \varepsilon \quad (1)$$

This model tests whether the workload (*LOG_NUM*) of engagement partner *i* in period *t* relates to the gender (*GENDER*) of engagement partner *i*. We measure partner's workload as *the number of clients per partner per year*. To measure a partner's client portfolio as completely as possible, we use the full sample to count the number of clients, i.e., including clients with missing financial data and clients in the financial and banking industry. *LOG_NUM* is measured by logging the *number of clients per partner per year*. *GENDER* is our variable of interest, which equals one if the audit partner is a woman, and zero if the partner is a man. Regarding *H1a*, we expect female partners to have a lower workload, and we predict a negative coefficient on *GENDER*. This model is estimated using ordinary least squares (OLS) with year-fixed effects.

[12] We employed Fama-French 5 industry classification as a reference to reclassify the industry code of NACEBEL.2008. The industry with financing and insurance activities is excluded before the reclassification.

We control for the size of the median client in each partner's portfolio (*SIZE_MEDIAN*), which we measured by the median value of the client's logged total assets for each partner's portfolio per year. We also control for the partners' experience (*LOG_EXPERIENCE*), which is measured by the logged number of years the audit partner has been officially registered. We also add the following portfolio-related risk controls: proportion of negative equity clients (*RISK_NEG_EQU*), whether the portfolio contains at least one client with a high risk of bankruptcy in terms of z-score (*RISK_ZSCORE*) and the number of public clients in the portfolio (*NUMBER_PUB)*. Following Gaeremynck et al. (2008)'s measurement of audit firms' portfolio characteristics, we add control variables for the financial health of each partner's portfolio using two different perspectives: profitability (*ROA_MEDIAN, CASH_MEDIAN,* and *OCF_MEDIAN*), and solvency (*AUTO_MEDIAN*). The former reveals the performance of the median clients in a partner's portfolio; the latter reveals the partner portfolio's long-term financial risk (Gaeremynck et al., 2008). We also include a variable at the portfolio level for whether the partner focuses on a limited set of client industries using the Herfindahl-Hirschman Index (*HHI*):

$$HHI = \sum_{i=1}^{N} PS_i^2 \quad (2)$$

We calculate the *HHI* according to the portfolio share percentage of industry *n* in the portfolio of partner *i* (*PS*) and express it as a whole number[13]. We define the partner's portfolio as concentration if his/her portfolio's *HHI* is above the median *HHI* of the firm (*IND_CON*).

[13] We first round the portfolio percentage into two digits, and then multiply by 100 to obtain the whole number.

Finally, we include *BIG4,* which is equal to one if the partner works in a Big 4 firm, zero otherwise[14].

We then test *H1b* with the following model:

$$LOG\_NUM\_NEW_{i,t} = \alpha_0 + \beta_1 * GENDER_i + Controls_{i,t-1} + Fixed\ Effects + \varepsilon \quad (2)$$

This model tests whether the number of new clients assigned to partner *i* (*LOG_NUM_NEW*) in period *t* relates to the gender (*GENDER*) of engagement partner *i*. Regarding *H1b*, we expect that female partners will have fewer new clients in their portfolio. We therefore predict a negative coefficient on *GENDER*. As Model 1, this model is estimated using ordinary least squares (OLS) with year-fixed effects.

We believe that the assignment of new clients depends on the partner's prior year portfolio. Thus, we include the partner's prior year portfolio characteristics by lagging all control variables used in Model 1. As a result, we lose 691 partner-year-firm observations, resulting in 3,056 partner-year-firm observations for testing H1b.

Finally, we test our additional research question (*RQ)* with the following model:

$$AUDIT\ QUALITY_{j,t} = \alpha_0 + \beta_1 * WORKLOAD_{i,t} + Controls_{j,t} + Fixed\ effects + \varepsilon \quad (3)$$

Following prior research (Bauwhede & Willekens, 2004; Reynolds & Francis, 2000), we use financial reporting quality to proxy for audit quality since "auditors are responsible for assuring a level of financial reporting quality that exceeds mechanical compliance with accounting standards (DeFond & Zhang, 2014)". We measure the audit quality by the absolute

[14] We have some partners that work for both Big4 and other firms at the same time. This type of partner is still considered involved in the workload allocation process in Big4 audit firms.

value of abnormal accruals (*ABS_AB_ACC*) for client *j* in year *t* following the modified Jones' model (Dechow et al., 1995). As noted, we estimate client's discretionary accruals using a full sample that includes clients without auditors.

In line with prior research (Jong-Hag Choi et al., 2010; Reichelt & Wang, 2010), we control for client size (*SIZE*), whether the client is audited by a Big 4 firm (*BIG4*), the return on assets (*ROA*), the z-score (*ZSCORE*), the leverage (*LEV*), whether the client is audited by an audit firm who is an industry specialist (*SPE_FIRM*), whether the client is audited by the partner who is an industry specialist (*SPE_PARTNER*), for the potential difference in audit quality for negative-income reporting clients and positive income reporting clients (*NEG_INCOME*), and whether the client is publicly listed (*PUB*). We include operating cash flows (*OCF*) and scaled cash and cash equivalents (*CASH*) to control for the potential correlation between accruals and cash. We also control for the partners' experience (*LOG_EXPERIENCE*), which is measured by the logged number of years the audit partners have been certified as public accountants. We estimate model (3) uses ordinary least squares (OLS) with year- and industry-fixed effects.

We use two types of industry codes in the model. For the variables related to the individual specialization (i.e., *IND_CON* and *SPE_PARTNER*), we employ the Fama-French 5 industry classification. This is a broader industry code which aligns with the practice of audit firms that use broader industries than in the academic setting (Renders et al., 2022). We use the NACEBEL.2008 as the industry code for the variable related to the market share (i.e., *SPE_FIRM*).

All the continuous variables are winsorised at 1% and 99% percentile by year and industry. Table 1 in the Appendix provides more details about the measurement of all variables.

4. Primary Results

4.1 Descriptive statistics

Our sample consists of 112 female partners and 490 male partners, so females account for 18.60% of our sample for *H1a*. Due to the lagged variables, we lose 8 female partners and 23 male partners, resulting in a smaller sample of 571 partners for *H1b*. Table 3 presents descriptive statistics for all variables used in our analyses.

Table 3, Panel A presents the characteristics of the partner portfolio characteristics. The average workload of engagement partners (*NUMBER*) is 43.449 clients. And the average experience is 17.674 years (females have slightly less experience than males). Panel A also tabulates the portfolio composition by gender. Consistent with our expectations, male partners have significantly more clients (higher workload) than female partners (3.241 vs. 2.912 in terms of the logged number of clients, p-value = 0.000; 45.201 vs. 35.039 in terms of the number of clients, p-value =0.000). Male partners also have risker portfolios than female auditors per year in terms of *RISK_ZSCORE* (0.176 vs. 0.156; p-value = 0.003). However, the size of the median clients for female partners is significantly higher than their male counterparts (16.263 vs. 16.193; p-value = 0.071), which is consistent with the statistics in Panel B that also indicate that female partners have on average larger clients than male partners (16.182 vs. 16.123; p-value = 0.000). In addition, female partners are more likely to have an industry-

concentrated portfolio than male partners: 53.6% of female partners have portfolios concentrated in a few industries compared to 45.3% of male partners (p-value = 0.000).

Table 3, Panel B presents the differences in client characteristics between female and male engagement partners. As discussed in Panel A, female partners have larger clients than male partners (16.182 vs. 16.123; p-value = 0.000). In addition, clients of female partners are significantly less profitable than male partners (0.015 vs. 0.019 in terms of return on assets (*ROA*); p-value = 0.035). However, we also note that clients of female partners are more highly leveraged (0.749 vs. 0.714; p-value = 0.000) and more likely to be publicly listed (0.007 vs. 0.006; p-value = 0.065). In addition, clients of female auditors are more likely to be audited by industry specialist audit firms (0.024 vs. 0.017; p-value = 0.000).

Table 4, Panel A presents the correlation matrix for the variables used in the portfolio analysis. Consistent with our hypothesis *H1a*, we find a negative correlation between female partners (*GENDER)* and workload (*NUMBER)* (-0.105). The partner's workload (*NUMBER*) is positively correlated with the risk factors in terms of the proportion of clients with negative equity (*RISK_NEG_QUA*) (0.413); the proportion of clients with bankruptcy risk (*RISK_ZSCORE*) (0.238), and the number of public companies in the portfolio (*NUMBER_PUB*) (0.315). However, partner workload is negatively correlated with the profitability and solvency of the portfolio (*ROA_MEDIAN*: -0.043; *AUTO_MEDIAN*: -0.106; *CASH_MEDIAN*: -0.235; *OCF_MEDIAN*: -0.077), and our measure of portfolio concentration (*IND_CON*) (-0.332).

Panel B of Table 4 presents the correlation matrix for the audit quality analysis. Workload (*NUMBER*) is positively correlated with our auditor quality indicator (*ABS_AB_ACC*) (0.035), which means negatively correlated with audit quality. The other controls are all significantly correlated with the audit quality indicator[15].

4.2 Regression results

4.2.1 Workload analysis (H1a)

Table 5 presents the regression results of the portfolio analysis. The coefficient on *GENDER* is negative and significant in the full sample (Column 1, -0.227, p-value = 0.000). In economic terms, the portfolios of female partners consist of about 20.31% fewer clients. This supports the prediction in *H1a* that female partners are associated with fewer clients compared with their male counterparts.

Furthermore, the coefficients on all control variables are significant in Column 1 in Table 5 except *RISK_NEG_EQU* and *RISK_ZSCORE*. We find that partners from Big 4 firms have a higher level of workload (0.557, p-value = 0.000). Furthermore, partners who audit public clients have a higher workload. Conversely, the coefficients on *SIZE_MEDIAN* and *IND_CON* show that partners have fewer clients when the size of the median client in their portfolio is larger and when their portfolios are industry focused. In addition, the coefficient on *CASH_MEDIAN*, *OCF_MEDIAN* and *AUTO_MEDIAN* suggest that partners' workloads are negatively associated with their clients' current performance and are positively associated with

[15] We also compute the variance inflation factors (VIF) in the portfolio analysis and audit quality analysis models. The results show that all VIF factors are smaller than 2.000. We thus conclude that there are no concerns with multicollinearity in our sample.

their clients' long-term financial risk. The coefficient on *EXPERIENCE_LOG* is significant and positive, which suggests that "the bigger becomes bigger", i.e., partners with more experience are more likely to have more clients.

We then run our model for Big 4 and non-Big 4 firms separately. Big4 firms might be more centralized and systematic in terms of client allocation compared with Non-Big 4 firms, which may mitigate the effect of affinity bias towards to males. In addition, a centralized allocation system reduces the opportunities for male Big4 partners to intervene in the workload allocation process. Furthermore, because Big4 firms have more clients than Non-Big 4 firms, competition between partners in Big 4 firms may be reduced as there will be a high demand for engagement partners from clients. The coefficients on *GENDER* in Columns 2 and 3 are both significant and negative, suggesting that female partners are more likely to be allocated to or self-select to fewer clients in both Big 4 and Non-Big4 firms (Big 4: -0.174, p-value = 0.014; Non-Big 4: -0.275, p-value = 0.000). However, the coefficient of *GENDER* in the Non-Big 4 sample is significantly more negative than in the Big 4 sample (p-value: Big 4: 0.014; Non-Big 4: 0.000), which shows that the workload gap between males and females is smaller in Big 4 firms.

4.2.2 New client allocation (H1b)

Table 6 presents the results from our analysis of new client allocation. We find a negative and significant coefficient of *GENDER* in Column 1 (-0.168, p-value = 0.000), which shows that female partners audit fewer new clients (15.46% fewer). This result supports our prediction in *H1b* that gender has an influence on the workload allocation process of new clients. These

results also show that the gender gap in workload is not only driven by historical client allocation to partners but also negatively affects current workload allocation.

We further test whether the allocation of new clients is different for Big 4 and non-Big 4 firms. We therefore rerun Model 2 on the subsamples of Big 4 firms and Non-Big 4 firms. The results show that the coefficients on *GENDER* in Columns 2 and 3 are both significant and negative, implying that female partners are more likely to audit fewer new clients in both Big4 and Non-Big4 firms (BIG4: -0.137, p-value = 0.031); Non-BIG4: -0.209, p-value = 0.000). However, the gender difference in the allocation of new clients is smaller in Big 4 compared to Non-Big 4 firms (p-value: Big 4: 0.031; Non-Big 4: 0.000).

4.2.3 Audit quality analysis (RQ)

We next examine whether workload affects audit quality. The results in Column 1, Table 7 reveal that the partners' workload, *LOG_NUM*, is a significant determinant of audit quality after controlling for the client characteristics. The estimated coefficient of 0.006 means that, on average, the absolute abnormal accruals increase with 0.6% when the number of clients in the partner's portfolio increase with 1%. Thus, we conclude that higher workload is negatively associated with audit quality, measured by the absolute value of abnormal accruals. Our results are also consistent with pervious literature that the audit quality can be impaired when the auditors are business in terms of the number of clients (Goodwin and Wu 2016; Sundgren and Svanström 2014).

The coefficients on the control variables are consistent with previous literature except for *BIG4* and *SPE_FIRM* (Jong-Hag Choi et al., 2010; Reichelt & Wang, 2010). The coefficient

on *BIG4* and *SPE_FIRM* is significantly positive, suggesting Big 4 firms and firms who are industry specialists are not always of higher quality than other small auditing firms in Belgium[16] [17]. The coefficients on *LOG_NUM* in Columns 2 and 3 show that higher workload is associated with lower audit quality in both Big 4 and Non-Big 4 firms.

5. Supplementary and sensitivity analysis

5.1 Gender effect on audit quality via workload

We further examine whether gender affects audit quality through the different workloads of female and male partners. We test the direct effect of gender on audit quality by running a regression of *GENDER* on *ABS_AB_AC*. The results in Column 1, Table 8 suggest that female partners provide a higher level of audit quality (-0.003, p-value = 0.062). Next, we include workload (*LOG_NUM*) to investigate whether the female audit quality effect is driven by their different workload. Column 2, Table 8 shows that the coefficient on *GENDER* is insignificant (but still negative) (-0.002, p-value = 0.250), signifying that gender is not associated with audit quality when controlling for partner workload. Combined with our findings that females have a lower workload (*H1a*), and that lower workloads are associated with higher audit quality (*RQ*), these results suggest that female partners provide higher quality because they audit fewer

[16] We also run a regression with control variables *Big 10*, which is equal to 1 if the client is audited by any of the 10 big audit firms in Belgium in terms of the summed total assets of the audit firm' clients. The results are unchanged and *Big 10* have a positive effect on absolute abnormal accruals.

[17] We draw different inferences with the intuition that bigger audit firms mean superior because the auditors within are more independent and are more concerned about reputation to loss (Deangelo, 1981). (Bauwhede & Willekens, 2004) also find a similar result that there is a lack of audit-quality differentiation in the private client segment in Belgium.
The significant and positive coefficient on *SPE_FIRM* is also not in line with previous U.S audit quality studies. Belgium is a private-demined audit market. The audit firm can be industry specialization only when it have a lot of private clients in that industry. This could increase the overall audit partners' workload in these firm, and thus reduce audit quality.

clients. We do not find an incremental effect of partner gender on audit quality when controlling for workload.[18]

We then run this model for Big 4 firms and Non-Big 4 firms separately. Our results in Table 8 Columns 3 and 4 suggest that Big 4 female partners are more likely to deliver higher-quality audit (-0.006, p-value = 0.010), but this effect is slightly weaker (-0.005, p-value = 0.043) after adding workload (*LOG_NUM*) to the model. These results suggest that a portion of the higher quality delivered by female Big 4 partners can be explained by their lower workload. However, we also find that Big 4 female partner have incrementally higher audit quality after controlling for workload. Hence, the difference in audit quality between males and females cannot be completely explained in Big 4 firms by their different workloads. The coefficient of *GENDER* on workload is insignificant in Columns 5 and 6, suggesting that the Non-Big 4 female partners do not have a higher quality than their male counterparts despite their lower workloads. We posit that this finding can be explained by the relatively smaller number of clients audited by non-Big 4 partners. That is, while females have fewer clients than males in Non-Big 4 firms, the latter still have fewer clients than male Big 4 partners. The higher workload of male partners compared to female partners in Non-Big 4 firms may not be high enough to impair their audit quality. That is because, while those male partners have a relatively higher workload compared with Non-Big 4 female partners, their workload is still manageable compared with the workload of engagement partners in Big 4[19].

[18] Unfortunately, we cannot directly run the Sobel test or mediation test to investigate the mediation effect of workload on the association between gender and audit quality. The reason is we cannot test the effect of gender on the workload at the client engagement level, resulting in different samples in Model 1 and Model 3.9

[19] We run the t-test for male partners' average workload between Big 4 and Non-Big 4. The results show that the average

5.2 The effect of audit partner's experiences across partner's gender

We then examine whether the audit partner's experience influences the gender effect on workload. In general, a more experienced auditor has a higher reputation, bargaining power, and expertise. As a result, experienced partners are more likely to audit more clients, which is confirmed by our results in Table 6. However, because females have on average less experience, experience may affect the gender differences in workload. In order to test this possibility, we interact *GENDER* with *EXPERIENCE* in Model 1 and calculate the Estimated Marginal Means (EMMs) of workload at different levels of *EXPERIENCE* by *GENDER*, and test for the effect of *EXPERIENCE* separately for males and females with a simple slope analysis.

First, we find a significant positive coefficient of *GENDER*EXPERIENCE* on workload in both Big 4 and Non-Big 4 firms (Table 9, Panel A), which signifies that the gender difference in workload becomes smaller with increasing levels of partner experience. The results of EMMs (Table 9, Panel B, Full Sample) show that the estimated *LOG_NUM* for females with *EXPERIENCE* one standard deviation above the mean is 3.400; for females with *EXPERIENCE* one standard deviation below the mean is 2.770. These results signify that there is a substantial difference in workload for female partners across various levels of experience. However, this difference is much smaller for male partners. For males with more *EXPERIENCE*, the estimated workload is 3.290 while males with lower *EXPERIENCE* have an estimated workload of 3.230. Figure 1 shows that the slope of *EXPERIENCE* on workload for females is significantly larger than for males (difference = 0.031; p-value < 0.001). These

number of clients for male partners in Non-BIG4 is 36.071, which is significantly lower than those of male partners in BIG4 (59.743).

results support our anticipation that experience could mitigate the negative association between females and workload, but also suggest that female partners have to accumulate longer working experience compared with their male colleagues to get to a similar level of workload. In addition, we observe differences between Big 4 and Non-Big 4 firms. While we find that females in both Big 4 and Non-Big 4 firms have especially lower workload in the early stages of their career, experienced female partners in both Big 4 and Non-Big 4 firms eventually have a similar level of workload as their male counterparts. Furthermore, experienced female partners in Big 4 firms even obtain higher levels of workload compared to experienced male partners (difference in Big 4 = 0.059, p-value < 0.001; difference in Non-Big 4 = 0.022, p-value < 0.000).

5.3 Robustness tests

To test the robustness of our results, we implement several sensitivity checks with respect to the dependent, test and control variables.

First, in the analysis of *H1a*, we define workload as the number of clients per partner per year in the previous analysis. One potential risk of this measurement is that the partner may have a lot of small clients. Therefore, we measure workload differently by taking the summed value of partner portfolio's total assets and total audit fees. The results of summed total assets as a proxy of workload are consistent with those in Table 5. However, the coefficient of *GENDER* is not significant (but still negative) when we use the partner's summed total audit fees as a proxy of workload. The latter is not unexpected – female partners in the Belgium audit market earn fee premiums (Hardies et al., 2015), and they can earn similar audit fees with fewer

clients. Hence, the fee premium may narrow the workload gap between female and male partners when we measure workload by female and male partners' total audit fees.

Second, in the analysis of *H1b*, we introduce an additional control variable – the percentage of female partners per audit firm – to control for the fact that some firms might have few females to assign clients to. The results are consistent with those in Table 6.

Another concern in examining the association between partners' gender and new client allocation is that not all partners have the same chance to get new clients because their prior-year portfolio is different. Although we control for the differences in the portfolio composition in our model, this may not be adequate to fully alleviate this concern. Therefore, we provide further analysis using propensity score matching (PSM) (Caliendo & Scheel-Kopeinig, 2008). We create a sample of 1,046 partner-year observations with female and male partners whose portfolios are similar[20]. Then we rerun Model 2 using the matched sample. The results are consistent with those in Table 6.

Lastly, we rerun our audit quality models using the different proxies for workload discussed above, and we introduce another method to measure the workload by using Model 1. That is, we try to capture the abnormal workload per partner by estimating the residual value of Model 1. We then test the effect of abnormal workload on audit quality. These additional test yields similar results to those in Table 7 and signifies that the audit quality increases when the partner is under-assigned.

[20] We use the partner's previous year's portfolio characteristics, including *SIZE_MEDIAN_LAG, RISK_NEG_EQU_LAG, RISK_ZSCORE_LAG, ROA_MEDIAN_LAG, AUTO_MEDIAN_LAG, CASH_MEDIAN_LAG, OCF_MEDIAN_LAG* and *NUMBER_PUB_LAG* to match a similar sample.

6. Conclusion

In this study, we examine gender differences in the workload allocation process within audit firms. Using data from the entire Belgium audit market, we find that female partners have fewer clients than their male colleagues, either because they are assigned fewer clients or self-select to audit fewer clients. This difference is also reflected in the allocation process of new clients, i.e., despite having fewer clients, female partners are also assigned fewer new clients. We find that this effect is particularly present in the early stages of a partner's career. For experienced partners, we do not find gender differences in the partner's workload. Overall, results suggest that the workload allocation is different for female partners compared to male partners. Our findings open up the black box of audit firm's organizational operations by demonstrating that gender plays an important role in the workload allocation process (Francis, 2011). Furthermore, the gender effect on workload allocation is also reflected in the audit outcome – audit quality: females provide higher quality, an effect that can at least partially be explained by their smaller workload. When we control for workload, we do not find a gender effect on audit quality in Non-Big 4 firms. However, our results show that female partners still demonstrate higher audit quality in Big 4 firms. This finding might be used to help audit firms and regulators foster better portfolio management and audit quality.

Our study is subject to some limitations. First, we do not have the actual working hours in total for each partner, which means we cannot observe whether the partners are working full-time or part-time. While both female and male partners can choose to work full-time or part-time, women's tendency to work part-time may be stronger than their male counterparts to keep

a work-life balance, resulting in a lower workload among female partners. Hence, we cannot test whether our results are driven by females self-selecting to audit fewer clients or whether audit firms assign fewer clients to females. Second, our results might be subject to some unobservable selection bias because partners involved in the firm's management may also choose to engage fewer clients. Third, as indicated in Section 5, we cannot run the real Sobel test or mediation test for the effect of workload on the relationship between gender and audit quality because of the different samples for the portfolio analysis and audit quality analysis. Fourth, it is an open question as to what extent we can generalize the findings from a single audit market to other markets. Last, our study provides opportunities for future research to go further in exploring the elements that affect audit firms' judgement and female partners' choice in terms of workload allocation.

Reference:

Abdolmohammadi, M. J., Searfoss, D. G., & Shanteau, J. (2004). An Investigation of the Attributes of Top Industry Audit Specialists. *Behavioral Research in Accounting*, *16*, 1–17.

Almer, E. D., Harris, M. K., Higgs, J. L., & Rakestraw, J. R. (2021). Partner Gender Differences in Prestige of Clients Served at the Largest U.S. Audit Firms. *Journal of Business Ethics*, *173*(2), 401–421. https://doi.org/10.1007/s10551-020-04532-2

Anderson, J. R. (1982). Acquisition of cognitive skill. *Psychological Review*. https://doi.org/10.1037/0033-295x.89.4.369

Anzai, Y., & Simon, H. A. (1979). The theory of learning by doing. *Psychological Review*, *86*, 124–140. https://doi.org/10.1037/0033-295X.86.2.124

Bauer, C. C., & Baltes, B. B. (2002). Reducing the Effects of Gender Stereotypes on Performance Evaluations. *Sex Roles*, *47*(9), 465–476. https://doi.org/10.1023/A:1021652527696

Bauwhede, H. V., & Willekens, M. (2004). Evidence on (the lack of) audit-quality differentiation in the private client segment of the belgian audit market. *European Accounting Review*, *13*(3), 501–522. https://doi.org/10.1080/0963818042000237106

Bierstaker, J. L., & Wright, A. (2001). The effects of fee pressure and partner pressure on audit planning decisions. *Advances in Accounting*, *18*, 25–46. https://doi.org/10.1016/S0882-6110(01)18004-1

Breesch, D., & Branson, J. (2009). The Effects of Auditor Gender on Audit Quality. *IUP Journal of Accounting Research & Audit Practices*, *8*(3/4), 78–107.

Caliendo, M., & Scheel-Kopeinig, S. (2008). Some Practical Guidance For the Implementation of Propensity Score Matching. *Journal of Economic Surveys*, *22*, 31–72. https://doi.org/10.1111/j.1467-6419.2007.00527.x

Carpenter, T. D., & Reimers, J. L. (2013). Professional Skepticism: The Effects of a Partner's Influence and the Level of Fraud Indicators on Auditors' Fraud Judgments and Actions. *Behavioral Research in Accounting*, *25*(2), 45–69. https://doi.org/10.2308/bria-50468

Choo, F. (1996). Auditors' knowledge content and judgment performance: A cognitive script approach. *Accounting Organizations and Society*. https://doi.org/10.1016/0361-3682(95)00048-8

Coram, P., Ng, J., & Woodliff, D. R. (2004). The Effect of Risk of Misstatement on the Propensity to Commit Reduced Audit Quality Acts under Time Budget Pressure. *AUDITING: A Journal of Practice & Theory*, *23*(2), 159–167. https://doi.org/10.2308/aud.2004.23.2.159

Deangelo, L. E. (1981). Auditor size and audit quality. *Journal of Accounting and Economics*, 183–199.

Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1995). Detecting Earnings Management. *The Accounting Review*, *70*(2), 193–225.

DeFond, M., & Zhang, J. (2014). A review of archival auditing research. *Journal of Accounting and Economics*, *58*(2), 275–326. https://doi.org/10.1016/j.jacceco.2014.09.002

Dekeyser, S., Gaeremynck, A., Knechel, W. R., & Willekens, M. (2021). The Impact of Partners' Economic Incentives on Audit Quality in Big 4 Partnerships. *Accounting Review*, *96*(6), 129–152. https://doi.org/10.2308/TAR-2018-0109

DeZoort, F. T., & Lord, A. T. (1994). An investigation of obedience pressure effects on auditors' judgments. *Behavioral Research in Accounting*, *6*, 1. Business Source Ultimate.

DiTomaso, N., Post, C., & Parks-Yancy, R. (2007). Workforce Diversity and Inequality: Power, Status, and Numbers. *Annual Review of Sociology*, *33*(1), 473–501. https://doi.org/10.1146/annurev.soc.33.040406.131805

Evans, K. J., & Maley, J. F. (2021). Barriers to women in senior leadership: How unconscious bias is holding back Australia's economy. *Asia Pacific Journal of Human Resources*, *59*(2), 204–226. https://doi.org/10.1111/1744-7941.12262

Francis, J. R. (2011). A Framework for Understanding and Researching Audit Quality. *AUDITING: A Journal of Practice & Theory*, *30*(2), 125–152. https://doi.org/10.2308/ajpt-50006

Gaeremynck, A., Van Der Meulen, S., & Willekens, M. (2008). Audit-Firm Portfolio Characteristics and Client Financial Reporting Quality. *European Accounting Review*, *17*(2), 243–270. https://doi.org/10.1080/09638180701705932

Gneezy, U., Niederle, M., & Rustichini, A. (2003). Performance in Competitive Environments: Gender Differences*. *The Quarterly Journal of Economics*, *118*(3), 1049–1074. https://doi.org/10.1162/00335530360698496

Goodwin, J., & Wu, D. (2016). What is the Relationship Between Audit Partner Busyness and Audit Quality? *Contemporary Accounting Research*, *33*(1), 341–377. https://doi.org/10.1111/1911-3846.12129

Gustafsod, P. E. (1998). Gender Differences in Risk Perception: Theoretical and Methodological erspectives. *Risk Analysis*, *18*(6), 805–811. https://doi.org/10.1111/j.1539-6924.1998.tb01123.x

Hardies, K., Breesch, D., & Branson, J. (2013). Gender Inequality in Small and Large Audit Firms. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.2254268

Hardies, K., Breesch, D., & Branson, J. (2015). The Female Audit Fee Premium. *Auditing: A Journal of Practice & Theory*, *34*(4), 171–195. https://doi.org/10.2308/ajpt-51079

Hardies, K., Breesch, D., & Branson, J. (2016). Do (Fe)Male Auditors Impair Audit Quality? Evidence from Going-Concern Opinions. *European Accounting Review*, *25*(1), 7–34. https://doi.org/10.1080/09638180.2014.921445

Hardies, K., & Khalifa, R. (2018). Gender is not "a dummy variable": A discussion of current gender research in accounting. *Qualitative Research in Accounting & Management*, *15*(3), 385–407. https://doi.org/10.1108/QRAM-08-2017-0083

Hardies, K., Lennox, C., & Li, B. (2021). Gender Discrimination? Evidence from the Belgian Public Accounting Profession*. *Contemporary Accounting Research*, *38*(3), 1509–1541. https://doi.org/10.1111/1911-3846.12667

Harymawan, I., Nasih, M., & Noeraini, D. H. (2019). *Does a Female Audit Engagement Partner Offer Higher Audit Quality?* (SSRN Scholarly Paper No. 3561541). https://papers.ssrn.com/abstract=3561541

Hetty van Emmerik, IJ., Euwema, M. C., Geschiere, M., & Schouten, M. F. A. G. (2006). Networking your way through the organization: Gender differences in the relationship between network participation and career satisfaction. *Women in Management Review*, *21*(1), 54–66. https://doi.org/10.1108/09649420610643411

Huberman, B. A., Loch, C. H., & ÖNçüler, A. (2004). Status As a Valued Resource. *Social Psychology Quarterly*, *67*(1), 103–114. https://doi.org/10.1177/019027250406700109

Hurtt, K., Eining, M. M., & Plumlee, D. (2008). *An Experimental Examination of Professional Skepticism* (SSRN Scholarly Paper No. 1140267). https://doi.org/10.2139/ssrn.1140267

Jones, J. J. (1991). Earnings Management During Import Relief Investigations. *Journal of Accounting Research*, *29*(2), 193–228. https://doi.org/10.2307/2491047

Jong-Hag Choi, Kim, C. (Francis), Jeong-Bon Kim, & Yoonseok Zang. (2010). Audit Office Size,Audit Quality, and Audit Pricing. *Auditing: A Journal of Practice & Theory*, *29*(1), 73–97. https://doi.org/10.2308/aud.2010.29.1.73

Jonnergård, K., Stafsudd, A., & Elg, U. (2010). Performance Evaluations as Gender Barriers in Professional Organizations: A Study of Auditing Firms. *Gender, Work & Organization*, *17*(6), 721–747. https://doi.org/10.1111/j.1468-0432.2009.00488.x

Kacanski, S., Lusher, D., & Wang, P. (2021). Auditor Selection Process: An Interplay of Demand Mechanisms – A Multilevel Network Approach. *European Accounting Review*, *30*(1), 115–142. https://doi.org/10.1080/09638180.2020.1740755

Klyver, K., & Terjesen, S. (2007). Entrepreneurial network composition: An analysis across venture development stage and gender. *Women in Management Review*, *22*(8), 682–688. https://doi.org/10.1108/09649420710836344

Knechel, W. R., Niemi, L., & Zerni, M. (2013). Empirical Evidence on the Implicit Determinants of Compensation in Big 4 Audit Partnerships. *Journal of Accounting Research*, *51*(2), 349–387. https://doi.org/10.1111/1475-679X.12009

Leanne C. Gundry & Gregory A. Liyanarachchi. (2007). Time budget pressure, auditors' personality type, and the incidence of reduced audit quality practices. *Pacific Accounting Review*. https://doi.org/10.1108/01140580710819898

Lennox, C. S., & Wu, X. (2018). A Review of the Archival Literature on Audit Partners. *Accounting Horizons*, *32*(2), 1–35. https://doi.org/10.2308/acch-51942

Lindberg, D. L., & Maletta, M. J. (2003a). *An Examination of Memory Conjunction Errors in Multiple Client Audit Environments* (SSRN Scholarly Paper No. 350020). https://papers.ssrn.com/abstract=350020

Lindberg, D. L., & Maletta, M. M. (2003b). An Examination of Memory Conjunction Errors in Multiple Client Audit Environments. *AUDITING: A Journal of Practice & Theory*, *22*(1), 127–141. https://doi.org/10.2308/aud.2003.22.1.127

López, D. M., & Peters, G. F. (2011). Auditor Workload Compression and Busy Season Auditor Switching. *Accounting Horizons*, *25*(2), 357–380. https://doi.org/10.2308/acch-10026

Løwendahl, B. R., Revang, Ø., & Fosstenløkken, S. M. (2001). Knowledge and Value Creation in Professional Service Firms: A Framework for Analysis. *Human Relations*, *54*(7), 911–931. https://doi.org/10.1177/0018726701547006

McPherson, M., Smith-Lovin, L., & Cook, J. M. (2001). Birds of a Feather: Homophily in Social Networks. *Annual Review of Sociology*, *27*(1), 415–444. https://doi.org/10.1146/annurev.soc.27.1.415

Munro, L., & Stewart, J. (2011). External auditors' reliance on internal auditing: Further evidence. *Managerial Auditing Journal*, *26*(6), 464–481. https://doi.org/10.1108/02686901111142530

Nagy, A. L. (2005). Mandatory Audit Firm Turnover, Financial Reporting Quality, and Client Bargaining Power: The Case of Arthur Andersen. *Accounting Horizons*, *19*(2), 51–367. https://doi.org/10.2308/acch.2005.19.2.51

Payne, E. A., & Ramsay, R. J. (2005). Fraud risk assessments and auditors' professional skepticism. *Managerial Auditing Journal*, *20*(3), 321–330. https://doi.org/10.1108/02686900510585636

Persellin, J. S., Schmidt, J. J., Vandervelde, S. D., & Wilkins, M. S. (2019). Auditor Perceptions of Audit Workloads, Audit Quality, and Job Satisfaction. *Accounting Horizons*, *33*(4), 95–117. https://doi.org/10.2308/acch-52488

Pham, T. K. C. (2005). Economic growth and status-seeking through personal wealth. *European Journal of Political Economy*, *21*(2), 407–427. https://doi.org/10.1016/j.ejpoleco.2004.10.001

Powell, G. N., & Mainiero, L. A. (1992). Cross-Currents in the River of Time: Conceptualizing the Complexities of Women's Careers. *Journal of Management*, *18*(2), 215–237. https://doi.org/10.1177/014920639201800202

Quadlin, N. (2018). The Mark of a Woman's Record: Gender and Academic Performance in Hiring. *American Sociological Review*, *83*(2), 331–360. https://doi.org/10.1177/0003122418762291

Reichelt, K. J., & Wang, D. (2010). National and Office-Specific Measures of Auditor Industry Expertise and Effects on Audit Quality. *Journal of Accounting Research*, *48*(3), 647–686. https://doi.org/10.1111/j.1475-679X.2009.00363.x

Renders, A., Smeets, B., Vanstraelen, A., & Vorst, P. (2022). *Auditor Industry Specialists and the Ability of Accruals to Predict Future Cash Flows* (SSRN Scholarly Paper No. 3981609). https://doi.org/10.2139/ssrn.3981609

Reynolds, J. K., & Francis, J. R. (2000). Does size matter? The influence of large clients on office-level auditor reporting decisions. *Journal of Accounting and Economics*, *30*(3), 375–400. https://doi.org/10.1016/S0165-4101(01)00010-6

Rivera, L. A., & Tilcsik, A. (2019). Scaling Down Inequality: Rating Scales, Gender Bias, and the Architecture of Evaluation. *American Sociological Review*, *84*(2), 248–274. https://doi.org/10.1177/0003122419833601

Sarah E. Bonner & Barry L. Lewis. (1990). Determinants of Auditor Expertise. *Journal of Accounting Research*. https://doi.org/10.2307/2491243

Standing Advisory Group Meeting - Initiatives to Improve Audit Quality - Root Cause Analysis, Audit Quality Indicators, and Quality Control Standards. (2014). Retrieved from Washington, DC: https://pcaob-assets.azureedge.net/pcaob-dev/docs/default-source/news/events/documents/0624252014_sag_meeting/06242014_aqi.pdf?sfvrsn=98cc7fa b_0

Sundgren, S., & Svanström, T. (2014). Auditor-in-Charge Characteristics and Going-concern Reporting. *Contemporary Accounting Research*, *31*(2), 531–550. https://doi.org/10.1111/1911-3846.12035

Vianen, A. E. M., & Fischer, A. H. (2002). Illuminating the glass ceiling: The role of organizational culture preferences. *Journal of Occupational and Organizational Psychology*, *75*(3), 315–337. https://doi.org/10.1348/096317902320369730

Wilson-Taylor Associates, Inc., 2021 Accounting MOVE Project Report (2019): p. 8.

Yang, S., Liu, Y., & Mai, Q. (2018). Is the quality of female auditors really better? Evidence based on the Chinese A-share market. *China Journal of Accounting Research*, *11*(4), 325–350. https://doi.org/10.1016/j.cjar.2018.07.004

Appendix:

Table 1: Variable Definition

Variable Name	Variable Definition
Variables of interest	
NUMBER	The number of clients per partner is the yearly number of clients per partner per audit firm. *NUMBER* is measured with the full dataset, including observations with missing value and industries with industry financing and insurance activities.
LOG_NUM	The number of clients per partner is the yearly number of clients per partner per audit firm. *NUMBER* is measured with the full dataset, including observations with missing value and industries with industry financing and insurance activities. *LOG_NUM* is the natural logarithm of *NUMBER*.
LOG_NUM_NEW	The number of new clients per partner is the yearly number of new clients per partner per audit firm. *NUMBER* is measured with the full dataset, including observations with missing value and industries with industry financing and insurance activities. *LOG_NUM_NEW* is the natural logarithm of *NUMBER*.
ABS_AB_ACC	Absolute abnormal accruals, estimated using the modified Jones model (Dechow et al., 1995; Jones, 1991): $\frac{TA_{i,t}}{A_{i,t-1}} = \beta_0 + \beta_1 \frac{1}{A_{i,t-1}} + \beta_2 \frac{\Delta Rev_{i,t} - \Delta Rec_{i,t}}{A_{i,t-1}} + \beta_3 \frac{\Delta PPE_{i,t}}{A_{i,t-1}} + \varepsilon_{i,t}$, where $TA_{i,t} = \Delta CA_{i,t} - \Delta Cash_{i,t} - \Delta CL_{i,t} + \Delta STD_{i,t} - Dep_{i,t}$, A is the client's total assets, ΔRev is the change in revenues, ΔRec is the change in receivables, ΔPPE is the change in property, plant and equipment, ΔCA is the change in current assets, $\Delta Cach$ is the change in cash and cash equivalents, ΔCL is the change in current liabilities, ΔSTD is the change in debt including in current liabilities or short-term debt. *ABS_AB_ACC* is the residual value of the estimation model. The model is estimated separately for each industry and calendar year using data available on all firms that are supposed to have auditors from *Bel-first*. The higher the *ABS_AB_ACC*, the lower the audit quality.
GENDER	Dummy variable, equal to 1 for female partner and zero otherwise.
Control variables	
Portfolio-level controls	
BIG4	Dummy variable, equal to 1 for the partner who works in Big 4, zero otherwise.
EXPERIENCE	The year between the partner's registration year (reported in Instituut van de Bedrijfsrevisoren) and the observation year.
EXPERIENCE_LOG	The logged value of (*EXPERIENCE* + 1).
SIZE_MEDIAN	The median value of the client's logged total assets for each partner portfolio.
RISK_NEG_EQU	Risk score, measured by the proportion of the negative equity in the partner portfolio in terms of the number of clients.
RISK_ZSCORE	Risk score, measured by the proportion of clients with bankruptcy risk in the partner portfolio in terms of the number of clients.
IND_CON	Dummy variable, equal to 1 if the portfolio's Herfindahl-Hirschman Index (HHI) is higher than the median HHI of the firm, zero otherwise.
ROA_MEDIAN	The median value of the client's return on assets (net income scaled by total assets) for each partner portfolio.
AUTO_MEDIAN	The median value of the client's auto ratio (retained earnings scaled by total assets) for each partner portfolio.

CASH_MEDIAN	The median value of the client's cash and cash equivalent for each partner portfolio. Cash and cash equivalent is scaled by total assets.
OCF_MEDIAN	The median value of the client's operating cash flow for each partner portfolio. Operating cash flow is scaled by total assets.
NUMBER_PUB	The logged number of public clients in each partner's portfolio.
X_LAG	The lagged value of variable *X*.
Client-level controls	
SIZE	Natural logarithm of the client total assets.
BIG4	Dummy variable, equal to 1 if the client is audited by Big4, zero otherwise.
ROA	Client net income divided by its total assets.
OCF	Client operating cash flow, measured by subtracting the total accruals from the income before extraordinary items before taxes. *OCF* is scaled by total assets.
CASH	Client cash and cash equivalents. *Cash* is scaled by total assets.
ZSCORE	Altman Z-score.
LEV	Client leverage, measured by dividing total liabilities by its total assets.
SPE_FIRM	Dummy variable, equal to 1 if the client is audited by audit firm who is the specialist, zero otherwise. *SPE_FIRM* is measured by the market share of the audit firm in a certain industry.
SPE_PARTNER	Dummy variable, equal to 1 if the client is audited by the partner who is the specialist, zero otherwise. *SPE_PARTNER* is measured by the market share of the partner in a certain industry within the audit firm. It represents the partner-level auditor industry expertise within the partners' office.
PUB	Dummy variable, equal to 1 if the client is public firm.
NEG_INCOME	Dummy variable, equal to 1 if the client has negative income in year *t-1*.

Table 2: Sample selection

Panel A: Partner workload initial sample	
Number of engagement partners retrieved from Bel-first for the years 2013-2020	891
Less: number of single practitioners	(230)
Number of partners	661
Less: partners whose clients have missing financial data	(15)
Less: partners whose clients are with financing and insurance activities	(4)
Less: partners who do not have experience information	(40)
Number of partners for *H1a*	602
Number of partner-year-firm observations for *H1a*	3,747
Less: Number of partner-year-firm observations due to lagged variables	(691)
Number of partner-year-firm observations for *H1b*	3,056
Panel B: Abnormal accruals model sample	
Initial observations available for abnormal accruals calculation	269, 235
Less: observations with missing data to calculation abnormal accruals	(82,345)
Less: observations where there are less than six observations for a combination of year and industry code and observations without industry code	(326)
Number of client-year observations abnormal accruals model*	186,564
Panel C: Client sample	
Number of client-year observations for the 661 engagement partners*	164,987
Less: observations with missing total assets data	(10,571)
Less: observations with missing audit fees data	(35,042)
Less: observations with industry financing and insurance activities (industry code K in NACEBEL.2008)	(11,081)
Less: observations without audit partner tenure information	(1,101)
Number of client-year observations for final sample (*RQ*)	107,192

Note: * the number of client-year observations abnormal accruals model is greater than the number of client-year observations for the 661 engagement partners. The reason is that some clients do not have auditor information in a certain year, but we include this observation in the abnormal accruals model to get a better estimation.

Figure 1: Visualization of the interaction effect between *GENDER* and *EXPERIENCE* on *LOG_NUM (Full Sample)*

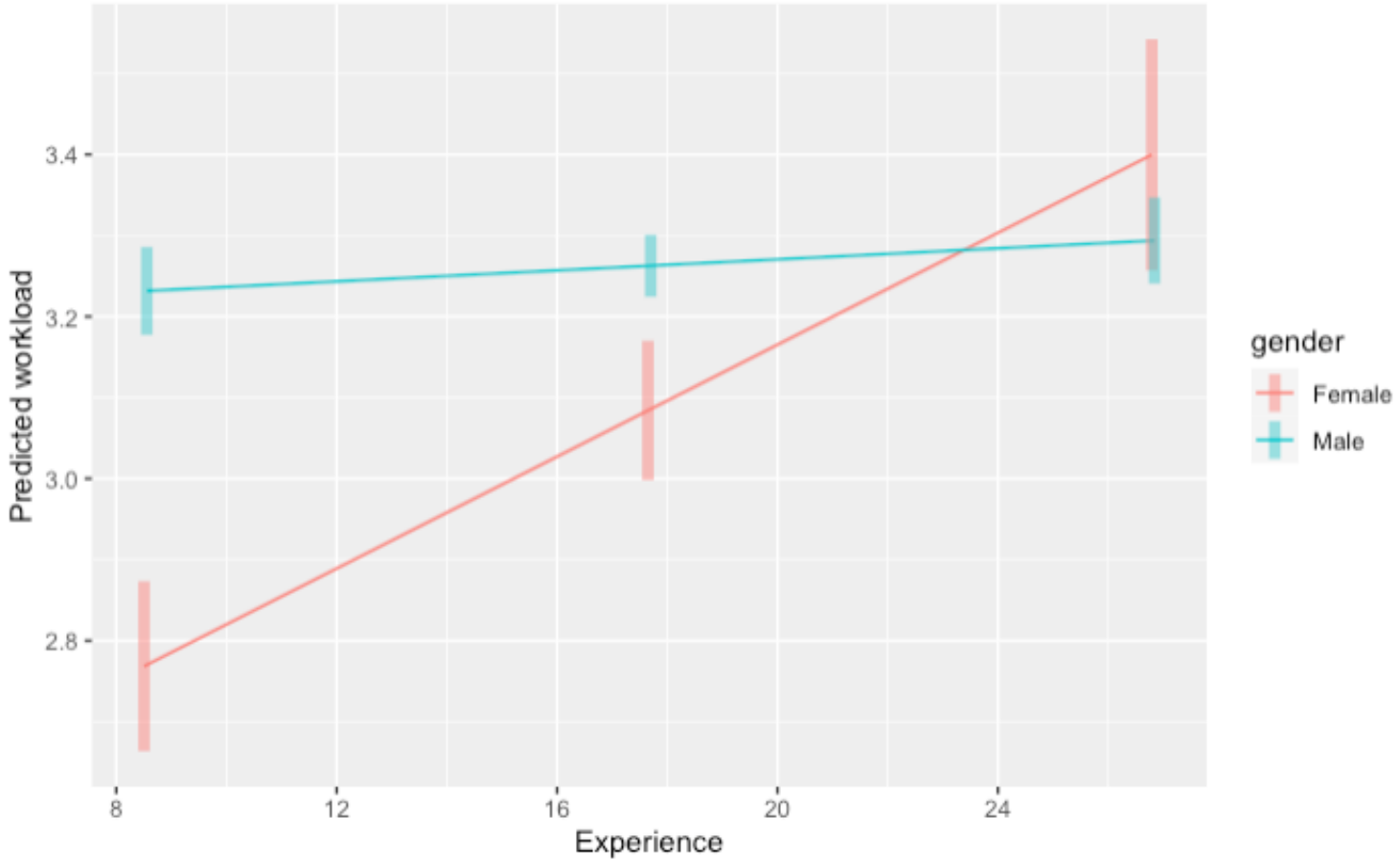

Figure 2: Visualization of the interaction effect between *GENDER* and *EXPERIENCE* on *LOG_NUM (Big4 Sample)*

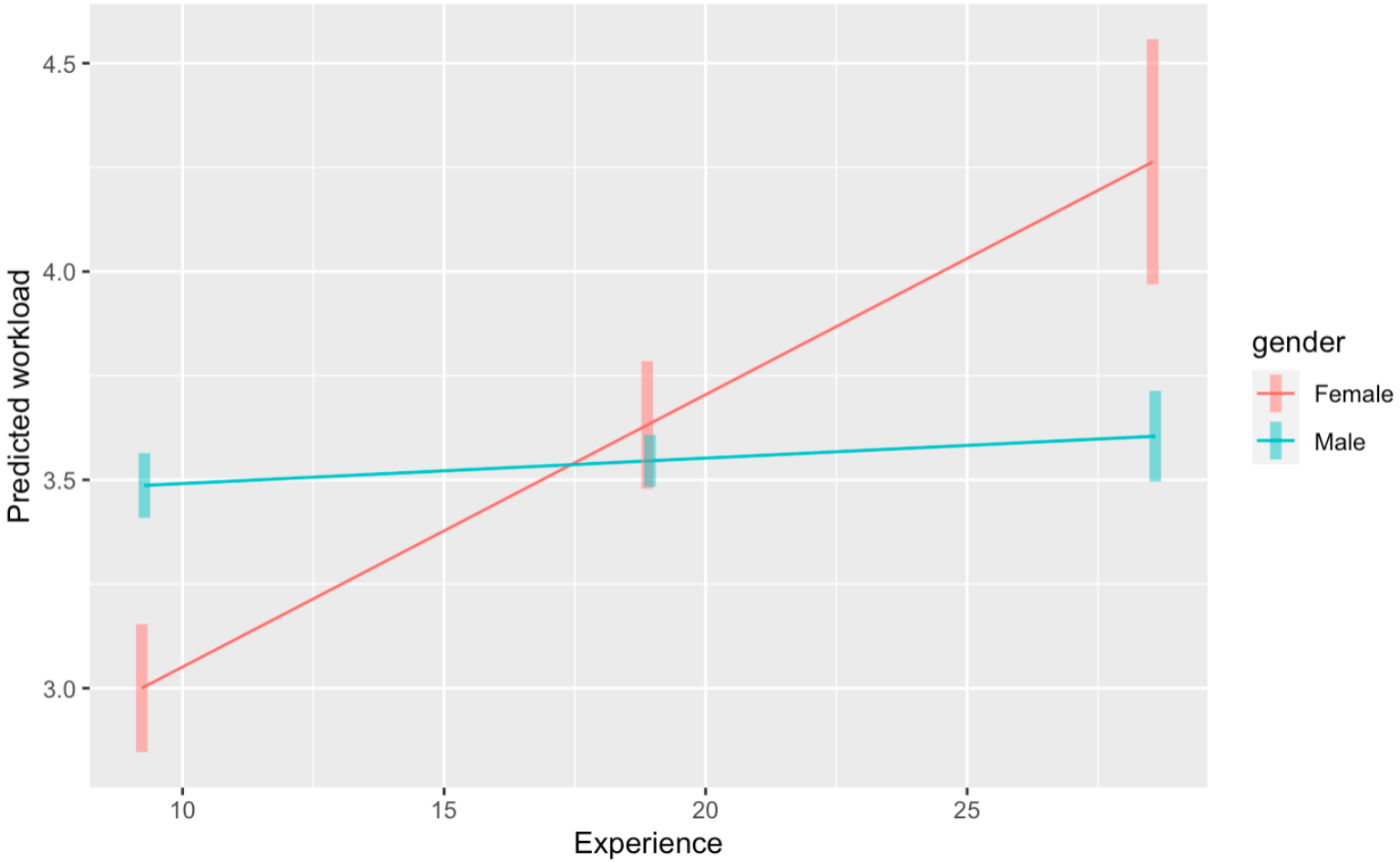

Figure 3: Visualization of the interaction effect between *GENDER* and *EXPERIENCE* on *LOG_NUM (Non-Big4 Sample)*

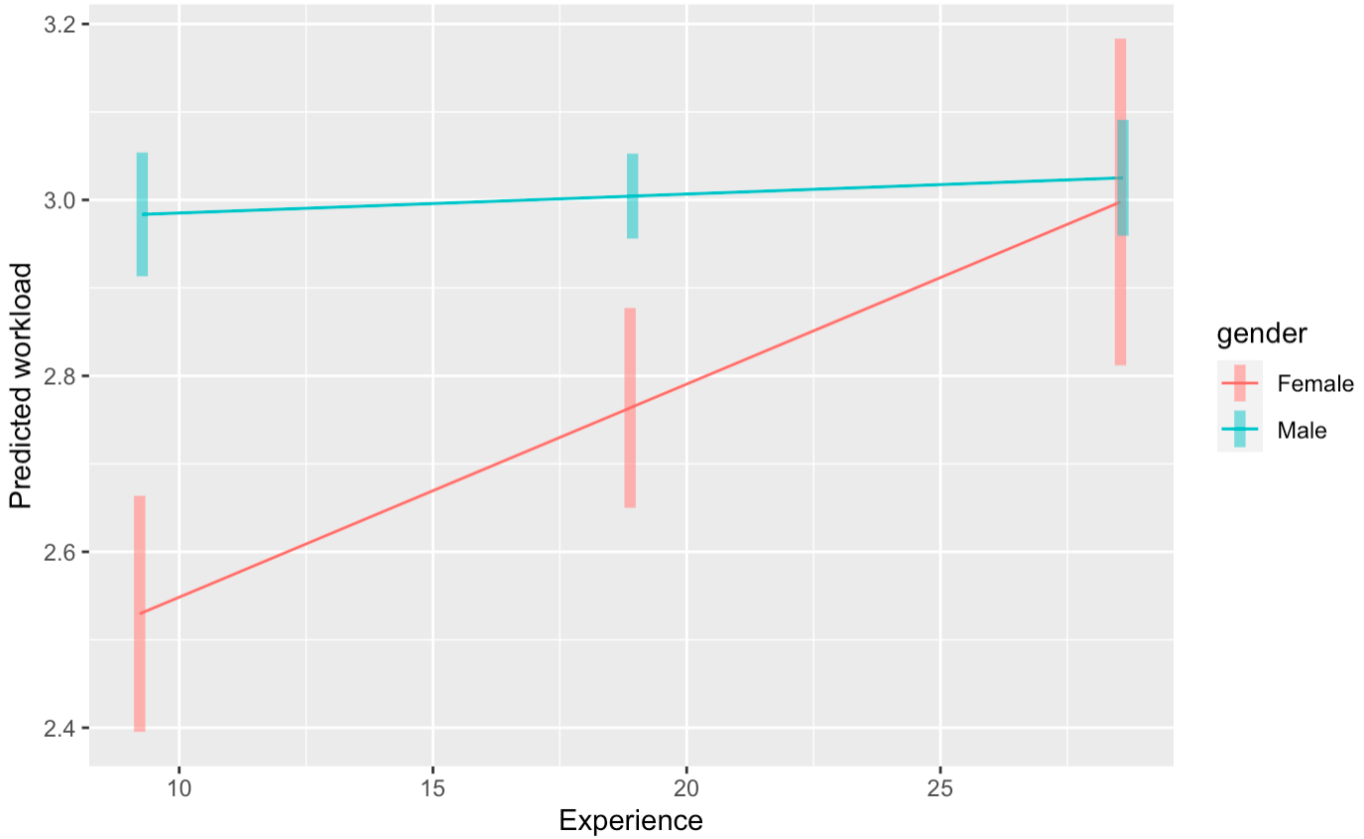

Table 3: Descriptive statistics - without industry financing and insurance activities

Panel A: Descriptive statistics on partner portfolio characteristics

			Female partners(n = 112)			Male partners (n = 490)			t-tests	
	n	mean	mean	median	sd	mean	median	sd	t-stat	p-value
NUMBER	3,747	43.449	35.039	23.000	37.834	45.201	34.000	45.590	5.298***	0.000
EXPERIENCE	3,747	17.674	15.141	14.000	8.270	18.201	18.000	9.229	7.801***	0.000
LOG_NUM	3,747	3.184	2.912	3.135	1.294	3.241	3.526	1.245	6.073***	0.000
SIZE_MEDIAN	3,747	16.205	16.263	16.201	0.980	16.193	16.142	0.878	-1.800*	0.072
RISK_NEG_EQU	3,747	0.046	0.047	0.025	0.072	0.046	0.024	0.079	-0.489	0.625
RISK_ZSCORE	3,747	0.172	0.156	0.140	0.141	0.176	0.155	0.151	2.971***	0.003
IND_CON	3,747	0.467	0.536	1.000	0.499	0.453	0.000	0.498	-3.831***	0.000
ROA_MEDIAN	3,747	0.025	0.027	0.023	0.032	0.022	0.048	0.130	-1.143	0.253
AUTO_MEDIAN	3,747	0.132	0.143	0.154	0.629	0.130	0.156	0.733	-0.421	0.673
CASH_MEDIAN	3,747	0.099	0.100	0.068	0.105	0.099	0.065	0.117	-0.179	0.858
OCF_MEDIAN	3,747	0.070	0.071	0.063	0.080	0.070	0.062	0.083	-0.472	0.637
NUMBER_PUB	3,747	0.166	0.156	0.000	0.497	0.168	0.000	0.512	0.515	0.607
			Female partners(n = 104)			Male partners (n = 467)				
LOG_NUM_NEW	3,056	1.201	1.046	1.099	0.890	1.234	1.099	0.935	4.224***	0.000

Panel B: Descriptive statistics on client characteristics

			Female partners(n = 112)			Male partners (n = 490)			t-tests	
	n	mean	mean	median	sd	mean	median	sd	t-stat	p-value
ABS_AB_ACC	107,192	0.144	0.145	0.075	0.203	0.144	0.074	0.204	-0.348	0.728
SIZE	107,192	16.131	16.182	16.195	1.849	16.123	16.105	1.854	-3.594***	0.000
ROA	107,192	0.018	0.015	0.022	0.180	0.019	0.022	0.172	2.111**	0.035
OCF	107,192	0.08	0.081	0.061	0.268	0.079	0.061	0.269	-0.625	0.532
CASH	107,192	0.148	0.149	0.057	0.212	0.148	0.054	0.214	-0.418	0.676
ZSCORE	107,192	12.372	13.586	2.434	105.586	12.178	2.424	99.072	-1.586	0.113
LEV	107,192	0.719	0.749	0.621	1.221	0.714	0.625	1.035	-3.693***	0.000
SPE_FIRM	107,192	0.018	0.024	0.000	0.155	0.017	0.000	0.128	-6.555***	0.000
SPE_PARTNER	107,192	0.281	0.238	0.000	0.426	0.288	0.000	0.453	12.536***	0.000
PUB	107,192	0.006	0.007	0.000	0.083	0.006	0.000	0.075	-1.843*	0.065
NEG_INCOME	107,192	0.264	0.266	0.000	0.442	0.264	0.000	0.441	-0.681	0.496

Note: ***, **, * donate statistical significiance at the 1%, 5%, and 10% level, respectively.

Table 4: Spearman correlation matrices

Panel A: Spearman correlation matrix at portfolio level

Variables	NUMBER	GENDER	EXPERIENCE	SIZE_MEDIAN	RISK_NEG_EQU	RISK_ZSCORE	IND_CON	ROA_MEDIAN	AUTO_MEDIAN	CASH_MEDIAN	OCF_MEDIAN	NUMBER_PUB	BIG4
NUMBER	1.000												
GENDER	**-0.105**	1.000											
EXPERIENCE	**0.057**	**-0.126**	1.000										
SIZE_MEDIAN	-0.0004	0.015	0.011	1.000									
RISK_NEG_EQU	**0.413**	-0.011	0.025	**-0.183**	1.000								
RISK_ZSCORE	**0.238**	**-0.055**	-0.018	-0.005	**0.457**	1.000							
IND_CON	**-0.332**	**0.062**	0.003	0.019	**-0.119**	**-0.033**	1.000						
ROA_MEDIAN	**-0.043**	0.022	**-0.073**	**0.044**	**-0.199**	**-0.348**	**-0.039**	1.000					
AUTO_MEDIAN	**-0.106**	-0.001	**0.054**	0.032	**-0.391**	**-0.485**	**-0.056**	**0.446**	1.000				
CASH_MEDIAN	**-0.235**	0.006	-0.009	**-0.069**	**-0.182**	**-0.226**	**0.091**	**0.122**	**0.168**	1.000			
OCF_MEDIAN	**-0.077**	-0.001	-0.024	-0.003	**-0.118**	**-0.155**	-0.021	**0.368**	**0.197**	**0.204**	1.000		
NUMBER_PUB	**0.315**	-0.008	0.027	**0.135**	**0.166**	**0.198**	**-0.110**	**-0.049**	**-0.155**	**-0.144**	**-0.089**	1.000	
BIG4	**0.224**	0.024	**-0.160**	**0.281**	**0.160**	**0.124**	**0.038**	**0.079**	**-0.175**	**-0.153**	**-0.041**	**0.189**	1.000

Panel B: Spearman correlation matrix at client level

Variables	ABS_AB_ACC	GENDER	NUMBER	EXPERIENCE	SIZE	ROA	OCF	CASH	ZSCORE	LEV	SPE_FIRM	SPE_PARTNER	PUB	NEG_INCOME	BIG4
ABS_AB_ACC	1.000														
GENDER	0.004	1.000													
NUMBER	**0.035**	**-0.069**	1.000												
EXPERIENCE	**-0.025**	**-0.072**	**0.059**	1.000											
SIZE	**-0.195**	**0.015**	**-0.017**	0.001	1.000										
ROA	**0.039**	-0.002	0.002	**-0.017**	**0.031**	1.000									
OCF	**0.025**	0.002	-0.003	-0.004	**-0.017**	**0.322**	1.000								
CASH	**0.045**	0.005	**-0.086**	**0.011**	**-0.130**	**0.130**	**0.177**	1.000							
ZSCORE	**-0.048**	0.004	**-0.006**	0.003	**-0.094**	**0.420**	**0.076**	**0.135**	1.000						
LEV	**0.161**	0.000	**0.010**	**0.007**	**-0.073**	**-0.260**	**0.048**	**-0.078**	**-0.549**	1.000					
SPE_FIRM	**0.017**	**0.020**	**0.061**	**-0.017**	**0.022**	**-0.009**	-0.002	0.003	**-0.029**	-0.004	1.000				
SPE_PARTNER	**-0.043**	**-0.038**	**-0.040**	**0.107**	**-0.048**	0.000	**0.011**	**0.043**	**-0.008**	0.003	**-0.071**	1.000			
PUB	**-0.010**	0.006	-0.001	0.002	**0.094**	**-0.015**	**-0.018**	0.002	**-0.076**	**-0.028**	0.004	**-0.024**	1.000		
NEG_INCOME	**0.081**	0.002	**0.028**	-0.001	**-0.143**	**-0.424**	**-0.186**	**-0.071**	**-0.284**	**0.219**	**0.008**	**-0.033**	**0.014**	1.000	
BIG4	**0.059**	**0.051**	**0.311**	**-0.163**	**0.087**	0.004	**-0.013**	**-0.082**	0.000	**-0.015**	**0.112**	**-0.571**	**0.018**	**0.046**	1.000

Note: Please see Table 1 for variable definition. Bold indicates statistical significant at the 5% level.

Table 5: Partner workload regression analyses (gender effect)

Table 5 presents the regression results of partner workload, a variable proxied by the number of clients per year per partner. All other variables are defined in detail in Table 1 Variable definitions.

Depdent variable: LOG_NUM	FULL SAMPLE		BIG4		Non-BIG4	
	Column 1		Column 2		Column 3	
	Coeff.	p-value	Coeff.	p-value	Coeff.	p-value
INTERCEPT	6.419***	0.000	7.020***	0.000	6.345***	0.000
GENDER	-0.227***	0.000	-0.174**	0.014	-0.275***	0.000
BIG4	0.557***	0.000				
EXPERIENCE_LOG	0.243***	0.000	0.350***	0.000	0.186***	0.000
SIZE_MEDIAN	-0.221***	0.000	-0.238***	0.000	-0.211***	0.000
RISK_NEG_EQU	-0.293	0.262	0.326	0.486	-0.567*	0.077
RISK_ZSCORE	-0.033	0.799	0.248	0.286	-0.153	0.329
IND_CON	-0.702***	0.000	-0.800***	0.000	-0.639***	0.000
ROA_MEDIAN	-0.969**	0.016	-0.511	0.461	-0.974*	0.051
AUTO_MEDIAN	0.081***	0.004	0.035	0.507	0.080**	0.019
CASH_MEDIAN	-2.519***	0.000	-2.463***	0.000	-2.509***	0.000
OCF_MEDIAN	-0.761***	0.001	-1.183***	0.001	-0.520*	0.062
NUMBER_PUB	0.429***	0.000	0.313***	0.000	0.594***	0.000
n	3,747		1,465		2,282	
Year fixed effect	YES		YES		YES	
R^2	0.306		0.332		0.255	
R^2 adjusted	0.302		0.324		0.249	

Note: 1. ***, **, * donate statistical significiance at the 1%, 5%, and 10% level, respectively.
2. The results are consistant when including audit firm fixed effect.

Table 6: New client allocation analysis (Gender effect)

Table 6 presents the regression results of number of new clients assigned to each partner; a variable proxied by the number of new clients per year per partner. All other variables are defined in detail in Table 1 Variable definitions.

Depdent variable: LOG_NUM_NEW	FULL SAMPLE		BIG4		Non-BIG4	
	Column 1		Column 2		Column 3	
	Coeff.	p-value	Coeff.	p-value	Coeff.	p-value
INTERCEPT	3.813***	0.000	5.399***	0.000	2.526***	0.000
GENDER	-0.168***	0.000	-0.137**	0.031	-0.209***	0.000
BIG4	0.271***	0.000				
EXPERIENCE_LOG_LAG	-0.118***	0.000	-0.068	0.101	-0.140***	0.000
SIZE_MEDIAN_LAG	-0.116***	0.000	-0.209***	0.000	-0.032	0.236
RISK_NEG_EQU_LAG	0.696**	0.012	0.791	0.104	0.508	0.131
RISK_ZSCORE_LAG	0.304**	0.013	0.617**	0.013	0.122	0.381
ROA_MEDIAN_LAG	0.551	0.182	1.316**	0.044	-0.294	0.594
AUTO_MEDIAN_LAG	0.034	0.289	-0.031	0.590	0.032	0.469
CASH_MEDIAN_LAG	-1.591***	0.000	-1.751***	0.000	-1.517***	0.000
OCF_MEDIAN_LAG	-0.157	0.475	0.185	0.616	-0.245	0.397
IND_CON_LAG	-0.301***	0.000	-0.414***	0.000	-0.226***	0.000
NUMBER_PUB_LAG	0.242***	0.000	0.187***	0.000	0.306***	0.000
n	3,056		1,193		1,863	
Year fixed effect	YES		YES		YES	
R^2	0.228		0.27		0.186	
R^2 adjusted	0.224		0.259		0.178	

Note: 1. ***, **, * donate statistical significiance at the 1%, 5%, and 10% level, respectively.

2. The results are consistant when including audit firm fixed effect.

Table 7: Audit quality regression analyses (workload effects)

Table 7 presents the regression results of audit quality, a variable proxied by the adjusted Jones model of the abnormal discretionary accruals. All other variables are defined in detail in Table 1 Variable definitions.

Dep: ABS_AB_ACC	**Full Sample**		**BIG4**		**Non-BIG4**	
	Column 1		**Column 2**		**Column 3**	
	Coeff.	**p-value**	**Coeff.**	**p-value**	**Coeff.**	**p-value**
INTERCEPT	0307***	0.000	0.323***	0.000	0.324***	0.000
LOG_NUM	0.006***	0.000	0.006***	0.000	0.006***	0.000
EXPERIENCE_LOG	-0.006***	0.000	-0.011***	0.000	-0.002	0.126
SIZE	-0.014***	0.000	-0.013***	0.000	-0.017***	0.000
BIG4	0.022***	0.000				
ROA	-0.035***	0.000	-0.047***	0.000	-0.014**	0.014
OCF	0.011***	0.000	0.025***	0.000	-0.014***	0.000
CASH	0.035***	0.000	0.034***	0.000	0.038***	0.000
ZSCORE	-0.00001**	0.014	-0.00002***	0.002	0.00001	0.510
LEV	0.046***	0.000	0.044***	0.000	0.051***	0.000
SPE_FIRM	0.022***	0.000	0.023***	0.000	-0.019	0.257
SPE_PARTNER	-0.003**	0.037	0.001	0.779	-0.004**	0.013
PUB	0.024***	0.002	0.001	0.911	0.066***	0.000
NEG_INCOME	0.028***	0.000	0.029***	0.000	0.027***	0.000
n	107,192		57,001		50,191	
Year fixed effect	Yes		Yes		Yes	
Industry fixed effect	Yes		Yes		Yes	
R^2	0.133		0.129		0.132	
R^2 adjusted	0.133		0.128		0.132	

Note:

1. ***, **, * donate statistical significiance at the 1%, 5%, and 10% level, respectively.
2. We also use the broader industry code (Fama-French 5 industry classification) to determain the lead audit firm in each industry (*LEAD_FIRM)*; *LEAD_FIRM* in this case is a dummy variable, equal to 1 if the client is audited by audit firm who is the industry leader, zero otherwise. *LEAD_FIRM* is measured by the market share of the audit firm in a certain industry. The results are consistent with our results with the narrow industry code.
3. the results are consistant with the fixed industry code of NACEBEL.2008.

Table 8: Additional regression analyses (gender and workload effects on audit quality)

Table 8 presents the regression results of audit quality, a variable proxied by the adjusted Jones model of the abnormal discretionary accruals. All other variables are defined in detail in Table 1 Variable definitions.

Dependent variable: ABS_AB_ACC	**Full Sample**				**BIG4**				**Non-BIG4**			
	Column 1		**Column 2**		**Column 3**		**Column 4**		**Column 5**		**Column 6**	
	Coeff.	**p-value**	**Coeff.**	**p-value**	**Coeff.**	**p-value**	**Coeff.**	**p-value**	**Coeff.**	**p-value**	**Coeff.**	**p-value**
INTERCEPT	0.327***	0.000	0.307***	0.000	0.350***	0.000	0.325***	0.000	0.344***	0.000	0.324***	0.000
LOG_NUM			0.006***	0.000			0.006***	0.000			0.006***	0.000
GENDER	-0.003*	0.062	-0.002	0.250	-0.006***	0.010	-0.005**	0.043	0.001	0.602	0.002	0.302
EXPERIENCE_LOG	-0.005***	0.000	-0.006***	0.000	-0.009***	0.000	-0.011***	0.000	-0.001	0.466	-0.002	0.146
SIZE	-0.015***	0.000	-0.014***	0.000	-0.014***	0.000	-0.013***	0.000	-0.017***	0.000	-0.017***	0.000
BIG4	0.026***	0.000	0.022***	0.000								
ROA	-0.035***	0.000	-0.035***	0.000	-0.047***	0.000	-0.047***	0.000	-0.014**	0.016	-0.014**	0.014
OCF	0.011***	0.000	0.011***	0.000	0.026***	0.000	0.025***	0.000	-0.013***	0.000	-0.014***	0.000
CASH	0.033***	0.000	0.035***	0.000	0.032***	0.000	0.034***	0.000	0.037***	0.000	0.038***	0.000
ZSCORE	-0.00002***	0.010	-0.00001**	0.015	-0.00003***	0.002	-0.00002***	0.002	0.00001	0.561	0.00001	0.514
LEV	0.046***	0.000	0.046***	0.000	0.044***	0.000	0.044***	0.000	0.051***	0.000	0.051***	0.000
SPE_FIRM	0.023***	0.000	0.022***	0.000	0.024***	0.000	0.023***	0.000	-0.019	0.257	-0.019	0.259
SPE_PARTNER	-0.001	0.465	-0.003**	0.038	0.003	0.456	0.001	0.813	-0.002	0.274	-0.004**	0.012
PUB	0.024***	0.002	0.024***	0.002	0.001	0.926	0.001	0.907	0.066***	0.000	0.066***	0.000
NEG_INCOME	0.028***	0.000	0.028***	0.000	0.029***	0.000	0.029***	0.000	0.027***	0.000	0.027***	0.000
n	107,192		107,192		57,001		57,001		50,191		50,191	
Year fixed effect	YES		YES		YES		YES		YES		YES	
Industry fixed effect	YES		YES		YES		YES		YES		YES	
R^2	0.133		0.133		0.128		0.129		0.131		0.132	
R^2 adjusted	0.133		0.133		0.128		0.128		0.131		0.132	

Note:

1. ***, **, * donate statistical significiance at the 1%, 5%, and 10% level, respectively.
2. We also use the broader industry code (Fama-French 5 industry classification) to determain the lead audit firm in each industry (*LEAD_FIRM)*; *LEAD_FIRM* in this case is a dummy variable, equal to 1 if the client is audited by audit firm who is the industry leader, zero otherwise. *LEAD_FIRM* is measured by the market share of the audit firm in a certain industry. The results are consistent with our results with the narrow industry code.
3. the results are consistant with the fixed industry code of NACEBEL.2008.

Table 9: The effect of audit partner's experience across partner's gender

Panel A: Regressions analysis

Depdent variable: LOG_NUM	Full Sample		BIG4		Non-BIG4	
	Coeff.	p-value	Coeff.	p-value	Coeff.	p-value
INTERCEPT	6.921***	0.000	7.946***	0.000	6.665***	0.000
GENDER	-0.729***	0.000	-1.034***	0.000	-0.658***	0.000
GENDER*EXPERIENCE	0.031***	0.000	0.059***	0.000	0.022***	0.001
EXPERIENCE	0.003	0.105	0.006	0.104	0.002	0.396
BIG4	0.533***	0.000				
SIZE_MEDIAN	-0.213***	0.000	-0.241***	0.000	-0.200***	0.000
RISK_NEG_EQU	-0.244	0.353	0.375	0.425	-0.529*	0.100
RISK_ZSCORE	-0.045	0.731	0.178	0.445	-0.16	0.309
IND_CON	-0.713***	0.000	-0.820***	0.000	-0.645***	0.000
ROA_MEDIAN	-1.006**	0.012	-0.729	0.294	-0.966*	0.054
AUTO_MEDIAN	0.076***	0.007	0.032	0.546	0.074**	0.031
CASH_MEDIAN	-2.543***	0.000	-2.588***	0.000	-2.507***	0.000
OCF_MEDIAN	-0.760***	0.001	-1.134***	0.002	-0.545*	0.052
NUMBER_PUB	0.449***	0.000	0.343***	0.000	0.607***	0.000
n	3,747		1,465		2,282	
Year fixed effect	YES		YES		YES	
R^2	0.300		0.328		0.251	
R^2 adjusted	0.296		0.319		0.245	

Panel B: Estimated marginal means

	Full Sample		BIG4		Non-BIG4	
Gender	**Experience**	**emmean**	**Experience**	**emmean**	**Experience**	**emmean**
Male	8.530	3.230	7.850	3.480	9.250	2.980
Male	17.670	3.260	15.750	3.530	18.910	3.000
Male	26.820	3.290	23.640	3.570	28.570	3.030
Female	8.530	2.770	7.850	2.910	9.250	2.530
Female	17.670	3.080	15.750	3.430	18.910	2.760
Female	26.820	3.400	23.640	3.940	28.570	3.000

Panel C: Simple slope analysis

	Full Sample		BIG4		Non-BIG4	
GENDER	**Experience.trend**		**Experience.trend**		**Experience.trend**	
Male	0.003		0.006		0.002	
Female	0.035		0.065		0.024	
Contrast	**estimate**	**p-value**	**estimate**	**p-value**	**estimate**	**p-value**
Female - Male	0.031	<0.001	0.059	<0.001	0.022	<0.000
Confidence level used: 0.95						

Note: 1. ***, **, * donate statistical significiance at the 1%, 5%, and 10% level, respectively.
2. The results are consistant when including audit firm fixed effect.