國家科學及技術委員會補助專題研究計畫報告

具權力關係之女性會計師是否能減緩職場晉升之玻璃天花板限制?

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本研究具影響公共利益之重大發現：□否　□是

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中 文 摘 要 ： 本文旨在探討台灣大型會計師事務所是否存在男女性合夥會計師「同工不同酬」之情況，以及由於男性會計師本身性格較偏好追逐風險，是否會有更高幅度的低價競逐行為。再者，本文也欲探討會計師性別與會計師簽證網絡兩者之交互作用，對於審計公費及低價競逐幅度之影響，以及當不同性別會計師有更高幅度的低價競逐行為時，是否仍能維持其審計品質？實證發現男性合夥會計師的低價競逐幅度更大；然而，當考慮簽證網絡因素時，研究結果顯示，相較於男性合夥會計師，女性合夥會計師擁有較密集的簽證網絡時，會進行更多的低價競逐策略，其所獲得的審計公費也相對較低，表示女性合夥會計師能更有效地利用簽證網絡帶來的查核優勢，因此不需要向客戶收取較高的費用。此外，在女性合夥會計師存在低價競逐的情況下，並不會降低其審計品質。希冀透過本文之實證發現，能提供台灣審計市場四大會計師事務所之不同性別查核會計師影響之實證證據。

中文關鍵詞 ： 會計師性別、簽證網絡關係、審計公費、低價競逐、審計品質

英 文 摘 要 ： This paper aims to investigate whether there is a gender pay gap between male and female audit partners in large auditing firms in Taiwan and whether male partners compete more aggressively with low prices due to their inherent preference for risk-taking. In addition, it attempts to examine the interaction between the gender of auditors and their audit network and its impact on audit fees and the extent of low-price competition. The article also examines whether auditors of different genders can maintain their audit quality when engaging in more aggressive low-price competition. The empirical results show that male partners engage in more aggressive low-price competition. However, when the audit network factor is taken into account, the results suggest that female partners with more extensive audit networks engage in more aggressive low-price strategies compared to male partners. As a result, they receive relatively lower audit fees, suggesting that female partners are more effective in leveraging the benefits their networks offer and therefore do not need to charge higher fees to their clients. Furthermore, the low-price competition of female partners does not affect their audit quality. The aim of this study is to provide empirical evidence of the influence of gender on auditors at the Big Four accounting firms in Taiwan.

英文關鍵詞 ： auditor gender, signing audit networks, audit fees, low balling, audit quality

不同性別查核會計師之同工不同酬、低價競逐與審計品質：會計師簽證網絡關係之觀點

摘要

　　本文旨在探討台灣大型會計師事務所是否存在男女性合夥會計師「同工不同酬」之情況，以及由於男性會計師本身性格較偏好追逐風險，是否會有更高幅度的低價競逐行為。再者，本文也欲探討會計師性別與會計師簽證網絡兩者之交互作用，對於審計公費及低價競逐幅度之影響，以及當不同性別會計師有更高幅度的低價競逐行為時，是否仍能維持其審計品質？實證發現男性合夥會計師的低價競逐幅度更大；然而，當考慮簽證網絡因素時，研究結果顯示，相較於男性合夥會計師，女性合夥會計師擁有較密集的簽證網絡時，會進行更多的低價競逐策略，其所獲得的審計公費也相對較低，表示女性合夥會計師能更有效地利用簽證網絡帶來的查核優勢，因此不需要向客戶收取較高的費用。此外，在女性合夥會計師存在低價競逐的情況下，並不會降低其審計品質。希冀透過本文之實證發現，能提供台灣審計市場四大會計師事務所之不同性別查核會計師影響之實證證據。

關鍵字：會計師性別、簽證網絡關係、審計公費、低價競逐、審計品質

Wage discrimination, low balling and audit quality among audit partners of different genders: perspectives on signing audit networks

Abstract

This paper aims to investigate whether there is a gender pay gap between male and female audit partners in large auditing firms in Taiwan and whether male partners compete more aggressively with low prices due to their inherent preference for risk-taking. In addition, it attempts to examine the interaction between the gender of auditors and their audit network and its impact on audit fees and the extent of low-price competition. The article also examines whether auditors of different genders can maintain their audit quality when engaging in more aggressive low-price competition. The empirical results show that male partners engage in more aggressive low-price competition. However, when the audit network factor is taken into account, the results suggest that female partners with more extensive audit networks engage in more aggressive low-price strategies compared to male partners. As a result, they receive relatively lower audit fees, suggesting that female partners are more effective in leveraging the benefits their networks offer and therefore do not need to charge higher fees to their clients. Furthermore, the low-price competition of female partners does not affect their audit quality. The aim of this study is to provide empirical evidence of the influence of gender on auditors at the Big Four accounting firms in Taiwan.

Keywords: auditor gender, signing audit networks, audit fees, low balling, audit quality

1. Introduction

From a market perspective, companies offer salaries in return for employees' efforts and time (Ouchi, 1980); salaries can also provide incentives to reinforce employees' behavior and improve their performance (Balkin & Gomez-Mejia, 1990). Therefore, employers need to develop an appropriate salary structure to motivate employees. Those who perform well at work should receive a higher salary, otherwise the incentives for their efforts may be lost. However, within organizations, factors such as ethnicity, gender, age or other personal characteristics can lead to salary differences between employees, even if they perform the same work or are entrusted with the same work content. This phenomenon is known as "equal work, unequal pay" and is also referred to as wage discrimination (Equal Employment Opportunities Commission). Wage discrimination received more attention after the American economist Gary Becker published "The Economics of Discrimination" in 1971. According to Becker's model, discrimination occurs when employers are unwilling to hire certain groups of employees unless they offer them lower wages than the general workforce (Gary Becker, 1971).

According to the Taiwanese Ministry of Labor Statistics, the average monthly salary of women in 2021 was 81.5% of that of men, indicating a gender pay gap of 18.5%. This shows that in the Taiwanese labor market, women's average salaries are lower than men's. A review of previous literature also shows that international accounting firms have gender pay gaps, meaning that male and female accountants receive different compensation and advancement opportunities. For example, a study by Hunton et al. (1996) also found that women in corporate accounting departments, even with more experience, earn less than men and have lower job satisfaction. Ward et al. (1986) found that female accountants are less satisfied with salaries and promotion opportunities in accounting firms. Berik et al. (2004) examined how competition from international trade affects gender wage discrimination in Taiwan and Korea. Their results suggest that foreign trade competition in concentrated industries is positively associated with wage discrimination against female workers. Their findings suggest that concerted efforts to enforce equal pay laws and apply effective equal opportunity laws are crucial to ensure that women's wage gains match those of men in a competitive environment. Miller et al. (2010) analyzed the results of national surveys by Stanko and Schneider (1999) and Stanko et al. (2009). They found that women in accounting firms do not have the same opportunities for advancement as men and that both sexual harassment and sexual discrimination in the workplace continue to be a serious problem. They also suggested that accounting firms should address these issues in order to manage the risks, although preventative measures are already in place. As these studies may differ from the current context, this paper first examines whether there is a gender pay gap in large accounting firms in Taiwan.

This study aims to extend the findings of the current literature by examining whether gender pay differentials in large domestic accounting firms affect the extent of low-price competition for audit fees between male and female auditors when competing for audit clients. In particular, we investigate whether male and female auditors have more scope for low-price competition under the condition of higher fees while maintaining the same audit quality. To increase clients' willingness to commit to a long-term engagement, auditors offer larger discounts on audit fees, a practice known as low balling (Lee and Gu, 1998). Much of the research, including studies by the U.S.

Securities and Exchange Commission (SEC), examines whether low-balling affects audit quality. According to the SEC's 1978 study, low-balling competition may lead clients to believe that they can intimidate auditors into issuing favorable audit opinions, which auditors are likely to accept (The Cohen Report 1978, p.121). However, most studies suggest that low-price competition has no effect on audit quality. Magee and Tseng (1990) found that low-price competition does not motivate auditors to jeopardize their independence. Cho et al. (2021) pointed out that even when auditors use low-price competition to attract clients, their reputation and litigation pressure ensure that audit quality is not compromised. Similarly, Kung et al. (2021) observed that auditors in Taiwan also engage in low-price competition but audit more cautiously to protect their reputation, thus reducing opportunities for earnings management. This paper hypothesizes that men have a greater preference for risk-taking compared to women (Niederle and Vesterlund, 2007) and exhibit overconfidence when investing, leading to more frequent investment activities (Barber and Odean, 2001). It is therefore likely that male audit partners engage in low-price competition to a greater extent than their female counterparts.

In addition, this study includes the network of auditors. In Taiwan, audit reports are co-signed by both a first and a second auditor. Thus, each signing auditor has a counterpart and forms an exclusive auditor network. The auditors within this network share resources (Bianchi, 2018; Bianchi et al., 2020; Vera-Munoz et al., 2006; Francis and Yu, 2009) and supervise each other (Dugan and Spurgeon, 2002), which can lead to better audit quality. Social psychological theories also suggest that the monitoring mechanism triggered by the network connections prompts auditors to exert more auditing efforts to enhance their sense of responsibility (Tan, 1995), which also implies higher auditor independence with stronger network connections. However, an audit network can also have negative effects. For example, Guan et al. (2016) and He et al. (2017) found that audit quality can be impaired if auditors have an alumni relationship with the CEO or members of the audit committee of the audited company. Su and Wu (2021) found that the initiation of disciplinary proceedings against one auditor may also affect other auditors in the same network, leading to a decline in audit quality across the network. In other words, the auditor network affects audit quality.

This paper aims to extend current findings in the gender literature by first examining whether male and female audit partners operate in an "equal work, unequal pay" environment and whether male auditors compete more aggressively on the low-pay side due to their inherent risk-taking. It also examines the interaction between auditor gender and audit networks and their impact on audit fees and the extent of competition for low fees. It also examines whether auditors of different genders can maintain their audit quality if they engage in more aggressive competition for low fees.

The empirical results show that female partners engage in less aggressive low-price competition compared to male partners, suggesting that female partners are more likely to avoid risk and therefore engage in less low-price competition to prevent limited input due to low audit fees. However, when the audit network factor is taken into account, the results suggest that female partners with denser audit networks pursue more aggressive low-price strategies and achieve relatively lower audit fees. This suggests that female partners can leverage their networks more effectively in the audit by using the resources of the network to work together as a team and share expertise and information about the audit to avoid charging higher fees to their clients. In addition,

female partners can maintain the quality of the audit even when competing with low fees.

This study aims to make the following contributions through its empirical results: Incorporating low-price competition to observe whether male and female auditors adopt different low-price strategies, thereby filling gaps in the gender literature regarding the effects of low-price competition; To consider Taiwan's dual-signature system for audit services, in which auditors form exclusive audit networks, and examine the interaction between auditor gender and audit network relationships to understand their combined effects on audit fees and the extent of low-price competition; and to recognize that auditors prioritize audit quality and that audit fees affect the quality of services provided. Therefore, this study examines the effects of auditor gender on audit fees and low-price competition and the interaction effect between gender and low-price competition on audit quality and provides several implications for future contract negotiations between male and female auditors and their clients.

The following sections of this study are organized as follows: The second section deals with the literature review and the development of hypotheses. The third section deals with the research design and explains the data sources, variable definitions, and empirical models. The fourth section presents the empirical results. The final section contains conclusions, recommendations, and limitations.

2. Literature Review and Research Hypothesis

2.1 Gender Differences, the Impact of Auditor's Gender and Unequal Pay for Equal Work

Gender can lead to differences in innate personality traits, which in turn influence external behavior patterns. According to Feingold (1994), women tend to be more conscientious and detail-oriented than men. Barber and Odean (2001) found that men often exhibit overconfidence in investment contexts, leading to more frequent trading. Men are also more inclined to try new things and take risks (Niederle and Vesterlund, 2007). Huang and Kisgen (2013) observed that male executives prefer to invest in riskier assets and are more likely to engage in financial decision-making and trading activities due to their propensity to take on challenges. Conversely, women tend to be more risk averse compared to men (Schubert et al., 1999; Barber and Odean, 2001).

From the above, it is clear that gender differences lead to different behavioral outcomes, and these behavioral differences are also manifested in audit practices. Garcia-Blandon et al. (2019) investigated whether the quality of audit performance is influenced by the gender of the auditor. Their results suggest that male and female auditors tend to audit different types of clients, and after controlling for differences between clients, the audit quality of female auditors is consistently reliable. Ittonen et al. (2013) found that female auditors are less likely to accept firms' earnings management practices. Karjalainen et al. (2018) investigated the influence of auditor gender on the issuance of modified unqualified audit opinions and found that female auditors were more likely to issue such opinions for the first time after a change of auditor and exhibited more conservative behavior than their male counterparts. The studies by Schubert et al. (1999) and Nasution and Jonnergard (2017) come to similar conclusions. They show that female auditors tend to reduce discretionary accruals in order to suppress earnings management and thereby achieve higher audit quality

(Hardies et al., 2016; Garcia-Blandon et al., 2019). In other words: Compared to male auditors, female auditors show better audit performance (Montenegro and Bras, 2015), and their efficiency is higher on complex audit tasks, while male auditors show higher efficiency on simpler tasks (O'Donnel and Johnson, 2001).

The more recent literature supports these findings. Bustos-Contell et al. (2022) investigated the effects of female leadership in audit teams on audit tasks. They found that the more complex the audit tasks were, the more efficient the female-led teams were. They also observed a "masculinization process" in female leaders with increasing experience, which was interpreted as intrinsic motivation for future promotion. Research by Bustos-Contell et al. (2022) supports the notion that gender diversity increases audit efficiency, suggesting that audit team composition is an important factor in audit quality. Carrera and Mareque (2022) focused on the public sector to analyze whether the gender of auditors affects the likelihood of companies receiving a qualified opinion. In contrast to private sector audits, public sector auditors are exposed to lower litigation risks and less market pressure, providing a clearer view of gender differences in professional competence. They found that both male and female auditors can provide a qualified opinion, but the reasons for this vary by gender. Female auditors are more likely to provide a qualified opinion due to audit scope limitations. For joint audits, gender-specific audits are more likely to result in a qualified opinion, suggesting that female auditors are more conservative than their male counterparts. However, there were no differences between the genders in reporting material misstatements.

The above literature shows that female auditors tend to be more conservative, cautious and responsible than male auditors. They therefore favor risk avoidance, are more cautious in their audits, and show less tolerance for companies' earnings management, resulting in higher audit quality. However, Hunton et al. (1996) found that even with more audit experience, female auditors still earn less than their male counterparts. Huang et al. (2015) also found that female auditors still receive lower audit fees than male auditors even after excluding the effects of audit quality and timing of report publication. In addition, Miller et al. (2010) found that women in audit firms do not have the same opportunities for advancement as their male counterparts.

To summarize, despite the higher audit quality of female auditors due to their personality traits compared to male auditors, clients may still prefer to select male auditors and pay them higher audit fees. Therefore, this study aims to investigate whether there is the phenomenon of "equal work, unequal pay" between male and female audit partners in the Taiwanese audit market, indicating possible gender discrimination.

According to the Equal Employment Opportunities Commission, the term "equal work, unequal pay", also known as pay discrimination, refers to the situation in which people within a group perform the same work or are responsible for the same work but receive different compensation due to factors such as ethnicity, gender, age or other personal characteristics. The "employer taste" model proposed by Gary Becker (1971) states that discrimination exists because employers do not want to employ certain groups of workers and will only do so if those workers are paid less than workers in general. This means that employees who belong to a discriminated group have to work harder for the same pay or accept a lower pay for the same work than other employees. When pay discrimination occurs in a company, it affects employees' commitment to

their work. If employees feel that they perform the same as others but receive lower pay, they may feel relatively disadvantaged, resulting in less willingness to put in the effort (Adams, 1965). Therefore, this paper hypothesizes that gender pay discrimination in the Taiwanese auditing market may set in motion a vicious cycle that gradually weakens the willingness of the affected gender to invest in the firm.

2.2 Low Balling and Audit Quality

The literature shows that auditors set audit fees based on factors such as the size of the audited company (Simunic, 1980), the complexity of the business (Simunic, 1980), audit risk (Simunic, 1980), the size of the audit firm (Hay et al., 2006), industry knowledge (Craswell et al., 1995) and low-price competition (Ettredge and Greenberg, 1990). In practice, auditors not only evaluate these factors when setting audit fees, but also take into account the amount of work and time required for the audit. This helps them to estimate the costs at different staffing levels and set the expected audit fees accordingly. When companies set appropriate audit fees, auditors can allocate expected labor and time costs to ensure the audit goes as planned. This allows for a more thorough audit, reduces revenue management practices, and thus increases audit quality (Palmrose, 1986).

According to Simunic (1980), high audit quality can improve the reputation of an audit firm, and this reputation influences audit fees. Therefore, large audit firms have higher audit quality compared to general audit firms (DeAngelo, 1981; Francis et al., 2005), which gives them a better reputation. As a result, the audited companies are willing to pay higher fee premiums (Su, 2000).

Interestingly, auditors do not initially receive a fee premium for their first audits of new clients, but attract potential clients by low balling. Low balling means that auditors offer substantial discounts on audit fees in order to secure long-term engagements (Lee and Gu, 1998). According to DeAngelo (1981), auditors use low-balling to attract potential clients and sign contracts to earn future quasi-annuities that translate into lower audit fees. Simon and Francis (1988) pointed out that auditors significantly reduce audit fees during the first few audits. Although this reduction decreases over the next two years, it takes until the fourth year of the audit to return to normal fee levels. Client risk strategies, conflicts with the agency, auditor risk strategies and audit fees are the four most important factors influencing audit quality (Watkins et al., 2004). Therefore, both too low and too high audit fees can lead to changes in audit quality.

According to an investigation by the US Securities and Exchange Commission (1978), when auditors offer discounted audit fees for initial audits, they are indirectly signaling to management that they can intimidate auditors into issuing favorable audit opinions, and auditors are likely to be influenced by management (The Cohen Report 1978, p.121). However, Cho et al. (2021) take a contrary view and state that low balling does not necessarily harm audit quality. They argue that auditors are motivated to maintain audit quality to protect their reputation and avoid the risk of litigation.

In addition, Kung et al. (2021) investigated whether industry experts have more scope for low balling when auditing highly industry-related conglomerates. Their research found that industry experts do not need to spend additional audit time due to their audit knowledge and industry-specific expertise, which enables them to apply low-balling strategies to attract clients. In addition, they examined the impact of low-balling

on audit quality and concluded that industry professionals are more cautious when conducting audits to protect their reputation, thereby reducing the likelihood of earnings management and preserving their independence.

2.3 Auditor Signing Network Relations

The double signature system has been in force in Taiwan since 1983, i.e. audit reports must be co-signed by two practicing auditors. This system provides for two auditors to jointly conduct an audit, share various audit tasks and review the audit results. They can also use each other's resources to make the audit more comprehensive. The auditors' resources include their audit knowledge and industry-specific techniques as well as their professional networks. This paper examines whether auditors can improve audit quality by utilizing the resources available within their audit network.

Vera-Muñoz et al. (2006) claim that effective knowledge sharing between audit firms can not only increase the audit knowledge of auditors within these firms, but also reduce the time and costs associated with the audit, thereby significantly increasing competitiveness. Due to the nature of audit networks, auditors can achieve knowledge sharing (Bianchi, 2018; Bianchi et al., 2020; Vera-Munoz et al., 2006; Francis and Yu, 2009) and create a monitoring effect (Dugan and Spurgeon, 2002), which encourages network auditors to invest more effort in audits (Tan, 1995), thereby promoting a virtuous cycle. According to Dugan and Spurgeon (2002), auditors in an audit network monitor the behavior of others to prevent their own reputation from being damaged by the actions of others in the network. In addition, Su and Wu (2021) examined the impact of auditors' negative behavior on their partners and found that disciplinary action against one auditor can affect other cooperating auditors within the network, thereby lowering audit quality.

Due to Taiwan's dual-signature system, where first and second auditors conduct audits together, they bring in different professional networks through their respective audit assignments and form an audit network. This network facilitates the exchange of industry-specific information and techniques and enables the sharing of knowledge. The exchange of audit knowledge within the network helps to reduce audit costs and enables audit tasks to be carried out more efficiently. As each auditor is a member of the network, the misconduct of one auditor can have an impact on the others. Therefore, auditors strive to maintain their reputation and audit quality by making audit resources available to each other, thus reducing the likelihood of negative incidents.

However, to closely observe whether audit networks can have positive effects, previous literature has analyzed and discussed the relationship between audit networks and audit quality. Bianchi (2018) suggested that joint audit engagements help auditors to build professional network relationships that promote the sharing of resources and expertise. Bianchi studied Italian unlisted companies whose financial statements were audited by three independent auditors and observed the level of interaction between them. He found that by working together, auditors can form collaborative networks and thereby improve audit quality. Seavey et al. (2018) used the network closeness centrality of the four largest auditing firms in the United States to measure the network connectivity of individual offices and examined its correlation with audit quality. The empirical results show that when an office has higher network centrality, auditors in that office have more opportunities to share information with auditors in other offices, which improves the audit quality of the department.

2.4 Hypothesis Development

According to the literature, women tend to be more conservative, responsible, cautious and risk averse than men (Feingold, 1994; Barber and Odean, 2001; Garcia-Blandon et al., 2019). These gender-specific personality differences also influence the dynamics in the workplace. As women have a lower risk tolerance, carry more responsibility and adhere more closely to legal standards, they are expected to perform audits more prudently, thereby reducing discretionary accruals in audited organizations more effectively (Ittonen et al., 2013; Nasution and Jonnergard, 2017) and thus providing higher audit quality (Hardies et al., 2016; Garcia-Blandon et al., 2019). However, although female partners have higher audit quality than their male counterparts, female auditors still receive lower audit fees (Huang et al., 2015) and do not have the same promotion opportunities as their male counterparts (Miller et al., 2010).

In addition, in the Taiwanese audit market, many auditors build long-term relationships with their clients through low-price competition (Lee and Gu, 1998), resulting in discounted audit fees during the first audit period (DeAngelo, 1981). Simon and Francis (1988) found that when auditors reduce audit fees to attract clients, it takes until the fourth year of the audit to return to the original fee level. However, the level of audit fees can affect audit quality (Watkins et al., 2004). Nevertheless, the current literature has not found that auditors compromise their audit quality when they engage in low-fee competition (Cho et al., 2021; Kung et al., 2021). This is because auditors maintain their audit quality even when they lower audit fees to avoid reputational damage and litigation risks (Cho et al., 2021).

Since 1983, Taiwan's auditing system has operated under the "double signature system"," which requires audit partners to work together to finalize the audit report with a first and second signature. This system has led to the formation of unique audit networks among auditors. Within these networks, auditors not only monitor each other to avoid influence from other members of the network (Dugan and Spurgeon, 2002), but also share audit resources and achieve knowledge spillover effects, which in turn improve audit quality (Bianchi, 2018).

Against this background, this article examines whether there are differences in the audit fees of male and female audit partners. Compared to female auditors, male auditors tend to be more adventurous and risk-taking and often show overconfidence in investment situations. In addition, in Taiwanese auditing practice, clients tend to pay higher audit fees to male auditors, reflecting the situation of "equal work, unequal pay". Therefore, this paper hypothesizes that male auditors may be more self-confident and have greater bargaining power with audited companies, which leads clients to grant higher audit fees to male partner auditors. On this basis, the following hypothesis is put forward:

Hypothesis 1-1: All other things being equal, female audit partners receive lower audit fees than male audit partners

Auditors can use audit networks to benefit from each other's industry-specific audit knowledge (Bianchi, 2018; Bianchi et al., 2020; Vera-Munoz et al., 2006; Francis and Yu, 2009) and maintain a robust monitoring mechanism that helps prevent audit quality degradation due to an auditor's misconduct (Dugan and Spurgeon, 2002). The literature

shows that female leaders in the workplace are more likely to be concerned with building and maintaining strong, trusting and collaborative relationships with team members. This ability leads women to place more value on teamwork (Rosette and Tost, 2010) and tend to make decisions after listening to the opinions of team members (Eagly, Wood and Diekman, 2000).

Therefore, this paper posits that female auditors with more extensive audit networks compared to male auditors are better able to leverage these networks and effectively utilize the audit resources provided by other auditors within the network. As a result, they do not have to charge higher audit fees to their clients and can perform the audit without time and personnel bottlenecks. On this basis, the following hypothesis is put forward:

Hypothesis 1-2: All other things being equal, female audit partners with more extensive relationships to an audit network will have lower audit fees than male audit partners

Furthermore, this study aims to investigate whether auditors of different genders provide different levels of low-price competition and to examine the impact on audit quality. Gender differences lead to different personalities, which in turn influence behavioral patterns. Based on the literature reviewed, this study hypothesizes that female auditors, who are more conservative and risk averse, will engage in less aggressive low-price competition compared to male auditors. Although auditors use low-price competition to attract new clients in the early stages of auditing, female partners are expected to offer lower discounts to avoid undercharging audit fees, which could limit the use of audit staff and thus reduce audit quality. Conversely, male partners, who are more risk averse and more likely to invest in riskier projects, are expected to offer higher discounts to attract potential clients. On this basis, the following hypothesis is put forward:

Hypothesis 2-1: All other things being equal, female partners have less competition from low prices on audit fees than male partners

The literature review shows that audit networks offer numerous advantages. Each auditor brings knowledge from auditing different industries and has different resources to bring to the audit process. Due to professional networks, auditors can share information about their respective clients. Therefore, this paper hypothesizes that auditors who have extensive audit networks can leverage the network's resources to reduce their audit workload without fear that lower audit fees due to low-price competition will lead to a shortage of audit staff. Furthermore, as the literature suggests, women in the workplace tend to have a stronger sense of teamwork. This paper therefore suggests that female partners with a dense audit network are better able to utilize their audit advantages. Consequently, they may be better able to make competitive offers when negotiating audit fees with clients. On this basis, the following hypothesis is put forward:

Hypothesis 2-2: All other things being equal, female partners with a dense audit network will exhibit a higher degree of low-price competition in audit fees than male partners

The literature shows that men tend to have a more risk-taking mentality. Therefore, this study assumes that male audit partners will participate to a greater extent in low-

price competition. However, the existing literature has not found that auditors compromise their audit quality when they engage in low-price competition (Cho et al., 2021; Kung et al., 2021). Therefore, this paper hypothesizes that male partners have higher levels of low-price competition compared to female partners, but still maintain their audit quality. On this basis, the following hypothesis is put forward:

Hypothesis 3-1: All other things being equal, the gender of the auditor has no influence on audit quality

To protect their reputation and prevent a deterioration in audit quality due to an auditor's misconduct, auditors within an audit network monitor and support each other to avoid negative effects (Dugan and Spurgeon, 2002). Furthermore, audit networks are positively correlated with audit quality (Bianchi, 2018; Seavey et al., 2018). As mentioned in the literature, auditors who engage in low-price competition do not necessarily affect audit quality (Cho et al., 2021). Kung et al. (2021) found that industry professionals maintain their independence and quality even when they attract potential clients through low-price competition because they are concerned about their reputation.

Therefore, this paper hypothesizes that audit quality will not decrease even if female auditors are better able to use dense audit networks that lead to more competition at low prices. On this basis, the following hypothesis is put forward

Hypothesis 3-2: All other things being equal, the audit quality of female partners does not decrease even if they participate in low-price competition to a greater extent than male partners

3. Research Methods

3.1 Research Variables

(1) Dependent Variables

Audit Fees (*Audit_Fee*)

If an auditor has a better reputation or offers higher audit quality, clients are more willing to pay higher audit fees in order to receive more thorough audit services. In addition, audited companies can use the auditor's reputation to signal to investors that the company's financial reporting is of higher quality. Therefore, this paper hypothesizes that an audit partner that can obtain higher audit fees will have greater contribution and influence within the audit firm. Therefore, the proportion of total audit fees attributable to individual auditors is used as a measure.

Low Balling Measure (*Fee_Diff*)

This study follows the approach of Kung et al. (2021) to calculate the extent of low-balling competition. First, auditors are divided into those with more extensive networks and those with less extensive networks. Then, the median audit fee for each industry per year is calculated separately for both groups. For each audited company, the annual audit fee is subtracted from the median audit fee for the respective industry and network type (i.e. if the audited company is audited by an auditor with an extensive network, the median audit fee for extensive networks is used; otherwise, the median for less extensive networks is used). This difference is then deflated by the total assets of the audited company.

If the resulting amount of low-price competition is negative, this indicates that the audit fee is below the median fee, which suggests the existence of low-price competition. The more negative the value, the greater the low-price competition. On the other hand, if the value is positive, this means that the audit fee is above the median, which indicates that there is no low-price competition.

Accrual-Based Earnings Management_Discretionary Accruals (*Absda(Da)*)

This paper examines whether auditor gender affects audit quality through different levels of low-pricing strategies, using discretionary accruals as a proxy for audit quality. The modified Jones model is used, adjusted for firm performance according to Kothari et al. (2005) (excluding the intercept term). Discretionary accruals are estimated separately by year and industry using the following regression model (1) to calculate the coefficients, which are then applied to model (2) to determine non-discretionary accruals. The difference between the total accruals (TA) and the non-discretionary accruals (NDA) is the discretionary accrual. The calculation method is as follows. This study examines the impact of the extent of low-price competition on the absolute value of discretionary accruals (AbsDA) and considers both upward (DA≥0) and downward (DA<0) earnings manipulation to measure the impact of different directions of earnings management and the ability of auditors to limit such manipulation by audited companies.

$$\frac{Ta_{it}}{Assets_{it-1}} = \alpha_1 \frac{1}{Assets_{it-1}} + \alpha_2 \frac{\Delta Sales_{it}}{Assets_{it-1}} + \alpha_3 \frac{Ppe_{it}}{Assets_{it-1}} + \alpha_4 Roa_{it} + \varepsilon_{it}$$

$$Nda_{it} = \alpha_1 \frac{1}{Assets_{it-1}} + \alpha_2 \frac{\Delta Sales_{it}}{Assets_{it-1}} + \alpha_3 \frac{Ppe_{it}}{Assets_{it-1}} + \alpha_4 Roa_{it}$$

(2)

Where

Ta_{it}	:	The total accruals of company i in year t.
Nda_{it}	:	The non-discretionary accruals of company i in year t.
$Assets_{it-1}$	:	The total assets of company i in year t-1.
$\Delta Sales_{it}$	:	The change in sales revenue of company i in year t less the change in accounts receivable.
Ppe_{it}	:	The net amount of property, plant, and equipment of company i in year t.
Roa_{it}	:	The return on assets of company i in year t.
ε_{it}	:	The residuals of company i in year t.

(2) Primary Independent Variables

Auditor Gender *(Cpa_Gender_F)*

In Taiwanese audit practice, the primary signing auditor is usually responsible for the entire audit work, while most secondary signing auditors only review the audit content. Therefore, this paper hypothesizes that there is a significant difference in the allocation of audit work between primary and secondary signing auditors. According to Chin and Chi (2009), the audit quality of primary signing auditors is better than that of secondary signing auditors, suggesting that not only do they have different audit tasks, but there is also a difference in audit quality. This may indicate that the secondary signing auditors in Taiwan do not play a decisive influential role (Chi and Chin 2011; Aobdia et al. 2015). Therefore, this paper focuses on the influence of primary signing auditors.

This study introduces a gender variable for auditors in the Big Four audit firms, coded 1 if the primary signing auditor is female and 0 otherwise (Cpa_Gender_F). The study assumes that this variable is negatively correlated with the variable for audit fees and positively correlated with the extent of low-price competition and discretionary accruals.

Auditor Signing Network (*Cpa_Network*)

This paper follows Wasserman and Faust's (1994) method for measuring networks. It calculates the number of auditors who collaborated with a particular auditor in signing audit reports during the year divided by the number of auditors in the auditor's firm in that year, excluding the auditor himself. This study expects the interaction effect between this network variable and auditor gender to be negatively correlated with both audit fees and the extent of low-price competition.

To explore the extent of relationships between signing auditors, Figure 1 illustrates the relationships between the audit networks of listed and public companies in 2022, based on data from the Taiwan Economic Journal (TEJ). When the primary signing auditor is Shi Weiming, the secondary signing auditors include Zhang ChunyI, Zhang Huizhen, Tang Cijie, Chen Meiyan and Gao Liangwen, totaling five auditors. The relationship between the signing first-degree auditors is defined as the number of first-degree collaborators divided by the total number of auditors in the audit firm minus one. This relationship facilitates the sharing and exchange of information and provides additional resources.

To calculate the relationship between the second-degree signing networks, the first-degree auditors are treated as primary signing auditors, and their secondary signing auditors are listed. After excluding overlapping relationships, Shi Weiming has signing relationships with Zhang Chunyi, Zhang Huizhen, Tang Cijie, Chen Meiyan, Gao Liangwen, Zhao Minru, Guan Chunxiu and Xu Yufeng, totaling eight auditors. The second-degree signing network relationship is then defined as the number of second-degree collaborators divided by the total number of auditors in the audit firm minus one.
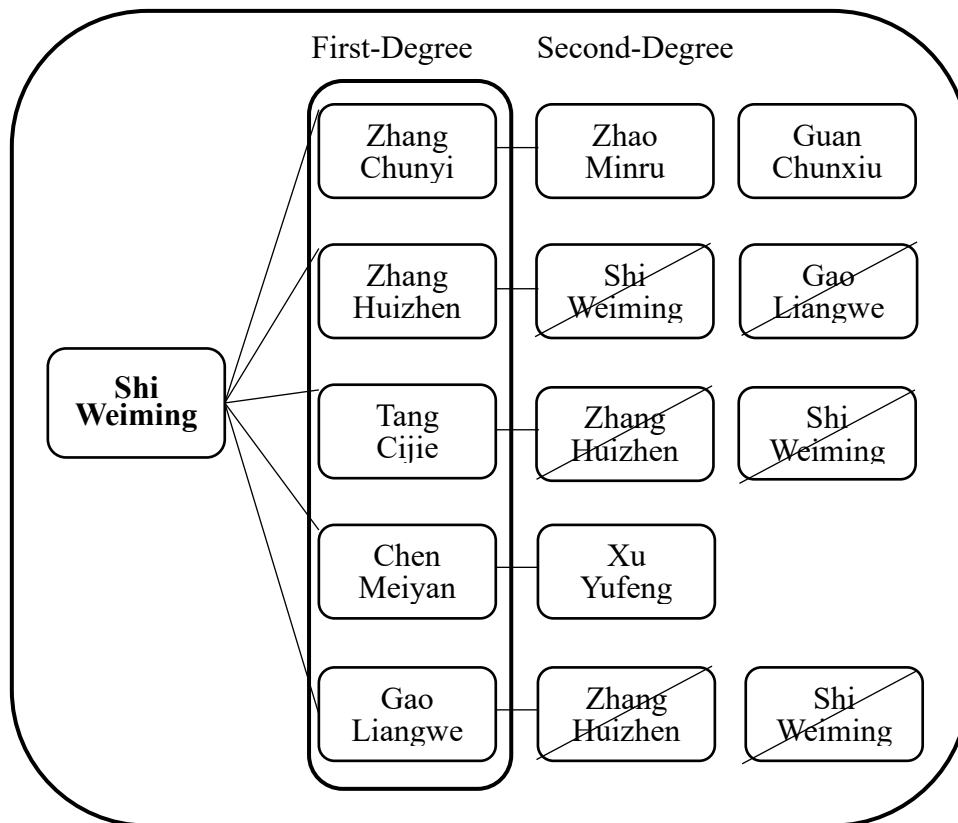
Figure 1 Relationships of the primary auditor to the first and second degree signing network

(3) Control Variables

Three research models are applied in this paper. First, it examines the audit fee model in relation to the gender of signing auditors and their audit networks. Second, it examines whether the different genders of signing auditors and their audit networks lead to different levels of competition for low fees. Finally, the analysis is extended to

determine whether participation in low fee competition changes audit quality. In the following, the introduction to each research model explains the control variables included, their measurement methods and the reasons for their inclusion.

3.2 Research Model

This paper first examines whether auditor gender affects audit fees and observes how the interaction between auditor gender and audit networks affects audit fees. The following model is based on Hypothesis 1-1 and Hypothesis 1-2. This study refers to the audit fee estimation models of Ebrahim (2016), Taylor (2011) and Campa (2013) and includes control variables that influence audit fees.

First of all, the model takes into account the size (Size) and the number of subsidiaries (Sub) in order to control the scope of the audit. To accurately capture the operating status of the audited companies, the model controls for the ratio of accounts receivable and inventories to total assets (Arinv), the debt-to-equity ratio (Lev), a dummy variable indicating whether the company reported a net loss in the previous year (Lagloss), the current ratio (Curr_Ratio) and the return on assets (Roa). It also includes non-audit fees (NonAudit_Fee) to control for the impact of non-audit services.

According to the Audit Report 2020 published by the Financial Supervisory Authority, the Big Four audit 89% of listed companies in Taiwan. Therefore, this study focuses on companies audited by the Big Four and uses Ernst & Young as a benchmark, while dummy variables for the other three big firms (Deloitte, PwC, KPMG) are included to control for the individual effects of the big audit firms. Finally, dummy variables for industry and year are included to control for industry-specific and time effects.

$$
\begin{aligned}
Audit\_Fee_{it} = {}& \gamma_0 + \alpha_1 Cpa\_Gender\_F_{it} + \alpha_2 Cpa\_Network_{it} \\
& + \alpha_3 Cpa\_Gender\_F_{it} \times Cpa\_Network_{it} + \gamma_4 Size_{it} \\
& + \gamma_5 Squsub_{it} + \gamma_6 Arinv_{it} + \gamma_7 Lev_{it} + \gamma_8 Lagloss_{it} \\
& + \gamma_9 Curr\_Ratio_{it} + \gamma_{10} Roa_{it} + \gamma_{11} NonAudit\_Fee_{it} \\
& + \gamma_{12} Deloitte_{it} + \gamma_{13} PwC_{it} + \gamma_{14} KPMG_{it} \\
& + \sum Industry + \sum Year + \varepsilon_{it}
\end{aligned}
$$

(3)

Where

Audit_Fee	:	Ratio of audit fees. Measured as the firm's audit fee divided by the total audit fee.
Cpa_Gender_F	:	Gender of the auditor. Set to 1 if the lead auditor is female, otherwise 0.
Cpa_Network	:	Auditor signing network. Defined as previously mentioned.
Size	:	Size of the company. The natural logarithm of the company's total assets.
Squsub	:	Number of subsidiaries. The square root of the number of subsidiaries of the audited company.

Arinv	:	Accounts receivable and inventory ratio. The ratio of accounts receivable and inventory to total assets of the company.
Lev	:	Debt-equity ratio. The ratio of total debt to total assets.
Lagloss	:	Net loss in the previous period. Set to 1 if the company had a net loss in the previous period, otherwise set to 0.
Curr_Ratio	:	Current ratio. The ratio of current assets to current liabilities.
Roa	:	Return on assets (ROA). Net income divided by total assets.
NonAudit_Fee	:	Ratio of non-audit fees. Measured as the firm's non-audit fees divided by total audit fees.
Deloitte	:	Deloitte. Set to 1 if the company was audited by Deloitte in the current year, otherwise set to 0.
PwC	:	PwC. Set to 1 if the company was audited by PwC in the current year, otherwise set to 0.
KPMG	:	KPMG. Set to 1 if the company was audited by KPMG in the current year, otherwise set to 0.
Industry	:	Dummy variable for industry.
Year	:	Dummy variable for year.
ε	:	Residual Term.

Furthermore, reducing audit fees through "low-price competition" in order to secure long-term contracts is a common practice among auditors. Therefore, this paper aims to investigate whether the gender of auditors and their audit networks lead to different levels of low-price competition. The following model tests Hypothesis 2-1 and Hypothesis 2-2. This study relates to the control variables for Kung et al.'s (2021) model of low-price competition. First, according to Simunic (1980), there might be a nonlinear relationship between firm size and audit fees. To avoid this effect on the residuals, the natural logarithm of total assets is used as a control variable (Size). Patel and Prasad (2013) pointed out that auditors may not adjust the initial low audit fees they received in low-price competition to the standard level to secure long-term contracts and instead compensate with non-audit fees. Therefore, non-audit fees (NonAudit_Fee) are included as a control variable in this study. In addition, the complexity of the transactions in the audited companies can influence the audit fees. The ratio of inventories and receivables to total assets (Invrec) and the square root of the number of subsidiaries (Squsub) are used as control variables (Francis and Simon 1987; Simunic, 1980). For factors related to operational risk, the study controls for leverage ratio (Lev), quick ratio (Quick), return on equity (Roe) and a dummy variable indicating a loss in the previous year (Lagloss) (Gul and Tsui, 1998). The study also controls for the effects of corporate governance using the directors' share ratio (Dirsh) (Bhagat and Bolton, 2013). In addition, the study uses Ernst & Young as a benchmark and adds dummy variables for the other three major firms (Deloitte, PwC, KPMG) to control for the individual effects of the major accounting firms. Finally, dummy variables for industry and year are also included.

$$Fee\_Diff_{it} = \beta_0 + \beta_1 Cpa\_Gender\_F_{it} + \beta_2 Cpa\_Network_{it}$$
$$+ \beta_3 Cpa\_Gender\_F_{it} \times Cpa\_Network_{it} + \beta_4 Size_{it}$$
$$+ \beta_5 NonAudit\_Fee_{it} + \beta_6 Invrec_{it} + \beta_7 Squsub_{it} + \beta_8 Lev_{it}$$
$$+ \beta_9 Quick_{it} + \beta_{10} Roe_{it} + \beta_{11} Lagloss_{it} + \beta_{12} Dirsh_{it}$$
$$+ + \beta_{13} Deloitte_{it} + \beta_{14} PwC_{it} + \beta_{15} KPMG_{it}$$
$$+ \sum Industry + \sum Year + \varepsilon_{it}$$

(4)

Where

Fee_Diff	:	Low balling degree. Defined as previously mentioned.
Cpa_Gender_F	:	Auditor gender. Set to 1 if the lead auditor is female, otherwise set to 0.
Cpa_Network	:	Auditor signing network. Defined as previously mentioned.
Size	:	Company size. The natural logarithm of the company's total assets.
NonAudit_Fee	:	Ratio of non-audit fees. Measured as the firm's non-audit fee divided by the total audit fee.
Invrec	:	Inventory and accounts receivable Ratio. The ratio of inventories and accounts receivable to total assets.
Squsub	:	Number of subsidiaries. The square root of the number of subsidiaries of the audited company.
Lev	:	Leverage Ratio. The ratio of total debt to total assets.
Quick	:	Quick Ratio. The ratio of quick assets to current liabilities.
Roe	:	Return on equity (ROE). Net income divided by shareholders' equity.
Lagloss	:	Net loss in the previous period. Set to 1 if the company had a net loss in the previous period, otherwise set to 0.
Dirsh	:	Board ownership ratio. The percentage of shares held by the board of directors.
Deloitte	:	Deloitte. Set to 1 if the company was audited by Deloitte in the current year, otherwise set to 0.
PwC	:	PwC. Set to 1 if the company was audited by PwC in the current year, otherwise set to 0.
KPMG	:	KPMG. Set to 1 if the company was audited by KPMG in the current year, otherwise set to 0.
Industry	:	Dummy variable for industry.
Year	:	Dummy variable for year.
ε	:	Residual Term.

Finally, this paper examines whether the implementation of low-price competition strategies affects audit quality. In particular, it examines whether auditor gender and the extent of low-price competition lead to differences in audit quality, thereby confirming Hypotheses 3-1 and 3-2. The control variables for the audit quality model include the firm's revenue growth rate (Growth), which is calculated as the current year's net

revenue compared to the previous year. Cash flow from operating activities (Cfo) is measured by dividing the net cash flow from operating activities by the total assets of the previous period. Auditor tenure is split between the primary and secondary signing auditor, taking into account the longer tenure of the auditor. The age of the company (Age) is defined by the number of years since its foundation. The dummy variable for a listed company (Listed) is set to 1 if the audited company is listed and to 0 if it is not traded on the stock exchange. The definitions and measurements of the other variables are as described above.

$$
\begin{aligned}
Absda(\text{Da})_{it} = {} & \delta_0 + \delta_1 Cpa\_Gender\_F_{it} + \delta_2 Fee\_Diff_{it} \\
& + \delta_3 Cpa\_Gender\_F_{it} \times Fee\_Diff_{it} + \delta_4 Size_{it} + \delta_5 Growth_{it} \\
& + \delta_6 Cfo_{it} + \delta_7 Tenure_{it} + \delta_8 Age_{it} + \delta_9 Listed_{i,t} + \beta_{10} Deloitte_{it} \\
& + \beta_{11} PwC_{it} + \beta_{12} KPMG_{it} + \sum Industry + \sum Year + \varepsilon_{it}
\end{aligned}
$$

(5)

Where

Absda(Da)	:	Audit quality. Measured using discretionary accruals as a proxy, as defined above.
Cpa_Gender_F	:	Auditor gender. Set to 1 if the lead auditor is female, otherwise set to 0.
Fee_Diff	:	Low balling degree. Defined as previously mentioned.
Size	:	Company size. The natural logarithm of the company's total assets.
Growth	:	Growth rate of the company. Calculated as net sales in the current year compared to the previous year.
Cfo	:	Operating cash flow. Measured as cash flow from operating activities divided by the previous year's total assets.
Tenure	:	Auditor tenure. The longer tenure between the lead auditor and the co-signing auditor.
Age	:	Age of the company. The number of years since the company was founded.
Listed	:	Listed status. Set to 1 if the sample company is listed, 0 if it is traded over the counter.
Deloitte	:	Deloitte. Set to 1 if the company was audited by Deloitte in the current year, otherwise set to 0.
PwC	:	PwC. Set to 1 if the company was audited by PwC in the current year, otherwise set to 0.
KPMG	:	KPMG. Set to 1 if the company was audited by KPMG in the current year, otherwise set to 0.
Industry	:	Dummy variable for industry.
Year	:	Dummy variable for year.
ε	:	Residual Term.

3.3 Data Source

First, given the significant differences in size between the Big Four and non-Big Four accounting firms in Taiwan and the fact that the Big Four hold almost 90% of the auditing market share in Taiwan, this study focuses on observing the Big Four accounting firms to avoid structural inequalities. The data on audited companies come from the Taiwan Economic Journal (TEJ), and the data on the gender of auditors come from the Big Four accounting firms. Since many auditors have gender-neutral names, the study manually collected photos of each audit partner and confirmed their gender by the staff of each firm to avoid possible errors in data collection. Table 1 shows the distribution of the sample. The results show that the total number of observations from 2002 to 2022 is 18,444. The electronic components industry has the largest share of the total sample with 13.83%, followed by the semiconductor industry with 9.27% and the computer and peripheral equipment industry with 7.55%. There is also a clear trend that the number of samples is increasing over the years.

Table 1 Sample Distribution (N=18,444)

TSE Industry/Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total	Percentage (%)
2 Food Industry	1	1	2	1	4	6	5	16	18	19	21	22	22	22	22	22	22	21	21	21	20	309	1.68%
3 Plastics Industry	2	2	1	2	6	6	9	18	18	19	19	20	20	20	20	19	20	21	19	18	17	296	1.60%
4 Textile Industry	1	3	2	2	8	9	8	28	28	31	33	32	32	35	34	35	36	36	35	34	34	496	2.69%
5 Electrical Machinery	3	5	5	8	14	13	15	41	45	46	49	53	55	57	65	65	70	72	72	73	73	899	4.87%
6 Electrical Appliances and Cables	0	0	0	0	5	4	2	10	12	12	14	14	14	15	15	15	14	14	14	14	14	202	1.10%
10 Steel Industry	1	2	3	4	8	11	8	20	22	23	23	25	25	26	28	28	29	31	33	31	31	412	2.23%
11 Rubber Industry	1	1	0	0	2	3	1	6	6	6	7	7	7	7	7	6	6	7	8	7	7	102	0.55%
12 Automobile Industry	0	5	5	6	9	6	7	17	20	21	22	23	23	26	27	29	29	30	31	31	32	399	2.16%
14 Building Materials and Construction	5	3	3	5	18	19	18	43	44	45	48	49	48	49	51	50	53	50	53	54	54	762	4.13%
15 Shipping	2	0	0	1	4	6	6	20	22	23	24	25	25	26	26	26	26	26	26	26	27	367	1.99%
16 Tourism	0	0	0	0	1	3	1	15	15	14	18	19	25	31	31	30	31	29	31	32	31	357	1.94%
18 Trading and Department Stores	0	1	1	2	4	3	4	8	8	9	13	14	14	14	15	15	17	17	16	15	14	204	1.11%
20 Others	3	4	4	4	19	17	17	40	45	52	54	59	63	66	70	75	76	74	75	70	67	954	5.17%
21 Chemical Industry	1	1	2	2	9	11	11	24	26	27	27	28	28	30	32	35	35	34	35	37	35	470	2.55%
22 Biotechnology and Medical Care	4	2	2	3	7	9	11	32	38	47	51	57	69	75	79	86	93	97	97	101	102	1,062	5.76%
23 Oil, Electricity, and Gas	0	1	1	1	2	2	1	7	8	7	7	8	8	8	9	9	10	10	10	10	9	128	0.69%
24 Semiconductor Industry	9	10	9	7	25	23	27	77	87	94	96	99	109	118	120	122	128	132	138	139	140	1,709	9.27%
25 Computer and Peripheral Equipment Industry	8	11	11	10	24	25	26	78	82	85	87	89	89	91	93	95	97	99	98	98	97	1,393	7.55%
26 Optoelectronics Industry	6	13	12	15	23	31	21	67	79	85	87	90	87	90	92	94	96	97	98	97	99	1,379	7.48%
27 Communications and Networking Industry	4	9	5	7	16	19	25	56	61	62	65	69	70	74	72	71	72	72	70	70	72	1,041	5.64%
28 Electronic Components Industry	17	30	20	25	42	56	56	138	144	152	158	162	167	168	167	172	173	173	174	177	179	2,550	13.83%
29 Electronic Distribution Industry	9	5	4	5	9	11	7	30	31	30	30	30	30	30	30	31	31	31	32	31	31	478	2.59%
30 Information Service Industry	5	0	1	0	2	5	7	20	23	25	26	27	27	26	27	26	27	28	29	28	30	389	2.11%
31 Other Electronics Industry	5	10	6	4	19	19	16	51	53	56	57	59	60	63	62	68	69	71	72	74	76	970	5.26%
32 Cultural and Creative Industries	1	2	1	2	5	4	3	14	14	14	16	16	19	20	22	23	22	21	21	21	22	283	1.53%
35 Green Energy and Environmental Protection Industry	0	0	0	0	0	0	5	7	10	11	13	12	12	13	15	15	19	20	20	22	23	217	1.18%
36 Digital Cloud Industry	0	0	0	0	0	0	0	0	0	5	5	6	8	8	11	10	10	9	9	11	14	106	0.57%
37 Sports and Leisure Industry	0	1	0	1	5	6	5	9	10	12	15	14	15	16	16	18	19	19	19	19	20	239	1.30%
38 Home Life Industry	0	1	2	1	4	7	6	10	10	13	13	14	15	17	16	19	21	24	25	27	26	271	1.47%
Total	88	123	102	118	294	334	328	902	979	1,045	1,098	1,142	1,186	1,241	1,274	1,309	1,351	1,365	1,381	1,388	1,396	18,444	100.00%
Percentage (%)	0.48%	0.67%	0.55%	0.64%	1.59%	1.81%	1.78%	4.89%	5.31%	5.67%	5.95%	6.19%	6.43%	6.73%	6.91%	7.10%	7.32%	7.40%	7.49%	7.53%	7.57%	100.00%	

4. Empirical Results

4.1 Descriptive Statistics and Results of the Difference Test

Table 2 contains the descriptive statistics for the entire sample. To avoid the possible influence of extreme values on the research results, all continuous variables were winsorized at the 1% and 99% level. The regression analyzes were also adjusted for possible variances by determining the standard deviations for the individual companies and years using two-way cluster robusts (Petersen, 2009; Gow et al., 2010). The results show that the mean value of the audit fees (Audit_Fee) is 14.956, with a median of 14.914.

In terms of competition from auditors with low fees, the mean fee difference (Fee_Diff) is -0.114, the 25th percentile is -0.154 and the median is 0.010. The mean fee difference in the first-degree network for auditors with first signatures (Cpa11Fee_Diff) is -0.104, the 25th percentile is -0.150 and the median is 0.007. The mean fee difference in the second-degree network for first-signature auditors (Cpa12Fee_Diff) is -0.102, the 25th percentile is -0.149 and the median is 0.007. These results indicate that audit fees for more than a quarter of their audited firms are lower than the median for their industry in the year, suggesting low price competition.

The mean absolute value of discretionary accruals (Absda) is 0.057, which is higher than the median of 0.041, indicating that companies manage their earnings through discretionary accruals. In terms of auditor gender, the mean for the gender of primary signing auditors (Cpa_Gender_F) is 0.404 and for the gender of secondary signing auditors (Cpa2_Gender_F) is 0.364, suggesting that approximately 40% of primary signing auditors are female, while less than 40% of secondary signing auditors are female. Primary signing auditors with legal power (Cpapower1) account for approximately 17.8% of the total sample, while secondary signing auditors with legal power (Cpapower2) account for 21.6%, indicating that secondary signing auditors with legal power are more represented in the sample than primary signing auditors. In addition, approximately 2.4% of the audited companies have a primary signing auditor who is an industry expert (Expert_cpa1) and 2.4% of the audited companies are audited by a secondary signing auditor who is an industry expert (Expert_cpa2).

For audit networks, the mean first-degree network for primary signing auditors (CPA1LV1NW) is 0.030, with a median of 0.023, and the mean second-degree network (CPA1LV2NW) is 0.071, with a median of 0.047.

For the control variables on the company characteristics, the average company size (Size) is 22.323, the average company age (Age) is 3.201 years, 58.3% of the sample companies are listed (Listed), the average square root of the number of subsidiaries (Squsub) is 3.113 and the average shareholding of the directors (Dirsh) is 1.997.

For the control variables relating to financial performance, the average ratio of accounts receivable and inventories to total assets (Invrec) is 0.320, the average debt/equity ratio (Lev) is 0.422, around 18.8% of companies had a net loss in the previous year, the average current assets (Curr_Ratio) is 2.560, the average return on assets (Roa) is 0.051, the average growth rate of the company (Growth) is 0.087, the average operating cash flow (Cfo) is 0.071, the average quick ratio (Quick) is 1.823 and the average return on equity (Roe) is 0.087.

For the variables relating to audit and non-audit services, the average proportion of non-audit fees is 12.941 and the average tenure of the auditor (Tenure) is 7.070 years, with a maximum of 19 years. The sample shows that 41.2% of companies are audited by Deloitte, 22.8% by KPMG, 24.6% by PwC and 11.4% by EY.

Table 3 shows the results of the T-test and the Wilcoxon test for the gender of the primary signing auditors. The results show that female primary signing auditors receive more audit fees (Audit_Fee) and non-audit fees (NonAudit_Fee) compared to male primary signing auditors, which contradicts the expectations of hypothesis 1-1. However, the T-test is a univariate test, so we will subsequently perform multivariate tests. In terms of competition for low fees, we find that the mean fee difference (Fee_Diff), the first-degree network fee difference for primary signing auditors (Cpa11Fee_Diff) and the second-degree network fee difference for primary signing auditors (Cpa12Fee_Diff) are lower for male primary signing auditors than for female primary signing auditors. This suggests that male primary signing auditors compete with low prices to a greater extent, but the differences between the two groups are not statistically significant.

There is also no statistically significant difference in the absolute value of discretionary accruals (Absda) between the two groups, suggesting that audit quality does not differ by auditor gender. In terms of legal power, more male primary signing auditors have legal power (Cpapower1) than female primary signing auditors, while more female secondary signing auditors have legal power (Cpapower2) than male secondary signing auditors. In addition, the network of first-degree signatures is denser for male primary signing auditors than for female primary signing auditors (CPA1LV1NW). Female primary signing auditors have a longer tenure than male primary signing auditors. The companies audited by female auditors are older (Age) than the companies audited by male auditors. Among the Big Four audit firms, there are more male signing auditors at Deloitte and EY, while there are more female signing auditors at KPMG and PwC.

Table 2 Descriptive Statistics (N=18,444)

Variable Name	mean	sd	min	p25	p50	p75	max
Audit_Fee	14.956	0.525	13.487	14.631	14.914	15.251	16.433
Fee_Diff	-0.114	0.715	-4.929	-0.154	0.010	0.142	1.471
Cpa11Fee_Diff	-0.104	0.698	-4.720	-0.150	0.007	0.141	1.515
Cpa12Fee_Diff	-0.102	0.692	-4.663	-0.149	0.007	0.142	1.509
Absda(Da)	0.057	0.057	0.000	0.018	0.041	0.076	0.337
Cpa_Gender_F	0.404	0.491	0.000	0.000	0.000	1.000	1.000
Cpa2_Gender_F	0.364	0.481	0.000	0.000	0.000	1.000	1.000
Cpapower1	0.178	0.383	0.000	0.000	0.000	0.000	1.000
Cpapower2	0.216	0.411	0.000	0.000	0.000	0.000	1.000
CPA1LV1NW	0.030	0.021	0.005	0.015	0.023	0.036	0.250
CPA1LV2NW	0.071	0.060	0.010	0.032	0.047	0.089	0.438
Size	22.323	1.450	19.204	21.293	22.118	23.130	26.512
Squsub	3.113	1.635	1.000	2.000	2.828	3.742	9.539
Invrec	0.320	0.178	0.005	0.189	0.310	0.433	0.847
Lev	0.422	0.174	0.063	0.290	0.422	0.546	0.848
Lagloss	0.188	0.391	0.000	0.000	0.000	0.000	1.000
Curr_Ratio	2.560	2.170	0.418	1.424	1.904	2.834	15.185
Roa	0.051	0.088	-0.253	0.010	0.046	0.092	0.408
NonAudit_Fee	12.941	1.046	9.547	12.578	12.578	13.592	15.777
Growth	0.087	0.386	-0.621	-0.079	0.037	0.166	3.356
Cfo	0.071	0.113	-0.445	0.013	0.069	0.131	0.475
Tenure	7.070	3.925	1.000	4.000	6.000	10.000	19.000
Age	3.201	0.564	1.099	2.890	3.258	3.611	4.143
Listed	0.583	0.493	0.000	0.000	1.000	1.000	1.000
Quick	1.823	1.867	0.070	0.860	1.292	2.059	12.911
Roe	0.087	0.161	-0.546	0.019	0.084	0.164	0.713
Dirsh	1.997	4.486	0.000	0.000	0.800	1.920	86.710
Deloitte	0.412	0.492	0.000	0.000	0.000	1.000	1.000
KPMG	0.228	0.419	0.000	0.000	0.000	0.000	1.000
PwC	0.246	0.430	0.000	0.000	0.000	0.000	1.000
EY	0.114	0.318	0.000	0.000	0.000	0.000	1.000
Expert_cpa1	0.024	0.152	0.000	0.000	0.000	0.000	1.000
Expert_cpa2	0.024	0.153	0.000	0.000	0.000	0.000	1.000

Variable definitions: Audit_Fee: Ratio of the audit fees. Measured as the firm's audit fee divided by the total audit fee; Fee_Diff: Degree of low balling. Defined as previously mentioned; Cpa11Fee_Diff: Low balling level for the lead auditor's first-degree network for the current year. Defined as previously mentioned; Cpa12Fee_Diff: Low balling level for the second degree network of the lead auditor for the current year. Defined as previously mentioned; Absda(Da): Quality of the audit. Measured using discretionary accruals as a proxy, as defined above; Cpa_Gender_F: Gender of the auditor. Set to 1 if the lead auditor is female, otherwise set to 0; Cpa2_Gender_F: Gender of the auditor. Set to 1 if the co-signing auditor is female, otherwise set to 0; Cpapower1: Auditor with legal powers. Set to 1 if the lead auditor has legal powers, otherwise set to 0; Cpapower2: Auditor with legal powers. Set to 1 if the co-signing auditor has legal power, 0 otherwise; CPA1LV1NW: First degree signing network of the lead auditor for the current year. Defined as previously mentioned; CPA1LV2NW: Second degree signing network of the lead auditor for the current year. Defined as previously mentioned; Size: Size of the company. Measured as the natural logarithm of the company's total assets; Squsub: The square root of the number of subsidiaries of the audited company; Invrec: The ratio of accounts receivable and inventories to total assets; Lev: Leverage ratio; Lagloss: Set to 1 if the company had a net loss in the prior period, 0 otherwise; Curr_Ratio: Current ratio; Roa: Return on assets; NonAudit_Fee: Ratio of non-audit fees. Measured as the company's non-audit fees divided by total audit fees; Growth: growth rate of the company. Calculated as net sales for the current year compared to the previous year; Cfo: Cash flow from operating activities. Measured as cash flow from operating activities divided by the previous year's total assets; Tenure: tenure of the auditor. The longer tenure between the lead auditor and the co-signing auditor; Age: Age of the company; Listed: Set to 1 if the company in the sample is listed, 0 if it is traded over-the-counter;

Quick: quick ratio; Roe: return on equity; Dirsh: board share; Deloitte: Set to 1 if the company was audited by Deloitte in the current year, 0 otherwise; KPMG: Set to 1 if the company was audited by KPMG in the current year, 0 otherwise; PwC: Set to 1 if the company was audited by PwC in the current year, 0 otherwise; EY: Set to 1 if the company was audited by EY in the current year, otherwise set to 0; Expert_cpa1: Set to 1 if the lead auditor is an industry expert, otherwise set to 0; Expert_cpa2: Set to 1 if the co-signing auditor is an industry expert, 0 otherwise.

Table 3 T-Test and Wilcoxon Test Results (N=18,444)

Variable Name	Male Primary Auditor (N=10,999)		Female Primary Auditor (N=7,445)		Mean Difference	t-Value /Wilcoxon z-test
	Mean	Median	Mean	Median		
Audit_Fee	14.946	14.914	14.971	14.914	-0.025	-3.0855***
Fee_Diff	-0.118	0.006	-0.108	0.015	-0.010	-0.9316
Cpa11Fee_Diff	-0.108	0.003	-0.098	0.012	-0.010	-0.9500
Cpa12Fee_Diff	-0.104	0.005	-0.099	0.011	-0.005	-0.5112
Absda(Da)	0.057	0.041	0.057	0.041	0.000	-0.0130
Cpapower1	0.197	0.000	0.150	0.000	0.047	8.203***
Cpapower2	0.210	0.000	0.224	0.000	-0.014	-2.197**
CPA1LV1NW	0.030	0.023	0.029	0.023	0.001	1.7464**
CPA1LV2NW	0.071	0.047	0.072	0.046	-0.001	-1.2149
Size	22.316	22.095	22.334	22.154	-0.018	-0.8361
Squsub	3.101	2.646	3.132	2.828	-0.031	-1.2756
Invrec	0.319	0.310	0.323	0.312	-0.004	-1.4017
Lev	0.421	0.423	0.423	0.421	-0.002	-0.7147
Lagloss	0.185	0.000	0.192	0.000	-0.007	-1.171
Curr_Ratio	2.545	1.896	2.582	1.913	-0.037	-1.1531
Roa	0.053	0.047	0.047	0.045	0.006	4.3411***
NonAudit_Fee	12.929	12.578	12.958	12.578	-0.029	-1.8592*
Growth	0.087	0.040	0.087	0.033	0.000	0.1182
Cfo	0.073	0.071	0.067	0.066	0.006	3.5225***
Tenure	6.929	6.000	7.276	7.000	-0.347	-5.8956***
Age	3.187	3.258	3.221	3.296	-0.034	-4.0582***
Listed	0.582	1.000	0.584	1.000	-0.002	-0.339
Quick	1.806	1.293	1.847	1.291	-0.041	-1.4745
Roe	0.091	0.085	0.082	0.083	0.009	3.6203***
Dirsh	2.028	0.800	1.951	0.800	0.077	1.1485
Deloitte	0.445	0.000	0.365	0.000	0.080	10.841***
KPMG	0.175	0.000	0.305	0.000	-0.130	-20.604***
PwC	0.234	0.000	0.263	0.000	-0.029	-4.458***
EY	0.146	0.000	0.067	0.000	0.079	16.426***
Expert_cpa1	0.024	0.000	0.023	0.000	0.001	0.256
Expert_cpa2	0.024	0.000	0.024	0.000	0.000	0.257

Note:
1. Please refer to the description in Table 2 for the definitions of the variables. T-values/Wilcoxon z-tests refer to two-tailed tests.
2. *, **, and *** indicate significance levels of 10%, 5%, and 1% respectively (two-tailed tests).
3. As Cpapower1, Cpapower2, Lagloss, Listed, Deloitte, KPMG, PwC, EY, Expert_cpa1, and Expert_cpa2 are dummy variables, the Wilcoxon z-test is used to test for differences between the two groups.

4.2 Correlation Analysis

Table 4 shows the Pearson correlation coefficients for all regressions in this paper. Panel A shows the correlation analysis for Hypothesis 1, which examines the influence of auditor gender and audit networks on audit fees. The results show that the ratio of audit fees (Audit_Fee) is significantly positively correlated with the gender of the primary signing auditor (Cpa_Gender_F), suggesting that female primary signing auditors receive higher audit fees. In addition, the audit fee ratio (Audit_Fee) is significantly negatively correlated with the primary signing auditor's first-degree audit network (CPA1LV1NW), suggesting that denser audit networks are associated with lower audit fees. These results do not support hypotheses 1-1 and 1-2. However, as the correlation coefficients reflect a one-to-one relationship between the variables, a further multivariate regression analysis is conducted to observe the results under multiple controls.

Panel B shows the correlation analysis for Hypothesis 2, which examines the influence of auditor gender and audit networks on the extent of competition for low fees. The results show that the fee differential (Fee_Diff), the first-degree network fee differential for primary signing auditors (Cpa11Fee_Diff), and the second-degree network fee differential for primary signing auditors (Cpa12Fee_Diff) are all significantly positively correlated with the primary signing auditor's first-degree audit network (CPA1LV1NW) and second-degree audit network (CPA1LV2NW). This suggests that denser auditor networks are less likely to lead to low price competition.

Panel C shows the correlation analysis for Hypothesis 3, which examines the influence of auditor gender and the extent of low-price competition on audit quality. The results show that the absolute value of discretionary accruals (Absda) is significantly negatively correlated with the first-degree network fee difference (Cpa11Fee_Diff) and the second-degree network fee difference (Cpa12Fee_Diff) for primary signing auditors. This indicates that a lower degree of low price competition is associated with higher audit quality.

Panel D shows the correlation analysis for other factors, which examines the relationship between the gender of the auditor, the characteristics of the audit (and non-audit) and the legal power of the auditor. The results show that primary signing auditors are more likely to have legal power (Cpapower1) if they are male (Cpa_Gender_F), have higher audit quality (Absda), receive higher audit fees (Audit_Fee) and non-audit fees (NonAudit_Fee), have longer tenure (Tenure), or are industry experts (Expert_cpa1_s). Similarly, secondary signing auditors are more likely to have legal power (Cpapower2) if they are male (Cpa2_Gender_F), receive higher audit fees (Audit_Fee) and non-audit fees (NonAudit_Fee) or are industry experts (Expert_cpa2_s).

In addition, this paper tests the variance inflation factor (VIF) for the independent variables to avoid multicollinearity problems. The results show that all VIF values are not excessively high, indicating that there is no significant multicollinearity between the variables.

Table 4 Correlation Coefficients (N=18,444)

Panel A Correlation table of auditor gender and auditor signing network with audit fee

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1)Audit_Fee	1.000															
(2)Cpa_Gender_F	0.023***	1.000														
	(0.002)															
(3)CPA1LV1NW	-0.029***	-0.013*	1.000													
	(0.000)	(0.081)														
(4)CPA1LV2NW	-0.006	0.009	0.880***	1.000												
	(0.380)	(0.224)	(0.000)													
(5)Size	0.654***	0.006	-0.001	0.001	1.000											
	(0.000)	(0.403)	(0.931)	(0.861)												
(6)Squsub	0.645***	0.009	0.019***	0.032***	0.686***	1.000										
	(0.000)	(0.202)	(0.009)	(0.000)	(0.000)											
(7)Invrec	-0.009	0.010	-0.008	-0.025***	-0.024***	-0.002	1.000									
	(0.238)	(0.161)	(0.270)	(0.001)	(0.001)	(0.832)										
(8)Lev	0.227***	0.005	-0.014*	-0.031***	0.324***	0.277***	0.303***	1.000								
	(0.000)	(0.475)	(0.063)	(0.000)	(0.000)	(0.000)	(0.000)									
(9)Lagloss	-0.083***	0.009	0.021***	0.021***	-0.195***	-0.070***	-0.106***	0.076***	1.000							
	(0.000)	(0.241)	(0.005)	(0.004)	(0.000)	(0.000)	(0.000)	(0.000)								
(10)Curr_Ratio	-0.217***	0.008	0.033***	0.050***	-0.245***	-0.247***	-0.221***	-0.646***	0.025***	1.000						
	(0.000)	(0.249)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)							
(11)Roa	0.013*	-0.032***	-0.029***	-0.030***	0.123***	-0.020***	0.069***	-0.197***	-0.459***	0.048***	1.000					
	(0.077)	(0.000)	(0.000)	(0.000)	(0.000)	(0.006)	(0.000)	(0.000)	(0.000)	(0.000)						
(12)NonAudit_Fee	0.324***	0.014*	0.008	0.004	0.318***	0.299***	0.042***	0.113***	-0.112***	-0.109***	0.128***	1.000				
	(0.000)	(0.063)	(0.300)	(0.565)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)					
(13)Deloitte	0.026***	-0.080***	-0.478***	-0.507***	-0.022***	-0.043***	-0.033***	-0.053***	-0.030***	0.012*	0.045***	-0.024***	1.000			
	(0.000)	(0.000)	(0.000)	(0.000)	(0.003)	(0.000)	(0.000)	(0.000)	(0.000)	(0.090)	(0.000)	(0.001)				
(14)KPMG	-0.018**	0.152***	-0.117***	-0.144***	0.054***	0.033***	0.073***	0.097***	0.006	-0.058***	-0.004	-0.039***	-0.455***	1.000		
	(0.017)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.445)	(0.000)	(0.551)	(0.000)	(0.000)			
(15)Pwc	0.042***	0.033***	0.242***	0.355***	-0.017**	0.031***	-0.022***	-0.013*	0.021***	0.028***	-0.039***	0.095***	-0.478***	-0.310***	1.000	
	(0.000)	(0.000)	(0.000)	(0.000)	(0.023)	(0.000)	(0.003)	(0.071)	(0.004)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)		
(16)EY	-0.074***	-0.121***	0.567***	0.494***	-0.015**	-0.019***	-0.015**	-0.028***	0.010	0.019**	-0.011	-0.040***	-0.301***	-0.195***	-0.205***	1.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.048)	(0.009)	(0.042)	(0.000)	(0.163)	(0.011)	(0.140)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

Panel B Correlation table of auditor gender and auditor signing network with the extent of low balling

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
(1)Fee_Diff	1.000																		
(2)Cpa11Fee_Diff	0.966***	1.000																	
	(0.000)																		
(3)Cpa12Fee_Diff	0.959***	0.968***	1.000																
	(0.000)	(0.000)																	
(4)Cpa_Gender_F	0.007	0.007	0.004	1.000															
	(0.352)	(0.342)	(0.609)																
(5)CPA1LV1NW	0.017**	0.048***	0.044***	-0.013*	1.000														
	(0.020)	(0.000)	(0.000)	(0.081)															
(6)CPA1LV2NW	0.023***	0.052***	0.051***	0.009	0.880***	1.000													
	(0.002)	(0.000)	(0.000)	(0.224)	(0.000)														
(7)Size	0.358***	0.343***	0.343***	0.006	-0.001	0.001	1.000												
	(0.000)	(0.000)	(0.000)	(0.403)	(0.931)	(0.861)													
(8)NonAudit_Fee	0.136***	0.132***	0.131***	0.014*	0.008	0.004	0.318***	1.000											
	(0.000)	(0.000)	(0.000)	(0.063)	(0.300)	(0.565)	(0.000)												
(9)Invrec	0.040***	0.029***	0.030***	0.010	-0.008	-0.025***	-0.024***	0.042***	1.000										
	(0.000)	(0.000)	(0.000)	(0.161)	(0.270)	(0.001)	(0.001)	(0.000)											
(10)Squsub	0.264***	0.257***	0.256***	0.009	0.019***	0.032***	0.686***	0.299***	-0.002	1.000									
	(0.000)	(0.000)	(0.000)	(0.202)	(0.009)	(0.000)	(0.000)	(0.000)	(0.832)										
(11)Lev	0.138***	0.135***	0.133***	0.005	-0.014*	-0.031***	0.324***	0.113***	0.303***	0.277***	1.000								
	(0.000)	(0.000)	(0.000)	(0.475)	(0.063)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)									
(12)Quick	-0.148***	-0.143***	-0.145***	0.011	0.038***	0.060***	-0.237***	-0.093***	-0.305***	-0.216***	-0.637***	1.000							
	(0.000)	(0.000)	(0.000)	(0.140)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)								
(13)Roe	0.089***	0.080***	0.077***	-0.027***	-0.026***	-0.026***	0.177***	0.153***	0.131***	0.029***	-0.080***	0.006	1.000						
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.419)							
(14)Lagloss	-0.110***	-0.103***	-0.100***	0.009	0.021***	0.021***	-0.195***	-0.112***	-0.106***	-0.070***	0.076***	0.021***	-0.453***	1.000					
	(0.000)	(0.000)	(0.000)	(0.241)	(0.005)	(0.004)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.005)	(0.000)						
(15)Dirsh	-0.058***	-0.061***	-0.064***	-0.008	0.005	-0.023***	-0.073***	-0.014*	0.027***	-0.083***	0.009	-0.036***	0.005	-0.003	1.000				
	(0.000)	(0.000)	(0.000)	(0.251)	(0.499)	(0.002)	(0.000)	(0.056)	(0.000)	(0.000)	(0.217)	(0.000)	(0.511)	(0.717)					
(16)Deloitte	-0.006	-0.029***	-0.029***	-0.080***	-0.478***	-0.507***	-0.022***	-0.024***	-0.033***	-0.043***	-0.053***	0.012	0.029***	-0.030***	0.037***	1.000			
	(0.412)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.003)	(0.001)	(0.000)	(0.000)	(0.000)	(0.101)	(0.000)	(0.000)	(0.000)				
(17)KPMG	0.003	0.004	0.006	0.152***	-0.117***	-0.144***	0.054***	-0.039***	0.073***	0.033***	0.097***	-0.071***	0.008	0.006	-0.009	-0.455***	1.000		
	(0.701)	(0.581)	(0.452)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.294)	(0.445)	(0.202)	(0.000)			
(18)Pwc	0.011	0.025***	0.025***	0.033***	0.242***	0.355***	-0.017**	0.095***	-0.022***	0.031***	-0.013*	0.038***	-0.028***	0.021***	-0.024***	-0.478***	-0.310***	1.000	
	(0.131)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.023)	(0.000)	(0.003)	(0.000)	(0.071)	(0.000)	(0.000)	(0.004)	(0.001)	(0.000)	(0.000)		
(19)EY	-0.009	0.005	0.004	-0.121***	0.567***	0.494***	-0.015**	-0.040***	-0.015**	-0.019***	-0.028***	0.025***	-0.016**	0.010	-0.013*	-0.301***	-0.195***	-0.205***	1.000
	(0.200)	(0.499)	(0.605)	(0.000)	(0.000)	(0.000)	(0.048)	(0.000)	(0.042)	(0.009)	(0.000)	(0.001)	(0.028)	(0.163)	(0.088)	(0.000)	(0.000)	(0.000)	

Panel C Correlation table of auditor gender and the extent of low balling with audit quality

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1)Absda(Da)	1.000														
(2)Da	0.131***	1.000													
	(0.000)														
(3)Cpa_Gender_F	0.000	0.000	1.000												
	(0.990)	(0.986)													
(4)Cpa11Fee_Diff	-0.059***	-0.011	0.007	1.000											
	(0.000)	(0.120)	(0.342)												
(5)Cpa12Fee_Diff	-0.060***	-0.010	0.004	0.968***	1.000										
	(0.000)	(0.157)	(0.609)	(0.000)											
(6)Size	-0.121***	0.014*	0.006	0.343***	0.343***	1.000									
	(0.000)	(0.056)	(0.403)	(0.000)	(0.000)										
(7)Growth	0.117***	0.091***	-0.001	-0.011	-0.012*	0.002	1.000								
	(0.000)	(0.000)	(0.906)	(0.124)	(0.097)	(0.793)									
(8)Cfo	-0.147***	-0.598***	-0.026***	0.073***	0.074***	0.101***	0.068***	1.000							
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)								
(9)Tenure	-0.064***	-0.002	0.043***	0.092***	0.091***	0.142***	-0.061***	0.012*	1.000						
	(0.000)	(0.763)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.098)							
(10)Age	-0.113***	0.026***	0.030***	0.042***	0.043***	0.257***	-0.094***	-0.104***	0.199***	1.000					
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)						
(11)Listed	-0.079***	0.016**	0.002	0.210***	0.211***	0.507***	-0.022***	0.033***	0.089***	0.190***	1.000				
	(0.000)	(0.032)	(0.735)	(0.000)	(0.000)	(0.000)	(0.003)	(0.000)	(0.000)	(0.000)					
(12)Deloitte	-0.011	-0.009	-0.080***	-0.029***	-0.029***	-0.022***	-0.008	0.046***	-0.040***	-0.018**	0.011	1.000			
	(0.130)	(0.218)	(0.000)	(0.000)	(0.000)	(0.003)	(0.274)	(0.000)	(0.000)	(0.012)	(0.139)				
(13)KPMG	0.015**	0.023***	0.152***	0.004	0.006	0.054***	0.010	-0.034***	0.055***	0.009	0.026***	-0.455***	1.000		
	(0.038)	(0.002)	(0.000)	(0.581)	(0.452)	(0.000)	(0.191)	(0.000)	(0.000)	(0.224)	(0.000)	(0.000)			
(14)Pwc	0.005	-0.013*	0.033***	0.025***	0.025***	-0.017**	-0.002	-0.017**	0.028***	-0.004	-0.044***	-0.478***	-0.310***	1.000	
	(0.507)	(0.075)	(0.000)	(0.001)	(0.001)	(0.023)	(0.759)	(0.021)	(0.000)	(0.558)	(0.000)	(0.000)	(0.000)		
(15)EY	-0.010	0.001	-0.121***	0.005	0.004	-0.015**	0.003	-0.005	-0.048***	0.023***	0.009	-0.301***	-0.195***	-0.205***	1.000
	(0.196)	(0.864)	(0.000)	(0.499)	(0.605)	(0.048)	(0.699)	(0.528)	(0.000)	(0.002)	(0.237)	(0.000)	(0.000)	(0.000)	

Panel D Correlation table of auditor gender and audit (non-audit) characteristics with auditor legal power

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
(1)Cpapower1	1.000																		
(2)Cpapower2	-0.062***	1.000																	
	(0.000)																		
(3)Cpa_Gender_F	-0.060***	0.016**	1.000																
	(0.000)	(0.028)																	
(4)Cpa2_Gender_F	-0.003	-0.121***	0.024***	1.000															
	(0.720)	(0.000)	(0.001)																
(5)Absda(Da)	-0.024***	-0.006	0.000	-0.002	1.000														
	(0.001)	(0.415)	(0.990)	(0.777)															
(6)Audit_Fee	0.063***	0.058***	0.023***	-0.036***	-0.125***	1.000													
	(0.000)	(0.000)	(0.002)	(0.000)	(0.000)														
(7)NonAudit_Fee	0.020***	0.024***	0.014*	-0.026***	-0.002	0.324***	1.000												
	(0.008)	(0.001)	(0.063)	(0.001)	(0.838)	(0.000)													
(8)Tenure	0.082***	0.008	0.043***	0.014*	-0.064***	0.140***	-0.003	1.000											
	(0.000)	(0.280)	(0.000)	(0.058)	(0.000)	(0.000)	(0.665)												
(9)Expert_cpa1_s	0.034***	0.055***	-0.002	-0.028***	-0.013*	0.152***	0.090***	0.022***	1.000										
	(0.000)	(0.000)	(0.798)	(0.000)	(0.087)	(0.000)	(0.000)	(0.003)											
(10)Expert_cpa2_s	-0.001	0.054***	-0.002	-0.021***	-0.010	0.158***	0.094***	0.025***	0.302***	1.000									
	(0.868)	(0.000)	(0.797)	(0.004)	(0.168)	(0.000)	(0.000)	(0.001)	(0.000)										
(11)Size	0.043***	0.082***	0.006	-0.040***	-0.121***	0.654***	0.318***	0.142***	0.206***	0.207***	1.000								
	(0.000)	(0.000)	(0.403)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)									
(12)Growth	-0.003	-0.007	-0.001	0.004	0.117***	-0.072***	0.049***	-0.061***	-0.000	-0.008	0.002	1.000							
	(0.662)	(0.313)	(0.906)	(0.551)	(0.000)	(0.000)	(0.000)	(0.000)	(0.950)	(0.265)	(0.793)								
(13)Roa	0.027***	0.021***	-0.032***	0.014*	0.038***	0.013*	0.128***	0.006	0.030***	0.030***	0.123***	0.293***	1.000						
	(0.000)	(0.004)	(0.000)	(0.063)	(0.000)	(0.077)	(0.000)	(0.383)	(0.000)	(0.000)	(0.000)	(0.000)							
(14)Lev	-0.015**	-0.022***	0.005	-0.015**	0.066***	0.227***	0.113***	0.019**	0.052***	0.053***	0.324***	0.047***	-0.197***	1.000					
	(0.041)	(0.002)	(0.475)	(0.041)	(0.000)	(0.000)	(0.000)	(0.011)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)						
(15)Age	-0.005	-0.011	0.030***	-0.009	-0.113***	0.124***	-0.054***	0.199***	0.061***	0.051***	0.257***	-0.094***	-0.108***	0.125***	1.000				
	(0.457)	(0.141)	(0.000)	(0.243)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)					
(16)Deloitte	-0.111***	-0.032***	-0.080***	-0.067***	-0.011	0.026***	-0.024***	-0.040***	-0.007	-0.009	-0.022***	-0.008	0.045***	-0.053***	-0.018**	1.000			
	(0.000)	(0.000)	(0.000)	(0.000)	(0.130)	(0.000)	(0.001)	(0.000)	(0.354)	(0.222)	(0.003)	(0.274)	(0.000)	(0.000)	(0.012)				
(17)KPMG	-0.019***	-0.086***	0.152***	0.172***	0.015**	-0.018**	-0.039***	0.055***	-0.045***	-0.050***	0.054***	0.010	-0.004	0.097***	0.009	-0.455***	1.000		
	(0.009)	(0.000)	(0.000)	(0.000)	(0.038)	(0.017)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.191)	(0.551)	(0.000)	(0.224)	(0.000)			
(18)Pwc	0.021***	0.020***	0.033***	0.008	0.005	0.042***	0.095***	0.028***	0.080***	0.084***	-0.017**	-0.002	-0.039***	-0.013*	-0.004	-0.478***	-0.310***	1.000	
	(0.005)	(0.008)	(0.000)	(0.257)	(0.507)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.023)	(0.759)	(0.000)	(0.071)	(0.558)	(0.000)	(0.000)		
(19)EY	0.169***	0.136***	-0.121***	-0.135***	-0.010	-0.074***	-0.040***	-0.048***	-0.038***	-0.033***	-0.015**	0.003	-0.011	-0.028***	0.023***	-0.301***	-0.195***	-0.205***	1.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.196)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.048)	(0.699)	(0.140)	(0.000)	(0.002)	(0.000)	(0.000)	(0.000)	

Note:
1. For variable definitions, please refer to the description in Table 2.
2. *, **, and *** in the table indicate significance levels of 10%, 5%, and 1% respectively (two-tailed).

4.3 Results of the Regression Analysis

Table 5 shows the regression analysis of the effects of auditor gender and audit networks on audit fees. The empirical results show that without the interaction effect between auditor gender and auditor network density, female primary signing auditors do not receive significantly higher or lower audit fees compared to male primary signing auditors (coefficient 0.013, p-value=0.117). This indicates that there is no longer a gender pay gap at the Big Four audit firms in Taiwan, so Hypothesis 1-1 is not confirmed.

Looking further at the audit networks, the regression results for both the first-degree audit network (CPA1LV1NW) and the second-degree audit network (CPA1LV2NW) of primary signing auditors show that clients tend to pay higher audit fees to female auditors (coefficient 0.031, p-value=0.042; coefficient 0.029, p-value=0.037). However, when female auditors have a denser audit network, the audit fees they receive are lower (coefficient -0.621, p-value=0.094; coefficient -0.230, p-value=0.076). This suggests that, compared to male auditors, female partners work better as a team and are able to take advantage of the knowledge-sharing benefits that audit networks offer more effectively and spend less time and manpower on the audit. As a result, they do not have to charge higher fees to their clients and thus consolidate their competitive advantage in the market. Therefore, Hypothesis 1-2 is supported.

Table 6 shows the regression analysis of the effects of auditor gender and audit networks on the extent of low-price competition. The results indicate that female auditors are less likely to engage in low-price competition compared to male auditors when the audit network of the primary signing auditor for the current year is included in the regression analysis (coefficient 0.041, p-value=0.082; coefficient 0.035, p-value=0.094). This suggests that female audit partners, due to their cautious and risk-averse nature, tend to compete less on price in order to escape the constraints that might arise from underpricing audit fees. Thus, Hypothesis 2-1 is supported.

However, if female signing auditors have a denser second-degree audit network, they are more likely to engage in low-price competition (coefficient -0.376, p-value=0.077). This suggests that female auditors with extensive network resources can reduce additional audit time and labor costs, which enables them to attract clients through lower fees. This result is consistent with the empirical results of Hypothesis 1-2, which showed that female auditors with denser audit networks tend to receive lower fees. Nevertheless, the interaction between auditor gender and first-degree audit network density is not significantly related to the extent of competition for low fees (coefficient -0.874, p-value=0.116). This can be explained by the fact that the network advantages of the first-degree auditor network are less pronounced than those of the more extensive second-degree auditor network. Therefore, Hypothesis 2-2 is partially supported.

When the influence of auditor networks is not taken into account, the independent analysis of auditor gender and competition for low bids shows no significant correlation between the two (coefficient 0.018, p-value=0.179). This suggests that an auditor's ability to offer discounts on audit fees is significantly influenced by their external network capabilities.

Table 7 shows the regression analysis of the effects of auditor gender and the extent

of low-price competition on audit quality. Panel A shows the results for auditor gender and the extent of low-price competition within the first-degree audit network, while Panel B shows the results for auditor gender and the extent of low-price competition within the second-degree audit network.

The empirical results show that the gender of the auditor has no significant effect on audit quality, which supports Hypothesis 3-1. In addition, the interaction between auditor gender and the extent of low-price competition is significantly positively correlated with the absolute value of discretionary accruals (coefficient 0.002, p-value=0.076; coefficient 0.002, p-value=0.066). This indicates that female auditors do not decrease their audit quality despite a higher level of low price competition, which supports Hypothesis 3-2.

Table 5 Regression Analysis of Auditor Gender and Auditor Signing Network on Audit Fees

	(1) Audit_Fee	(2) Audit_Fee	(3) Audit_Fee
Intercept	10.035***	10.010***	10.004***
	(0.000)	(0.000)	(0.000)
Cpa_Gender_F	0.013	0.031**	0.029**
	(0.117)	(0.042)	(0.037)
CPA1LV1NW		0.419	
		(0.160)	
Cpa_Gender_F*CPA1LV1NW		-0.621*	
		(0.094)	
CPA1LV2NW			0.261*
			(0.058)
Cpa_Gender_F*CPA1LV2NW			-0.230*
			(0.076)
Size	0.152***	0.152***	0.152***
	(0.000)	(0.000)	(0.000)
Squsub	0.101***	0.101***	0.101***
	(0.000)	(0.000)	(0.000)
Invrec	0.067	0.068	0.068
	(0.193)	(0.185)	(0.183)
Lev	-0.097*	-0.099*	-0.099*
	(0.094)	(0.088)	(0.088)
Lagloss	0.029**	0.030**	0.030**
	(0.024)	(0.023)	(0.023)
Curr_Ratio	-0.013***	-0.013***	-0.013***
	(0.003)	(0.003)	(0.003)
Roa	-0.210***	-0.210***	-0.211***
	(0.002)	(0.002)	(0.002)
NonAudit_Fee	0.057***	0.057***	0.057***
	(0.000)	(0.000)	(0.000)
Deloitte	0.116***	0.125***	0.137***
	(0.000)	(0.000)	(0.000)
KPMG	0.049*	0.057**	0.067**
	(0.073)	(0.046)	(0.021)
Pwc	0.101***	0.107***	0.110***
	(0.002)	(0.002)	(0.001)
Year	Included	Included	Included
Industry	Included	Included	Included
N	18,444	18,444	18,444
adj. R^2	0.555	0.555	0.555
F	54.641	52.954	52.805

Note:

1. For variable definitions, please refer to the description in Table 2.

2. *, ** and *** in the table indicate significance levels of 10%, 5% and 1% respectively.

3. The numbers in parentheses are p-values adjusted for firm and year variances using two-way cluster-robust standard deviation (Petersen, 2009; Gow, Ormazabal, and Taylor, 2010).

4. Since hypotheses 1-1 and 1-2 are directional, the p-values for variables with the expected direction (Cpa_Gender_F, Cpa_Gender_F*CPA1LV1NW, Cpa_Gender_F*CPA1LV2NW) are one-tailed, while the others are two-tailed.

Table 6 Regression Analysis of Auditor Gender and Auditor Signing Network on the Extent of Low Balling

	(1) Fee_Diff	(2) Cpa11Fee_Diff	(3) Cpa12Fee_Diff
Intercept	-4.161***	-4.068***	-4.084***
	(0.000)	(0.000)	(0.000)
Cpa_Gender_F	0.018	0.041*	0.035*
	(0.179)	(0.082)	(0.094)
CPA1LV1NW		2.302***	
		(0.000)	
Cpa_Gender_F*CPA1LV1NW		-0.874	
		(0.116)	
CPA1LV2NW			0.859***
			(0.001)
Cpa_Gender_F*CPA1LV2NW			-0.376*
			(0.077)
Size	0.186***	0.177***	0.174***
	(0.000)	(0.000)	(0.000)
NonAudit_Fee	0.006	0.007	0.009
	(0.501)	(0.448)	(0.347)
Invrec	0.154*	0.140*	0.155*
	(0.069)	(0.084)	(0.054)
Squsub	0.008	0.008	0.007
	(0.403)	(0.421)	(0.452)
Lev	-0.144	-0.137	-0.147*
	(0.103)	(0.112)	(0.080)
Quick	-0.033***	-0.032***	-0.034***
	(0.002)	(0.001)	(0.001)
Roe	0.032	0.005	-0.004
	(0.633)	(0.941)	(0.949)
Lagloss	-0.050*	-0.051*	-0.048*
	(0.061)	(0.057)	(0.053)
Dirsh	-0.006**	-0.006**	-0.006***
	(0.017)	(0.010)	(0.004)
Deloitte	0.021	0.063	0.060
	(0.526)	(0.114)	(0.156)
KPMG	-0.019	0.035	0.036
	(0.638)	(0.401)	(0.403)
Pwc	0.030	0.065	0.051
	(0.494)	(0.111)	(0.206)
Year	Included	Included	Included
Industry	Included	Included	Included
N	18,444	18,444	18,444
adj. R^2	0.168	0.162	0.157
F	5.249	5.307	5.136

Note:
1. For variable definitions, please refer to the description in Table 2.
2. In the table, *, **, and *** denote significance levels of 10%, 5%, and 1%, respectively.
3. The values in parentheses are p-values adjusted for individual company and year variances using two-way cluster-robust standard deviation (Petersen, 2009; Gow, Ormazabal, and Taylor, 2010).
4. Since Hypotheses 2-1 and 2-2 are directional, the p-values for the variables with expected directions (Cpa_Gender_F, Cpa_Gender_F*CPA1LV1NW, Cpa_Gender_F*CPA1LV2NW) are one-tailed, while the others are two-tailed.

Table 7 Regression Analysis of Auditor Gender and the Extent of Low Balling on Audit Quality

Panel A Auditor gender and extent of first-level low-balling network on audit quality

	(1) Absda(Da)	(2) Da +	(3) Da −
Intercept	0.162***	0.037	-0.337***
	(0.000)	(0.562)	(0.000)
Cpa_Gender_F	-0.000	-0.006	-0.003
	(0.479)	(0.113)	(0.274)
Cpa11Fee_Diff	-0.002	0.002	0.007*
	(0.139)	(0.751)	(0.069)
Cpa_Gender_F*Cpa11Fee_Diff	0.002*	-0.000	-0.004
	(0.076)	(0.485)	(0.294)
Size	-0.003***	-0.001	0.020***
	(0.000)	(0.662)	(0.000)
Growth	0.015***	0.027***	0.037***
	(0.000)	(0.000)	(0.000)
Cfo	-0.069***	-0.892***	-0.585***
	(0.000)	(0.000)	(0.000)
Tenure	-0.000*	-0.001	0.000
	(0.077)	(0.529)	(0.387)
Age	-0.008***	-0.021***	0.006
	(0.000)	(0.000)	(0.166)
Listed	-0.001	0.000	0.000
	(0.600)	(0.984)	(0.991)
Deloitte	0.001	0.002	-0.003
	(0.539)	(0.809)	(0.644)
KPMG	0.001	0.001	-0.008
	(0.541)	(0.901)	(0.202)
Pwc	0.002	-0.001	-0.017**
	(0.433)	(0.899)	(0.015)
Year	Included	Included	Included
Industry	Included	Included	Included
N	18,444	8,655	9,789
adj. R^2	0.098	--	--
F	17.135	--	--
chi2	--	1269.573	899.644

Panel B Auditor gender and extent of second-level low-balling network on audit quality

	(1) Absda(Da)	(2) Da +	(3) Da −
Intercept	0.161***	0.038	-0.335***
	(0.000)	(0.560)	(0.000)
Cpa_Gender_F	-0.000	-0.006	-0.003
	(0.480)	(0.123)	(0.278)
Cpa12Fee_Diff	-0.002*	0.002	0.007*
	(0.094)	(0.778)	(0.067)
Cpa_Gender_F*Cpa12Fee_Diff	0.002*	0.001	-0.004
	(0.066)	(0.453)	(0.308)

Size	-0.003***	-0.001	0.020***
	(0.000)	(0.659)	(0.000)
Growth	0.015***	0.027***	0.037***
	(0.000)	(0.000)	(0.000)
Cfo	-0.069***	-0.892***	-0.585***
	(0.000)	(0.000)	(0.000)
Tenure	-0.000*	-0.001	0.000
	(0.079)	(0.537)	(0.383)
Age	-0.008***	-0.021***	0.006
	(0.000)	(0.000)	(0.160)
Listed	-0.001	0.000	0.000
	(0.609)	(0.988)	(0.994)
Deloitte	0.001	0.002	-0.003
	(0.540)	(0.811)	(0.654)
KPMG	0.001	0.001	-0.008
	(0.541)	(0.905)	(0.205)
Pwc	0.002	-0.001	-0.017**
	(0.431)	(0.899)	(0.015)
Year	Included	Included	Included
Industry	Included	Included	Included
N	18,444	8,655	9,789
adj. R^2	0.098	--	--
F	17.158	--	--
chi2	--	1268.294	900.420

Note:

1. For variable definitions, please refer to the description in Table 2.

2. *, **, and *** in the table indicate significance levels of 10%, 5%, and 1% respectively.

3. The numbers in parentheses are p-values adjusted for firm and year variances using two-way cluster-robust standard deviation (Petersen, 2009; Gow, Ormazabal, and Taylor, 2010).

4. Since Hypotheses 3-1 and 3-2 are directional, the p-values for variables with the expected direction (Cpa_Gender_F, Cpa_Gender_F*Cpa11Fee_Diff, Cpa_Gender_F*Cpa12Fee_Diff) are one-tailed, while the others are two-tailed.

5. The absolute value of the discretionary accruals is analyzed with an OLS regression, while DA+ and DA- are analyzed with a truncated regression.

4.4 Further Analysis Results

In a further analysis, this paper examines the conditions required for female audit partners to rise to administrative positions in their firms. The research findings (see Table 8) suggest that primary signing female auditors are more likely to attain an administrative position if they receive higher audit fees for their services (coefficient 0.276, p-value=0.010), have longer tenure (coefficient 0.051, p-value=0.000), and are industry experts (coefficient 0.682, p-value=0.010). In addition, secondary signing auditors are more likely to obtain an administrative position if they receive higher fees for non-audit services (coefficient 0.052, p-value=0.084) and are industry experts (coefficient 0.471, p-value=0.010).

However, when examining the interaction effects of all the above variables with the gender of the auditor, none of the results reached statistical significance. This suggests that even if female audit partners receive higher fees, have longer tenure or are industry experts, these factors do not significantly increase their chances of being promoted to administrative positions. This result suggests that there is a glass ceiling for female auditors when it comes to promotion to administrative positions within audit firms.

Table 8 Regression Analysis of Auditor Gender and Audit (Non-Audit) Characteristics on Auditor Legal Power

	(1) Cpapower1	(2) Cpapower2
Intercept	-4.817***	-6.292***
	(0.000)	(0.000)
Cpa_Gender_F	-1.999	
	(0.330)	
Cpa2_Gender_F		0.727
		(0.700)
Absda(Da)	-0.551	0.402
	(0.236)	(0.319)
Audit_Fee	0.276***	-0.017
	(0.010)	(0.867)
NonAudit_Fee	0.020	0.052*
	(0.622)	(0.084)
Tenure	0.051***	0.004
	(0.000)	(0.744)
Expert_cpa1	0.682***	
	(0.010)	
Expert_cpa2		0.471**
		(0.010)
Cpa_Gender_F*Absda(Da)	-0.162	
	(0.830)	
Cpa_Gender_F*Audit_Fee	0.085	
	(0.541)	
Cpa_Gender_F*NonAudit_Fee	0.029	
	(0.623)	
Cpa_Gender_F*Tenure	0.009	
	(0.614)	
Cpa_Gender_F*Expert_cpa1	-0.412	

	(0.269)	
*Cpa2_Gender_F*Absda(Da)*		0.552
		(0.548)
*Cpa2_Gender_F*Audit_Fee*		-0.034
		(0.811)
*Cpa2_Gender_F*NonAudit_Fee*		-0.065
		(0.334)
*Cpa2_Gender_F*Tenure*		0.007
		(0.732)
*Cpa2_Gender_F*Expert_cpa2*		-0.555
		(0.135)
Size	0.008	0.162***
	(0.811)	(0.000)
Growth	-0.014	-0.007
	(0.803)	(0.888)
Roa	0.841**	0.403
	(0.025)	(0.312)
Lev	-0.317	-0.530***
	(0.126)	(0.007)
Age	-0.172**	-0.219***
	(0.014)	(0.002)
Deloitte	-1.458***	-0.922***
	(0.000)	(0.000)
KPMG	-1.068***	-1.136***
	(0.000)	(0.000)
Pwc	-0.993***	-0.723***
	(0.000)	(0.001)
Year	Included	Included
Industry	Included	Included
N	18,444	18,444
chi2	420.439	504.675

Note:

1. For variable definitions, please refer to the description in Table 2.

2. *, **, and *** in the table indicate significance levels of 10%, 5%, and 1% respectively.

3. The numbers in parentheses are p-values adjusted for firm and year variances using two-way cluster-robust standard deviation (Petersen, 2009; Gow, Ormazabal, and Taylor, 2010).

5 Conclusion, Recommendations and Limitations

This paper examines whether there is "equal work, unequal pay" between male and female audit partners in large auditing firms in Taiwan and whether male auditors participate in low-price competition to a greater extent due to their willingness to take risks. In addition, the interaction between auditor gender and audit networks on the extent of low-price competition and whether such strategies affect audit quality is examined.

The empirical results show that female audit partners participate less in low-price competition compared to male audit partners, indicating a preference for risk aversion. This suggests that female audit partners use smaller discounts to escape the constraints that may result from audit fees being too low, such as limited auditor participation. However, when auditor network factors are taken into account, the results show that female auditors with denser auditor networks are more likely to compete for low fees and receive relatively lower audit fees. This suggests that female audit partners can more effectively leverage the benefits of audit networks by utilizing the resources and teamwork within the network to share audit knowledge and information, thus reducing the need to charge higher fees to clients.

In addition, female audit partners maintain good audit quality despite the competition for low prices in order not to damage their reputation.

The empirical results of this study shed light on whether there are differences in audit fees depending on the gender of auditors and the density of their audit networks, thus filling gaps in the literature on auditor gender. In addition, this study examines whether auditors of different genders use their audit networks to compensate for deficits in audit resources and determines which gender is more likely to secure higher audit fees through dense network relationships.

Given the different risk appetites of male and female auditors, the extent of discounts on audit fees offered to clients also varies. The second part of this analysis provides empirical evidence on whether the implementation of low-fee competition strategies differs between genders and whether auditors adjust their level of low-fee competition to the density of their audit networks.

Since the extent of discounts on audit fees has a direct influence on the quality of the audits performed, this paper also examines whether the submission of low price bids by auditors of different genders has an influence on audit quality. This provides empirical evidence of the influence of gender on audit quality at the Big Four audit firms in Taiwan.

Considering that the Big Four accounting firms have a 90% market share in the Taiwanese auditing market and there are significant differences in the overall size and quality of auditors between the Big Four and non-Big Four firms, this paper focuses solely on the gender effects within the Big Four accounting firms. Therefore, the empirical results of this study can only explain the observations within the Big Four firms. It is recommended that future research further compare and analyze the gender of auditors in non-Big Four accounting firms to identify possible differences between Big Four and non-Big Four firms and to gain a more comprehensive understanding of the effects of auditor gender and their sign networks on the extent of low-price competition and audit quality.

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