The impact of the gap between executive compensation and the salaries of full-time employees in non-management positions on audit fees: Evidence from Taiwan

Yu-Ting Huang*

Department of Business Administration, MingDao University, Changhua City, Taiwan.

*Corresponding author. E-mail: ythuang3@mdu.edu.tw. Tel: 886-4-8876660ext7512. Fax: 04-8870948.

INTRODUCTION

In the United States, a number of financial scandals, such as those surrounding Enron, WorldCom, and Merck, broke out successively at the end of 2001. Given the importance of reliable and honest financial statements, the general public began questioning whether audit work carried out by Certified Public Accountants (CPAs) was in fact effective. One of the main reasons for this growing doubt has been the failure of CPAs to maintain their independence, as well as the seemingly greater ability of companies to deliberately prepare false statements. The amount of audit fees paid by a company to its auditor is an important factor affecting the independence of the latter. The main reason for the government requiring Taiwanese public companies to disclose audit fee information is to enable analysts/users of their financial statements to better interpret the contents. When investors find that a company’s audit fees are abnormally high, they usually question the independence of the auditor, and this in turn can cause them to question the accuracy of the company’s financial statements, and therefore their evaluation of the company (Lai 2009; Craswell and Francis, 1999). To enhance investor confidence, improve the credibility of financial statements,
reform the accounting profession, and assign responsibility for financial statement transparency to company executives, the United States introduced the Sarbanes-Oxley Act in July 2002. The purpose of this Act was to rebuild the confidence of the investing public in the capital market, improve corporate governance, introduce the concept of sustainable management, and establish greater trust between the investing public and corporations, in the hope that greater financial accuracy and more transparent business operations would ensue. In addition, a “Public Company Accounting Oversight Board” (PCAOB) was established, and financial disclosure and accounting standards were strengthened.

In Taiwan, the Securities and Futures Bureau of the Financial Supervisory Commission (FSC) revised the “Standards for the Preparation of Financial Reports by Securities Issuers” in October 2002, the purpose being to improve the quality of financial statements.1 When the relevant conditions are met, audit fee information has to be disclosed in the financial statements issued by a corporation, regardless of the prohibition on the control of non-audit services set out by the Sarbanes-Oxley Act. Audit fees in this context means professional fees paid by securities firms to their CPA for audits, reviews and secondary reviews of financial reports, reviews of financial forecasts, and tax certifications, while non-audit services are other business services. The hope is that the impact of non-audit services on audit quality can be minimized.

To examine the issue of audit fees in Taiwan, which have been partially disclosed since 2002,2 previous studies typically used a variety of questionnaires (Chen et al., 2003). In recent years, due to the requirement to comply with international financial reporting standards, most publicly listed companies have purchased major non-audit services, and have shown great flexibility when it comes to disclosing the level of audit fees that they have paid, which has significantly increased the exposure of investors to financial misinformation. According to official data, between 2002 and 2008, Taiwanese listed companies disclosed only about 25% of their audit fees. However, from 2009 to 2010, this ratio increased to 88%, and this positive trend has broadly been maintained. Since 2009, the method of audit fees in Taiwan has become more flexible (Guan et al., 2019; Liao et al., 2012), and therefore this study has been able to examine the gap between executive compensation and the salaries of full-time employees in non-management positions, as well as the selection errors that can arise from audit fees in relation to the selection bias problem.

In recent years, there has been a concern about the issue of significantly lower salaries for Taiwan's rank-and-file employees. Moreover, there has been a public discussion about what constitutes fair executive compensation and whether high executive compensation affects high-level managers’ decisions about resource allocation (Lazear and Rosen, 1981; Holmstrom, 1979; Jensen and Meckling, 1976). The focus has been on whether high remuneration given to company managers contributes to improved business performance. Many studies have found that executive compensation is strongly correlated with company performance (Lin et al., 2013; Kim, 2010; Sun and Cahan, 2009; Ozkan, 2007).

Senior managers occupy the highest positions in a company’s management hierarchy and play an important strategic and decision-making role in the organization. In 2006, the Securities and Exchange Commission (SEC) highlighted the compensation paid to senior managers as the most important issue for corporate governance. After its proposal was approved on January 17, 2006, US companies were required to disclose the overall compensation paid to directors and board members. In addition, they were required to disclose the remuneration packages offered to supervisors, general managers and deputy general managers. In general, the factors that determine a general manager’s salary are significantly affected by the company’s size and financial performance. Compensation committees in Taiwanese listed companies are usually composed of members of the board of directors, who determine the level of compensation that senior managers should receive. The most important task of a board of directors is to promote and protect the interests of all of a company stakeholder. Effective governance and a sound compensation system can not only attract and retain outstanding talent, but also stimulate work morale and improve work quality and productivity (Milovich and Newman, 2005).

In the past, many studies have pointed out that the criticism of investors and government agencies regarding company compensation structures mainly revolves around the remuneration enjoyed by the CEO. Previous research has indicated that the payment of a basic salary can induce senior managers to engage in earnings management in order to retain personal privacy (Feng et al., 2011; Jiang et al., 2010; Bergstresser and Philippon, 2006; Cheng and Warfield, 2005). On the other hand, since the value of equity-based compensation is highly correlated with a company’s accounting surplus, senior managers may be motivated to invest in high-risk targets out of self-interest,
or to use earnings management to manipulate accounting surpluses. When executive compensation includes equity remuneration, or when equity remuneration accounts for a higher proportion of total remuneration, audit fees tend to be higher (Huang et al., 2015; Li et al., 2014: Liao et al., 2010). Given the high risk of earnings manipulation, which auditors also consider when setting audit fees, this study expects to find a significant negative correlation between executive compensation and the level of audit fees.

Given that company revenues can be very high, why are so many employees in Taiwan not aware of the glaring salary gap? Which industry employees are the best paid, and which are the worst paid? In an acknowledgment of the problem of low wages in Taiwan, in 2019 the FSC required that listed companies disclose their salary structures, and thus for the first time the salaries of all types of employees, including full-time employees in non-management positions, were disclosed. According to the rules of the FSC, starting from May 2019, listed companies in Taiwan have to disclose employee salary information, including the average salary paid to full-time employees in non-management positions in June 2019. This not only makes high-paying companies more transparent; it also makes public which companies are low-paying, which is an important reference for people choosing an employer for their career development. To make the salary structures of companies and industries more transparent, two categories of salary information have to be released—the average salary for all employees of listed companies, and the average salary of “full-time employees in non-management positions”, which excludes supervisors. Therefore, the latter category provides information about the salaries of non-executive full-time employees employed locally by listed companies in Taiwan. This information is very important, since this is the first time that listed companies from various industry sectors have made such disclosures and officially verified salary data. Given that the salary levels of employees in various industries are not the same, it is difficult to set standards, but it appears that some companies are willing to pay their employees high salaries. Moreover, the way in which management treats employees is a very important aspect of corporate governance, and this information is listed as one of the items for corporate governance evaluation.

The FSC publicized the average salaries of employees of listed companies in 2019, and in 2020 the Taipei Exchange will further require all companies to publish their “median” employee salary (as opposed to average salary, which is more susceptible to extreme values). Once these median salaries are announced, the salary structure in each listed company will become clearer, making it easier for investors and aspiring employees to judge each company’s salary offering. From a purely statistical perspective, if a particular sample has a small number of extreme values, the average will be affected by those extreme values. Therefore, in this instance, using average company salaries as representative of the entire set of data would be misleading, and as a result, the median salary has been chosen for disclosure. The median remuneration of the category of “full-time employees in non-management positions” can have a significant effect on a company’s ability to recruit talent, and it is hoped that this disclosure will put pressure on companies that perform badly in this regard to raise their median salary and improve Taiwan’s low-wage environment. According to the country’s competition rules, it is advocated that the salary offered to an employee reflects the production that they bring to the company. The salaries of the senior management team reflect the fact that they are serving at the highest levels of responsibility, and this level of remuneration—in theory at least—serves to encourage lower-level managers to work hard to attain the highest position (Rosen, 1986; Lazear and Rosen, 1981).

If auditors see risks associated with high salaries, dispersal, and potential earnings manipulation, they will typically boost their auditing efforts and increase audit fees to compensate for the greater risk. However, in terms of competitiveness, when the gap between executive compensation and the average salary of full-time employees

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3 According to the Market Observation Post System, the “Disclosure Schedule of the Number of Employees and Remuneration Information of Listed Companies”: 1. Since March 31, 2019, when the information of the 107 financial report notes is reported, companies have reported the average employee benefit expenses and average employee salary expenses after deducting the “number of directors who are not part-time employees” and “deducting the amount of directors’ remuneration” will be reported separately by each company. 2. The so-called “employees in non-management positions” are excluded, managers. The scope of application of “managers” by the relevant letters of the competent authority is as follows: (1) general manager and equivalent; (2) deputy general manager and equivalent; (3) associate and equivalent; (4) head of finance department; (5) head of accounting department; (6) others who have rights to manage affairs and sign for the company. 3. “Full-time employees” refers to those who work for the normal working hours or legal working hours specified by the company. Those who do not specify normal working hours and those who average an average of more than 35 hours per week are classified as full-time employees.

4 At the end of June 2019, the Market Observation Post System under the “Corporate Governance Zone”, setting “Corporate Social Responsibility Information or Employee Welfare and Remuneration Statistics Related Information or Full-time Employees in Non-management Positions”. Investors can follow the stock code Industry category, or different sorting functions such as average salary costs. In terms of definition, “total employee salary” includes recurrent salaries, overtime pay and allowances, bonuses and employee compensation. “Number of employees” refers to national and foreign employees working in Taiwan. 
https://mops.twse.com.tw/mops/web/t100sb15

5 According to the rules of FSC, listed companies must report their annual salary information. In 2019, a total of 32 industries and 1586 companies announced their salary information. Among them, the number of employees is “The number of employees is the number of employed persons in Taiwan after deducting “managers, part of working hours, and salary for less than 6 months”, the total number of salaries includes the salary, overtime pay, various allowances and bonuses, and employee remuneration, but it is not included in the corresponding amount of shares issued. 
https://mops.twse.com.tw/mops/web/t100sb15
in non-management positions (AGAP) is large, a company’s compensation structure can sometimes encourage employees to work harder, thus improving overall company performance. Given that audit fees include auditing costs, normal maintenance, litigation risks, and non-litigation risks, past research has found that customer risk is the most important factor affecting audit working hours (Huang et al., 2012; Houston et al., 2005; Simunic, 1980), and some researchers have pointed out that the size and risk profile of a client, as well as their complexity, are all positively correlated with the level of audit fees. Audit fees also include the expected business risk cost (Hay et al., 2006; Simunic, 1980), and it can be inferred that the larger the AGAP, the higher the salaries of higher-level employees, which usually means that the company’s size, risk profile, and complexity are also greater. This requires auditors to invest a lot of auditing effort, and they will therefore increase the amount of audit fees they charge.

Salary level has long been an important research topic in the field of economic theory. In the past, some scholars have proposed the “Tournament Theory” to explain the reasons for the salary gap between different job levels within a company (Lazear and Rosen, 1981). San and Wu (2004) found that the greater the degree of competition between employees, the greater the level of difference between their salaries. In most companies, the salary of each employee is not identical. Job content, gender, age and experience, and education level all affect the level of compensation offered to employees. Once the salaries of rank-and-file employees in Taiwan are made public, it is hoped that positive pressure will be applied on companies—especially in the industrial sector—to improve their salary profile. Furthermore, from the perspective of employees, the disclosure of information about the average salary of employees in various companies and industry sectors can give aspiring employees a clear reference when applying for a job. In light of these developments, this study explores whether the gap between executive compensation and the salaries of full-time employees in non-management positions affects the level of audit fees, and verifies that the larger the gap, the greater the level of employee motivation and company performance. In addition, the higher the level of remuneration given to higher-level employees, the greater the company’s size, risk, and complexity. Therefore, the key question is: does a high level of remuneration for higher-level employees make auditors invest greater amount of auditing, thus necessitating higher audit fees?

In view of the serious problem of low pay in Taiwan, many studies have investigated executive compensation and company performance in the past. However, since the start of the Market Observation Post System’s publication of information on “full-time employees in non-management positions” (in 2019), no study has been conducted on the correlation gap between executive compensation and the salaries of full-time employees in non-management positions and the level of audit fees. The present study uses Taiwanese listed companies (during 2019) as the research object to explore the effects of this gap—which often reflects the size, risk profile, and complexity of a company—on the level of audit fees that are charged. It also compares the impact of inspections carried out by Big 4 audit firms, as well as the various types of industrial management/regions/geographical locations, on executive compensation, and verifies that companies with larger pay gaps typically motivate their employees to a greater extent and enjoy better performance than companies with smaller pay gaps. This superior performance is reflected in higher quality professional audit services, which correspondingly receive an audit fee premium.

Firstly, the sample was split into companies using Big 4 audit firms and companies using non-Big 4 audit firms. The brand reputations of each of Big 4 audit firms were different. This empirical results show that executive compensation, as reviewed by Big 4 audit firms, were different from the average salary of full-time employees in non-management positions in that when the salaries gap were larger, the reason for higher audit fees may have been to compensate for the greater financial risk and the higher audit quality required by the brand. It may also have been the case that the superior quality of the audit service provided by the Big 4 audit firms was recognized by the company, and the company therefore agreed to pay higher audit fees. Secondly, the sample was divided into sub-samples according to the different types of industrial management which the company engaged in. This was done in order to understand the impact on the sample companies of executive compensation and the salaries of full-time employees in non-management positions in different industry sectors. In terms of a difference, this empirical result shows that the complexity of the compensation structure in single-family operations/companies had a significant positive correlation with the level of audit fees. Chang et al. (2008) pointed out that the ratio of family businesses in Asian countries is higher than in Europe and the United States, and Taiwan is no exception. The characteristics of family business organizations, as well as their equity structures, are such that there is usually greater room (and the incentive) for financial machinations. Therefore, as compared with non-family businesses, family businesses usually engage in considerable and complex earnings management activities. This means that the audit risk is relatively large, and the auditor needs a long time to communicate and coordinate with the company. Moreover, a complex compensation structure for managers can lead to a higher risk of earnings manipulation, and auditors consider this risk too when setting their audit fees. In Taiwan, there are currently six municipalities, namely Taipei, New Taipei City, Taoyuan City, Taichung City, Tainan City, and Kaohsiung City. Since each of these cities is a metropolis, it is referred to as the “capital,” and collectively they are referred to as the “six capitals.” To take into account the degree of competition in the country, this study
differenciates between companies that are located in a "Big6city" and companies that are located in a "Non-Big6city". When an audit firm performs an audit, its tasks include understanding the client's accounting system and its actual processes (so that it can assess the audit risks) and reviewing documents (usually at the client's location) so that evidence can be collected and verified. Therefore, it can be said that a client's location is where audit firms actually do business. As regards why the "six capitals" have been used as a differentiated category, the reason is that in the past, most studies considered that the audit market was a national market and assumed that auditors faced the same degree of competition. For this view to be assessed, the definition of an area must be detailed enough to identify differences in the degree of competition. If the division is too rough or arbitrary (such as northern, central and southern), the true degree of regional competition may not be ascertained. If a company is located in a Big6city, which are areas that have economic significance and offer niche locations for firms, the degree of audit market competition is different, since these places have special needs in terms of political, economic, cultural, and metropolitan area development. Companies in a Big6city usually have more resources, and they can attract large-scale investment. Given that the complexity of the transactions of such companies is usually greater; a large gap between executive compensation and the salaries of full-time employees in non-management positions would be expected to increase the auditing costs of audit firms, and therefore the level of audit fees will be higher.

This study also explores whether or not the geographical location of a company—for example whether or not it is located in a Science Park—also affects the level of audit fees. The electronics industry is a leading technology sector in Taiwan, with its output accounting for 15% of Taiwan's GDP. This study found no correlation between the size of the gap between executive compensation and the salaries of full-time employees in non-management positions and the level of audit fees in companies located in Science Parks. This may be because companies located in Science Parks are mostly high-tech electronics firms, and the salaries of listed electronics companies top the list, with their pay gaps being relatively small. This study also includes the non-audit service fee natural logarithm (NAF) as an additional test. These empirical results show that companies that are audited by Big 4 audit firms usually have a larger gap between executive compensation and the salaries of full-time employees in non-management positions, and thus pay higher non-audit fees. Finally, this study tests whether companies with a large gap between executive compensation and the salaries of full-time employees in non-management positions have a lower employee turnover rate. The empirical results show that when the gap between executive compensation and the salaries of full-time employees in non-management positions gaps large, the company will have a relatively low turnover rate due to incentive to remain and get promoted. The findings of this research are helpful to follow-up scholars in terms of exploring the relevant research on audit fees from different perspectives. While previous research in Taiwan has focused mainly on the impact of auditor tenure, industry expertise, and client importance on the quality of audits (Chi et al., 2012; Chi and Chin, 2011; Chin and Chi, 2009), this research aims to shed further light on the relationship between employee education/gender/age/experience/ industry knowledge and the level of audit fees. In addition, recent research on corporate governance has found that the effectiveness of supervision and oversight can be enhanced (Liu and Huang, 2019). Therefore, this research contributes also to the literature on corporate governance and financial reporting/company performance. This study is organized as follows: literature review and the hypothesis development; description of the sample selection process and the research design; presentation of the empirical results and additional analyses; and then conclusion of the study.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

The amount of audit fees to be charged is subject to agreement between the supplier and the client. In the past, empirical research has found that certain client characteristics can affect the level of audit fees. The determinants of audit fees include the size of the company, the complexity of its operations, the schedule of working hours, professional skills and knowledge, costs, past charging standards, and the client's business scale (Hay et al., 2006; Chang and Tsao, 2005; Cobbin, 2002; Simunic and Stein, 1987). Perhaps the most important determinant of audit fees is the complexity of a company's transactions. Given that the quality of an audit is not directly observable by the outside world, auditors need to communicate the high quality of their audit through their brand and reputation, which allows them to charge higher fees. In addition, in terms of audit needs, the literature on the various types of audit firms are mostly based on agency costs, according to which when a company's agency costs

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The three major Science Parks in Taiwan are the Hsinchu Science Park in North Taiwan, the Central Science Park (with Taichung as its core), and the Southern Science Park (with Tainan as its main base). These parks provide an operating base for the cultivation of the national high-tech industry. Science Parks have become an important indicator of Taiwan's technological development, occupying an important position in the international high-tech industry. The demonstration effect and technology diffusion resulting from this accumulated experience have also adjusted Taiwan's industrial structure and maintained its economic prosperity.


In June 2019, the FSC announced that Taiwanese companies have to reveal the salaries of full-time employees in non-management positions. The listed companies were all in the electronics industry.
are large, they prefer to appoint Big 4 audit firms, thereby paying higher audit fees, which then reduces the agency costs.

Past research has found that the size of audit firms and their level of industry expertise can affect the level of audit fees (Causholli et al., 2011; Hay, 2011). Large audit firms usually represent a brand and have higher auditing standards. Their dependence on a single client is also relatively low, so they have more room to charge higher fees (Choi et al., 2010a; Francis and Wang, 2008; Becker et al., 1998; Craswell et al., 1995; Palmrose, 1986; DeAngelos, 1981b). Chen and Wu (2004) and Su (2000) pointed out that large audit firms in Taiwan enjoy an audit fee premium. Moreover, by providing audit and non-audit services to clients, a mutual knowledge exchange can take place, which can allow auditors to generate knowledge spillover effects that enhance audit effectiveness and judgment, and improve audit quality (Wallman, 1996; Simunice, 1984; Goldman and Barlev, 1974).

Compensation systems have always been a trade secret in many companies, mainly so as to prevent comparisons with other companies from causing negative effects, such as adversely affecting employee motivation or raising staff turnover rates. After the global financial crisis of 2008–2009, investors and lenders began to attach greater importance to corporate governance, and the Taiwanese government formulated a series of laws and regulations to require the release of relevant internal information. The Managerial Labor Market or the Labor Demand theory claims that when a company wants to improve its performance by hiring managerial talent, it must pay the requisite remuneration. The level of managerial compensation that it offers effectively reflects its ability to attract—as well as its need for—superior manpower. Supply and demand conditions bring the interests of managers and shareholders into line (Chalmer et al., 2006). Executive compensation has always been a topic of concern in the capital markets, not least because of its impact on social equity, but it does not necessarily affect high-level managers’ resource allocation decisions (Lazear and Rosen, 1981; Holmstrom, 1979; Jensen and Meckling, 1976). In addition, since a company’s remuneration system is the core element of its corporate governance, a sound remuneration system can not only attract and retain outstanding talent, but also stimulate work morale and improve work quality and productivity (Wu and Lin, 2004).

Executive directors hold the highest positions in a company’s management hierarchy, and the level of their compensation impacts their approach to corporate strategic and decision making. Executive compensation was considered a vital part of corporate governance by the SEC as far back as 2006, when it required listed companies to disclose in detail all the allowances, retirement benefits, and overall compensation offered to executives and board members. In general, the determinants of executive compensation are affected by the company’s size and financial performance. In Taiwan, the FSC forced listed and TPEX-listed companies to set up remuneration committees at the end of 2011, the hope being that these committees would monitor the rationality and transparency of salary structures.

In its “2018–2020 Corporate Governance Blueprint and Promotion of Implementation”, the FSC sought to deepen the corporate governance culture in Taiwan, improve the functioning of boards of directors, enhance the disclosure of information, promote shareholder action, strengthen compliance with the relevant laws and regulations, and promote the importance of sound corporate governance for both companies and investors. In addition, in order to improve the quality of corporate governance and information disclosure and to strengthen social responsibility, in 2019 the Taiwan Stock Exchange (TWSE) and the Taipei Exchange published “Corporate Social Responsibility-Related Information, and Employee Welfare and Salary-Related Statistical Information” under the “Corporate Governance Zone” of the Market Observation Post System, in which listed companies disclosed information on “employee benefits” (salary and other benefits), including the salaries of full-time employees in non-management positions, in the notes to their financial reports. In pursuing operational growth and shareholder value maximization, listed companies should also pay attention to employee rights and provide a reasonable remuneration system and adequate benefits. At the same time, they should increase the centripetal force for employees, and practice sound corporate governance and corporate social responsibility. The FSC is continuing to pay close attention to the quality of corporate disclosures and to changes in salary structures carried out by companies listed on the Taiwan Stock Exchange (TWSE) or the Taipei Exchange, and continues to urge listed companies to fulfill their corporate social responsibility.

Lazear and Rosen (1981) proposed a competition theory (Tournament Theory) to explain the internal salary structures of companies in the real world. Their model argued that setting a large salary gap can affect employees’ motivation levels, with the salary difference encouraging senior managers to give their best in order to retain their high salaries after their promotion. Rosen (1986) also pointed out that competition theory provides important empirical assumptions about corporate governance and compensation structures. Competition theory essentially only analyzes the impact of a large pay gap on the decisions and motivation levels of executives, emphasizing the possible consequences of significant salary differences between the various levels of an organization in terms of inducing employees to make the greatest possible effort in

Starting from June 2020, information on the “median salary” of full-time employees in non-management positions will also be added. Given that the average salary can be easily affected by extreme numbers, it was decided that the median would better reflect the salary and remuneration profile of full-time employees in non-management positions.
order to be promoted to the top level. With the expansion of management levels, the salary gap between these levels has also increased, the intention being to provide sufficient incentives for high-level managers to work to the best of their abilities. Many studies (e.g., Eriksson, 1999; Leonard, 1990) have examined the impact of pay differentials between supervisors and rank-and-file employees on company performance, illustrating that the use of competition theory-based compensation structures can have a positive effect on company performance. On the other hand, Bloom and Michel (2002) found that the larger the pay gap, the larger the dispersal process. Wright et al. (2005) found that—regardless of the industry—the larger the salary difference, the better the company’s performance. In this sense, if the salary gap between the CEO and other senior management positions is large, then presumably other high-level managers will be motivated to improve their work performance, thereby improving their chances of promotion, and this greater input will bring about a superior operating performance. Therefore, this study expects that a large AGAP results in higher audit fees charged by the auditor. The audit fee index will be used as a measure of a company’s audit quality. From the summer of 2020, the Taiwan Stock Exchange (TWSE) and the Taipei Exchange will further require all companies to publish the median salary of their employees, so the question arises: will audit fees change as a result, since such disclosure has implications for management practices? Therefore, this study also expects that the size of the gap between executive compensation and the salaries of full-time employees in non-management positions is positively correlated with the level of audit fees. Accordingly, the following hypotheses are developed:

**H$_{1:a}$:** The size of the gap between executive compensation and the salaries of full-time employees in non-management positions is positively correlated with the level of audit fees.

**H$_{1:b}$:** The size of the gap between executive compensation and the salaries of full-time employees in non-management positions is positively correlated with the level of audit fees charged by the Big 4 audit firms.

According to analysis by Global Views Monthly$^{10}$, in 2019 about 70% of Taiwanese listed companies were family-owned businesses. Since family-owned companies usually have the characteristic of highly overlapping ownership and management rights, oversight bodies typically seek to ensure that these companies prioritize corporate responsibility, emphasize the sustainability of relationships with all stakeholders, and cultivate responsible and strong leaders. The ratio of family-run businesses in Asia is higher than in Europe and the United States, and Taiwan is no exception. However, agency problems between managers and shareholders are somewhat different from those in the United States. Differences in ownership structure can affect the demand for audit quality (Lin and Lin, 2016). In addition, Lou and Lin (2011) pointed out that Taiwan’s family businesses typically outperform non-family businesses. Therefore, it can be concluded that good corporate governance can increase the value of family-run businesses even further. Chang et al. (2008) argued that the particular characteristics of the organizational and equity structure of groups of companies give them more room (and a greater incentive) for earnings manipulation than non-group companies. Therefore, compared with non-group companies, family-controlled companies usually engage in greater earnings manipulation, which can be seen in the complex nature of the transactions between family businesses. Auditors thus face greater audit risks and need a longer period of time to adequately communicate and coordinate with the client, which results in their charging higher audit fees. Therefore, this study presents the following hypothesis:

**H$_2$:** The size of the gap between executive compensation and the salaries of full-time employees in non-management positions in single-family control is positively correlated with the level of audit fees.

In addition, there are currently six municipalities in Taiwan, namely Taipei, New Taipei City, Taoyuan City, Taichung City, Tainan City, and Kaohsiung City. They are collectively referred to as the “six capitals” (Big6city). The population of each of these cities is more than one million, and a company that is located in a Big6city is essentially operating in a region that is economically significant, or which represents a niche for the company. Moreover, companies located in a Big6city typically have relatively more resources and are able to attract large-scale investment. Given the greater complexity of their transactions, it can be expected that audit firms will have higher auditing cost and will thus charge higher auditing fees. This study therefore puts forward the following hypothesis:

**H$_3$:** The size of the gap between executive compensation and the salaries of full-time employees in non-management positions in companies located in a Big6city is positively correlated with the level of audit fees.

Finally, Kallapur et al. (2010) pointed out that the audit market is affected by the different degrees of competition in various regions. This study further explores whether the geographical location of a company—in this case, being located in a Science Park—affects the level of audit fees. The findings of this study are helpful to follow-up scholars in terms of exploring the relevant research on audit fees from different perspectives. Accordingly, the following

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hypothesis is developed:

H₄: The size of the gap between executive compensation and the salaries of full-time employees in non-management positions in companies located in a Science Park is positively correlated with the level of audit fees.

**RESEARCH METHODS**

**Sample selection**

Given that the Market Observation Post System published salary-related information on "full-time employees in non-management positions" in 2019, this study intends to explore the impact of the gap between executive compensation and the salaries of full-time employees in non-management positions on the level of audit fees. Taiwanese listed companies (excluding banks and insurance companies) were used as the research object, and the data required for the study was derived mainly from two sources. This study first manually collected "Corporate Social Responsibility-Related Information, and Employee Welfare and Salary-Related Information" for each company in the Market Observation Post System, extracting the companies' reported employee benefits (salary and other benefits) information disclosed in the notes to their financial reports, and the salaries of full-time employees in non-management positions. Secondly, executive compensation, the amount paid as audit fees, the name of the audit firms, the company's location, and related financial variables were taken from the Taiwan Economic Journal (TEJ) database. The research samples used in this study had to meet the following criteria: (1) the company had to have disclosed information on the salaries of full-time employees in non-management positions; (2) the company had to have disclosed information on audit fees; (3) the Taiwan Economic Journal (TEJ) had to contain financial and audit-related information on the relevant company.

The Taiwan Market Observation Post System data identified 1,073 annual financial filings made by Taiwanese listed companies during the sample period. Panel A in Table 1 presents the types of industrial management and the types of audit firms used by the research samples, and shows that the proportion of AGAP companies using Big 4 audit firms was 88.82% (953/1,073), whereas only 11.18%
(120/1,073) of the sample companies used a non-Big 4 firm. The proportion of the samples falling into the category of single-family control was 59.18% (635/1,073). The number of single-family control companies audited by Big 4 audit firms was 550/1,073 (51.26%), indicating firstly that the majority of the listed companies were family-owned businesses, and secondly that these companies overwhelmingly trusted the audit quality of Big 4 audit firms. Panel B in Table 1 differentiates between Big6City and Science Park -based companies. It shows that the proportion of AGAP companies located in a Big6City was 78.94%, while the proportion of the companies not located in a Science Park was 83.04%. Hsinchu Science Park was the first Science Park in Taiwan, and it has unique cluster benefits. The profits of electronics companies account for about three-quarters of the profits of the entire Hsinchu Science Park. Moreover, Hsinchu is not in one of the six major cities of Taiwan, and therefore the proportion of AGAP companies located in a Science Park in a Big6City was only 13.98% of the total sample, far lower than the proportion of companies located in a Big6City but not in a Science Park (64.96%). Finally, Panel C shows the distribution of companies across Big6Cities and Science Parks according to their type of ownership. The sample companies are dominated by single-family control distributed geographically as follows – Big6City: 49.21%, Non-Big6City: 9.97%, Science Park: 2.42%, Non-Science Park: 2.42%.

Research design and proxies

Empirical models

As regards the measurement of audit fees, in previous research, the natural log of audit fees was used to overcome the non-linear relationship between audits and independent variables, and also the problem of heterogeneity (Whisenant et al., 2003). According to Whisenant et al. (2003), the natural log of the amount of audit fees charged should be used as the dependent variable, and this study has adopted the same method to test whether a high AGAP in the case of Taiwanese listed companies leads to higher audit fees as a result of greater audit risk, greater complexity and more effort being required to carry out the audit. This study has used a regression model to explore linear models and introduced macros for STATA statistical software to simplify the computations in the ordinary least squares (OLS) and logistic regressions. For the relevant tests, we took the natural log of audit fees (AF) as the dependent variable and set the gap between executive compensation and the salaries of full-time employees in non-management positions (AGAP) as the independent variable. The regression model (1) used was as follows:

\[
AF_{it} = \alpha_0 + \alpha_1 AGAP_{it} + \alpha_2 SIZE_{it} + \alpha_3 LEV_{it} + \alpha_4 CATA_{it} \\
+ \alpha_5 COBP_{it} + \alpha_6 BControl_{it} \\
+ \alpha_7 MHold_{it} + \epsilon_{it}
\]

where:

\( AF \) = the natural log of audit fees;

\( AGAP \) = the gap between executive compensation and salaries of full-time employees in non-management positions;

\( SIZE \) = the natural log of total assets;

\( LEV \) = debt ratio;

\( CATA \) = current ratio;

\( COBP \) = 1 if the chairman of the board and president, and 0 otherwise;

\( BControl \) = board of directors’ ratio;

\( MHold \) = manager shareholding ratio;

\( \epsilon \) = residual term.

Related variables and operational definitions

**Dependent variable: Audit fees (AF)**

Research into the determinants of audit fees has focused on the supply side, with the demand-side factors being principally based on the attributes of the subject, including the size of the client company, its operational complexity, and possible financial difficulties. Hay et al. (2006) proposed that the size, risk profile, and complexity of the client are all positively correlated with the level of audit fees. Moreover, it can be inferred that the bigger the gap between executive compensation and the salaries of full-time employees in non-management positions, the higher the executive compensation will be. When the size, risk profile, and complexity of a client company are high, auditors usually have to invest a lot of effort and resources and will thus increase the amount of audit fees they charge. Therefore, this research expects to find a positive relationship between the size of the gap between executive compensation and the salaries of full-time employees in non-management positions and the level of audit fees.

**Independent variable: The gap between executive compensation and salaries of full-time employees in non-management positions (AGAP)**

To improve the quality of corporate governance and strengthen social responsibility, the FSC released in June 2019, “Corporate Social Responsibility-Related Information, and Employee Welfare and Salary-Related Statistical Information” under the “Corporate Governance Zone” of the Market Observation Post System, in which information was

provided based on listed companies’ disclosures regarding “employee benefits” in the notes to their financial reports. Listed companies were required to report information about the “salaries of full-time employees in non-management positions” for the first time. Moreover, the Taiwan Stock Exchange (TWSE) and the Taipei Exchange have adopted international (e.g., US, UK) salary declaration requirements, as well as listed company opinions and consideration of practical feasibility. In addition to the financial report notes being announced before the end of March each year, listed companies are also required to disclose the average salary of full-time employees in non-management positions, but this will be changed to the “median” salary from 2020 onwards in order to make the figures more informative and comparable.

Control variables

To avoid other related factors affecting the estimation of audit fees, in accordance with previous research on audit fees, this study selected as control variables the company size (SIZE), the debt ratio (LEV), the current ratio (CATA), the chairman of the board and president (COBP), the board control rate (BControl), and the manager shareholding rate (MHold). According to previous research, the larger a company’s size, the greater its operational complexity and risk of specific balance sheet items, meaning that more control testing and verification testing procedures will be required, leading to higher audit fees (Lin and Lin, 2015; Francis et al., 2005; Whisenant et al., 2003; Ma et al., 2003; Chen et al., 2003; Su, 2000; Craswell et al., 1995; Palmrose, 1986; Francis, 1984; Simunic, 1980). This study measured company size by taking the natural logarithm of total assets (SIZE) (Goncharov et al., 2014). When the financial state and profitability of a company are not good, its financial risk increases (LEV), which leads to a higher audit risk for the auditor, who will then charge a higher audit fee (Whisenant et al., 2003; Francis, 1984). This study used the current ratio (CATA) as a measure of short-term financial strength. Finally, according to Lin and Lin (2015), studies can use the chairman of the board and president (COBP), the board control rate (BControl), and the manager shareholding rate (MHold) to control corporate governance.

EMPIRICAL RESULTS

Descriptive statistics and the correlation matrix

The final sample comprised 1,073 Taiwanese companies that were listed in 2019. Table 2 shows the descriptive statistics for the variables used in the models, divided into three sub-samples: the total number of firms in the sample (N = 1,073), AGAP companies using Big 4 audit firms (n = 953), and AGAP companies not using Big 4 audit firms (n = 120). The companies that were audited by Big 4 firms had higher audit fees (AF) than those that were audited by non-Big 4 audit firms. In addition, in the companies that were audited by Big 4 audit firms, the AGAP were larger, and the larger its size (SIZE), the lower the chairman of the board and president (COBP), and the higher the manager shareholding rate (MHold). This indicates that a company’s general remuneration system, when the companies are audited by Big 4 audit firms, will give higher-level employees higher levels of remuneration. The size and complexity of the client will also be higher, causing the auditor to increase the amount of audit fees it charges.

Table 3 shows the Pearson correlation matrix for the research variables. The relationship between audit fees (AF) and the gap between executive compensation and the salaries of full-time employees in non-management positions (AGAP) indicates that the level of audit fees (AF) was significantly and positively correlated with AGAP (with a Pearson coefficient of 0.325) when the companies were larger, and the companies that were audited by Big 4 audit firms, the AGAP were larger, and the larger its size (SIZE), the lower the chairman of the board and president (COBP), and the higher the manager shareholding rate (MHold). This indicates that a company’s general remuneration system, when the companies are audited by Big 4 audit firms, will give higher-level employees higher levels of remuneration. The size and complexity of the client will also be higher, causing the auditor to increase the amount of audit fees it charges.

Table 2: Descriptive statistics.

| Variables | Distribution of Big 4 Audit Firms |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Total sample (n=1,073) | Big 4 Audit Firms (n=953) | Non-Big 4 Audit Firms (n=120) |  |
|  | Mean | Median | Std. Dev | Mean | Median | Std. Dev | Mean | Median | Std. Dev |  |
| AF  | 14.9139 | 14.8802 | 0.5481 | 14.9583 | 14.9141 | 0.5422 | 14.5607 | 14.5856 | 0.4613 |  |
| AGAP | 14.7508 | 14.7598 | 0.9768 | 14.7907 | 14.7866 | 0.9827 | 14.4336 | 14.4545 | 0.8694 |  |
| SIZE | 15.4643 | 15.2500 | 1.4878 | 15.5087 | 15.2700 | 1.4873 | 15.1114 | 15.0250 | 1.4499 |  |
| LEV | 0.3107 | 0.2900 | 0.1628 | 0.3117 | 0.2900 | 0.1603 | 0.3028 | 0.2900 | 0.1821 |  |
| CATA | 2.8760 | 1.9197 | 3.5450 | 2.8478 | 1.9159 | 3.6350 | 3.0996 | 1.9664 | 2.7303 |  |
| COBP | 0.1906 | 0.1429 | 0.1298 | 0.1874 | 0.1429 | 0.1279 | 0.2162 | 0.2000 | 0.1420 |  |
| BControl | 0.4448 | 0.4286 | 0.1688 | 0.4422 | 0.4286 | 0.1668 | 0.4657 | 0.4444 | 0.1834 |  |
| MHold | 0.0135 | 0.0042 | 0.0263 | 0.0137 | 0.0046 | 0.0265 | 0.0118 | 0.0022 | 0.0242 |  |

AF: the natural log of audit fees; AGAP: the gap between executive compensation and salaries of full-time employees in non-management positions; SIZE: the natural log of total assets; LEV: debt ratio; CATA: current ratio; COBP: 1 if the chairman of the board and president, and 0 otherwise; BControl: board of directors’ ratio; MHold: manager shareholding ratio.
Table 3: Correlation matrix.

<table>
<thead>
<tr>
<th>Variables</th>
<th>AF</th>
<th>AGAP</th>
<th>SIZE</th>
<th>LEV</th>
<th>CATA</th>
<th>BYWORK</th>
<th>BControl</th>
<th>MHold</th>
</tr>
</thead>
<tbody>
<tr>
<td>AF</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGAP</td>
<td>0.325*</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIZE</td>
<td>0.639</td>
<td>0.412*</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LEV</td>
<td>0.166*</td>
<td>0.013</td>
<td>0.175*</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CATA</td>
<td>-0.209*</td>
<td>-0.023</td>
<td>-0.217*</td>
<td>-0.487*</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COBP</td>
<td>0.029</td>
<td>0.059</td>
<td>0.002</td>
<td>0.058</td>
<td>-0.020</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BControl</td>
<td>0.110*</td>
<td>-0.021</td>
<td>0.217*</td>
<td>0.022</td>
<td>-0.056</td>
<td>0.244*</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>MHold</td>
<td>-0.108*</td>
<td>0.034</td>
<td>-0.146**</td>
<td>0.026</td>
<td>-0.004</td>
<td>0.187*</td>
<td>0.006</td>
<td>1.000</td>
</tr>
</tbody>
</table>

* AF: the natural log of audit fees; AGAP: the gap between executive compensation and salaries of full-time employees in non-management positions; SIZE: the natural log of total assets; LEV: debt ratio; CATA: current ratio; COBP: 1 if the chairman of the board and president, and 0 otherwise; BControl: board of directors’ ratio; MHold: manager shareholding ratio.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Pred. Sign</th>
<th>Coef.</th>
<th>t-value b</th>
<th>Coef.</th>
<th>t-value</th>
<th>Coef.</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONSTANT</td>
<td>10.930</td>
<td>52.61***</td>
<td>10.913</td>
<td>51.26***</td>
<td>12.9057</td>
<td>19.25***</td>
<td></td>
</tr>
<tr>
<td>AGAP</td>
<td>+</td>
<td>0.045</td>
<td>3.06**</td>
<td>0.036</td>
<td>2.41***</td>
<td>0.021</td>
<td>0.46</td>
</tr>
<tr>
<td>SIZE</td>
<td>?</td>
<td>0.216</td>
<td>21.13***</td>
<td>0.224</td>
<td>21.24***</td>
<td>0.113</td>
<td>3.92***</td>
</tr>
<tr>
<td>LEV</td>
<td>?</td>
<td>0.099</td>
<td>1.09</td>
<td>0.134</td>
<td>1.43*</td>
<td>-0.292</td>
<td>-1.06</td>
</tr>
<tr>
<td>CATA</td>
<td>?</td>
<td>-0.010</td>
<td>-2.45**</td>
<td>-0.008</td>
<td>-1.90**</td>
<td>-0.052</td>
<td>-2.81***</td>
</tr>
<tr>
<td>BYWORK</td>
<td>?</td>
<td>0.150</td>
<td>1.35*</td>
<td>0.238</td>
<td>2.20**</td>
<td>-0.189</td>
<td>-0.66</td>
</tr>
<tr>
<td>BControl</td>
<td>?</td>
<td>-0.093</td>
<td>-1.14</td>
<td>-0.056</td>
<td>-0.67</td>
<td>-0.052</td>
<td>-0.23</td>
</tr>
<tr>
<td>MHold</td>
<td>?</td>
<td>-0.678</td>
<td>-1.35*</td>
<td>-0.423</td>
<td>-0.82</td>
<td>-4.214</td>
<td>-2.65***</td>
</tr>
<tr>
<td>Adj. R^2</td>
<td>41.68%</td>
<td></td>
<td></td>
<td>44.39%</td>
<td></td>
<td>23.86%</td>
<td></td>
</tr>
<tr>
<td>Nobs.</td>
<td>1,073</td>
<td></td>
<td></td>
<td>953</td>
<td></td>
<td>120</td>
<td></td>
</tr>
</tbody>
</table>

* AGAP: the gap between executive compensation and salaries of full-time employees in non-management positions; SIZE: the natural log of total assets; LEV: debt ratio; CATA: current ratio; COBP: 1 if the chairman of the board and president, and 0 otherwise; BControl: board of directors’ ratio; MHold: manager shareholding ratio.

Additionally, AGAP were also shown to be correlated with LEV (0.166), BControl (0.110), CATA(-0.209), and MHold(-0.108) (statistically significant at the 0.05 level), suggesting that especially those with a less pronounced current ratio, a higher debt ratio, and stronger corporate governance—were more likely to pay higher AF. With the exception of the relationship with company size (SIZE, 0.639), where the coefficient was slightly higher, the correlation coefficients for the other variables were not too high, most being below 0.4. In addition, this study further computed variance inflation factors (VIFs) to test for the possibility of multicollinearity among all the variables. None of the VIFs exceeded 10, indicating that the collinearity problem between the independent variables were within an allowable range, and therefore the collinearity issue was not a serious one.

### Multivariate analysis

**AGAP and audit fees**

This study used multiple regression analysis methods to test the hypotheses and used the ordinary least squares method to make the relevant estimations. The analysis tested whether the relationship between a large pay gap and higher audit fees could be due to the company’s implicit appreciation of the quality of the auditing services. The empirical results are shown in Table 4. This study used a sample of companies (n = 1,073) audited both by Big 4 firms and by non-Big 4 firms, to test the correlation
between AGAP and the level of audit fees. The findings show that the coefficient of the AGAP was significantly positive (p<0.01) in terms of the correlation with audit fees. In companies with a large AGAP, there was a significant and positive correlation with the level of audit fees, and this supports research hypothesis H1. The above empirical results imply that auditors charge high audit fees when they deem it necessary to perform a more thorough audit. This study further divided the research sample into whether AGAP had different effects on the level of audit fees or not. The findings showed that only in the case of companies that were audited by Big 4 firms was the estimated coefficient of AGAP 0.036 (t = 2.41, p<0.01), which is indicative of a significant and positive correlation. The adjusted R² of the model was 44.39%, which represents the interpretation variable selected in this study. The interpretation variable offered an explanation as to why the problem of missing variables was not a serious one. It indicated that audit fees are determined by the extent of recognition and appreciation of the quality of the auditing service. The Big 4 audit firms have the advantage of brand reputation, so they have a better information function, and the current situation in Taiwan is one where the audit market is dominated by the Big 4 audit firms. The empirical results show that in companies that were audited by Big 4 audit firms, a large AGAP affected the level of audit fees, which is consistent with hypothesis H1.

As regards the control variables, company size (SIZE)13, the debt ratio (LEV), the chairman of the board and president (COBP), and the current ratio (CATA) all attained a level of significance. From this, it can be seen that in the case of companies with a high operational complexity, high operating risks, superior corporate governance, and poor short-term debt repayment capabilities, auditors feel the need to perform a more thorough audit, and the associated time and costs lead them to charge higher audit fees.

AGAP and audit fees: Different types of industrial management

From the empirical results in Table 4, it can be seen that the companies that were audited by Big 4 audit firms had a larger AGAP and higher audit fees. Therefore, this study further divided the sample companies that were audited by Big 4 audit firms according to the types of industrial management they engaged in. As sub-samples, these categories included single-family control, government-owned control, co-governance, and professional manager government businesses. The results shown in Table 5 indicate whether or not there was any difference in the impact of control structure on audit fees. The findings showed that the coefficient for AGAP in the case of family-controlled businesses was 0.051 (t = 2.69, p<0.01), which is indicative of a significant and positive correlation with the level of audit fees. As already mentioned, about 70% of Taiwan’s listed companies are family-controlled businesses, and these businesses typically have the characteristic of highly overlapping ownership and management rights, which gives them more room for financial machinations and complex transactions between family-controlled companies. These features imply a greater audit risk and more work for auditors, which in turn causes them to feel the need to charge higher audit fees.

Table 5: AGAP and Audit Fees - Types of industrial management with Big 4 audit firms.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Pred. Sign</th>
<th>Single Family Control</th>
<th>Government-Owned Control</th>
<th>Co-Governance</th>
<th>Professional Manager Government</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Coef.</td>
<td>t-value</td>
<td>Coef.</td>
<td>t-value</td>
</tr>
<tr>
<td>CONSTANT</td>
<td>+</td>
<td>11.132</td>
<td>11.176***</td>
<td>10.012</td>
<td>3.01***</td>
</tr>
<tr>
<td>AGAP</td>
<td>?</td>
<td>0.051</td>
<td>2.69***</td>
<td>0.069</td>
<td>0.33</td>
</tr>
<tr>
<td>SIZE</td>
<td>?</td>
<td>0.189</td>
<td>14.21***</td>
<td>0.263</td>
<td>2.38**</td>
</tr>
<tr>
<td>LEV</td>
<td>?</td>
<td>0.277</td>
<td>2.33**</td>
<td>0.125</td>
<td>0.12</td>
</tr>
<tr>
<td>CATA</td>
<td>?</td>
<td>-0.004</td>
<td>-0.91</td>
<td>-0.074</td>
<td>-0.76</td>
</tr>
<tr>
<td>COBP</td>
<td>?</td>
<td>0.105</td>
<td>0.77</td>
<td>4.130</td>
<td>1.93***</td>
</tr>
<tr>
<td>BControl</td>
<td>?</td>
<td>0.088</td>
<td>-0.61</td>
<td>-0.717</td>
<td>-0.53</td>
</tr>
<tr>
<td>MHold</td>
<td>?</td>
<td>-0.511</td>
<td>-1.35*</td>
<td>-9.541</td>
<td>-0.61</td>
</tr>
<tr>
<td>Adj. R²</td>
<td></td>
<td>40.43%</td>
<td>31.61%</td>
<td>28.54%</td>
<td>57.22%</td>
</tr>
<tr>
<td>Nobs.</td>
<td></td>
<td>550</td>
<td>24</td>
<td>107</td>
<td>272</td>
</tr>
</tbody>
</table>

* AGAP: the gap between executive compensation and salaries of full-time employees in non-management positions; SIZE: the natural log of total assets; LEV: debt ratio; CATA: current ratio; COBP: 1 if the chairman of the board and president, and 0 otherwise; BControl: board of directors’ ratio; MHold: manager shareholding ratio.

Asterisks *, **, *** indicate two-tailed significance at the 0.10, 0.05, and 0.01 levels, respectively.

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12 According to the Market Observation Post System, on December 31, 2019, up to 88 percent of Taiwanese listed companies were audited by Big 4 audit firms.

13 Past research has found that auditor brand is associated with audit fees (Francis 1984; Palmrose 1986). 

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AGAP and audit fees: Different regions

Taiwan currently has six municipalities, and companies face different levels of competition depending on where they are located. This study divided the sample into companies located in a “Big6City” and companies located in a “Non-Big6City,” and sought to measure whether or not the AGAP increased due to regional competition, which in turn led to an increase in audit fees. The results in Table 6 show that the estimated coefficient for AGAP in the case of companies located in a Big6City was 0.047 ($t = 2.33, p<0.05$), which is indicative of a significant and positive correlation with the level of audit fees. Companies that are located in Taipei, New Taipei City, Taoyuan City, Taichung City, Tainan City, or Kaohsiung City benefit from being in a location that is economically significant, or which offers niche locations, and the competition in this audit market is correspondingly different. Moreover, since these are areas with special needs in terms of political, economic, cultural, and metropolitan area development, companies located in a Big6City typically have more resources and a greater ability to attracting large-scale investment. They also tend to engage in more complex transactions, which necessitate a greater auditing effort on the part of auditors, who as result charge higher fees. The empirical results of this study show that the higher the complexity of a company’s transactions and the larger its AGAP, the higher the auditing fees that will be charged. This finding supports hypothesis H3.

AGAP and audit fees: Different geographical locations

The present study explored whether the geographical location of an AGAP company—whether it is located in a Science Park or not— affects the level of audit fees it is charged. The research sample was divided into companies located in a Science Park and companies not located in a Science Park. The results, shown in Table 7, indicate that for companies that were not located in a Science Park, the estimated coefficient for AGAP was 0.036 ($t = 2.24, p<0.05$), which is indicative of a significant and positive correlation between the size of the pay gap and the level of audit fees. Most of Taiwan’s electronics firms are located in Science Parks, and listed electronics companies typically offer the highest salaries. Moreover, the gap between executive compensation and the salaries of full-time employees in non-management positions in such companies is (relatively speaking) not large. Therefore, companies that are not located in a Science Park are more likely to have a large AGAP, which results in their being charged higher audit fees by their auditors.

Additional tests

AGAP and non-audit fees

According to the SEC, the provision of non-audit services can undermine the independence of auditors, which is why listed companies are required to disclose to the investing public the audit and non-audit fees that they have paid (Defond et al., 2002). However, past research has pointed out that the mutual exchange of knowledge between auditors and their clients through the provision of audit and non-audit services can allow auditors to generate knowledge spillover effects, thereby improving audit effectiveness and judgment, and improving audit quality (Hay, 2013; Wallman, 1996; Simunic, 1984). Therefore, this study also included the natural log of non-audit fees (NAP) as an additional test. In this study, the companies in the sample were distinguished according to whether they had been audited by Big 4 audit firms or not. The empirical

### Table 6: AGAP and Audit Fees-Big6City with Big 4 audit firms and single-family control.

<table>
<thead>
<tr>
<th>Variables a</th>
<th>Pred. Sign</th>
<th>Big6City</th>
<th>Non-Big6City</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coef.</td>
<td>t-value b</td>
<td>Coef.</td>
</tr>
<tr>
<td>AGAP</td>
<td>+</td>
<td>0.047</td>
<td>2.33**</td>
</tr>
<tr>
<td>SIZE</td>
<td>?</td>
<td>0.173</td>
<td>11.90***</td>
</tr>
<tr>
<td>LEV</td>
<td>?</td>
<td>0.224</td>
<td>1.74**</td>
</tr>
<tr>
<td>CATA</td>
<td>?</td>
<td>-0.006</td>
<td>-1.23</td>
</tr>
<tr>
<td>COBP</td>
<td>?</td>
<td>0.003</td>
<td>0.02</td>
</tr>
<tr>
<td>BControl</td>
<td>?</td>
<td>0.115</td>
<td>0.97</td>
</tr>
<tr>
<td>MHold</td>
<td>?</td>
<td>-0.497</td>
<td>-0.58</td>
</tr>
<tr>
<td>Adj. R²</td>
<td>36.70%</td>
<td></td>
<td>61.34%</td>
</tr>
<tr>
<td>Nobs.</td>
<td>454</td>
<td></td>
<td>96</td>
</tr>
</tbody>
</table>

* AGAP: the gap between executive compensation and salaries of full-time employees in non-management positions; SIZE: the natural log of total assets; LEV: debt ratio; CATA: current ratio; COBP: 1 if the chairman of the board and president, and 0 otherwise; BControl: board of directors' ratio; MHold: manager shareholding ratio. Asterisks *, **, *** indicate two-tailed significance at the 0.10, 0.05, and 0.01 levels, respectively.
results, shown in Table 8, indicate that in the case of companies that were audited by Big 4 audit firms, larger AGAP were associated with higher non-audit fees. However, this was not the case for companies that had not been audited by Big 4 audit firms. This study speculates that the lower fees charged by non-Big 4 audit firms is primarily due to the fact that non-Big 4 audit firms in Taiwan offer mainly business registration services, IPO/flotation counseling, and other general non-audit services, rather than more valuable financial, operational, tax, and information system-related advice and assistance. Therefore, the knowledge spillover effect is less likely to occur.

**AGAP and employee turnover rate**

Many studies in the past have pointed out that a high employee turnover rate will impact the stability of the company and possibly bring about an organizational crisis (Ho 2014). Therefore, it is widely believed that a lower turnover rate is better, since it indicates that the company’s operating conditions are stable. However, Baron et al. (2000) found that a low turnover rate can have a negative impact on revenue growth, and not only will the turnover rate increase after organizational changes, but the turnover phenomenon will have a negative impact on organizational performance in the short term. Therefore, this study tested whether or not a company has a lower employee turnover rate when the gap between executive compensation and the salaries of full-time employees in non-management positions is larger.

The empirical results, shown in Table 9, indicate that when a company has a large AGAP, it essentially has a strong sense of identification and exhibits a centripetal force through the impact of the incentive on employees. This study divided the research sample into companies that were audited by Big 4 audit firms and those that were audited by non-Big 4 audit firms to test whether or not a large AGAP had an effect on employee turnover. The empirical results showed that the estimated coefficient for AGAP in the case of companies that were audited by Big 4 audit firms was -0.014 (t = -3.01, p<0.01), which is indicative of a significant and negative correlation between the size of the pay gap and the level of audit fees. Conversely, the estimated coefficient in the case of companies that were audited by non-Big 4 audit firms were -0.002 (t = -0.12), indicating a negative but not significant correlation. The above information demonstrated that it was mainly companies that were audited by Big 4 audit firms that had a relatively low turnover rate.

**Sensitivity analyses**

Sensitivity analyses were used to evaluate the robustness of this study’s empirical results. To ensure their robustness, the following sensitivity tests were performed (to save space, the empirical results table is not listed separately): (1) Non-audit fees as a percentage of total audit fees were differentiated. If non-audit fees form a high percentage of total audit fees, it means that the auditor has more manpower and time to invest in these services. The empirical results of this study are in line with previous findings, and there were no significant differences, indicating that this study’s findings were not affected. (2) The electronics industry accounts for almost half of Taiwan’s total industry. To ensure that different industries did not affect the research results, the samples were divided into two sub-samples, according to the industry — companies active in the electronics industry, and companies active in the non-electronics industry. It was found that there were no major differences in the level of audit fees.
charged to companies in the electronics industry and the non-electronics industry, indicating that the results of this study were not affected by differences associated with various industries.

CONCLUSIONS AND RECOMMENDATIONS

In 2019, the FSC required that Taiwanese listed companies disclose their employees’ salaries. For the first time, detailed information about the salaries of all employees of listed companies, including the salaries of full-time employees in non-management positions, was disclosed. At a time when information transparency is of paramount importance, competition between companies is no longer simply a matter of strategic planning. So far, there have been no studies in Taiwan on how the gap between executive compensation and the salaries of full-time employees in non-management positions affect the level of audit fees, and therefore the purpose of this research was to explore the effects of this gap on audit fees. This study took Taiwanese listed companies in 2019 as the research object to explore this issue, using as a premise the argument that a larger gap can motivate employees to work harder, which in turn improves company performance, while not ignoring the possibility that paying higher-level employees a significantly higher salary can increase the company’s risk profile and complexity, thus compelling auditors to invest a lot of effort and time, and thereby increasing the amount of audit fees charged.
First of all, this study found that companies that had been audited by Big 4 audit firms and had a large gap between executive compensation and the salaries of full-time employees in non-management positions had higher audit fees, possibly reflecting the financial risk premium and the auditor’s industry expertise and brand reputation. The results also showed that there was a significant and positive correlation between the gap between executive compensation and the salaries of full-time employees in non-management positions and the level of audit fees only in the case of single-family control. Due to the characteristics of family business organizations and their often-complex shareholding structure, family-controlled businesses tend to engage more often in earnings manipulation. This means that the audit risk and the audit work involved are greater, and therefore auditors will feel the need to charge higher audit fees. In addition, companies located in a Big City typically have more resources and a greater ability to attract large-scale investment. However, due to the higher degree of complexity that the transactions of such companies usually have, they are also more likely to be charged higher audit fees. Furthermore, the salaries offered by listed electronics companies are at the top of the list, and the gap between their executive compensation and the salaries of full-time employees in non-management positions is not large. This study found that companies that are not located in a Science Park and have a large salary gap will typically pay higher audit fees.

For the first time in 2019, Taiwanese listed companies had to report information on the “average salary of full-time employees in non-management positions”. Starting from 2020, the “median” salary of these employees will be reported to make the salary statistics more informative and comparable. Therefore, this study recommends that the Taiwanese authorities require that companies provide more detailed information regarding the salaries that they pay, for example based on gender, seniority, education, etc., so that the relevant impact on audit fees can be explored, and investors can better understand the company’s financial reports and the external monitoring function of its auditors.

REFERENCES


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