The Impact of Executive Pay Gap on Audit Pricing in China*

Hong YIN[1], Yanbin DU[2]

Abstract

This study aims to test the economic consequences of the tournament incentive. First, we investigate the impact of the pay gap among top executives and the pay gap between executives and employees on audit pricing using a large sample of Chinese listed firms from 2008 to 2019. Then, we test the moderating role of ownership property, technological complexity and corporate governance in the association between the executive pay gap and audit fees. Findings indicate that the executive pay gap is positively associated with audit fees. The positive association between the executive pay gap and audit fees is more pronounced in private firms, firms with fewer R&D expenditures, and firms with smaller proportion of independent directors. Further studies suggest that large executive pay gap motivates managerial opportunistic behaviors, resulting in more accrual-based earnings management and real activities manipulation. Our results, consistent with managerial power theory, show that auditors assess firms with large executive pay gap as high risk and incorporate the audit risk and audit business risk associated with the executive pay gap into audit pricing. The results provide further evidence for regulators to strengthen supervision on the executive compensation, especially the executive compensation of state-owned enterprises and firms with weak corporate governance.

Keywords: Executive Pay Gap, Audit Fees, Ownership Property, R&D Expenditures, Independent Director

JEL Classification Code: G34, M42, M52

1. Introduction

Previous studies have yielded opposite conclusions in the relationship between the executive pay gap and organizational performance. Tournament theory suggests that the executive pay gap motivates executives to work harder to get promoted, leading to better organizational performance (Kale, Reis, & Venkateswaran, 2009). On the contrary,

[1]First Author and Corresponding Author. Associate Professor, Department of Accounting, Business College, Suzhou Vocational University, China [Postal Address: No.106 Zhineng Road, Wuzhong District, Suzhou, Jiangsu Province, 215104, China]
Email: yinhongcdlg@163.com
[2]Lecturer, Department of Auditing, Suzhou Vocational University, China. Email: dybaiyh@sina.com

managerial power theory suggests that the hierarchical compensation structure causes a sense of unfairness among executives and employees, which may harm cooperation and organizational performance (Pfeffer, 1994). Grund and Sliwka (2005) incorporate the mental state of employees into the utility function and find that the pay gap resulted from promotion has a negative effect on corporate performance due to jealousy and compassion. Harbring and Irlenbusch (2011) find that the pay gap within top executives may incentivize executives to engage in managerial opportunism, which may destroy firm value in the long run.

State-owned enterprises are essential to China's national economy. However, the corporate governance structure of state-owned enterprises remains poor. Executives of state-owned enterprises in China are "quasi officials" rather than professional managers. Many executives are or have been government officials. Some executives anticipate to get back to the government after accumulating managing experience. In addition, under the government's administrative intervention, profit maximization is not the sole goal of state-owned enterprises. They have to bear policy burdens and multiple objectives, for example, maintaining social stability and promoting employment. Thus, the effectiveness of performance-based compensation contract is weakened.

Accordingly, we propose our first set of research questions: Is the compensation incentive theory applicable to western countries still applicable to China's state-owned enterprises? Whether and, if so, how the pay gap between top three executives and other executives as well as the pay gap between executives and employees affect managerial behaviors and auditor perceptions of risk?

Prior research suggests that CEO performance-based compensation and non-CEO executive promotion-based compensation affect auditor perceptions of clients' agency risk and business risk (Fargher, Jiang, & Yu, 2014; Kannan, Skantz, & Higgs, 2014). Auditors incorporate the potential risk into audit pricing. Thus, the larger the executive pay gap, the higher the audit fees (Jia, 2017; Ge & Kim, 2020). However, with the increasing technology complexity, executives may demand higher pays for undertaking risk innovation activities (Tsao, Lin, & Chen, 2015). R&D expenditures are time-consuming and have high level of uncertainties. To stimulate the enthusiasm of executives in R&D expenditure, firms with high technology complexity may offer executives higher pay. Accordingly, our second research question is: Does a firm's technology complexity affect the auditor's perception of risk associated with a large executive pay gap?

Moreover, numerous studies suggest that strong internal monitoring by independent directors can help improve earnings quality and constraining managerial opportunism (Defond, Hann, & Hu, 2005; Güner, Malmendier, & Tate, 2008). High earnings quality always means low audit risk. Therefore, auditors may devote less time to the audit and charge lower audit fees (Kim, Liu, & Zheng, 2012). Given the relationship between independent directors and earnings quality and the relationship between earnings quality and audit fees, we propose our third question: Does a firm's proportion of independent directors affect the auditor's perception of risk associated with a large executive pay gap? This study aims to provide empirical evidence on the above questions.

Using a large sample of Chinese A-share listed firms during the period 2008–2019, this paper empirically tests the impact of the executive pay gap on audit pricing. The results of this research may contribute in the following ways. First, our research extends prior literature on the consequences of the executive pay gap by investigating the effect of the executive pay gap on external audit. Our findings are important given that the State-Owned Assets Supervision and Administration Commission (SASAC) currently imposes strict limitations on the executive pay gap of the state-owned enterprises in China, and prior studies suggest that regulation is susceptible to corruption (Bardhan, 1997). Our research provides evidence on the positive effect of compensation regulation by showing that large executive pay gap increases auditor's perception of audit risk and adds costs to the firm.

Second, we contribute to the extant literature on the determinants of audit pricing by showing that the executive pay gap increases the probability of managerial opportunistic behaviors, leading to more audit input, higher risk assessment and higher audit fees. Prior studies have examined the impact of the pay gap among top executives on audit fees in the developed countries such as the U.S. (Jia, 2017; Ge & Kim, 2020). We choose China as our empirical setting, which is vastly different in tradition and culture from western countries. Due to political intervention, Chinese state-owned enterprises have taken on policy objectives such as creating more jobs and maintaining stability. Managers of state-owned enterprises are also government officials. Compared to currency wages, they care more about political promotion. Besides, the executive pay of state-owned enterprises is not market-oriented. After years of gradual reform, China's wage distribution policies have undergone several changes. The wage distribution policies are changing from the direct mandatory management in the planned economy towards the market mechanism. However, administrative intervention remains, and the manager market in China, especially in state-owned enterprises, is still under regulation to some extent (Groves, Hong, McMillan, & Naughton, 1995). This allows us to test how the executive pay gap affects managerial behaviors and audit pricing in a quite different context. Third, we infer how ownership property, technological complexity and corporate governance affect the association between the executive pay gap and audit fees by examining the impact of the nature of controlling shareholders, R&D expenditures and the proportion of independent directors. Prior studies have examined the impact of independent directors on corporate performance, earnings quality and firm value (Chatterjee & Nag, 2015; Güner et al., 2008; Kanakriyah, 2021; Rosenstein & Wyatt, 1990). Relatively few studies investigate the mitigating role of independent directors in the relationship between the executive pay gap and audit fees. Our study complements previous research by showing that stronger internal monito-ring performed by independent directors can mitigate auditors' concerns about the misreporting risk associated with the executive pay gap. Furthermore, we investigate whether the effect of the executive pay gap on audit fees is stronger in SOE, which has not previously been explored.

This paper proceeds as follows. Section 2 reviews the previous literature and develops four hypotheses. Section 3 presents the research design. Section 4 describes the sample, data and empirical results. Section 5 concludes the paper by discussing the theoretical and practical implications and limitations.

2. Literature Review and Hypotheses

Tournament theory suggests that a large pay gap between CEO and non-CEO executives motivates non-CEO executives

to make extra efforts and outperform the others to get promoted (Kale, Reis, & Venkateswaran, 2009; Kubick & Masli, 2016). The incentive to win the tournament becomes stronger with the increasing of the executive pay gap (Lazear & Rosen, 1981; Prendergast, 1999). The fierce competition among non-CEO executives leads to better performance (Prendergast, 1999) and increase in firm value (Eriksson, 1999; Kale et al., 2010). Meanwhile, the executive pay gap has negative consequences as well. Previous studies find that a large pay gap leads to higher likelihood of misreporting (Conrads, Irlenbusch, Rilke, Schielke, & Walkowitz, 2014), fraud (Haß, Müller, & Vergauwe, 2015), destructive sabotage activities (Harbring & Irlenbusch, 2011), greater risk-taking (Kini & Williams, 2012), more aggressive tax planning strategy (Kubick & Masli, 2016) and higher cost of equity (Chen, Huang, & Wei, 2013).

According to the classical audit pricing model, audit fees are a function of two components: (1) the cost of audit associated with auditor effort, and (2) the expected legal liability cost due to audit failure (Simunic, 1980). The cost of audit effort is positively correlated with audit fees and negatively correlated with audit risk (Simunic, 1980). Firms with high legal litigation risk are those with poor corporate governance, weak legal awareness and high likelihood of violation. Under modern risk-oriented audit standards, audit firms have to assign more experienced auditors, spend more time on substantive procedures and obtain more audit evidence in clients with high legal litigation risk to reduce audit risk to an acceptable level (Seetharaman, Gul, & Lynn, 2002). The cost of audit effort increases, which exceeds the decrease in the expected legal liability cost, leading to the increase in audit fees (Kim et al., 2012).

The tournament incentive is likely to affect auditor perceptions of audit risk and audit business risk. Audit risk originates from an inappropriate audit opinion. Tournament incentives motivate executives to manipulate earnings, increasing audit risk. Stronger tournament incentives encourage executives to undertake greater risk-taking (Goel & Thakor, 2008), which is harmful to the firm and may increase auditor business risk. Auditor business risk is the risk arising from the auditor's exposure "to loss of or injury to his or her professional practice from litigation, adverse publicity, or other events" (AICPA, 2006). Risk-oriented auditing standards specify that auditors should take the executive compensation incentive into account when assessing the risk of material misstatement (AICPA, 2002; CICPA, 2007). Thus, when making risk assessment, auditors will take into account the audit risk and auditor business risk and respond to greater audit risk or auditor business risk by charging higher audit fees (e.g., Lyon & Maher, 2005; Pratt & Stice, 1994; Schelleman & Knechel, 2010; Seetharaman, Gul, & Lynn, 2002; Simunic, 1980; Stanley, 2011). Therefore, we expect auditors to perceive audit risk as higher and charge higher audit fees when the executive

pay gap is larger. Accordingly, we propose the following hypothesis:

H1: The executive pay gap is positively associated with audit fees.

In China, most listed firms are transformed from state-owned enterprises. As state-owned enterprises emphasize equal pay, regulators impose limitations on the pay gap between top executives and employees. Although such limitations are weakened after these firms got listed, the notion of equal pay still perpetuates. The high compensation of executives of state-owned enterprises is always regarded by the public as a plunder of shareholders' wealth and may cause "anger" of the public. Therefore, managers of state-owned enterprises have stronger motivation to justify themselves by improving performance through earnings management. In addition, the ownership of state-owned enterprises belongs to all citizens, leading to the absence of shareholders and lack of supervision on managerial behaviors. This provides convenience for the management to implement earnings manipulation. The serious agency problem and defective incentive and discipline mechanism of state-owned enterprises increase auditor perceptions of risk.

In addition, the executive compensation of SOE has always been the focus of the media. Numerous studies have examined the governance role of the media in the executive compensation (Dyck, Volchkova, & Zingales, 2008). Nguyen (2015) finds that media coverage of the CEO, especially positive reports, can improve the reputation of the CEO, bring the CEO better job opportunities in the future, and improve his rent-seeking ability, resulting in the rise of the CEO compensation. However, negative reports will damage the executive reputation, causing the loss of future job opportunities and ruins of his/her daily interpersonal communication (Dyck & Zingales, 2004). Kuhnen and Niessen (2012) provide evidence on the negative association between negative media reports and the total compensation of the CEO. In China, regulators care more about the negative reports on the executive compensation of SOE. Negative reports on the executive compensation of SOE are more likely to trigger scrutiny from regulators. Auditors may incorporate the high risk associated with the executive pay gap of SOE in audit pricing. With the increasing of the executive pay gap of SOE, auditors tend to charge higher audit fees. Therefore, we expect that the association between the executive pay gap and audit fees is more pronounced in SOE. Accordingly, we propose the following hypothesis:

H2: The positive association between the executive pay gap and audit fees is stronger in state-owned enterprises.

The resource-based theory and competitive advantage theory posit that scarce resources, which cannot be imitated

or replaced are the origination of competitive advantage for organizations (Grant, 1991). Innovative activities are value creation activities for organizations to obtain such resources. The increase in R&D expenditure helps to produce new products, better meeting the needs of existing customers and attracting new customers. The increase in R&D expenditure can also help to improve the existing production process, reduce manufacturing costs, and improve corporate performance and firm value (Srinivasan, Pauwels, Silva-Risso, & Hanssens, 2009). However, due to the long cycle and aftereffect of R&D activities, great uncertainty and risk exist in R&D expenditures. Once the innovative activities fail, the firm will be at the stake of losing market shares and break of the funding chain. Even worse, the firm may plunge into financial distress or go bankrupt. Accordingly, in the case of information asymmetry, managers will cut down R&D expenditures, which is harmful to the firm value. To relieve moral hazard and to stimulate managers' enthusiasm for R&D activities, firms are likely to offer high pays to the management. The higher the technological complexity of the firm, the larger the executive pay gap may be. Auditors probably consider the large pay gap of firms with high technological complexity as compensation for executives undertaking high risk in R&D activities, thus assessing audit risk as low risk and reducing audit fees.

On the other hand, firms with high technological complexity, which are in need of large R&D expenditures, usually have a large proportion of technicians and researchers. As technicians and researchers often have high education, ability and competence, they may demand higher pay. The pay gap between executives and employees of firms with high technological complexity may be smaller. Hambrick and Siegel (2008) find that the smaller pay gap between executives and employees can promote the future performance of firms with high technological complexity. Auditors may consider small pay gap reasonable for firms with high technological complexity and assess audit risk of firms with small pay gap as low risk, thus charging lower audit fees. Taking the above analysis into consideration, whether and, if so, how technological complexity affect the relationship between the executive pay gap and audit fees is a question to be tested empirically. Accordingly, we propose the following competing hypotheses:

H3a: The positive association between the executive pay gap and audit fees is more pronounced in firms with more technological complexity (more R&D expenditure).
H3b: The positive association between the executive pay gap and audit fees is more pronounced in firms with less technological complexity (less R&D expenditure).

Independent director system is an important institutional arrangement of corporate governance. As stipulated in Guiding Opinions on the Establishment of Independent Director System in Listed Firms, issued by China's Securities Regulatory Commission in 2001, independent directors should express independent opinions on the related transactions and corporate disclosure of listed firms as well as events that may damage the rights and interests of minority shareholders. The introduction of independent directors aims to enhance corporate internal supervision and to protect the interests of minority shareholders (Fama & Jensen, 1983; Adams, Hermalin, & Weisbach, 2010). The specialization and independence of independent directors are two important factors that affect the governance role of independent directors (Peasnell, Pope, & Young, 2005). Two types of agency conflicts exist in modern enterprises: the agency conflict between shareholders and managers caused by the separation of ownership (Jensen & Meckling, 1976) and the agency conflict between large shareholders and minority shareholders (Claessens, Djankov, & Lang, 1988). These two conflicts can damage the interests of minority shareholders. Independent directors should exercise supervision over both of the conflicts. For the first kind of agency problem, independent directors play a governance role mainly by appointing and dismissing the executives, especially the CEO, participating in M&A and other investing activities (Adams, Hermalin, & Weisbach, 2010).

When a large executive pay gap exists, independent directors will doubt the rationality of the executive pay and examine the correlation between CEO compensation and corporate performance. Independent directors, especially those majored in accounting, have a professional understanding of the generation and disclosure of corporate financial reports, which has a direct and vital impact on corporate earnings quality. Beasley (1996) found that firms with a high proportion of independent directors have a lower probability of fraud. Agrawal and Chadha (2005) posit that independent directors with CPA or CFA certificate can reduce the likelihood of financial restatement. Francis, Hasan and Wu (2015) argue that compared to non-scholar accounting independent directors, scholar accounting independent directors have a stronger positive impact on earnings quality. Thus, if a firm has a large executive pay gap, more independent directors can offer more supervision on managerial behaviors and earnings quality. The opportunity for executives to obtain tournament incentive through earnings management will be reduced. In addition, the independent director governance is the substitute for high-quality external audit. With the enhancing supervision of independent directors over earnings quality, auditors may cut down input in the audit, leading to the reduction of audit costs and audit fees. Therefore, if the executive pay gap is positively associated with audit fees, as predicted

in hypothesis H1, we expect the positive association to be stronger for firms with lower proportion of independent directors, i.e., the proportion of independent directors has a mitigating role in the relationship between the executive pay gap and audit fees. Accordingly, we propose and test the following hypothesis:

H4: *The association between the executive pay gap and audit fees is mitigated by the proportion of independent directors.*

3. Methodology

3.1. Measure of Corporate Pay Gap

Drawing on prior literature (Faleye, Reis, & Venkateswaranet, 2013; Hambrick & Siegel, 1997), we use two measures of corporate pay gap: MWD and MEWD. MWD is based on the difference in pay within executives, while MEWD is based on the difference in compensation between executives and employees. MWD is the natural logarithm of the difference between the mean total pay of the top three highest paid executives and the mean total pay of the other executives. MEWD is the natural logarithm of the difference between the mean total pay of the top three highest paid executives and employees. In the robust tests, we use MWDr and MEWDr as alternative test variables. MWDr is the ratio of the difference between the mean total pay of the top three highest paid executives to the mean total pay of the other executives. MEWDr is the ratio of the difference between the mean total pay of the top three highest paid executives and employees. Different from developed capital markets, the coverage and proportion of equity payment of Chinese listed firms are small. Thus, we do not include equity payment in this research.

3.2. Empirical Model

To investigate the relation between corporate pay gap and audit fees, we regress the natural logarithm of audit fees on our measures of pay gap. We utilize OLS regression and robust standard errors. Standard errors are clustered by firm. In order to control the influences of outliers, all continuous variables are winsorized at the 1st and 99th percentiles. We estimate the following regression models:

$$\begin{aligned} \text{FEES} = {} & \beta_0 + \beta_1\text{MWD} + \beta_2\text{SIZE} + \beta_3\text{LEV} + \beta_4\text{ROA} \\ & + \beta_5\text{REV} + \beta_6\text{INVENTORY} + \beta_7\text{CURRENT} \\ & + \beta_8\text{GROWTH} + \beta_9\text{LOSS} + \beta_{10}\text{SOE} + \beta_{11}\text{BIG4} \\ & + \beta_{12}\text{OPINION} + \beta_{13}\text{SWITCH} + \text{YEAR} \\ & + \text{INDUSTRY} + \varepsilon \end{aligned} \tag{1}$$

$$\begin{aligned} \text{FEES} = {} & \beta_0 + \beta_1\text{MEWD} + \beta_2\text{SIZE} + \beta_3\text{LEV} + \beta_4\text{ROA} \\ & + \beta_5\text{REV} + \beta_6\text{INVENTORY} + \beta_7\text{CURRENT} \\ & + \beta_8\text{GROWTH} + \beta_9\text{LOSS} + \beta_{10}\text{SOE} + \beta_{11}\text{BIG4} \\ & + \beta_{12}\text{OPINION} + \beta_{13}\text{SWITCH} + \text{YEAR} \\ & + \text{INDUSTRY} + \varepsilon \end{aligned} \tag{2}$$

where the dependent variable, FEES, is the natural logarithm of total audit fees. Following prior literature (Hay, Knechel, & Wong, 2006; Pong & Whittington, 1994; Simunic, 1980), we control for client-specific attributes and auditor-specific attributes that have an effect on audit fees. We use the natural logarithm of total assets (SIZE) as the proxy for firm size. Leverage is the ratio of total liabilities to total assets (LEV). Profitability is measured by the ratio of net income scaled by average total assets. We use two measures to capture a firm's business complexity: receivables divided by total assets (REV) and inventory divided by total assets (INVENTORY). Business risk is measured by a loss indicator (LOSS) and the ratio of current assets to current liabilities (CURRENT). We use revenue growth (GROWTH) as the proxy for growth opportunities. Ownership property is measured by an ownership property indicator (SOE). SOE takes the value of 1 if a firm is stated-owned, and 0 otherwise. The auditor-specific attributes include: auditor size (BIG4), audit opinion (OPINION) and auditor change (SWITCH). BIG4 is an indicator variable that takes the value of 1 if a firm is audited by one of the Big Four accounting firms, and 0 otherwise. OPINION is an indicator variable that takes the value of 1 if the audit opinion is not unqualified opinion, and 0 otherwise. SWITCH is an indicator variable that equals 1 if a firm changes its auditor, and 0 otherwise. Time and industry fixed effects are controlled with YEAR and INDUSTRY. To test whether the effect of the pay gap on audit fees is moderated by ownership property (H2), we estimate the following models:

$$\begin{aligned} \text{FEES} = {} & \beta_0 + \beta_1\text{MWD} + \beta_2\text{SOE} + \beta_3\text{MWD}\times\text{SOE} \\ & + \beta_4\text{SIZE} + \beta_5\text{LEV} + \beta_6\text{ROA} + \beta_7\text{REV} \\ & + \beta_8\text{INVENTORY} + \beta_9\text{CURRENT} \\ & + \beta_{10}\text{GROWTH} + \beta_{11}\text{LOSS} + \beta_{12}\text{BIG4} \\ & + \beta_{13}\text{OPINION} + \beta_{14}\text{SWITCH} + \text{YEAR} \\ & + \text{INDUSTRY} + \varepsilon \end{aligned} \tag{3}$$

$$\begin{aligned} \text{FEES} = {} & \beta_0 + \beta_1\text{MEWD} + \beta_2\text{SOE} + \beta_3\text{MEWD}\times\text{SOE} \\ & + \beta_4\text{SIZE} + \beta_5\text{LEV} + \beta_6\text{ROA} + \beta_7\text{REV} \\ & + \beta_8\text{INVENTORY} + \beta_9\text{CURRENT} \\ & + \beta_{10}\text{GROWTH} + \beta_{11}\text{LOSS} + \beta_{12}\text{BIG4} \\ & + \beta_{13}\text{OPTION} + \beta_{14}\text{SWITCH} + \text{YEAR} \\ & + \text{INDUSTRY} + \varepsilon \end{aligned} \tag{4}$$

where all variables are as defined in Eq. (1) and Eq. (2). To test whether the effect of the pay gap on audit fees is moderated by technical complexity (H3), we estimate the following models:

$$
\begin{aligned}
FEES = {} & \beta_0 + \beta_1 MWD + \beta_2 R\&D + \beta_3 MWD \times R\&D \\
& + \beta_4 SIZE + \beta_5 LEV + \beta_6 ROA + \beta_7 REV \\
& + \beta_8 INVENTORY + \beta_9 CURRENT \\
& + \beta_{10} GROWTH + \beta_{11} LOSS + \beta_{12} SOE \\
& + \beta_{13} BIG4 + \beta_{14} OPINION + \beta_{15} SWITCH \\
& + YEAR + INDUSTRY + \varepsilon
\end{aligned} \tag{5}
$$

$$
\begin{aligned}
FEES = {} & \beta_0 + \beta_1 MEWD + \beta_2 R\&D + \beta_3 MEWD \times R\&D \\
& + \beta_4 SIZE + \beta_5 LEV + \beta_6 ROA + \beta_7 REV \\
& + \beta_8 INVENTORY + \beta_9 CURRENT \\
& + \beta_{10} GROWTH + \beta_{11} LOSS + \beta_{12} SOE \\
& + \beta_{13} BIG4 + \beta_{14} OPINION + \beta_{15} SWITCH \\
& + YEAR + INDUSTRY + \varepsilon
\end{aligned} \tag{6}
$$

Drawing on prior literature, we use the R&D expenditure to measure the technical complexity of the firm. The variable is the amount of R&D expenditure divided by operating revenues. The two variables, and , are interaction terms between pay gap and technical complexity. All other variables are as defined in Eq. (1) and Eq. (2).

To test whether the effect of the pay gap on audit fees is moderated by corporate governance (H4), we estimate the following models:

$$
\begin{aligned}
FEES = {} & \beta_0 + \beta_1 MWD + \beta_2 INDP + \beta_3 MWD \times INDP \\
& + \beta_4 SIZE + \beta_5 LEV + \beta_6 ROA + \beta_7 REV \\
& + \beta_8 INVENTORY + \beta_9 CURRENT \\
& + \beta_{10} GROWTH + \beta_{11} LOSS + \beta_{12} SOE + \beta_{13} BIG4 \\
& + \beta_{14} OPINION + \beta_{15} SWITCH + YEAR \\
& + INDUSTRY + \varepsilon
\end{aligned} \tag{7}
$$

$$
\begin{aligned}
FEES = {} & \beta_0 + \beta_1 MEWD + \beta_2 INDP + \beta_3 MEWD \times INDP \\
& + \beta_4 SIZE + \beta_5 LEV + \beta_6 ROA + \beta_7 REV \\
& + \beta_8 INVENTORY + \beta_9 CURRENT \\
& + \beta_{10} GROWTH + \beta_{11} LOSS + \beta_{12} SOE + \beta_{13} BIG4 \\
& + \beta_{14} OPINION + \beta_{15} SWITCH + YEAR \\
& + INDUSTRY + \varepsilon
\end{aligned} \tag{8}
$$

Drawing on prior literature, we use the proportion of independent directors (INDP) to measure the level of the corporate governance. The two variables, MWD × INDP and MEWD × INDP, are interaction terms between pay gap and corporate governance. All other variables are as defined in Eq. (1) and Eq.(2).

4. Empirical Results

4.1. Sample Description

We collect our data from China Stock Market & Accounting Research Database (CSMAR). The sample period for our analyses is 2008–2019 because disclosure of compensation of executives was not required before 2005 and firms in China rarely disclosed R&D expenditure until 2008. To construct our sample, we delete financial firms and special treatment (ST) firms. We also exclude observations with missing financial data. The final sample has a total of 19865 observations. In addition, we exclude observations where management compensation is lower than employee compensation. The resulting sample comprises 14,044 observations from 2,835 Chinese firms. Table 1 reports descriptive statistics for the sample. The mean audit fee in the sample is 13.635, much closer to the median value of 13.528. However, when audit fee is transformed into original values, the mean value of ¥834843.87 is more than 11% larger than the median value of ¥750128.65, suggesting that the distribution of audit fees is right skewed. The mean MWD and the mean MEWD are 12.710 and 13.141 respectively, suggesting that the mean difference between the total pay of the top three highest paid executives and the other executives is ¥331041.82, and the mean difference between the total pay of the top three highest paid executives and employees is ¥509405.68, smaller than that in developed countries. About 10 percent of the firm-years report a loss in the sample period. Only 4.6% of the firm-years are audited by Big Four auditors, much smaller than Bryan and Mason (2016). Table 1 also reveals that 2.5% of the firm-years receive non-standard audit opinion, and 7% change their auditors.

4.2. Baseline Results

Table 2 presents the regression results of estimating Eq. (1) and Eq. (2). Consistent with H1, in all six columns, the coefficients on our variables of interest are positive and significant at the 1% level. In column 1 of Table 2, using the MWD measure of pay gap without control variables, we find that the coefficient on MWD is positive ($\beta = 0.246$) and significant at the 1% level. Next, we add control variables, and find that the model has much higher explanatory power in column 2 ($R^2 = 0.606$) than in column 1 ($R^2 = 0.102$). In column 3 of Table 2, after controlling year and industry fixed effects, we find that the explanatory power of the model becomes even higher ($R^2 = 0.626$). The results in

Table 1: Descriptive Statistics

Variables	*N*	Mean	Std	Min	p25	p50	p75	Max
FEE	14044	13.635	0.631	12.506	13.218	13.528	13.998	15.950
MWD	14044	12.710	0.817	10.590	12.192	12.682	13.203	14.895
MEWD	14044	13.141	0.753	11.341	12.648	13.111	13.598	15.209
SIZE	14044	22.149	1.215	19.982	21.281	21.973	22.835	25.940
LEV	14044	0.411	0.197	0.054	0.253	0.402	0.560	0.868
ROA	14044	0.041	0.059	−0.200	0.014	0.038	0.070	0.211
REC	14044	0.136	0.100	0.001	0.057	0.118	0.193	0.460
INVENTORY	14044	0.135	0.099	0.001	0.067	0.115	0.174	0.519
CURRENT	14044	2.451	2.389	0.368	1.178	1.691	2.710	15.788
GROWTH	14044	0.179	0.375	−0.467	−0.010	0.116	0.275	2.276
LOSS	14044	0.096	0.294	0.000	0.000	0.000	0.000	1.000
SOE	14044	0.327	0.469	0.000	0.000	0.000	1.000	1.000
BIG4	14044	0.046	0.210	0.000	0.000	0.000	0.000	1.000
OPINION	14044	0.025	0.156	0.000	0.000	0.000	0.000	1.000
SWITCH	14044	0.070	0.255	0.000	0.000	0.000	0.000	1.000

columns 4, 5, and 6 provide similar inferences when using the MEWD measure of pay gap. In addition, the results show positive and significant coefficients on SIZE, REC, GROWTH, BIG4, and OPINION, and negative coefficients on LEV, ROA, CURRENT, SOE and SWITCH. This suggests that larger firms, firms with higher risk (higher receivables ratio), firms with higher growth, and firms with lower earnings quality pay higher audit fees. We also find that Big Four auditors tend to charge higher audit fees. Firms with higher leverage, firms with lower business risk (higher ROA and current ratio), and state-owned firms pay lower audit fees. New auditors tend to charge lower audit fees. Most of the results for control variables are consistent with prior literature.

4.3. The Moderating Effect of Ownership Property, Technical Complexity and Corporate Governance

Table 3 reports the results of estimating the moderating effect of ownership property, technical complexity and corporate governance as specified in H2, H3, and H4 respectively.

Table 3, we estimate Eq. (3) and Eq. (4) to investigate the moderating effect of ownership property. The coefficients of MWD and MEWD are consistent with our baseline results in Table 2. The coefficients of the interaction terms, MWD × SOE and MEWD × SOE, are both positive and significant at the 1% level, consistent with hypothesis H2. The results suggest that auditors tend to perceive larger pay gap in state-owned enterprises as high risk. In columns 3 and 4 of Table 3,

we estimate Eq. (5) and Eq. (6) to investigate the moderating effect of technical complexity. We use the R&D expenditure to measure the technical complexity of the firm. The coefficients of MWD and MEWD are positive and significant at the 1% level, consistent with the baseline results. The coefficients of R&D in Eq. (5) and Eq. (6) are positive and significant at the 10% and 5% levels respectively, suggesting that auditors tend to charge high-R&D firms higher audit fees. The coefficients of the interaction terms, MWD × R&D and MEWD R&D, are negative and significant at the 10% and 5% levels respectively. The results suggest that auditors tend to perceive lower audit risks associated with the pay gap for high-technical-complexity firms than for low-technical-complexity firms. Auditors may regard high executive pay as a reward for undertaking risky R&D activities. In columns 5 and 6 of Table 3, we estimate Eq. (7) and Eq. (8) to investigate the moderating effect of corporate governance. The coefficients of MWD and MEWD are both positive and significant at the 1% level, consistent with the baseline results. The coefficients of the interaction terms, MWD × INDP and MEWD × INDP, are both negative and significant at the 1% level, suggesting that auditors tend to perceive the potential audit risk associated with high pay gap as low risk for firms with stronger monitoring by independent directors.

4.4. Further Analysis

In the above analysis, we predict that auditors tend to charge firms with a large pay gap higher due to their lower

Table 2: Pay Gap and Audit Fees

	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	10.505*** (61.54)	4.709*** (24.21)	4.864*** (22.86)	9.060*** (47.96)	4.692*** (24.00)	4.854*** (22.76)
MWD	0.246*** (18.16)	0.076*** (7.92)	0.058*** (6.06)			
MEWD				0.348*** (23.84)	0.089*** (7.92)	0.068*** (6.04)
SIZE		0.367*** (39.99)	0.356*** (36.79)		0.359*** (37.58)	0.350*** (34.97)
LEV		−0.209*** (−3.76)	−0.107* (−1.88)		−0.205*** (−3.66)	−0.103* (−1.81)
ROA		−0.843*** (−6.44)	−0.702*** (−5.43)		−0.863*** (−6.57)	−0.718*** (−5.55)
REC		0.181*** (2.61)	0.222*** (3.00)		0.159** (2.27)	0.207*** (2.79)
INVENTORY		−0.026 (−0.34)	0.053 (0.65)		−0.025 (−0.33)	0.053 (0.65)
CURRENT		−0.019*** (−6.12)	−0.015*** (−4.80)		−0.018*** (−6.01)	−0.014*** (−4.70)
GROWTH		0.050*** (4.00)	0.046*** (3.73)		0.049*** (3.94)	0.046*** (3.70)
LOSS		0.020 (1.09)	0.023 (1.23)		0.018 (0.98)	0.021 (1.14)
SOE		−0.151*** (−8.09)	−0.154*** (−8.36)		−0.164*** (−8.92)	−0.164*** (−9.00)
BIG4		0.529*** (10.62)	0.549*** (11.05)		0.529*** (10.53)	0.549*** (10.98)
OPINION		0.157*** (5.02)	0.132*** (4.26)		0.155*** (4.98)	0.130*** (4.22)
SWITCH		−0.028** (−2.01)	−0.034** (−2.55)		−0.031** (−2.21)	−0.036*** (−2.70)
Year	Yes	No	Yes	Yes	No	Yes
Industry	Yes	No	Yes	Yes	No	Yes
N	14044	14044	14044	14044	14044	14044
R^2	0.102	0.606	0.626	0.173	0.607	0.626
F-value	329.662	269.249	142.310	568.303	266.510	142.188
P-value	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Note: *, **, ***Indicate statistical Significance at the 0.10, 0.05, 0.01 levels, respectively.

Table 3: The Moderating Effect of Ownership Property, Technical Complexity and Corporate Governance

	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	5.158*** (22.98)	5.265*** (23.23)	4.691*** (19.53)	4.559*** (18.18)	2.327*** (3.26)	1.977** (2.43)
MWD	0.035*** (3.08)		0.073*** (5.57)		0.258*** (4.61)	
MEWD		0.040*** (3.26)		0.093*** (5.99)		0.285*** (4.63)
R&D			0.044* (1.70)	0.075** (2.45)		
INDP					6.753*** (3.61)	7.641*** (3.58)
MWDSOE	0.064*** (3.52)					
MEWDSOE		0.089*** (4.18)				
MWDR&D			−0.004* (−1.73)			
MEWDR&D				−0.006** (−2.47)		
MWDINDP					−0.533*** (−3.58)	
MEWDINDP						−0.583*** (−3.56)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes
N	14044	14044	14044	14044	14044	14044
R^2	0.627	0.629	0.626	0.627	0.627	0.628
F-value	141.450	140.850	136.446	136.520	143.381	143.269
P-value	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Note: *, **, ***Indicate statistical Significance at the 0.10, 0.05, 0.01 levels, respectively.

earnings quality. Thus, in further research we test the association between corporate pay gap and earnings quality to justify our research. The following regression models are presented:

$$EQ = \beta_0 + \beta_1 MWD + \beta_2 SIZE + \beta_3 LEV + \beta_4 CFO \\ + \beta_5 TOP10 + \beta_6 BOARD + \beta_7 DUAL \\ + \beta_8 BIG4 + \beta_9 SWITCH + YEAR \\ + INDUSTRY + \varepsilon \quad (9)$$

$$EQ = \beta_0 + \beta_1 MEWD + \beta_2 SIZE + \beta_3 LEV + \beta_4 CFO \\ + \beta_5 TOP10 + \beta_6 BOARD + \beta_7 DUAL \\ + \beta_8 BIG4 + \beta_9 SWITCH + YEAR \\ + INDUSTRY + \varepsilon \quad (10)$$

where the dependent variable, EQ, is the earnings quality of the sample firm. We use two measures of earnings quality: accrual-based earnings management (DACC) and real earnings management (REM). DACC is abnormal accruals

estimated by industry and year using the Modified Jones Model (Dechow, Sloan, & Hutton, 1995; Guay, Kothari, & Watts, 1996). As for REM, drawing on prior literature (Al-Absy et al., 2020).

Ismail, Chandren, Al-Dubair, 2020; Roychowdhury, 2006; Cohen & Zarowin, 2010; Zang, 2012), we first calculate abnormal operating cash flow (ABCFO), abnormal discretionary cost (ABDISP) and abnormal production cost (ABPROD), and then define real earnings management *REM* based on these three indexes, i.e., REM = ABPROD–ABCFO–ABDISP. The higher degree of accrual-based and real earnings management indicates lower earnings quality. Thus, we expect a positive association between corporate pay gap and DACC (REM). We include the following variables in the model to control for the firm-specific and auditor-specific attributes that have an effect on earnings quality: firm size (SIZE), leverage (LEV), cash flow (CFO), ownership concentration (TOP10), board size (Board), duality of the chairman of the board and CEO (DUAL), auditor size (BIG4), and auditor change (SWITCH). We use operating cash flow divided by total assets as a proxy for cash flow. Ownership concentration is measured by the ratio of top ten shareholders. Board size is the natural logarithm of the number of directors. DUAL is an indicator variable, which takes the value of 1 if CEO is the chairman of the board, and 0 otherwise. The other variables are as defined in Eq. (1) and Eq. (2).

Table 4 presents the regression results of estimating Eq. (9) and Eq. (10). The results in column 1 (column 2) of Table 4, using DACC measure of earnings quality, reveal a positive and significant coefficient on MWD (MEWD). The results in column 3 (column 4) of Table 4, using REM measure of earnings quality, also reveal a positive and significant coefficient on MWD (MEWD). Therefore, the results in Table 4 support our prediction.

4.5. Robust Test

To establish the robustness of our results, we conduct the following tests:

1. To control the potential effect of managerial share-holding on pay gap and audit fees, we run sensitivity test by adding the proportion of managerial ownership (MS) as a control variable. The coefficients of MS on MWD and MEWD are 0.034 and 0.037, respectively, both positive, but insignificant. However, the coefficients of MWD and MEWD are both positive and significant as in the baseline regression. The results reveal that managerial shareholding have little effects on audit fees in China and our results are robust.
2. Change the measures of independent variables. We use MWDr and MEWDr as alternative measures for corporate pay gap. MWDr is the ratio of the difference

between the mean total pay of the top three highest paid executives to the mean total pay of the other executives. MEWDr is the ratio of the difference between the mean total pay of the top three highest paid executives and employees. We re-run the tests and reached inferences similar to those presented in the baseline regressions.
3. The sample includes SEO (Seasoned equity offerings) firms and firms at the period of exercising rights. In order to control the potential effect of rights issue and exercise of stock options, we exclude SEO firms and firms at the exercising period. The sample is reduced to 13917 (11632) firm-year observations. Our inferences still hold.
4. To solve the possible endogeneity of the research, we use one-period lagged independent variable and re-run the tests. The sample is reduced to 13843 firm-year observations. Our inferences remain unchanged.
5. To alleviate the endogenous problems caused by missing variables and reverse causality in this research, we use pay gap with one-period lag, two-period lag and three-period lag as an instrumental variable and conduct Heckman 2SLS regression (Wei & Xu, 2016). The results are reported in Table 5. Our inferences remain unchanged.

5. Conclusion

Prior research suggests that corporate pay gap may inspire executives, brings better performance and higher firm value. While in this study, we examine the negative consequences of the executive pay gap. We investigate whether auditors assess Chinese listed firms with large pay gap as high-risk clients and charge higher audit fees. Findings of this research have some theoretical and practical implications. First, our study offers insights into the economic consequences of corporate pay gap and suggests that the higher fees associated with pay gap are price protection of auditors for the lower earnings quality and higher risks of the clients. Second, our findings should be of interest to regulators, auditors and listed firms. Our research provides further evidence for compensation restriction regulation of state-owned enterprises implemented in China since the year 2009. China has a long history of collectivism and egalitarianism. Regulators should give full consideration to fairness while giving priority to efficiency. Auditors should take tournament incentives into account when assessing risks. As for listed firms, the pay gap cannot achieve the expectation of tournament incentive effect under the optimal contract theory. The incentive mechanism of pay gap should be used prudently. Good corporate governance and enhanced supervision can help to solve the problem of incentive inefficiency caused by "insider control".

This research has some limitations. First, although our findings indicate that auditors perceive higher tournament

Table 4: Pay Gap, Accrual Earnings Quality and Real Earnings Quality

	D.V. = DACC		D.V. = REM	
	(1) **I.V. = MWD**	**(2)** **I.V. = MEWD**	**(3)** **I.V. = MWD**	**(4)** **I.V. = MEWD**
Intercept	0.155*** (7.97)	0.160*** (8.25)	0.042 (0.79)	0.039 (0.73)
MWD	0.002*** (2.59)		0.018*** (7.11)	
MEWD		0.002* (1.80)		0.022*** (7.02)
SIZE	−0.006*** (−6.88)	−0.006*** (−6.64)	−0.006*** (−2.83)	−0.008*** (−3.69)
LEV	0.037*** (7.58)	0.037*** (7.46)	0.023** (2.03)	0.022** (1.96)
CFO	−0.176*** (−11.69)	−0.176*** (−11.65)	0.119*** (2.88)	0.115*** (2.79)
TOP10	0.018*** (3.80)	0.018*** (3.79)	0.056*** (4.40)	0.056*** (4.44)
BOARD	−0.005 (−1.48)	−0.005 (−1.43)	−0.004 (−0.43)	−0.003 (−0.33)
DUAL	0.003** (1.99)	0.003** (2.13)	0.006 (1.46)	0.007* (1.83)
BIG4	−0.002 (−0.63)	−0.002 (−0.57)	−0.008 (−0.71)	−0.008 (−0.72)
SWITCH	0.009*** (3.20)	0.009*** (3.15)	0.009* (1.76)	0.008 (1.58)
YEAR	Yes	Yes	Yes	Yes
INDUSTRY	Yes	Yes	Yes	Yes
N	14044	14044	14044	14044
R²	0.068	0.068	0.069	0.069
F-value	14.042	14.028	10.401	10.334
P-value	<0.01	<0.01	<0.01	<0.01

Note: *, **, ***Indicate statistical Significance at the 0.10, 0.05, 0.01 levels, respectively.

incentives as increasing risk, as reflected by higher audit fees, we do not investigate the other audit-related outcomes such as audit report lag, audit input and auditor resignations. Future researchers can extend our study by exploring the association between tournament incentives and audit report lag, audit input or auditor resignations. Second, our study only investigates accrual-based earnings management and real activities manipulation associated with tournament incentives. We do not investigate whether tournament incentives are associated with other metrics that capture earnings quality. Future researchers can extend our study by investigating the association between tournament incentives and accounting conservatism, the likelihood of fraud, and so on. Third, board of directors and audit committee may also affect audit fees and earnings quality. Future researchers can investigate the moderating role of board of directors and audit committee in the relationship between tournament incentives and audit fees.

Table 5: Heckman two-stage selection model

	(1)	(2)	(3)	(4)
	First Stage	Second Stage	First Stage	Second Stage
Intercept	1.749*** (11.26)	4.645*** (35.13)	1.405*** (10.89)	4.739*** (36.34)
Lag_MWD	0.554*** (25.18)		0.686*** (30.19)	
Lag2_MWD	0.156*** (9.18)		0.099*** (4.95)	
Lag3_MWD	0.084*** (7.82)		0.033*** (3.20)	
MWD		0.076*** (10.97)		
MEWD				0.072*** (9.82)
Control Variables	Yes	Yes	Yes	Yes
YEAR	Yes	Yes	Yes	Yes
INDUSTRY	Yes	Yes	Yes	Yes
N	11918	11918	11913	11888
R^2	0.702	0.618	0.806	0.618
F-value	3947.4	372.927	4436.44	370.999
P-value	<0.01	<0.01	<0.01	<0.01

Note: *, **, ***Indicate statistical Significance at the 0.10, 0.05, 0.01 levels, respectively.

References

Adams, R., Hermalin, B., & Weisbach, M. (2010). The role of boards of directors in corporate governance: a conceptual framework and survey. *Journal of Economic Literature, 48*, 58–107. https:/doi.org/10.1257/jel.48.1.58

Al-Absy, M., Ismail, K., Chandren, S., & Al-Dubai, S. (2020). Involvement of board chairmen in audit committees and earnings management: evidence from Malaysia. *Journal of Asian Finance, Economics and Business*, *7*(8), 233–246. https://doi.org/10.13106/jafeb.2020.vol7.no8.233

Bardhan P. (1997). Corruption and development: a review of issues. *Journal of Economic Literature, 35*(3), 1320–1346. https://doi.org/10.4324/9781315126647-30

Beasley, M. S. (1996). An empirical analysis of the relation between the board of director composition and financial statement fraud. *The Accounting Review, 71*(4), 443–465. https://doi.org/10.1016/0361-3682(95)00051-8

Chatterjee, C., & Nag, T. (2015). Board composition and financial performance. *South Asian Survey, 22*(2), 127–135. https://doi.org/10.1177/0971523117753435

Chen, Z., Huang, Y., & Wei, K. C. J. (2013). Executive pay disparity and the cost of equity capital. *Journal of Financial &*

Quantitative Analysis, 48(3), 849–885. https://doi.org/10.1017/S0022109013000306

Claessens, S., Djankov, S., & Lang, L. H. P. (2000). The separation of ownership and control in east Asian corporations. *Journal of Financial Economics, 58*, 81–112. https://doi.org/10.1016/S0304-405X(00)00067-2

Cohen, D. A., & Zarowin, P. (2010). Accrual-based and real earnings management activities around seasoned equity offerings. *Journal of Accounting & Economics, 50*(1), 2–19. https://doi.org/10.1016/j.jacceco.2010.01.002

Conrads, J., Irlenbusch, B., Rilke, R., Schielke, A., & Walkowitz, G. (2014). Honesty in tournaments. *Economics Letters, 123*, 90–93. https://doi.org/10.1016/j.econlet.2014.01. 026

Corea, J. E., Guaya, W., & Larckerb, D. F. (2008). The power of the pen and executive compensation. *Journal of Financial Economics, 88*(1), 1–25. https://doi.org/10.1016/j.jfineco.2007.05.001

Dechow, P. M., Sloan, R. G., & Hutton, A. P. (1995). Detecting earnings management. *Accounting Review, 70*(2), 193–225. https://doi.org/10.2307/258852

Defond, M. L., Hann, R. N., & Hu, X. (2005). Does the market value financial expertise on audit committees of boards of directors? *Journal of Accounting Research, 43*(2), 153–193. https://doi.org/10.1111/j.1475-679x.2005.00166.x

Dyck, A., Volchkova, N., & Zingales, L. (2008). The corporate governance role of the media: evidence from Russia. *Journal of Finance, 63*(3), 1093–1135. https://doi.org/10.1111/j.1540-6261.2008.01353.x

Dyck, A., & Zingales, L. (2004). Private benefits of control: an international comparison. *Journal of Finance, 59*(2), 537–600. https://doi.org/10.1111/j.1540-6261.2004.00642.x

Eriksson, T. (1999). Executive compensation and tournament theory: Empirical tests on Danish data. *Journal of Labor Economics, 17*(2), 262–280. https://doi.org/10.1086/209920

Faleye, O., Reis, E., & Venkateswaran, A. (2013). The determinants and effects of CEO–employee pay ratios. *Journal of Banking & Finance, 37*(8), 3258–3272. https://doi.org/10.1016/j.jbankfin.2013.03.003

Fama, E., & Jensen, M. (1983). Separation of ownership and control. *Journal of Law and Economics, 26*, 301–326. https://doi.org/10.1086/467037

Fargher, N., Jiang, A., & Yu, Y. (2014). How do auditors perceive CEO's risk-taking incentives? *Accounting and Finance, 54*, 1157–1181. https://doi.org/10.1111/acfi.12044

Francis, B., Hasan, I., & Wu, Q. (2015). Professors in the boardroom and their impact on corporate governance and firm performance. *Financial Management, 44*, 547–581. https://doi.org/10.1111/fima.12069

Ge, W., & Jeong Bon Kim. (2020). How does the executive pay gap influence audit fees? The roles of R&D investment and institutional ownership. *Journal of Business Finance & Accounting, 47*(5–6), 677–707. https://doi.org/10.1111/jbfa.12426

Goel, A., & Thakor, A. (2008). Overconfidence, CEO selection, and corporate governance. *The Journal of Finance, 63*(6), 2737–2784. https://doi.org/10.1111/j.1540-6261.2008.01412.x

Grant, R. M. (1991). The resource-based theory of competitive advantage: implications for strategy formulation. *California Management Review, 33*(3), 114–135. https://doi.org/10.2307/41166664

Groves, T., Hong, Y. M., McMillan, J., & Naughton, B. (1995). China's evolving managerial labor market. *The Journal of Political Economy, 103*(4), 873–892. https://doi.org/10.1086/262006

Grund, C., & Sliwka, D. (2005). Envy and compassion in tournaments. *Journal of Economics & Management Strategy, 14*(1), 187–207. https://doi.org/10.1111/j.1430-9134.2005.00039.x

Guay, W. R., Kothari, S. P., & Watts, R. L. (1996). A market-based evaluation of discretionary accrual models. *Journal of Accounting Research, 34*, 83–105. https://doi.org/10.2307/2491427

Güner, A. B., Malmendier, U., & Tate, G. (2008). Financial expertise of directors. *Journal of Financial Economics, 88*(2), 323–354. https://doi.org /10.1016/j.jfineco.2007.05.009

Haß, L., Müller, M., & Vergauwe, S. (2015). Tournament incentives and corporate fraud. *Journal of Corporate Finance, 34*, 251–267. https://doi.org/10.1016/j.jcorpfin.2015. 07.008

Hambrick, D. C., & Siegel, P. A. (1997). Pay dispersion within top management groups: harmful effects on performance of high-technology firms. *Academy of Management Annual Meeting Proceedings, 1*, 26–29. https://doi.org/10.5465/AMBPP.1997.4978025

Harbring, C., & Irlenbusch, B. (2011). Sabotage in tournaments: Evidence from a laboratory experiment. *Management Science, 57*(4), 611–627. https://doi.org/10.1287/mnsc.1100.1296

Hay, D. C., Knechel, W. R., & Wong, N. (2006). Audit fees: a meta-analysis of the effect of supply and demand attributes. *Contemporary Accounting Research, 23*(1), 141–191. https://doi.org/10.1506/4XR4-KT5V-E8CN-91GX

Jensen, M., & Meckling, W. (1976). Theory of the firm: managerial behavior, agency costs and ownership structure. *Journal of Financial Economics, 3*(4), 305–360. https://doi.org/10.1016/0304-405X(76)90026-X

Jia, N. (2017). Tournament incentives and audit fees. *Journal of Accounting and Public Policy, 36*, 358–378. https://doi.org/10.1016/j.jaccpubpol.2017.07.005

Kale, J. R., Reis, E., & Venkateswaran, A. (2009). Rank-order tournaments and incentive alignment: The effect on firm performance. *Journal of Finance, 64*, 1479–1512. https://doi.org/10.1111/j.1540-6261.2009.01470.x

Kanakriyah, R. (2021). The impact of board of directors' characteristics on firm performance: a case study in Jordan. *Journal of Asian Finance, Economics and Business, 8*(3), 341–350. https://doi.org/10.13106/jafeb.2021.vol8.no3.0341

Kannan, Y., Skantz, T., & Higgs, J. (2014). The impact of CEO and CFO equity incentives on audit scope and perceived risks as revealed through audit fees. *Auditing: A Journal of Practice & Theory, 33*(2), 111–139. https://doi.org/10.2308/ajpt-50666

Kim, J. B., Liu, X., & Zheng, L. (2012). The impact of mandatory IFRS adoption on audit fees: theory and evidence. *Accounting Review, 87*(6), 2061–2094. https://doi.org/10.2308/accr-50223

Kuhnen, C. M., & Niessen, A. (2012). Public opinion and executive compensation. *Management Science*, 58(7)*,* 1249–1272. https://doi.org/10.1287/mnsc.1110.1490

Lazear, E., & Rosen, S. (1981). Rank-order tournaments as optimum labor contracts. *Journal of Political Economy, 89*(51), 841–864. https://doi.org/10.1086/261010

Lyon, J., & Maher, M. (2005). The importance of business risk in setting audit fees: Evidence from cases of client misconduct. *Journal of Accounting Research, 43*(1), 133–151. https://doi.org/10.1111/j.1475-679x.2005.00165.x

Peasnell, K. V., Pope, P. F., & Young, S. (2005). Board monitoring and earnings management: do outside directors influence abnormal accruals? *Journal of Business Finance & Accounting, 32*(7–8), 1311–1346.

Pfeffer, J. (1994). Competitive advantage through people: unleashing the power of the work force. *Administrative Science Quarterly, 40*(3), 93–94. https://doi.org/10.2307/2393796

Pong, C. M., & Whittington, G. (1994). The determinants of audit fees: some empirical models. *Journal of Business Finance & Accounting, 21*(8), 1071–1095. https://doi.org/10.1111/j.1468-5957.1994.tb00365.x

Pratt, J., & Stice, J. (1994). The effects of client characteristics on auditor litigation risk judgments, required audit evidence, and recommended audit fees. *The Accounting Review, 69*(4), 639–656. https://doi.org/10.2307/248435

Prendergast, C. (1999). The provision of incentives in firms. *Journal of Economic Literature*, *37*, 7–63. https://doi.org/10.1257/jel.37.1.7

Rosenstein, S., & Wyatt, J. G. (1990). Outside directors, board independence, and shareholder wealth. *Journal of Financial Economics, 26*(2), 175–191. https://doi.org/10.1016/0304-405X(90)90002-H

Roychowdhury, S. (2006). Earnings management through real activities manipulation. *Journal of Accounting & Economics, 42*(3), 335–370. https://doi.org/10.1016/j.jacceco.2006. 01.002

Schelleman, C., & Knechel, R. (2010). Short-term accruals and the pricing and production of audit services. *Auditing: A Journal of Practice & Theory, 29*(1), 221–250. https://doi.org/10.2308/aud.2010. 29.1.221

Seetharaman, A., Gul, F. A., & Lynn, S. G. (2004). Litigation risk and audit fees: evidence from UK firms cross-listed on US markets. *Journal of Accounting & Economics, 33*(1), 91–115. https://doi.org/10.1016/S0165-4101(01)00046-5

Simunic, D. A. (1980). The pricing of audit services: theory and evidence. *Journal of Accounting Research, 18*(1), 161–190. https://doi.org/10.2307/2490397

Srinivasan, S., Pauwels, K., Silva-Risso, J., & Hanssens, D. M. (2009). Product innovations, advertising, and stock returns. *Journal of Marketing, 73*(1), 24–43. https://doi.org/10.1509/jmkg.73.1.24

Stanley, J. (2011). Is the audit fee disclosure a leading indicator of client's business risk? Auditing: A *Journal of Practice & Theory, 30*(3), 157–179. https://doi.org/10.2308/ajpt-10049

Tsao, S.M., Lin, C.H., & Chen, V. Y. S. (2015). Family ownership as a moderator between R&D investments and CEO compensation. *Journal of Business Research, 68*(3), 599–606. https://doi.org/10.1016/j.jbusres.2014.09.001

Yin, H., Zhang, R. (2020). The effect of maturity mismatch between investing and financing on audit pricing. *Journal of Asian Finance, Economics and Business*, *7*(9), 51–61. https://doi.org/10.13106/jafeb.2020.vol7.no9.051

Zang, A. Y. (2012). Evidence on the trade-off between real activities manipulation and accrual-based earnings management. *Accoun-ting Review, 87*(2), 675–703. https://doi.org/10.2308/accr-10196