CEO DUALITY, CEO COMPENSATION, AND EARNINGS MANAGEMENT: EVIDENCE FROM CHINA

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Abstract

This paper investigates whether chief executive officer (CEO) duality and CEO compensation influence earnings management. We obtain the data of the A-shares companies listed in both the Shanghai Stock Exchange (SSE) and Shenzhen Stock Exchange (SZSE) from the Chinese Securities Market and Accounting Research (CSMAR) database. Using a sample of 8,419 firm-year observations of 881 unique listed companies in China from 2011–2022, we find that the firms with CEO duality exhibit a higher level of earnings management, through both discretionary accruals and real activities. In addition, CEOs with higher cash-based compensation are more likely to engage in earnings management, while CEOs with higher equity-based incentives are less likely to engage in real earnings management. We further examine the moderating role of CEO duality and find that CEOs who also chair the board are more likely to engage in real earnings management. Additional analysis shows that state-owned companies are less likely to engage in earnings management activities. However, equity-based compensation provides incremental incentives for the CEOs of state-owned companies to manage earnings through accruals rather than real activities.

Keywords: CEO Duality, CEO Compensation, Earnings Management

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1. INTRODUCTION

Following the recent bankruptcies of business giants in the early 2000s, chief executive officer (CEO) duality, the situation in which one person serves as both the CEO and chairperson has gained significant attention (Wijethilake & Ekanayake, 2020). Agency theory and stewardship theory are two contradictory theories discussing CEO duality. Finkelstein and D'aveni (1994) propose that CEO duality is a "double-edged sword" because duality increases the danger of entrenchment by placing a considerable amount of formal authority in the hands of CEOs. Still, it creates a hierarchy of command that gives stakeholders a reason to feel secure. Several studies focus on this phenomenon but get mixed findings. Therefore, the role of CEO duality in the organization and its influence are still unclear and need further investigation, especially for Chinese companies. CEO duality situation accounts for over one-fourth of Chinese non-state-owned enterprises in recent years. In many

state-owned enterprises, the chairpersons also serve as CEOs, which means even if they are not CEOs; they are still the controller (Jiang & Kim, 2015). Therefore, CEO duality may be more prevalent in China than what data displays because the chairperson is likely to be the de facto CEO.

Chinese listed companies have strong interest and incentives to manage their earnings, especially when they intend to avoid de-listing because of consecutive net loss reported and when they want to reach legal criteria on return on equity for raising additional equity capital (Liu & Lu, 2007). It is also a common concern that CEOs manage earnings to increase current profit and then improve their compensation. Chinese listed companies did not introduce equity-based compensation as early as other countries and mainly use cash-based compensation. Thus, limited studies investigate the relationship between equity-based compensation and earnings management in China. However, the relationship between cash-based compensation and earnings management also remains unsettled. We are also interested in when a CEO is also the chairperson, and when the CEO earns a higher level of compensation, whether the CEO will be more likely to engage in earnings management. Therefore, we expect to answer the following research questions:

RQ1: Whether CEO duality increases earnings management?

RQ2: How CEO compensation influences earnings management?

RQ3: Whether CEO duality can strengthen or weaken the relationship between CEO compensation and earnings management?

Previous research shows a positive relationship between CEO/chairperson dual and earnings management (Lin, 2014). In terms of CEO compensation, empirical results are mixed. For example, equity-based compensation for CEOs is a way to help resolve agency problems. However, it can also trigger conflicts of interest between shareholders and managers because it encourages executives to control profitability (Alkebsee et al., 2022). On the other hand, cash-based compensation is not affected by changes in the stock price, thus reducing the temptation to manipulate profits for the CEO (Alkebsee et al., 2022; Ye, 2014). Nevertheless, Li et al. (2011) find that executive cash-based compensation has a significant positive effect on accrual earnings management and real earnings management. Therefore, the relationship between CEO compensation and earnings management is hard to predict. We do not assume any positive or negative relationship between CEO duality and earnings management, or any moderating role of CEO duality.

In this research, we study whether CEO duality and CEO compensation are associated with earnings management. We examine both accrual earnings management and real earnings management. We measure CEO compensation in terms of cash-based compensation and equity-based compensation. We also examine the moderating effect of CEO duality in the relationship between CEO compensation and earnings management. Compared to the previous study (Alhmood et al., 2020; Hashim & Devi, 2008; Zhang et al., 2008), this study has a larger sample with 8,419 firm-year observations from 2011 to 2021. We employ the *modified Jones model* (Dechow et al., 1995) and *Roychowdhury model* (Roychowdhury, 2006) to measure accrual earnings management and real earnings management and take cash-based compensation and equity-based incentives as measures of CEO compensation. We find significant and positive relationships between CEO duality and earnings management. The results also show a positive impact of cash-based compensation on earnings management and a negative impact of equity-based incentives on real earnings management. Moreover, CEO duality can weaken the negative relationship between CEO equity-based compensation and real earnings management.

The contributions of this paper are as follows. First, this paper extends the existing literature on earnings management by investigating the role of CEO duality, CEO cash-based compensation and equity-based compensation. Prior studies about other countries show the influence of CEO compensation on earnings management but get mixed findings (Larcker et al., 2007; O'Connor et al., 2006; Yuan et al., 2014; Zhang et al., 2008; Zhou et al., 2018). We show that CEO equity-based compensation is negatively associated with earnings management. Second, this paper investigates the moderating role of CEO duality on the relationship between CEO compensation and earnings management. Third, by analyzing the data of listed companies in China, we show that the state-ownership also impacts earnings management.

The study is structured as follows. Section 2 reviews the relevant literature and hypotheses development. Section 3 describes data, research design, and summary statistics. Section 4 presents the main regression results and additional analysis. Section 5 contains a discussion. Section 6 highlights the study's conclusion, limitations, and implications for future research.

2. LITERATURE REVIEW

2.1. CEO duality and earnings management

Earnings management refers to using managerial discretion in transaction structuring to alter financial reports, either to deceive stakeholders about the firm's performance or to profit from a contractual outcome that depends on accounting numbers (Healy & Wahlen, 1999). Therefore, earnings management may be a kind of agency cost if managers issue financial reports that do not accurately depict the company's economic situation and shareholders subsequently make unfavourable investment decisions (Davidson et al., 2004). Earnings management can be divided into accrual earnings management and real earnings management. Accrual earnings management involves manipulating accounting entries to alter the number of reported earnings in a particular accounting period. On the other hand, real earnings management involves manipulating a company's actual operations to alter reported earnings (Roychowdhury, 2006).

The agency theory suggests that there may be a conflict of interest between the firm and the manager, as the manager may have incentives that are not aligned with the firm's interests. The managers may prioritize their interests, such as maximizing their private benefits and minimizing

personal risk, rather than the interests of their firms (Boyd, 1995; Fama & Jensen, 1983; Jensen & Meckling, 1976; Ross, 1973). To mitigate the agency problem, the companies shall separate the board from the CEO to perform its monitoring function effectively (Jensen, 1993). However, CEO duality is a common phenomenon in corporate governance, which is a practice in which the chairperson of the board also holds the position of CEO (Dalton et al., 2007; Davidson et al., 2004). The board of directors serves as the common apex of decision control systems in firms, exerting top-level decision control rights, including selecting and removing CEOs as well as approving and overseeing significant decisions (Fama & Jensen, 1983). Thus, CEO duality would weaken the board's role of supervision and control over the practices and performances of the CEO, and affect firm performance adversely (Boyd, 1995).

Agency theory indicates that the combination of CEO and chairperson increases CEO control over the board, impairs the independence of the board, and reduces the effectiveness of the board as an internal supervising instrument in ensuring efficient control, advisory, and monitoring procedures (Bliss, 2011; Daily & Dalton, 1997; Giannarakis, 2014). Accounting manipulations are more frequent when CEO power is excessively high (Feng et al., 2011; Klein, 2002). As a result, the CEO who is also the chairperson is more likely to manage earnings (Baker et al., 2019; Nuanpradit, 2019). Lin (2014) investigates 278 companies listed on the Shanghai Stock Exchange (SSE) and Shenzhen Stock Exchange (SZSE) and finds a positive relationship between CEO duality and earnings management. He also finds that the board's independence level can moderate this positive association.

On the other hand, stewardship theory holds divergent views from agency theory (Donaldson & Davis, 1991). It suggests that managers are responsible for acting as stewards of the resources and assets entrusted to them by shareholders or other stakeholders. The theory assumes that managers are motivated by a sense of responsibility and duty to the organization and its stakeholders, rather than by the pursuit of personal gain. Different from the assumptions in agency theory that CEO are opportunistic agents who will enhance personal interest at the expense of shareholders' interest, stewardship theory believes that there is no interest conflict between managers and owners, and the ideal organizational structure gives managers the freedom to act as they do in the owners' best interests to achieve coordination most successfully (Donaldson, 1990). As a result, CEO duality shall be negatively associated with opportunistic behaviours (Donaldson, 1990; Donaldson & Davis, 1991).

Limited evidence is found to support stewardship theory in earnings management literature. Alhmood et al. (2020) examine listed companies on the Amman Stock Exchange (ASE) and indicated that dual CEOs are negatively related to real earnings management, which is consistent with stewardship theory. As a result, we propose our hypotheses as follows:

H1a: CEO duality is positively associated with earnings management.

H1b: CEO duality is negatively associated with earnings management.

2.2. CEO compensation and earnings management

CEO incentives, which typically refer to their compensation, are critical in corporate governance. These incentives are intended to motivate CEOs to achieve the organization's goals and align their interests with those of the company and its shareholders. The design of CEO compensation contracts can effectively align CEO incentives with those of the owners (Coles et al., 2006; Datar et al., 2001). For example, Datta et al. (2001) find that by aligning the interests of CEOs and shareholders, CEOs perform better in acquisitions by reducing overinvestment. Armstrong et al. (2010) find that firms have fewer accounting irregularities when they offer higher equity-based incentives to managers.

However, since CEO compensation is tightly related to stock and stock options, managers have incentives to manage earnings (Bergstresser & Philippon, 2006). Studies find a positive association between CEO equity compensation and earnings management (Larcker et al., 2007; O'Connor et al., 2006; Zhang et al., 2008). Compared to Western companies that have applied stock-based compensation for a long time, Chinese companies gradually adopted stock options around 2006. Consequently, research concerning the influence of stock-based compensation on earnings management in China is limited. Zhou et al. (2018) explore Chinese public firms in the private sector and find that real earnings management results in high CEO remuneration, whereas accrual-based earnings management does not affect CEO compensation. Yuan et al. (2014) use a sample with 10,768 observations from 2002–2011 and find the influence of management incentives on enterprise accrual and real earnings management behaviours. The result suggests that both equity-based and cash-based compensations are significantly positively correlated with accrual earnings management, while significantly negatively correlated with real earnings management. Given the mixed evidence in related research, we propose the following hypothesis:

H2a: CEO cash-based compensation is not related to earnings management.

H2b: CEO equity-based incentives are not related to earnings management.

CEOs with more power receive higher overall remuneration than less powerful CEOs (Song & Wan, 2019). Baker et al. (2019) investigate the effect of CEO power on the earnings management outcome. They find that powerful CEOs prefer accruals earnings management and inhibit CFOs' earnings management in only the pre-Sarbanes-Oxley Act (SOX) period. Due to the relationship between incentives and earnings management is not clear in general, we propose the following hypothesis:

H3: CEO duality has no moderating role in the relationship between CEO incentives and earnings management.

3. RESEARCH METHODOLOGY

3.1. Data and sample selection

We collect CEO duality, CEO compensation, and financial data of Chinese listed companies from Chinese Securities Market and Accounting Research (CSMAR) databases. We start with the sample

including all listed firms for the period of 2011–2021, and exclude financial industry firms since their special accounting requirements make the estimation of accruals and abnormal accruals difficult (Klein, 2002). We delete firms that belong to industries that have fewer than 10 companies and remove samples that miss variables. Each firm is required to have at least eight years of observations in our sample. The final sample contains 8,419 firm-year observations with 881 unique firms in 14 industries[1]. All the firms are A-shares listed on the SSE and the SZSE and mainly operate in China. However, the major shareholders may be the state or individuals of Chinese or foreign nationality.

3.2. Measures of earnings management

3.2.1. Accrual earnings management

We use the absolute value of discretionary accruals to measure the degree of accrual earnings management. We employ a cross-sectional modified Jones model to estimate discretionary accruals (Dechow et al., 1995). Specifically, we first use Eq. (1) to estimate the parameters β_1, β_2, β_3 by industry and year, and then apply three parameters to Eq. (2) to calculate discretionary accruals. Then we obtain the absolute value of discretionary accruals. In order to eliminate heteroscedasticity, all variables in the accrual expectation model are deflated by lagged total assets (Hashim & Devi, 2008). Following Liu et al. (2014), we define total accruals as operating profit minus net cash flow from operations.

We first estimate discretionary accruals based on the following cross-sectional model by industry:

$$\frac{TA_{i,t}}{A_{i,t-1}} = \beta_1 \frac{1}{A_{i,t-1}} + \beta_2 \frac{\Delta REV_{i,t}}{A_{i,t-1}} + \beta_3 \frac{PPE_{i,t}}{A_{i,t-1}} + \varepsilon_{i,t} \quad (1)$$

where, $TA_{i,t}$represents the total accruals for firm i in year t; $A_{i,t-1}$ is total assets for firm i at the end of the previous year $t-1$; $\Delta REV_{i,t}$ change in revenue for firm i between year t and the previous year $t-1$; and $PPE_{i,t}$ is total property, plant and equipment for firm i in year t.

The estimated coefficients from Eq. (1) are used to estimate the discretionary accruals ($DA_{i,t}$) for firm i in year t:

$$DA_{i,t} = \frac{TA_{i,t}}{A_{i,t-1}} - \left(\widehat{\beta_1} \frac{1}{A_{i,t-1}} + \widehat{\beta_2} \frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{A_{i,t-1}} + \widehat{\beta_3} \frac{PPE_{i,t}}{A_{i,t-1}} \right) \quad (2)$$

We use the absolute value of discretionary accruals, $ABSDA_{i,t} = |DA_{i,t}|$, to proxy for accrual earnings management.

3.2.2. Real earnings management

We measure real earnings management by employing the model in Roychowdhury (2006). We consider three aspects for the abnormal level of real activities: 1) abnormal level of cash flow from operations, 2) abnormal production costs, and 3) abnormal discretionary expenses.

The normal levels of cash flow from operations, production costs, and discretionary expenses are measured as:

$$\frac{CFO_{i,t}}{A_{i,t-1}} = a_0 + a_1 \frac{1}{A_{i,t-1}} + a_2 \frac{REV_{i,t}}{A_{i,t-1}} + a_3 \frac{\Delta REV_{i,t}}{A_{i,t-1}} + \varepsilon_{i,t} \quad (3)$$

$$\frac{PROD_{i,t}}{A_{i,t-1}} = b_0 + b_1 \frac{1}{A_{i,t-1}} + b_2 \frac{REV_{i,t}}{A_{i,t-1}} + b_3 \frac{\Delta REV_{i,t}}{A_{i,t-1}} + b_4 \frac{\Delta REV_{i,t-1}}{A_{i,t-1}} + \varepsilon_{i,t} \quad (4)$$

$$\frac{DISEXP_{i,t}}{A_{i,t-1}} = c_0 + c_1 \frac{1}{A_{i,t-1}} + c_2 \frac{REV_{i,t-1}}{A_{i,t-1}} + \varepsilon_{i,t} \quad (5)$$

where, $CFO_{i,t}$ is net cash flow from operations for firm i in year t; $REV_{i,t}$ is revenue for firm i in year t; $PROD_{i,t}$ is product cost for firm i in year t (defined as the cost of goods sold in year t plus the change in inventory between year t and the previous year $t-1$); $DISEXP_{i,t}$ is discretionary expenditures for firm i in year t (defined as selling and administration expense).

We estimate the cross-sectional model on the industry level. The estimated residuals from Eq. (3) capture the abnormal level of cash flows from operations (*ABCFO*). The estimated residuals from Eq. (4) capture the abnormal level of production costs (*ABPROD*). And the estimated residuals from Eq. (5) capture the abnormal level of discretionary expenses (*ABDISEXP*). We aggregate the three abnormal level measures of real activities into one measure as follows:

$$RM_{i,t} = (-1)ABCFO_{i,t} + ABPROD_{i,t} + (-1)ABDISEXP_{i,t} \quad (6)$$

and use the absolute value of it as $ABSRM_{i,t} = |RM_{i,t}|$ to capture the level of real earnings management.

3.3. Independent variables

The proxy for CEO duality is *DUALITY*, which equals one if CEO chairs the board and zero otherwise. CEO compensation can be divided into cash-based compensation and equity-based incentives. Cash-based compensation (*CSC*) is calculated as the logarithm of the total cash compensation of the CEO. For equity-based incentives (*CEI*), we measure it by using the ratio between the number of shares owned by the CEO and the total shares of the company in the current year.

Following prior literature (Hashim & Devi, 2008; Barua et al., 2010; Liu & Lu, 2007; Yuan et al., 2014), we control for company size (*SIZE*), sales growth (*GROWTH*), book-to-market ratio (*BM*), leverage (*LEV*), cash flow from operations (*CFO*), return on assets (*ROA*), accounting flexibility (*NOA*), ownership concentrations (*OC*), and assets turnover (*TOV*). We

[1] The 14 industries include: 1) farming, forestry, animal husbandry and fishery industry, 2) mining industry, 3) manufacturing industry, 4) production and supply of electric power, gas and water, 5) construction industry, 6) wholesale and retail trade industry, 7) traffic, storage and mail business industry, 8) information transfer, software and computer service industry, 9) realty business industry, 10) leasehold and business service industry, 11) scientific research and technical service industry, 12) water conservancy, environment and public institution management industry, 13) cultural, physical and entertainment industry, and 14) comprehensive industry. The industry classification is based on the China Securities Regulatory Commission (CSRC) industry classification 2012 version.

also control for the board size (*BSIZE*), the number of independent directors (*INDEP*), and the number of female directors on the board (*FDIRE*). Details of the definition of the variables are shown in Table 1.

Table 1. Variables definitions

Variables	*Description*	*Definitions*
DUALITY	CEO duality	Equal to 1 if the CEO and chairperson are the same person and 0 otherwise.
CSC	CEO cash-based compensation	The logarithm of total cash compensation of the CEO.
CEI	CEO equity-based incentives	The number of shares owned by the CEO divided by the total shares of the company in the current year.
ABSDA	Discretionary accrual	The absolute value of discretionary accrual; the higher *ABSDA*, the higher the degree of accrual earning management.
ABSRM	Real earnings management	The absolute value of real earnings management; the higher *ABSRM*, the higher degree of real earnings management.
SIZE	Company size	Natural logarithm of total assets.
GROWTH	Sales growth	Sales growth over the last year.
BM	Book-to-market ratio	Book value of equity divided by the market value of equity.
LEV	Leverage	Book value of all liability divided by total assets.
CFO	Cash flow from operations	Cash flow from operation in the current year divided by lagged total assets.
ROA	Return on assets	Earnings before interest and tax (EBIT) divided by total book assets.
TOV	Asset turnover	Equal to the ratio of main business revenue to average total assets at the beginning and end of the year.
NOA	Accounting flexibility	Equal to the ratio of net operating assets at the end of the previous year to the operating income of the previous year, the larger the value is in the table, the less room to manipulate accrual earnings is shown
SOE	State-owned enterprise	Dummy variables. Equals one if the firm is a stated-owned enterprise and zero otherwise.
OC	Ownership concentration	Equal to the ratio of the number of shares held by the top 10 shareholders to the total number of shares.
BSIZE	Board size	The number of directors on the board.
INDEP	Independent directors	The number of independent directors on the board divided by the total number of directors.
FDIRE	Female directors	The number of female directors on the board.

Note: DUALITY, CSC, and CEI are used as independent variables. ABSDA and ABSRM are used as dependent variables. Other firm-specific variables are used as control variables.

3.4. Model specification

To investigate the relation between CEO duality, CEO compensation and earnings management, we use the regression model where $Compensation_{i,t}$ is either $CSC_{i,t}$ or $CEI_{i,t}$:

$$ABSDA_{i,t}(ABSRM_{i,t}) = \beta_0 + \beta_1 DUALITY_{i,t} + \beta_2 Compensation_{i,t} + \beta_3 SIZE_{i,t} + \beta_4 GROWTH_{i,t} + \beta_5 BM_{i,t} + \beta_6 LEV_{i,t} + \beta_7 CFO_{i,t} + \beta_8 ROA_{i,t} + \beta_9 BSIZE_{i,t} + \beta_{10} INDEP_{i,t} + \beta_{11} FDIRE_{i,t} + \beta_{12} OC_{i,t} + \beta_{13} NOA_{i,t} + \beta_{14} TOV_{i,t} + \varepsilon_{i,t} \quad (7)$$

To investigate the moderating effect of CEO duality, we employ the following regression model:

$$ABSDA_{i,t}(ABSRM_{i,t}) = \beta_0 + \beta_1 CEI_{i,t} + \beta_2 DUALITY_{i,t} + \beta_3 DUALITY \times CEI_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 GROWTH_{i,t} + \beta_6 BM_{i,t} + \beta_7 LEV_{i,t} + \beta_8 CFO_{i,t} + \beta_9 ROA_{i,t} + \beta_{10} BSIZE_{i,t} + \beta_{11} INDEP_{i,t} + \beta_{12} FDIRE_{i,t} + \beta_{13} OC_{i,t} + \beta_{14} NOA_{i,t} + \beta_{15} TOV_{i,t} + \varepsilon_{i,t} \quad (8)$$

Equation (7) is designed to test *H1a, H1b, H2a*, and *H2b*. Equation (8) is designed to test *H3*. We introduce the interaction of *DUALITY* and *CEI* to examine the moderating role of CEO duality.

3.5. Summary statistics and correlations

Table 2 presents descriptive statistics. The mean of *DUALITY* is 0.27, which is similar to the previous finding (Gao et al., 2017). China has fewer CEO duality situations than the United States. The standard deviations of CEO cash-based compensation (*CSC*) and equity-based incentives (*CEI*) are 0.827 and 0.109, respectively, which indicates that the difference between CEO compensation is not huge. However, the average *CEI* is only 0.048, which suggests that equity-based incentives do not work as well as they should. The mean of *ABSRM* is 0.152, while the mean of *ABSDA* is 0.066. An average board consists of approximately seven directors, 37% of the directors are independent directors, and one female director.

Table 2. Descriptive statistics

Variables	*Obs.*	*Mean*	*Std. dev.*	*Min*	*Max*
ABSDA	8419	0.066	0.068	0.001	0.400
ABSRM	8419	0.152	0.156	0.002	0.865
DUALITY	8419	0.270	0.444	0	1
CSC	8419	13.521	0.827	7.783	17.471
CEI	8419	0.048	0.109	0	0.667
SIZE	8419	22.470	1.237	19.74	28.257
GROWTH	8419	0.172	0.332	-0.498	2.122
BM	8419	1.091	1.750	0.032	39.837
LEV	8419	0.397	0.196	0.011	1.285
CFO	8419	0.054	0.126	-7.130	1.922
ROA	8419	0.046	0.065	-1.465	0.624
NOA	8419	21.084	1.189	16.079	23.929
TOV	8419	0.689	0.579	0.016	12.373
OC	8419	3.899	0.302	2.969	4.494
BSIZE	8419	8.609	1.552	4	17
INDEP	8419	0.373	0.056	0.182	0.800
FDIRE	8419	1.196	1.096	0	7

Table 3. Correlation matrix

	ABSDA	***ABSRM***	***DUALITY***	***CSC***	***CEI***	***SIZE***	***GROWTH***	***BM***	***LEV***	***CFO***	***ROA***	***NOA***	***TOV***	***OC***	***BSIZE***	***INDEP***
ABSDA	1															
ABSRM	0.211***	1														
DUALITY	0.022**	0.027**	1													
CSC	0.026**	0.085***	0.038***	1												
CEI	0.014	0.003	0.532***	0.157***	1											
SIZE	0.022**	0.016	0.154***	0.455***	0.247***	1										
GROWTH	0.124***	0.185***	0.013	0.014	0.051***	0.023**	1									
BM	0.003	0.029***	0.077***	0.211***	0.130***	0.536***	0.038***	1								
LEV	0.073***	0.012	0.112***	0.231***	0.205***	0.609***	0.057***	0.515***	1							
CFO	0.210***	0.043***	0.0150	0.075***	0.001	-0.019*	0.034***	0.122***	0.166***	1						
ROA	0.100***	0.201***	0.017	0.127***	0.032***	-0.019*	0.187***	0.171***	0.255***	0.278***	1					
NOA	0.011	0.037***	0.124***	0.393***	0.176***	0.805***	0.018*	0.391***	0.300***	0.017	0.102***	1				
TOV	0.047***	0.163***	0.069***	0.106***	0.073***	0.081***	0.146***	-0.012	0.189***	0.040***	0.106***	0.016	1			
OC	0.023**	0.071***	0.028***	0.036***	0.067***	0.141***	0.053***	0.053***	0.022**	0.071***	0.148***	0.171***	0.071***	1		
BSIZE	0.026**	0.015	0.187***	0.059***	0.168***	0.135***	0.005	0.039***	0.083***	0.026**	0.050***	0.105***	0.017	0.022**	1	
INDEP	0.021*	0.01	0.134***	0.002	0.120***	0.055***	0.001	0.037***	0.024**	0.012	0.033***	0.041***	-0.015	0.034***	0.510***	1
FDIRE	0.014	0.005	0.057***	0.008	0.048***	0.069***	0.022**	0.041***	0.074***	0.042***	0.017	0.063***	0.067***	0.001	0.124***	0.087***

*Note: *, ** and *** indicate that the correlation coefficients between variables are significant at 10%, 5%, and 1% levels, respectively.*

Table 3 presents the correlations between variables. CEO duality is significantly positively correlated with discretionary accruals and real earnings management at a 5% level. CEO duality has an evident relationship with both CEO cash-based compensation and equity-based incentives positively, suggesting significant compensation differences between CEO and CEO who also serves as the chairperson. CEO cash-based compensation is positively related to both earnings management methods, which implies that a higher level of cash-based compensation may encourage CEOs to manage earnings to get better firm performance. There is no significant association between CEO equity-based incentives and earnings management.

We also conduct a collinearity analysis using the variance inflation factor (VIF). When VIF < 10, there is no multicollinearity problem. In this study, VIF = 1.94. Therefore, it will not lead to multicollinearity concerns.

4. RESULTS

Table 4 presents the OLS estimates of Eq. (7) with year-fixed effect. Columns (1) and (2) show that the estimated coefficient of *DUALITY* is positive and significant at 10% and 1%, respectively, suggesting that CEOs who also serve as chairpersons on the board tend to manage earnings, especially real earnings. The result is consistent with *H1a* that CEO duality is positively associated with earnings management.

Columns (3) and (4) report the results from regressions that include CEO compensation. The estimated coefficients of *CSC* are significant at a 1% level, indicating that CEOs with higher cash-based compensation are more likely to engage in earnings management. The estimated coefficient of *CEI* in column (5) is negative and insignificant, while it in column (6) is negative and significant at a 1% level. The results suggest that equity-based compensation allies CEOs' interest with the shareholders, leading to less earnings management, especially less real earnings management which has a negative impact on firms' future operations (Gunny, 2005). As a result, we reject *H2a* and *H2b*.

Table 5 reports the regression results of Eq. (8). The coefficient of *DUALITY × CEI* is insignificant in column (1) but positive and significant at 1% level in column (2). The finding supports that CEO duality can weaken the interest alignment and strengthen the agency problem. It can be explained that CEO duality leads to fewer monitors from the board and then provides space for CEO/chairperson to manage earnings by the real earnings management approach. Therefore, we reject *H3*. However, we do not find any moderating role of duality in the relationship between equity-based incentives and accrual earnings management.

Table 4. CEO duality, CEO compensation, and earnings management

Variables	*DUALITY (independent variable)*		*CSC (independent variable)*		*CEI (independent variable)*	
	ABSDA	*ABSRM*	*ABSDA*	*ABSRM*	*ABSDA*	*ABSRM*
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
DUALITY	0.0029*	0.0119***	0.0027	0.0107***	0.0029	0.0193***
	(1.697)	(3.113)	(1.598)	(2.780)	(1.476)	(4.388)
CSC			0.0024**	0.0184***		
			(2.246)	(6.993)		
CEI					-0.0002	-0.0610***
					(-0.023)	(-3.443)
SIZE	-0.0077***	-0.0237***	0.0083***	-0.0281***	-0.0078***	-0.0247***
	(-4.998)	(-7.662)	(-5.370)	(-9.082)	(-4.968)	(-7.942)
GROWTH	0.0254***	0.0581***	0.0255***	0.0589***	0.0254***	0.0591***
	(6.746)	(7.125)	(6.753)	(7.261)	(6.731)	(7.243)
BM	-0.0013**	0.0008	0.0013**	0.0009	-0.0013**	0.0009
	(-2.451)	(0.548)	(-2.444)	(0.609)	(-2.447)	(0.608)
LEV	0.0260***	0.0764***	0.0257***	0.0743***	0.0260***	0.0746***
	(3.545)	(5.179)	(3.493)	(5.096)	(3.546)	(5.063)
CFO	-0.0932***	0.0158	0.0938***	0.0112	-0.0932***	0.0150
	(-3.190)	(0.362)	(-3.164)	(0.275)	(-3.189)	(0.344)
ROA	-0.1056***	0.3751***	0.1099***	0.3421***	-0.1056***	0.3765***
	(-3.348)	(5.474)	(-3.475)	(5.198)	(-3.346)	(5.493)
BSIZE	-0.0021***	-0.0023*	0.0021***	-0.0022*	-0.0021***	-0.0024*
	(-3.913)	(-1.896)	(-3.891)	(-1.835)	(-3.912)	(-1.959)
INDEP	-0.0577***	0.0154	0.0567***	0.0233	-0.0577***	0.0215
	(-4.068)	(0.436)	(-3.996)	(0.662)	(-4.058)	(0.608)
FDIRE	0.0009	0.0021	0.0008	0.0018	0.0009	0.0021
	(1.283)	(1.361)	(1.223)	(1.156)	(1.283)	(1.399)
OC	0.0059**	0.0116**	0.0061**	0.0129**	0.0059**	0.0139**
	(2.351)	(2.076)	(2.404)	(2.309)	(2.332)	(2.457)
NOA	0.0084***	0.0205***	0.0083***	0.0197***	0.0084***	0.0206***
	(6.547)	(7.828)	(6.441)	(7.561)	(6.545)	(7.848)
TOV	0.0041**	0.0322***	0.0039*	0.0304***	0.0041**	0.0319***
	(1.980)	(8.929)	(1.856)	(8.439)	(1.977)	(8.814)
Constant	0.0606***	0.1140**	0.0419*	-0.0296	0.0606***	0.1258***
	(2.989)	(2.492)	(1.821)	(-0.568)	(2.981)	(2.755)
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8,419	8,419	8,419	8,419	8,419	8,419
R-squared	0.103	0.103	0.104	0.110	0.103	0.104

*Note: ABSDA and ABSRM are used as dependent variables. DUALITY, CSC, and CEI are used as main independent variables. Other firm-specific variables are used as control variables. Robust t-statistics in parenthesis. *, **, and *** represent the statistical significance at the 0.1, 0.05, and 0.01 levels respectively.*

Table 5. Moderating role of CEO duality

Variables	*ABSDA*	*ABSRM*
	(1)	*(2)*
DUALITY	0.0037*	0.0158***
	(1.789)	(3.298)
CEI	0.0216	-0.1533***
	(1.096)	(-4.377)
DUALITY × CEI	-0.0253	0.1073***
	(-1.208)	(2.702)
SIZE	-0.0077***	-0.0249***
	(-4.958)	(-7.986)
GROWTH	0.0253***	0.0593***
	(6.714)	(7.266)
BM	-0.0013**	0.0009
	(-2.456)	(0.620)
LEV	0.0262***	0.0738***
	(3.570)	(5.001)
CFO	-0.0931***	0.0145
	(-3.189)	(0.334)
ROA	-0.1055***	0.3762***
	(-3.345)	(5.496)
BSIZE	-0.0021***	-0.0024**
	(-3.883)	(-2.014)
INDEP	-0.0572***	0.0194
	(-4.021)	(0.549)
FDIRE	0.0008	0.0023
	(1.217)	(1.524)
OC	0.0059**	0.0139**
	(2.335)	(2.452)
NOA	0.0084***	0.0206***
	(6.549)	(7.842)
TOV	0.0041**	0.0319***
	(1.983)	(8.806)
Constant	0.1009***	0.2100***
	(5.047)	(4.682)
Year fixed effect	Yes	Yes
Observations	8,419	8,419
R-squared	0.103	0.104

*Note: DUALITY × CEI represents the interaction item between CEO duality (DUALITY) and CEO equity-based compensation (CEI). ABSDA and ABSRM are used as dependent variables. Other firm-specific control variables are kept the same as the regression above. Robust t-statistics in parenthesis. *, **, and *** represent the statistical significance at the 0.1, 0.05, and 0.01 levels respectively.*

The ownership structure can affect the earnings management outcome. Wang and Yung (2011) showed that state-owned enterprises perform lower earnings management than private-owned enterprises in China. We explore whether state ownership has impact on earnings management. Table 6 presents the descriptive statistics of SOE companies and non-SOE companies. The means show that CEO duality occurs in 9.6% of state-owned enterprises and 29.3% of private companies, suggesting that CEO duality in state-owned enterprises is less frequent than in private companies.

Table 6. Descriptive statistics of SOE and non-SOE companies

Variables	*Non-SOE*			*SOE*		
	Obs.	*Mean*	*Median*	*Obs.*	*Mean*	*Median*
ABSDA	7408	0.066	0.046	1011	0.064	0.046
ABSRM	7408	0.153	0.105	1011	0.144	0.101
DUALITY	7408	0.293	0.000	1011	0.096	0.000
CSC	7408	13.508	13.479	1011	13.613	13.567
CEI	7408	0.054	0.001	1011	0.004	0.000
SIZE	7408	22.425	22.236	1011	22.801	22.646
GROWTH	7408	0.174	0.126	1011	0.161	0.117
BM	7408	1.079	0.637	1011	1.180	0.728
LEV	7408	0.389	0.371	1011	0.454	0.459
CFO	7408	0.055	0.052	1011	0.052	0.048
ROA	7408	0.047	0.044	1011	0.044	0.037
NOA	7408	21.05	20.952	1011	21.334	21.305
TOV	7408	0.685	0.565	1011	0.723	0.615
OC	7408	3.892	3.925	1011	3.953	3.970
BSIZE	7408	8.530	9.000	1011	9.185	9.000
INDEP	7408	0.374	0.333	1011	0.367	0.333
FDIRE	7408	1.212	1.000	1011	1.079	1.000

Note: Data about the company's nature is collected from the CSMAR database.

Table 7 reports the regression results concerning the effects of state ownership. The coefficients of SOE are negative and significant in columns (1), (2), (5), and (6), suggesting that there are lower levels of both accrual earnings management and real earnings management in state-

owned companies. Columns (3) and (4) report insignificant coefficients of *CSC×SOE*. Column (5) shows a positive and significant coefficient of *CEI×SOE*, indicating that CEO equity-based incentives promote accruals earning manipulations in state-owned enterprises. Real earnings management requires higher costs and can harm the growth of companies in the future because they often decrease capital investments, raise price concessions, and slash investment in research and development and funding in marketing (Enomoto et al., 2015; Wang & Yung, 2011). State-owned enterprises engage more in accrual earnings management than real earnings management probably since CEOs in state-owned enterprises do not have power as high as in private enterprises and they are more difficult to implement real earnings management which can help them get better performance in the short-term but at the expense of companies' future development. Therefore, a higher level of equity-based compensation can motivate CEO in state-owned enterprises to manage earnings through accruals rather than through real activities.

Table 7. State-ownership and earnings management

Variables	*DUALITY×SOE (independent variable)*		*CSC & CSC×SOE (independent variable)*		*CEI & CEI×SOE (independent variable)*	
	ABSDA	*ABSRM*	*ABSDA*	*ABSRM*	*ABSDA*	*ABSRM*
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
DUALITY	0.0020	0.0117***	0.0024	0.0098**	0.0025	0.0188***
	(1.122)	(2.954)	(1.390)	(2.524)	(1.279)	(4.251)
SOE	-0.0051**	-0.0092*	-0.0080	-0.0171	-0.0054**	-0.0108**
	(-2.267)	(-1.829)	(-0.248)	(-0.212)	(-2.436)	(-2.143)
DUALITY × SOE	0.0106	-0.0103				
	(1.372)	(-0.556)				
CSC			0.0024**	0.0184***		
			(2.105)	(6.584)		
CSC × SOE			0.0003	0.0005		
			(0.124)	(0.076)		
CEI					-0.0022	-0.0632***
					(-0.291)	(-3.555)
CEI × SOE					0.3059***	-0.1743
					(2.854)	(-0.886)
Other control variables	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8419	8419	8419	8419	8419	8419
R-squared	0.104	0.103	0.104	0.110	0.105	0.105

*Note: Three interaction items (DUALITY × SOE, CSC × SOE, CEI × SOE) are introduced. DUALITY × SOE represents the interaction between CEO duality (DUALITY) and state-owned enterprise (SOE). CSC × SOE represents the interaction between cash-based compensation (CSC) and state-owned enterprise (SOE). CEI × SOE represents the interaction between equity-based compensation (CEI) and state-owned enterprise (SOE). Other variables include all control variables used in previous regression. Columns (1) and (2) report the regression results, where DUALITY × SOE is the variable in interest, and ABSDA and ABSRM are dependent variables respectively (same in columns (3) to (6)). Robust t-statistics in parenthesis. *, **, and *** represent the statistical significance at the 0.1, 0.05, and 0.01 levels respectively.*

5. DISCUSSION

Agency theory suggests a potential conflict of interest between shareholders and managers. An independent board can monitor the CEO more effectively to mitigate the agency's problem. However, when the CEO serves as the chairman of the board, the monitoring role of the board is weakened. On the other hand, stewardship theory posits that individuals in leadership positions, such as CEOs, are motivated by intrinsic factors and have an inherent desire to act in the best interests of the organization and its stakeholders. As a result, CEO duality can align the interests of shareholders and CEOs. Empirical analyses of CEO duality and earnings management have yielded mixed results.

Our study seeks to provide additional evidence by studying the Chinese listed companies since they have strong incentives to manage earnings to avoid de-listing. We consider both accrual earnings management and real earnings management. We also consider the incentives of CEOs by measuring their cash-based compensation and equity-based compensation. We find that CEO duality is positively associated with both accrual earnings management and real earnings management.

Specifically, our results suggest a more significant and consistent positive association between CEO duality and real earnings management. This may imply that it is less costly for more powerful CEOs to engage in real earnings management. Future research can further investigate the trade-off between accrual earnings management and real earnings management. While some argue that CEO duality can lead to efficiency and better decision-making, the controversial issues surrounding it underscore the ongoing debate in corporate governance about the optimal structure for separating leadership and oversight roles within an organization.

We also find that CEO cash-based compensation is positively associated with earnings management, while equity-based compensation is negatively associated with earnings management. The results suggest that equity-based compensation better align the interests of CEOs and shareholders. Although equity-based compensation may serve as a mechanism to mitigate agency problems by linking CEO compensation to stock price performance, it may also influence risk-taking behavior and the propensity to engage in earnings management by CEOs who engage in aggressive accounting practices to achieve higher stock prices and maximize their equity-based compensation. Our evidence supports

the former. However, we also find that CEO duality can induce the likelihood of earnings management in the presence of equity-based compensation.

6. CONCLUSION

This paper mainly focuses on the relationship between CEO duality and earnings management, and the relationship between CEO compensation and earnings management. Using a sample of 8,419 firm-year observations covering listed companies in China from 2011 to 2021, we find that CEO duality is positively associated with both accrual and real earnings management. It provides evidence for agency theory in which CEO duality can weaken the board's monitoring role and offer greater power to dual CEO. The result also suggests that higher cash-based compensations provide managers incentives in both accrual earnings management and real earnings management, while higher equity-based incentives inhibit real earnings management. Equity-based incentives can align the interest of managers with the interest of shareholders, but cash-based compensations motivate managers to manage earnings. The moderating role of duality is significant in the relationship between equity-based incentives and real earnings management. We further find that CEO equity-based incentives promote accruals earning manipulations but not real earnings management in state-owned enterprises.

Our study contributes to the existing literature by providing additional evidence on CEO duality, CEO compensation, and earning management (Armstrong et al., 2010; Gao et al., 2017; Li et al., 2011; O'Connor et al., 2006; Yuan et al., 2014; Zhang et al., 2008). We investigate the moderating role of CEO duality and find that it provides additional incentives for managers to engage in real earnings management rather than accrual earnings management. We also show that state-owned companies are less likely to manage earnings. However, if CEOs of state-owned companies are more potent by serving the chair, they are more likely to manage earnings through accruals rather than real activities.

Our study has the following limitations. First, although our findings can be generalized to listed companies in China, caution should be exercised in generalizing the conclusions to companies in other countries. Second, we consider control variables with reference to previous research, but there will always be other factors that may be correlated with earnings management that we ignore. Third, we use earnings management models used by other researchers and do not make any modifications according to the Chinese situation. Therefore, such models may be subject to measurement errors when we study Chinese companies.

REFERENCES

1. Alhmood, M. A., Shaari, H., & Al-dhamari, R. (2020). CEO characteristics and real earnings management in Jordan. *International Journal of Financial Research, 11*(4), 255–266. https://doi.org/10.5430/ijfr.v11n4p255
2. Alkebsee, R., Alhebry, A. A., & Tian, G. (2022). Whose cash compensation has more influence on real earnings management, CEOs or CFOs? *Journal of Accounting in Emerging Economies, 12*(1), 187–210. https://doi.org/10.1108/JAEE-12-2020-0336
3. Armstrong, C. S., Jagolinzer, A. D., & Larcker, D. F. (2010). Chief executive officer equity incentives and accounting irregularities. *Journal of Accounting Research, 48*(2), 225–271. https://doi.org/10.1111/j.1475-679X.2009.00361.x
4. Baker, T. A., Lopez, T. J., Reitenga, A. L., & Ruch, G. W. (2019). The influence of CEO and CFO power on accruals and real earnings management. *Review of Quantitative Finance and Accounting, 52*(1), 325–345. https://doi.org/10.1007/s11156-018-0711-z
5. Barua, A., Davidson, L. F., Rama, D. V., & Thiruvadi, S. (2010). CFO gender and accruals quality. *Accounting Horizons, 24*(1), 25–39. https://doi.org/10.2308/acch.2010.24.1.25
6. Bergstresser, D., & Philippon, T. (2006). CEO incentives and earnings management. *Journal of Financial Economics, 80*(3), 511–529. https://doi.org/10.1016/j.jfineco.2004.10.011
7. Bliss, M. A. (2011). Does CEO duality constrain board independence? Some evidence from audit pricing. *Accounting & Finance, 51*(2), 361–380. https://doi.org/10.1111/j.1467-629X.2010.00360.x
8. Boyd, B. K. (1995). CEO duality and firm performance: A contingency model. *Strategic Management Journal, 16*(4), 301–312. https://doi.org/10.1002/smj.4250160404
9. Coles, J. L., Daniel, N. D., & Naveen, L. (2006). Managerial incentives and risk-taking. *Journal of Financial Economics, 79*(2), 431–468. https://doi.org/10.1016/j.jfineco.2004.09.004
10. Daily, C. M., & Dalton, D. R. (1997). CEO and board chair roles held jointly or separately: Much ado about nothing? *Academy of Management Perspectives, 11*(3), 11–20. https://doi.org/10.5465/ame.1997.9709231660
11. Dalton, D. R., Hitt, M. A., Certo, S. T., & Dalton, C. M. (2007). The fundamental agency problem and its mitigation: Independence, equity, and the market for corporate control. *Academy of Management Annals, 1*(1). https://doi.org/10.5465/078559806
12. Datar, S., Kulp, S. C., & Lambert, R. A. (2001). Balancing performance measures. *Journal of Accounting Research, 39*(1), 75–92. https://doi.org/10.1111/1475-679X.00004
13. Datta, S., Iskandar-Datta, M., & Raman, K. (2001). Executive compensation and corporate acquisition decisions. *Journal of Finance, 56*(6), 2299–2336. https://doi.org/10.1111/0022-1082.00406
14. Davidson, W. N., Jiraporn, P., Kim, Y. S., & Nemec, C. (2004). Earnings management following duality-creating successions: Ethnostatistics, impression management, and agency theory. *The Academy of Management Journal, 47*(2), 267–275. https://www.jstor.org/stable/20159577?seq=1&cid=pdf-
15. Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1995). Detecting earnings management. *The Accounting Review,* 70(2), 193–225. https://www.jstor.org/stable/248303
16. Donaldson, L. (1990). The ethereal hand: Organizational economics and management theory. *The Academy of Management Review, 15*(3), 369–381. https://doi.org/10.2307/258013
17. Donaldson, L., & Davis, J. H. (1991). Stewardship theory or agency theory: CEO governance and shareholder returns. *Australian Journal of Management, 16*(1), 49–64. https://doi.org/10.1177/031289629101600103

18. Enomoto, M., Kimura, F., & Yamaguchi, T. (2015). Accrual-based and real earnings management: An international comparison for investor protection. *Journal of Contemporary Accounting & Economics, 11*(3), 183–198. https://doi.org/10.1016/j.jcae.2015.07.001
19. Fama, E. F., & Jensen, M. C. (1983). Separation of ownership and control. *The Journal of Law & Economics, 26*(2), 301–325. https://doi.org/10.1086/467037
20. Feng, M., Ge, W., Luo, S., & Shevlin, T. (2011). Why do CFOs become involved in material accounting manipulations? *Journal of Accounting and Economics, 51*(1–2), 21–36. https://doi.org/10.1016/j.jacceco.2010.09.005
21. Finkelstein, S., & D'Aveni, R. A. (1994). CEO duality as a double-edged sword: How boards of directors balance entrenchment avoidance and unity of command. *Academy of Management Journal, 37*(5), 1079–1108. https://www.jstor.org/stable/256667
22. Gao, J., Gao, B., & Wang, X. (2017). Trade-off between real activities earnings management and accrual-based manipulation-evidence from China. *Journal of International Accounting, Auditing and Taxation, 29*, 66–80. https://doi.org/10.1016/j.intaccaudtax.2017.08.001
23. Giannarakis, G. (2014). Corporate governance and financial characteristic effects on the extent of corporate social responsibility disclosure. *Social Responsibility Journal, 10*(4), 569–590. https://doi.org/10.1108/SRJ-02-2013-0008
24. Gunny, K. A. (2005). *What are the consequences of real earnings management?* [Doctoral dissertation, University of California]. ProQuest Dissertations Publishing. https://www.proquest.com/openview/21fd8dd32fa1ffd80448e24f015fae5f/1?pq-origsite=gscholar&cbl=18750&diss=y
25. Hashim, H. A., & Devi, S. S. (2008). Board independence, CEO duality and accrual management: Malaysian evidence. *Asian Journal of Business and Accounting, 1*(1), 27–46. https://ajba.um.edu.my/index.php/AJBA/article/view/2184
26. Healy, P. M., & Wahlen, J. M. (1999). A review of the earnings management literature and its implications for standard setting. *Accounting Horizons, 13*(4), 365–383. https://doi.org/10.2308/acch.1999.13.4.365
27. Jensen, M. C. (1993). The modern industrial revolution, exit, and the failure of internal control systems. *The Journal of Finance, 48*(3), 831–880. https://doi.org/10.1111/j.1540-6261.1993.tb04022.x
28. Jensen, M. C., & Meckling, W. H. (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
29. Jiang, F., & Kim, K. A. (2015). Corporate governance in China: A modern perspective. *Journal of Corporate Finance, 32*, 190–216. https://doi.org/10.1016/j.jcorpfin.2014.10.010
30. Klein, A. (2002). Audit committee, board of director characteristics, and earnings management. *Journal of Accounting and Economics, 33*(3), 375–400. https://doi.org/10.1016/S0165-4101(02)00059-9
31. Larcker, D. F., Richardson, S. A., & Tuna, I. (2007). Corporate governance, accounting outcomes, and organizational performance. *The Accounting Review, 82*(4), 963–1008. https://doi.org/10.2308/accr.2007.82.4.963
32. Li, Z., Dong, Z., & Lian, Y. (2011). Ying ji xiang mu ying yu guan li hai shi zhen shi huo dong ying yu guan li? Ji yu wo guo 2007 nian suo de shui gai ge de yan jiu [Accrual earnings management or real activities earnings management? Based on China's 2007 income tax reform]. *Management World, 2011*(1), 121–134. https://caod.oriprobe.com/articles/27540303/ying_ji_xiang_mu_ying_yu_guan_li_huan_shi_zhen_shi.htm
33. Lin, P. T. (2014). The effects of board mechanisms and ownership on the relationship between CEO duality and earnings management in China's listed companies. *Corporate Ownership and Control, 11*(4), 18–27. https://doi.org/10.22495/cocv11i4p2
34. Liu, Q., & Lu, Z. (J.). (2007). Corporate governance and earnings management in the Chinese listed companies: A tunneling perspective. *Journal of Corporate Finance, 13*(5), 881–906. https://doi.org/10.1016/j.jcorpfin.2007.07.003
35. Nuanpradit, S. (2019). Real earnings management in Thailand: CEO duality and serviced early years. *Asia-Pacific Journal of Business Administration, 11*(1), 88–108. https://doi.org/10.1108/APJBA-08-2018-0133
36. O'Connor, J. P., Priem, R. L., Coombs, J. E., & Gilley, K. M. (2006). Do CEO stock options prevent or promote fraudulent financial reporting? *Academy of Management Journal, 49*(3), 483–500. https://doi.org/10.5465/amj.2006.21794666
37. Ross, S. A. (1973). The economic theory of agency: The principal's problem. *The American Economic Review, 63*(2), 134–139. https://www.jstor.org/stable/1817064
38. Roychowdhury, S. (2006). Earnings management through real activities manipulation. *Journal of Accounting and Economics, 42*(3), 335–370. https://doi.org/10.1016/j.jacceco.2006.01.002
39. Song, W.-L., & Wan, K.-M. (2019). Does CEO compensation reflect managerial ability or managerial power? Evidence from the compensation of powerful CEOs. *Journal of Corporate Finance, 56*, 1–14. https://doi.org/10.1016/j.jcorpfin.2018.11.009
40. Wang, L., & Yung, K. (2011). Do state enterprises manage earnings more than privately owned firms? The case of China. *Journal of Business Finance and Accounting, 38*(7–8), 794–812. https://doi.org/10.1111/j.1468-5957.2011.02254.x
41. Wijethilake, C., & Ekanayake, A. (2020). CEO duality and firm performance: The moderating roles of CEO informal power and board involvements. *Social Responsibility Journal, 16*(8), 1453–1474. https://doi.org/10.1108/SRJ-12-2018-0321
42. Ye, K. (2014). Independent director cash compensation and earnings management. *Journal of Accounting and Public Policy, 33*(4), 391–400. https://doi.org/10.1016/j.jaccpubpol.2014.04.001
43. Yuan, Z., Hao, W., & Wang, Z. (2014). Empirical research about the influence of management incentives on the accrual earnings management and real earnings management. *Management Review, 26*(10), 181–196. https://doi.org/10.14120/j.cnki.cn11-5057/f.2014.10.017
44. Zhang, X., Bartol, K. M., Smith, K. G., Pfarrer, M. D., & Khanin, D. M. (2008). CEOs on the edge: Earnings manipulation and stock-based incentive misalignment. *Academy of Management Journal, 51*(2), 241–258. https://doi.org/10.5465/amj.2008.31767230
45. Zhou, F., Wang, L., Zhang, Z., & An, Y. (2018). The impacts of accrual-based and real earnings management on executive compensation: Evidence from Chinese public firms in the private sector. *Asia-Pacific Journal of Accounting and Economics, 25*(1–2), 128–144. https://doi.org/10.1080/16081625.2016.1222296