

Corporate Cash Holdings and Earnings Management: An analysis of fixed effect model

Wei Li^{1, *, †}, Zerui Wang^{2, *, †} and Zekai Zheng^{3, *, †}

¹Boston University, Tianjin, China

²University of Toronto, Toronto, Canada

³Beijing Normal University, Zhuhai, China

*Corresponding author: liweilw@bu.edu

Zerui.Wang@mail.utoronto.ca

1817070001@mail.bnuz.edu.cn

†These authors contributed equally

Abstract. Cash holding is closely related to corporate earnings management. The difference of earnings management plays an important role in the development of companies. The data in this paper comes from the China Stock Market Accounting Research (CSMAR) and uses Python and Stata to study the relationship between cash holding and earning management. The fundamental regression results obtained through the fixed effects model show that high cash holdings of enterprises can increase the level of earnings management, which is still valid after a series of robustness tests. Further, we find that cash holdings promote earnings management more strongly in companies whose auditors are not from the Big Four accounting firms and in state-owned enterprises.

Keywords: Earnings management; cash holding; property rights; external supervision.

1. Introduction

The existing literature on the play of cash holdings remains controversial. On the one hand, cash is the most liquid asset in an enterprise's assets. Holding a certain amount of cash is the basis for an enterprise to carry out normal production activities, and it is the necessary condition for an enterprise to avoid payment crisis. Existing studies conclude that precautionary motive, transaction motive, speculative motive, and corporate governance are all proven factors in determining corporate cash holdings [1]. Precautionary motive refers to firm's inclination to reserve cash to hedge future cash flow volatility [2]. Specifically, enterprises hold cash in order to meet the needs of daily production and operation. In the process of production and operation, enterprises need to purchase raw materials and pay various costs. In order to meet this requirement, enterprises should hold a certain amount of cash. At the same time, the existence of information asymmetry and transaction costs may make enterprises face the risk caused by the broken capital chain. Therefore, in cash management, the enterprise should consider possible unexpected situations. In order to cope with the possible need for cash in the event of an accident, the enterprise should prepare certain precautionary cash.

On the other hand, cash holdings have costs. The first is management costs, management staff salaries, and necessary safety measures, which are fixed costs. The trade-off theory proposed by Opler et al. [3], holds that the second is opportunity cost, the reinvestment income that a company loses due to holding a certain amount of cash. Although cash holdings may temporarily increase the company's market value, in the long run, Harford [4] believes that highly conservative liquidity management policies will weaken the company's asset profitability and lead to a decline in income levels. Since cash is a non-profit asset, retaining cash will inevitably lose the opportunity to reinvest and the corresponding investment income, thus forming the opportunity cost of holding cash. For example, if a company wants to hold 50,000 dollars in cash, and assuming the average rate of return of the company is 10%, it can only give up an investment income of 5,000 dollars. Therefore, the greater the cash holdings, the higher the opportunity cost.

Furthermore, holding excess cash can impede performance because cash, as a liquid asset, is easy for entrenched managers to hard in pursuit of their personal goals. The agency theory proposed by Jensen and Meckling [5], believes that weak corporate governance may give rise to agency problems, in companies with serious agency problems, cash holdings may also become a way for managers to seek personal gains, and the manager's private motivation may lead to cash squandering or waste, managers have incentives to hold more cash to pursue personal benefits at the expense of shareholders. Therefore, the more cash the company holds, the more serious the agency problem is. Thus, managers may use liquid assets, especially cash, for personal gain thereby reducing firm performance.

In the actual implementation process, enterprises often carry out earnings management by manipulating the amount of asset impairment provisions or the time of asset impairment reversal, so as to achieve the purpose of avoiding losses or smoothing profits through rights offering. For enterprises, earnings management is not only for the value of enterprises. This has a negative impact on operating performance which can mislead investors and creditors' financing and investment decisions. Therefore, methods to restrain the earnings management behavior of the company have become a hot topic in the accounting field. Bertrand [6] found that managers would adopt accrual earnings management more often and manipulate financial statements by adjusting accounting policies and accounting estimates. Financing constraints faced by enterprises are an important factor in motivating upward earnings management of enterprises [7]. Under the situation of interest convergence and opportunism, executives' higher salary and promotion opportunities will also intensify the implementation of earnings management by enterprises [8]. At the same time, the pressure brought by external analyst supervision will also aggravate the degree of earnings management of the company [9], which is different from the existing studies. This paper investigates the impact of corporate cash holding on earnings management of listed firms in China.

2. contribution and structure

2.1 contribution

The contributions of this paper are as follows. First, the literature expands the analysis of the influencing factors of earnings management. There are lots of factor impact earning management. Such as facilitation payments drive managers to manipulate earnings [10] and Firm Characteristics and Corporate Governance Practices impact earnings management [11]. By analyzing the impact of cash holdings on earnings management, we deepen the understanding of earnings management and get the possible factors that affect earnings management. This is very helpful for us to do some actions to prevent the occurrence of earnings management. Through the analysis of the results of this paper, we can do some measures to prevent earnings management in the enterprise's cash holdings.

Second, it expands the analysis of the economic consequences of cash holdings. Through this literature, we come to the conclusion that the negative impact of cash holding is not only the management cost and opportunity cost, but also the promotion of earnings management. This helps us to have a new understanding of corporate cash holding and to have a vigilant attitude towards it.

2.2 structure

The remainder of this paper is organized as follows. Section 3 introduces the data, the definition of relevant concepts, and describes the research design. Section 4 presents the empirical results. Finally, Section 5 concludes the paper.

3. Data and methodology

3.1 Data and sample

Data on cash holding and earnings management are obtained from China Stock Market Accounting Research (CSMAR). Our sample includes listed firms on the Shanghai Stock Exchange and Shenzhen

Stock Exchange. In addition, we exclude financial firms because their accounting and reporting standards differ from those of other firms. Following Xu et al. [12], we exclude firms with fewer than 30 weekly stock returns in a fiscal year. All continuous variables in our analysis are winsorized at 1% at both tails.

3.2 Key variables

3.2.1 Cash holding

Following Opler et al. [13], Dittmar et al. [14], and Xu et al. [15], we define the main dependent variable, cash holdings (Log(cash)), as the logarithm of cash ratio. Especially, cash ratio is the value of cash equivalents by assets net of cash and cash equivalents.

3.2.2 Earnings management

Following Ghosh and Olsen. [16] and Xu et al. [15], we calculate absolute accruals of firm i in year t as the absolute value of the estimated residuals from the adjusted-Jones model [17]. More accuracy, we use equation (1) to perform annual regression of sample data by industry:

$$\frac{TA_{i,T}}{AT_{i,T-1}} = \alpha_1 \frac{1}{AT_{i,T-1}} + \alpha_2 \frac{(\Delta REV_{i,T} - \Delta AR_{i,T})}{AT_{i,T-1}} + \alpha_3 \frac{PPE_{i,T}}{AT_{i,T-1}} + \varepsilon_{i,T} \quad (1)$$

Among them, $TA_{i,T}$ is Company i 's recordable profit in year T , Calculated by the difference between net profit and operating cash flow; $AT_{i,T-1}$ represents the company i 's total assets in year $T-1$; $\Delta REV_{i,T}$ represents the business change of company I in year t , which is calculated from the difference between company i 's operating income in year T and the operating income in year $t-1$; $\Delta AR_{i,T}$ Represents the change in accounts receivable of company i in year T , which is calculated by the difference between company i 's net accounts receivable in year T and the net accounts receivable in year $T-1$; $PPE_{i,T}$ represents the total fixed assets of company i in year T ; $\varepsilon_{i,T}$ is the residual item. According to the existing research, this paper adopts the absolute value of the residual item as the proxy variable of the listed company's accrued earnings management into the regression model.

3.3 Model specification

To study the impact of cash holdings on company earnings management, we specify the following industry and year fixed effects model:

$$Accm_{i,t+1} = \beta_0 + \beta_1 SDFL_{i,t} + \sum_k \gamma_k Control_{k,i,t} + \varepsilon_{i,t} \quad (2)$$

Where $Accm_{i,t+1}$ proxies for listed firms' earnings management, with higher values suggesting better earnings management; To control for sample heterogeneity caused by industry and year, we apply the associated dummies in estimating Eq. (2), as suggested by Jin and Myers [18], Hutton et al. [19] and Kim et al. [20] [21]. Following Harjoto et al. [22], Yasser et al. [23], and Garcia-Sanchez et al. [24], we control for factors that are documented to have an impact on firms' earnings management, including cash holdings ratio ($Cash_t$), f firm size ($Size_t$), the Market-to-book ratio (BM_t), the leverage ratio (Lev_t), the return on assets (ROA_t), institutional shareholding ($Inst_t$), and age of firm (Age_t). The appendix presents the details of these variables.

4. Empirical analyses

4.1 Summary statistics

Table 1. SUMMATY STATISTICS

Variables	N	Mean	Std.	Min	Median	Max
$Accm_t$	20,022	0.071	0.077	0.001	0.047	0.444

<i>Cash_t</i>	21,860	0.147	0.112	0.004	0.118	0.550
<i>Size_t</i>	22,033	6.351	0.540	5.233	6.336	7.718
<i>BM_t</i>	21,507	0.977	0.786	0.107	0.740	4.304
<i>Lev_t</i>	22,013	0.466	0.237	0.018	0.458	1.455
<i>ROA_t</i>	22,012	0.029	0.075	-0.345	0.030	0.243
<i>Inst_t</i>	21,543	0.271	0.237	0.001	0.229	0.820
<i>Age_t</i>	21,472	11.688	5.820	1.000	11.000	24.000

This table reports the descriptive statistics of the main variables. The sample includes Listed companies on the Shanghai Stock Exchange and Shenzhen Stock Exchange. We estimate the mean, standard deviation, minimum, 25th, median, 75th. and maximum for each variable.

Table I provides descriptive statistics for the variables used in our analysis. The means of the variables, *Accmt*, and *Casht*, are 0.071 and 0.147, which represents that the average cash ratio in the firms in our sample is 14.7%. The Minimum value of variable *Accmt* is 0.001 and the minimum value of *Casht* is 0.004, but the Maximum value of variable *Accmt* is 0.444 and the maximum value of *Casht* is 0.550, we can conclude that the gap between these two variables in different listed companies is quite large.

4.2 Baseline results

Table 2. BASELINE RESULTS

Dependent variable =	<i>Accm_t</i>	
	(1)	(2)
<i>Cash_t</i>	0.023*** (2.99)	0.055*** (6.75)
<i>Size_t</i>		-0.005** (-2.23)
<i>BM_t</i>		-0.016*** (-13.86)
<i>Lev_t</i>		0.050*** (10.72)
<i>ROA_t</i>		-0.097*** (-7.28)
<i>Inst_t</i>		-0.000 (-0.01)
<i>Age_t</i>		0.001*** (2.80)
Constant	0.067*** (10.17)	0.081*** (5.26)
Industry FE	Yes	Yes
Year FE	Yes	Yes
Observations	19,467	19,461
R-squared	0.048	0.095

This table reports the influence of cash holding on listed firms' earning management. The first column is the regression model without control variables, and the second column is the regression model after adding the control variables. The variable *Accm_t* measures firms' earning management, the other variables are defined in Appendix, and *t*-statistics are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10 %, 5 %, and 1 % confidence levels, respectively.

Table II presents the baseline regression results of Eq (2), the variable *Casht* is positively associated with *Accmt*. The results show that cash holding indicates significance at 1% in both the

first and second columns. Among them, its value is also the largest, which indeed affects earnings management and has the motivation to whitewash financial statements. Similarly, the variable *Lev* is also positively associated with *Accmt*. We can conclude that the cash ratio in the firm and the leverage of the firm higher, the firm more motivated to whitewash financial statements. While the variables *Sizet*, *BMt*, *ROAt* are negatively associated with *Accmt*. We can conclude that larger size companies may have stricter management systems, and the motivation for whitewashing financial statements is not high. And, if the company's profits are already relatively high, they don't need to whitewash the financial statements.

4.3 Robustness checks

Table 3. ROBUSTNESS CHECKS

Dependent variable =	<i>Accmt</i> _{t+1}	<i>Accmt</i> _t
	(1)	(2)
<i>Cash</i> _t	0.023*** (3.03)	0.056*** (5.84)
<i>Size</i> _t	-0.014*** (-5.72)	-0.003 (-0.86)
<i>BM</i> _t	-0.012*** (-9.65)	-0.016*** (-11.82)
<i>Lev</i> _t	0.032*** (6.82)	0.041*** (7.40)
<i>ROA</i> _t	-0.059*** (-4.40)	-0.096*** (-6.91)
<i>Inst</i> _t	-0.000 (-0.02)	0.006 (1.03)
<i>Age</i> _t	0.001*** (3.92)	-0.009 (-1.47)
Constant	0.138*** (8.70)	0.099*** (3.31)
Industry FE	Yes	No
Firm FE	No	Yes
Year FE	Yes	Yes
Observations	18,149	19,461
R-squared	0.076	0.042

Column (1) shows the result of the effect of cash holding in the period *t* on earnings management at the next year (*t* + 1). In Column (2), We control firm-year fixed effects to mitigate the influence of other firms' unobservable factors that can potentially influence their earnings management. The variable *Accmt*_t measures firms' earning management, the other variables are defined in Appendix, and *t*-statistics are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10 %, 5 %, and 1 % confidence levels, respectively.

In Table III, we have a stability test. The first is the regression results of the *t*+1 period of earnings management. We find that the regression coefficient of *Casht*+1 is 0.023 and significantly positive at the 1% level. Therefore, it shows that cash holdings will increase the earnings management of the company at *t*+1 period. In the second column, we control the results of annual and individual effects and find that the coefficient of *Casht* is 0.056. It is significantly positive at the 1% level. These results testify to the stability of Cash holding.

4.4 Additional analyses

Table 4. Additional analyses: the role of Big 4
Dependent variable = *Accmt*_t

	(1) Big 4=1	(2) Big 4=0
<i>Cash_t</i>	0.039** (2.00)	0.054*** (6.13)
<i>Size_t</i>	-0.006 (-0.89)	-0.006** (-2.18)
<i>BM_t</i>	-0.005* (-1.94)	-0.017*** (-13.47)
<i>Lev_t</i>	0.034*** (2.83)	0.049*** (10.14)
<i>ROA_t</i>	-0.061 (-1.36)	-0.098*** (-6.92)
<i>Inst_t</i>	0.012 (0.85)	-0.000 (-0.05)
<i>Age_t</i>	0.001 (1.19)	0.001** (2.52)
Constant	0.068* (1.69)	0.075*** (4.33)
Industry FE	Yes	Yes
Year FE	Yes	Yes
Observations	1,247	17,461
R-squared	0.098	0.096

This table reports the impact of the audits of the Big 4 auditors on the use of earnings management by enterprise. Regression results of enterprises audited by the Big 4 auditors are reported in column (1). Results of enterprises not audited by the Big 4 auditors are reported in column (2). The other variables are defined in appendix. The t-values for the differences in means are based on T-tests. The superscripts *, **, and *** indicate significance at the 10 %, 5%, and 1% confidence levels, respectively.

In addition to the above analyses, this paper also considers two factors: whether the enterprise has the audit of Big 4 auditors and whether they are SOE. We consider the impact of cash holdings on earnings management in 4 situations and explore the underlying reasons.

Firstly, the results of the analysis on whether there has the audit of Big 4 auditors are shown in Table 4. As can be seen from Table 4, when the enterprise has the audit of Big 4 auditors, the coefficient of cash holding is 0.039, and is significant at the level of 5%; when the enterprise does not have the audit of Big 4 auditors, the coefficient of cash holding becomes 0.054, and is significant at the level of 1%. From the analysis results of the above two situations, we can draw the conclusion: when an enterprise is audited by the Big 4 auditors, the impact of cash holding on the earnings management of the enterprise may become smaller. Firstly, when enterprises are subject to more stringent supervision, enterprises may reduce earnings management. According to the previous analysis, we know that cash holding may intensify the earnings management of enterprises. Because when the enterprise has enough cash, the management may tend to use the cash to seek their own interests. To conceal this behavior, they usually choose to adjust their accounting statements. However, after the audit by the Big 4 auditors, the management of the company did not dare to operate even if they had enough cash to carry out earnings management due to strict supervision.

Table 5. Additional analyses: the role of SOE

Dependent variable = <i>Accm_t</i>		
	(1) SOE=1	(2) SOE=0
<i>Cash_t</i>	0.071*** (6.69)	0.036*** (2.92)
<i>Size_t</i>	-0.002	-0.011**

	(-0.51)	(-2.52)
BM_t	-0.013***	-0.022***
	(-10.01)	(-8.84)
Lev_t	0.051***	0.045***
	(8.57)	(6.55)
ROA_t	-0.089***	-0.107***
	(-4.42)	(-5.89)
$Inst_t$	0.006	-0.001
	(0.92)	(-0.07)
Age_t	0.000*	0.001***
	(1.82)	(2.76)
Constant	0.057***	0.114***
	(3.04)	(4.18)
Industry FE	Yes	Yes
Year FE	Yes	Yes
Observations	11,450	8,011
R-squared	0.099	0.097

This table reports the impact of whether an enterprise is a state-owned enterprise on the use of earnings management by enterprise. Regression results of enterprises which is a state-owned enterprise are reported in column (1). Results of enterprises which is not a state-owned enterprise are reported in column (2). The other variables are defined in appendix. The t -values for the differences in means are based on T -tests. The superscripts *, **, and *** indicate significance at the 10 %, 5%, and 1% confidence levels, respectively.

Then, we analyze whether the enterprise is a state-owned enterprise, and the analysis results are shown in Table V. When the enterprise is a state-owned enterprise, the coefficient of cash holding is 0.071, which is significant at the level of 1%; when the enterprise is a non-SOE, the coefficient of cash holding is 0.036, and is significant at the level of 1%. The analysis results of the above two situations show that when an enterprise is a state-owned enterprise, the impact of cash holding on the earnings management of the enterprise may be more pronounced. As a state-owned enterprise, the requirements of the enterprise for the management are not only simple profit maximization, but also a certain amount of enterprise operation indicators. As the performance requirement of the management, the enterprise operation indicators increase the motivation of the management in earnings management. In addition, different from non-SOE, the unique internal management system of state-owned enterprises determines that the management has great power in their hands. When the management decides to intervene in the economic activities of enterprises, the lack of internal management mechanism makes it easy for the management to carry out earnings management.

5. Conclusion

In this paper, we use China's corporate data to build a model to study the relationship between corporate cash holdings and corporate earnings. We study the relationship between corporate cash holding and corporate earnings management in periods of t and $t+1$. They are always significantly positive at the 1% level. This result shows that corporate cash holdings play an important role in corporate earnings management. A company has a sound system to manage cash holdings, so it often has better control of earnings management.

Earnings management has existed in enterprises for a long time [25]. Especially the Chinese special system of state-owned enterprises leads to the internal earnings management of state-owned enterprises become normal [26]. In this paper, we investigate how and why cash holding affects earnings management by using CSI 300 as data. The regression results indicate a significantly positive relationship between cash holding and earnings management. This positive relationship is caused by

the impact on management. In enterprises with more cash holdings, the management of the enterprise has a greater incentive to conduct earnings management for their own interests. In addition, the impact of cash holding on earning management will also be affected by two factors: whether the enterprise is a state-owned enterprise and whether the enterprise is audited by the Big 4 auditors. In other words, the positive relationship between cash holdings and earnings management is more significant in state-owned enterprises that are not affected by the Big 4 auditors.

6. Appendix. Variable definitions

This table contains the definitions of variables used in our analysis. All continuous variables are winsorized at 1% at both tails.

Table 6. Definitions of variables used in our analysis

Variables	Definitions
$Accm_t$	Proxies for listed firms' earnings management, with higher values suggesting better earnings management.
$Cash_t$	Cash is held at a level, based on calculations based on Opler <i>et al.</i> 's model.
$Size_t$	Enterprise size, natural logarithm of total enterprise assets.
BM_t	Market-to-book ratio, calculated as the market value of equity divided by the book value of equity.
Lev_t	Firm financial leverage, calculated as the book value of total debt divided by the book value of total assets.
ROA_t	Return on assets, calculated as net profit divided by the book value of total assets.
$Inst_t$	The percentage of shares owned by institutional investors.
Age_t	The listing age, which is equal to the natural logarithm of the current year minus the year of listing plus one.

References

- [1] Davidson, P., 1965. Keynes's finance motive. Oxford. Econ. Pap. 17 (1), 47–65.
- [2] Keynes, J.M., 1936. The General Theory of Employment, Interest and Money. McMillan, London.
- [3] Opler, T., Pinkowitz, L., Stulz, R., Williamson, R. The Determinants and Implications of Corporate Cash Holdings [J]. Journal of Financial Economics, 1999, 52(1): 3—46.
- [4] Harford, Jarrad (1999), “Corporate Cash Reserves and Acquisitions,” Journal of Finance 54(6), 1969-1997.
- [5] Jensen, M., Meckling, W. Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure [J]. Journal of Financial Economics, 1976, 3(4):305—360.
- [6] Bertrand M, Schoarl. Managing with style: the effort of managers on firm policies [J]. Quarterly Journal of Economics, 2003(4): 1169-1208.
- [7] Shleifer A, Vishny R. A Survey of Corporate Governance [J]. Journal of Finance, 1997, 52(2).
- [8] Dai D, Mao X, Deng F. A research on impairment of assets in listed firms with negative earnings in China[J]. Front. Bus. Res. China, 2007 (1).
- [9] Degeorge F, Ding Y, Jeanjean T. Analyst coverage, earnings management and financial development; An international study [J]. Journal of Accounting & Public Policy, 2013, 32(1); 1-25.
- [10] Hu Juncheng. Do facilitation payments affect earnings management? Evidence from China[J]. Journal of Corporate Finance, 2021, 68.
- [11] Cudia Cynthia P. et al. Effect of Firm Characteristics and Corporate Governance Practices on Earnings Management: Evidence from Publicly Listed Property Sector Firms in the Philippines[J]. Vision: The Journal of Business Perspective, 2021, 25(1): 77-87.
- [12] Xu, N.H., Li, X.R., Yuan, Q.B., Chan, K.C., 2014. Excess perks and stock price crash risk: evidence from China. J. Corp. Finance 25, 419–434.

- [13] Opler, T., Pinkowitz, L., Stulz, R., Williamson, R., 1999. The determinants and implications of corporate cash holdings. *J. Financ. Econ.* 52 (1), 3–46.
- [14] Dittmar, A., Mahrt-Smith, J., Servaes, H., 2003. International corporate governance and corporate cash holdings. *J. Financ. Quant. Anal.* 38 (1), 111–133.
- [15] Xu, N., Chen, Q., Xu, Y., Chan, K.C., 2016. Political uncertainty and cash holdings: evidence from China. *J. Corp. Finan.* 40, 276–295.
- [16] Ghosh D, Olsen L. Environmental uncertainty and managers’ use of discretionary accruals[J]. *Accounting, Organizations and Society*, 2009, 34(2): 188-205.
- [17] Dechow M, Sloan G, Sweeney P. Detecting Earnings Management[J]. *The Accounting Review*, 1995, 70(3): 193-225.
- [18] Jin, L., Myers, S.C., 2006. R-2 around the world: new theory and new tests. *J Financ. Econ.* 79, 257–292.
- [19] Hutton, A.P., Marcus, A.J., Tehranian, H., 2009. Opaque financial reports, R-2, and crash risk. *J Financ Econ.* 94, 67–86.
- [20] Kim, J.B., Li, Y.H., Zhang, L.D., 2011a. Corporate tax avoidance and stock price crash risk: firm-level analysis. *J. Financ. Econ.* 100, 639–662.
- [21] Kim, J.B., Li, Y.H., Zhang, L.D., 2011b. CFOs versus CEOs: equity incentives and crashes. *J. Financ. Econ.* 101, 713–730.
- [22] Harjoto, M., Laksmana, I., Lee, R., 2015. Board diversity and corporate social responsibility. *J. Bus. Ethics* 132 (4), 641–660.
- [23] Yasser, Q.R., Al Mamun, A., Ahmed, I., 2017. Corporate social responsibility and gender diversity: insights from Asia-Pacific. *Corp. Soc. Responsib. Environ. Manage.* 24 (3), 210–221.
- [24] Garcia-Sanchez, I.M., Hussain, N., Martinez-Ferrero, J., 2019. An empirical analysis of the complementarities and substitutions between effects of CEO ability and corporate governance on socially responsible performance. *J. Clean. Prod.* 215 (April 1), 1288–1300.
- [25] Jeremy Bertomeu et al. How Pervasive Is Earnings Management? Evidence from a Structural Model[J]. *Management Science*, 2020.
- [26] Lei Yu et al. Empirical research on the correlation between Real Earnings Management of state-owned enterprises and executive compensation from the perspective of executive structural power[J]. *International Journal of Financial Engineering*, 2019, 6(1): 19.