

Quality of Internal Controls, Management Compensation and Corporate Surplus Management

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Abstract. After enterprises enter high-quality development, the quality of corporate accounting information has received attention from all walks of life, and the internal control of enterprises and the salary level of management play a crucial role. Based on the perspective of management's salary level, the relationship between internal control quality and corporate surplus management is empirically investigated with a sample of A-share listed companies from 2011 to 2021. What's more, the contribution of management's salary level to internal control and corporate surplus management is studied through a moderating effect model, and the robustness of the relationship is verified through multiple testing models. The empirical results show that the quality of internal control can significantly inhibit the accrual surplus management behavior and the real surplus management behavior of enterprises and improve the quality of accounting information and decision usefulness, and the higher the level of management compensation, the better the inhibiting effect of internal control on the surplus management behavior of enterprises.

Keywords: quality of internal controls; management compensation levels; surplus management.

1. Introduction

With the continuous development of the market economy, the gradual convergence of China's accounting standards with international accounting standards is particularly evident in promoting the quality of internal control. For example, the SOX Act enacted in the United States in 2002 mentioned: it is mandatory for the management and governance of listed companies to strengthen internal control and improve the quality of information disclosure; the introduction of the Basic Standard for Enterprise Internal Control in China [1] requires more and more companies to disclose the implementation of internal control in their companies. This has provided a large number of samples for domestic and foreign scholars to study the quality of corporate internal control. Meanwhile, with a series of financial fraud scandals of listed companies such as Kangmei Pharmaceutical and RuiXiang Coffee coming to light in recent years, the quality of accounting information of listed companies has once again become the focus of attention of investors and other stakeholders.

In the effective capital market, internal control, as an important corporate governance mechanism, can alleviate agency conflicts between principals and agents, and companies can reduce the information asymmetry problem of listed companies, reduce the surplus manipulation behavior of company management, and improve the quality of corporate accounting information by strengthening the quality of internal control [10]. Many domestic studies have also verified that the higher the quality of internal control, the greater the degree of corporate accrual surplus management [5], but few existing studies have examined the incentive effect of management compensation in terms of both accrual surplus management and true surplus management.

Therefore, the contribution of this paper is that in existing studies, most of the measures of accounting information quality focus only on corporate accrual surplus management, which is more one-sided in dimension; this paper considers the comprehensiveness of the measurement of corporate surplus management, validates it through accounting information transparency, conducts robustness tests using corporate accounting information robustness and true surplus management, and uses instrumental variables method, PSM score matching model and various other endogenous tests and robustness tests to further support the existing research on the direction of internal control quality and surplus management. Most of the existing studies have studied the relationship between the two from government audits, board structure, etc., and lack research on the moderating effect of management compensation level; This paper considers that management, motivated by compensation level, will

give up the motivation to make personal gain and make active efforts to the effective operation of internal control, thus reducing corporate surplus management behavior and improving the quality of corporate accounting information. The above research enriches the measurement results in corporate surplus management and deepens the understanding of the relationship between internal control and corporate surplus management.

2. Theoretical Analysis and Research HypothesisSection

2.1 Internal Control and Corporate Surplus Management

In the context of the separation of management and ownership of joint stock companies, the principal-agent theory came into being, and the resulting agency problems have become a direction that many scholars are still studying. The first type of agency problem under the principal-agent theory is the inconsistency of interests and information asymmetry between managers and investors due to the separation of management and ownership. Management, who has the right to operate, may use the company's resources to act against the interests of shareholders for their own interests. Management may take advantage of the information asymmetry problem under principal-agent theory to improve corporate performance by increasing surplus management and misleading investors about corporate operating performance.

Internal control, as an institutional arrangement, is a reliable guarantee of the quality of accounting information. Study [1] found that high quality internal control can improve the sustainability of surplus and thus reduce the level of surplus management of the company; Study [2] found that high quality internal control can effectively improve the quality of financial reporting of the company, increase the transparency of information disclosure and reduce the level of surplus management; scholars [3] suggest that internal control can prevent managers from using their authority for personal gain by monitoring and restraining them, thus always surplus management behavior and improving the sustainability of surplus. Based on the above analysis, we find that the existence of an internal control mechanism is conducive to the clarification of responsibilities and supervision of management at all levels within the firm, the reduction of surplus management practices, the improvement of accounting information transparency, and the improvement of accounting information quality. This leads to hypothesis 1:

Hypothesis 1: The quality of internal control significantly affects the level of corporate surplus management, and the higher the quality of internal control, the lower the level of corporate surplus management and the better the quality of accounting information.

2.2 Quality of Internal Control, Management Compensation and the Level of Corporate Surplus Management

Some scholars' studies have argued that internal governance in corporate governance is the top design or top priority of corporate internal control. Because owners and management are two subjects with different interests, if the principal-agent problem that exists between them cannot be eliminated, then rational management will sacrifice the overall interests of the company in order to achieve their personal goals [7]. However, a high level of compensation can lead to incentive compatibility between the value objectives of management and shareholders, which in turn increases the motivation of management to give up the motivation to seek private gain. Moreover, according to the theory of effective contract, remuneration above the market average can reflect the strength of management and motivate management to ensure the operation of internal control and the achievement of its goals in accordance with the goal of maximizing shareholders' interests [8]. Similarly, when there is an agency conflict between shareholders and managers, management tends to manipulate accounting information by increasing profit-related accruals in order to conceal its opportunistic behavior [9], and therefore, the level of management compensation becomes an important incentive for firms to engage in surplus management. Many domestic scholars have verified empirically that an increase in the level of management compensation can inhibit the surplus management behavior of firms, and

the level of management pay is significantly and negatively related to the level of corporate surplus management.

Therefore, based on the above study, this paper argues that management salary level can promote the relationship between internal control and corporate surplus management for the following reasons: an increase in management salary level will motivate management to converge their personal development goals with corporate development goals, operate more effectively in designing corporate internal control controls with higher standards, reduce the aggressive behavior of corporate operators in surplus management, improve corporate accounting information transparency and maximize corporate value; moreover, the increase of management salary level will further stimulate management's judgment, organization and decision-making ability [8], and the improvement of internal control quality will restrain and monitor management's accounting information manipulation and surplus management behaviors, and the parallel incentive and restraint can further promote inhibiting effect of corporate internal control on corporate surplus management behaviors. This leads to hypothesis 2:

Hypothesis 2: Management compensation level can significantly contribute to the positive moderating effect of corporate internal control on the disincentive effect of corporate surplus management behavior.

3. Study Design

3.1 Sample Selection and Data Source

This paper selects the data of A-share listed companies from 2011-2021. Drawing on existing studies, we screened and processed the samples as follows: (1) excluding the financial and insurance companies; (2) excluding the ST companies; (3) excluding the samples with missing and duplicate values, and finally obtaining 22,332 annual observations; (4) to avoid the influence of extreme values on the data, the continuous variables are tailor-made at 1% and 99% quartiles. As for the data sources, except for the data on internal control quality, which were obtained from the Dibble database, the data on micro firms was obtained from the CSMAR database.

3.2 Variable Definition

3.2.1 Explained Variable: Level of Corporate Surplus Management (DA_t)

For the level of corporate surplus management, there are various measures available. In this paper, the most widely used method in empirical studies, the modified cross-sectional Jones model, is used to measure it. The indicator of the level of corporate surplus management is the number of manipulable accrued profits. Since manipulable accrued profits have sign direction, this paper uses the absolute value of manipulable accrued profits to measure the level of corporate surplus management. The larger the absolute value of manipulable accrued profit, the less transparent the accounting information and the higher the degree of surplus management. The specific model is as follows:

$$\frac{NDA_t}{Asset_{t-1}} = \alpha_1 \frac{1}{Asset_{t-1}} + \alpha_2 \frac{\Delta REV_t - \Delta REC_t}{Asset_{t-1}} + \alpha_3 \frac{PPE_t}{Asset_{t-1}} \quad (1)$$

The equation (1) is the non-manipulative accrued profit NDA_t in period t, $Asset_{t-1}$ denotes total assets at the end of period t-1, ΔREV_t denotes the change in revenue from main business in period t and period t-1, ΔREC_t denotes the change in accounts receivable in period t and period t-1, and PPE_t denotes the book value of fixed assets at the end of period t. $\alpha_1 \alpha_2 \alpha_3$ are characteristic parameters for different industries and different years.

$$\frac{TA_t}{Asset_{t-1}} = \alpha_1 \frac{1}{Asset_{t-1}} + \alpha_2 \frac{\Delta REV_t - \Delta REC_t}{Asset_{t-1}} + \alpha_3 \frac{PPE_t}{Asset_{t-1}} + \varepsilon_t \quad (2)$$

The equation (2) is the total accrued profit in period t, which is the difference between net profit and net cash flow from operating activities in period t. The residual ε_t is the manipulable accrued

profit DA_t in period t , which is the absolute value of the difference between total accrued profit TA_t and non-manipulable accrued profit NDA_t . That is $DA_t = |TA_t - NDA_t|$.

3.2.2 Explanatory Variable: Internal Control Quality (IC)

Drawing on existing studies [4], this paper measures the quality of internal control of enterprises by using the internal control disclosure index in the Dibo database of listed companies in China from 2011-2021, and divides the data by 100 to prevent quantitative problems. The DIBO internal control disclosure index is based on the perspective of five elements of corporate internal control, i.e., internal environment, risk assessment, control activities, information and communication, and internal oversight, and reflects the level of internal control of listed companies comprehensively with high authority.

3.2.3 Moderating Variable: Management Compensation (Salary)

Management in this paper refers to the defined senior managers in the annual reports of listed companies. Drawing on existing research ideas, this paper measures the level of management compensation by the natural logarithm of the total compensation of the top three senior executives in terms of amount disclosed in the annual reports of listed companies.

3.2.4 Control Variables

In order to make the test more accurate, this paper controls for other factors that may affect the level of corporate surplus management. Referring to the studies of scholars [5], the following variables are selected to control for the model: (1) firm size (Size), expressed using the natural logarithm of the total assets of the firm at the end of the year; (2) gearing ratio (LEV), which is the ratio of total liabilities to total assets of the firm at the end of the year; (3) firm growth (growth), which is the growth rate of the firm's operating income at the end of the year; (4) return on Total Assets (ROA), which is the ratio of net profit to average assets at the end of the year; (5) independent Director Ratio (IDR), which is the ratio of the number of independent directors to the size of directors; (6) equity Concentration (top1), which is the shareholding ratio of the company's top five shareholders; (7) market-to-Net Ratio (MB), which is the ratio of the market value of the company's equity to its book value; (8) nature of Ownership (SOE). (9) auditor reputation (Big4), which is 1 if the auditor is from a Big 4 firm and 0 otherwise; (10) board size (Bsize), which is the number of directors on the firm's board. In addition to this, this paper also controls for year effects and industry effects.

3.3 Model Construction

To test hypothesis 1, the relationship between the quality of internal control and the level of corporate surplus management, a fixed-effects model was used. Considering the regression effect of the model and the actual situation, the regression analysis was conducted by fixing the year and industry, and the model is as follows:

$$DA_t = \beta_0 + \beta_1 IC + \sum Controls + \sum industry + \sum year + \varepsilon$$

To test hypothesis 2, the moderating effect of management compensation on the relationship between the quality of internal control and the level of corporate surplus management, the following model is used for the moderating effect regression analysis, where $IC \times Salary$ is the interaction term between the quality of internal control and management compensation:

$$DA_t = Y_0 + Y_1 IC + Y_2 IC \times Salary + \sum Controls + \sum industry + \sum year + \varepsilon$$

4. Analysis of the Empirical Results

4.1 Descriptive Statistical Analysis

Table 1 presents the results of descriptive statistics of the main variables in this paper. It can be seen that the minimum value of DA of the degree of surplus management is 0 and the maximum value is 0.38, which indicates that there is a certain difference in the level of surplus management of different companies; the mean value is 0.06, which indicates that the average level of the degree of

corporate surplus management is at 0.06, and the quality of accounting information in China is better and the regulators have strengthened the requirements of corporate surplus management. The minimum value of internal control quality is 0.17, the maximum value is 0.48, the median is 0.37, and the mean value is 0.36, indicating that the overall internal control quality of each company is in a right-skewed distribution, and the standard deviation is 0.06, indicating that the difference in internal control quality between companies is small. The maximum value of the moderating variable executive compensation after taking the logarithm is 17.20, the minimum value is 13.30, and the standard deviation is 0.76, which shows that the differences in executive compensation of the selected companies are large, and then the impact on the level of surplus management of the companies may be large, which fits with the statistics of DA. State-owned enterprises account for 39% of the entire sample size, and the statistics of other control variables are in the normal range.

Table 1 Results of Descriptive Statistics of Variables

Variables	Sample size	Mean	Median	Standard deviation	Minimum value	Maximum value
DA	22332.00	0.06	0.04	0.07	0.00	0.38
IC	22332.00	0.36	0.37	0.06	0.17	0.48
Salary	22332.00	15.09	15.06	0.76	13.30	17.20
Size	22332.00	22.38	22.19	1.29	20.16	26.42
LEV	22332.00	0.42	0.41	0.20	0.05	0.85
ROA	22332.00	0.01	0.01	0.01	-0.02	0.06
MB	22332.00	2.02	1.65	1.19	0.86	7.54
growth	22332.00	0.36	0.14	0.87	-0.63	5.96
Bsize	22332.00	8.58	9.00	1.69	5.00	15.00
IDR	22332.00	37.59	36.36	5.62	16.67	80.00
top1	22332.00	36.24	34.65	14.90	7.95	74.98
SOE	22332.00	0.39	0.00	0.49	0.00	1.00
Big4	22332.00	1.93	2.00	0.25	1.00	2.00

Note: ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively.

4.2 Correlation Analysis

This paper uses Pearson correlation coefficient to test the correlation between variables, and the results are shown in Table 2. It can be observed that: the quality of internal control is significantly and negatively correlated with the degree of surplus management at the 1% level, which initially verifies hypothesis 1; management compensation is significantly and negatively correlated with the degree of surplus management at the 1% level; the selected control variables are basically significantly correlated with the dependent variable at the 1% or 5% level, indicating that the selected control variables are representative and do not have a large effect of covariance.

Table 2 Correlation Coefficient Analysis

	DA	IC	Salary	Size	LEV	ROA
DA	1					
IC	-0.052***	1				
Salary	-0.049***	0.229***	1			
Size	-0.060***	0.153***	0.503***	1		
LEV	0.025***	-0.020***	0.182***	0.538***	1	
ROA	0.025***	0.050***	0.135***	0.025***	-0.280***	1
MB	0.087***	-0.046***	-0.083***	-0.368***	-0.351***	0.234***
growth	0.080***	-0.013*	0.014**	0.030***	0.074***	-0.117***
Bsize	-0.053***	-0.002	0.152***	0.277***	0.148***	0.023***
IDR	0.014**	0.046***	-0.007	0.017**	-0.002	-0.020***
top1	-0.022***	0.006	-0.031***	0.140***	0.008	0.111***
SOE	-0.047***	0.008	0.115***	0.358***	0.293***	-0.095***
Big4	0.042***	-0.079***	-0.244***	-0.360***	-0.124***	-0.038***

Continued Table 2 Correlation Coefficient Analysis

	MB	growth	Bsize	IDR	top1	SOE	Big4
MB	1						
growth	0.028***	1					
Bsize	-0.125***	-0.021***	1				
IDR	0.027***	0.013**	-0.491***	1			
top1	-0.069***	0.01	0.016**	0.048***	1		
SOE	-0.162***	0.038***	0.294***	-0.055***	0.149***	1	
Big4	0.090***	0.018***	-0.099***	-0.046***	-0.135***	-0.151***	1

Note: ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively.

4.3 Regression Analysis

4.3.1 Quality of Internal Control and the Level of Corporate Surplus Management

To investigate the relationship between the quality of internal control and the level of corporate surplus management, this paper fixes the industry and year effects, establishes a fixed effects model, and regresses the independent and dependent variables. The regression results are shown in column (2) of Table 3, and it can be observed that the quality of internal control is significantly and negatively related to the level of corporate surplus management ($\beta = -0.023$, $p < 0.01$), which verifies hypothesis 1 that the level of corporate surplus management can significantly decrease with the improvement of the quality of corporate internal control, which can well inhibit the manipulation of profits and improve the transparency of corporate accounting information.

4.3.2 Moderating Effect of Management Compensation

The regression results of the moderating effect test of management compensation are shown in column (4) of Table 3, which indicates that the interaction term between the quality of internal control and management compensation is significantly negatively related to the degree of surplus management ($\beta = -0.022$, $p < 0.05$). Since the quality of internal control is still significantly negatively related to the degree of surplus management ($\beta = -0.025$, $p < 0.01$), it can be concluded that management compensation plays a significant positive moderating effect on the relationship between the quality of internal control and the level of corporate surplus management, and the regression results support hypothesis 2, which states that as management compensation increases, it can better

promote the quality of internal control on the level of corporate surplus management inhibitory effect and improve the quality of corporate information.

Table 3 Baseline Regression Results and Moderating Effects Regression Results

DA	(2)	DA	(4)
IC	-0.023*** (-2.85)	IC	-0.025*** (-3.13)
		interact	-0.022** (-2.46)
Control	Yes	Control	Yes
cons	0.144*** (-9.76)	cons	0.144*** (-9.77)
N	22332	N	22332
Industrycode	yes	Industrycode	yes
year	yes	year	yes
df m	93	df m	94
F	18.85	F	18.72
R2	0.073	R2	0.073

Note: ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively.

4.4 Endogeneity Test

4.4.1 Instrumental Variables Approach

According to the research hypothesis, the quality of internal control will reduce the level of corporate surplus management and inhibit management surplus management behavior, but there is also the possibility that companies will strengthen their internal control systems as a result of existing surplus management behavior; therefore, the endogeneity problem brought about by reverse causality needs to be considered. In addition, there are many factors affecting the level of corporate surplus management, and it is difficult to prevent the omitted variable situation with the control variables involved so far. Based on the above considerations, this paper adopts the instrumental variable approach to mitigate the endogeneity problem.

In this paper, based on the principle of instrumental variable method and referring to the research methods of existing scholars [6], the independent variables with one period lag and the mean value of the independent variables are taken as instrumental variables. Because the mean value of internal control of the industry in which the firm is located has a high correlation with the internal control of the firm, while the level of surplus management of the firm is more influenced by internal factors and is not related to the mean value of internal control of the industry, and the quality of internal control in the lagged period is not correlated with the current error term, both variables are consistent with the correlation and exogeneity of the instrumental variables. Both instrumental variables pass the Hausman test, the over-identification test and the weak instrumental variable test: Hausman verifies that the explanatory variables are endogenous, the over-identification test and the weak instrumental variable test show that the two instrumental variables do not have weak correlation problems and both instrumental variables are exogenous. The regression results are shown in Table 4: the coefficient of IC is significantly negative ($\beta = -0.078$, $p < 0.01$), which indicates that after further addressing the endogeneity issue, the improvement of internal control quality can still significantly suppress the level of corporate surplus management, and the conclusions of this paper remain unchanged.

Table 4 Endogeneity test results

Serial number	DA	
(1)	IC	-0.078***
(2)		(-3.05)
(3)	Control	yes
(4)	cons	0.150***
(5)		(-9.42)
(6)	N	18798
(7)	Industry	
(8)	code	yes
(9)	year	yes
(10)	df m	91
(11)	F	
(12)	R2	0.066

Note: ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively.

4.4.2 PSM propensity Score Matching Model

Firms with high quality internal controls have lower levels of surplus management and higher accounting transparency, which may also be due to the better foundation of the firm itself. To address this issue, this paper refers to existing research [19] and uses the propensity score matching method to match 1:1 nearest neighbors between the high-quality internal control group and the low-quality internal control group. Firms with IC greater than the industry median are classified as a group and assigned a value of 1. Firms with IC less than or equal to the industry median are classified as a group and attached a value of 0. The regression test is re-run using the matched samples. The results of the test are shown in Table 5, and the regression coefficient of IC is significantly negative ($\beta=-0.023$, $p<0.01$), and the study results are unchanged.

Table 5 Endogeneity Test Results

Serial number	DA	
(1)	IC	-0.023***
(2)		(-2.85)
(3)	Control	yes
(4)	cons	0.144***
(5)		(-9.73)
(6)	N	22312
(7)	Industry	
(8)	code	yes
(9)	year	yes
(10)	df m	93
(11)	F	18.8
(12)	R2	0.073

Note: ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively.

4.5 Robustness Tests

4.5.1 Replacing the Explanatory Variables with Real Surplus Management REM

To further examine the robustness of the relationship between the quality of internal control and the level of corporate surplus management, this paper draws on the study of corporate surplus management by Guohua Chi to measure the quality of surplus in terms of real surplus management (REM) generated by realized cash inflow surpluses, considering multiple aspects of measuring the level of corporate surplus management. The degree of true surplus management (REM) is measured in terms of sales manipulation, production manipulation and expense manipulation and used as a proxy for the degree of accrual surplus management (DA) for a subsequent series of regression tests. The model is as follows:

$$\frac{CFO_{it}}{A_{it-1}} = a_0 + a_1 \frac{1}{A_{it-1}} + a_2 \frac{REV_{it}}{A_{it-1}} + a_3 \frac{\Delta REV_{it}}{A_{it-1}} + \varepsilon_{it}$$

$$\frac{PROD_{it}}{A_{it-1}} = b_0 + b_1 \frac{1}{A_{it-1}} + b_2 \frac{REV_{it}}{A_{it-1}} + b_3 \frac{\Delta REV_{it}}{A_{it-1}} + b_4 \frac{\Delta REV_{it-1}}{A_{it-1}} + \varepsilon_{it}$$

$$\frac{DISEXP_{it}}{A_{it-1}} = c_0 + c_1 \frac{1}{A_{it-1}} + c_2 \frac{REV_{it-1}}{A_{it-1}} + \varepsilon_{it}$$

In the above model, CFO_{it} represents the net cash flow from operating activities of the enterprise in year t; $PROD_{it}$ represents the production cost of the enterprise, which is the sum of operating cost and inventory change cost of the enterprise in the current period; $DISEXP_{it}$ represents the discretionary expense of the enterprise, which is the sum of selling expense and administrative expense of the enterprise; REV_{it} is the operating revenue of the enterprise in year t; ΔREV_{it} represents the change in operating revenue of the enterprise in year t; A_{it-1} is the total asset at the end of period t-1, and A_{it-1} in the denominator is to eliminate the scale effect.

Based on the above model regression by year and industry, the normal net cash flow from operating activities, normal production cost, and normal discretionary expense are calculated for the firm's year t. Then, the actual values of the three indicators in year t are used to subtract the estimated normal values to obtain the abnormal net operating cash flow (R_NCF) for real surplus management using sales manipulation, abnormal production cost (R_PROD) for real surplus management using production manipulation, and abnormal discretionary expense (R_DISEXP) for real surplus management using expense manipulation. Based on the above three sub-indicators, the aggregate indicator of true surplus management (REM) is constructed to measure the overall level of true surplus management of enterprises, which is defined as follows: $REM = R_PROD - R_NCF - R_DISEXP$.

Based on the model, the correlation between the quality of internal control and the level of true surplus management is tested with baseline regression and the regression of moderating effects, and the test results are shown in Table 5: column (1) of Table 5 indicates that the quality of internal control (IC) significantly suppresses the level of true corporate surplus management (REM) ($\beta = -0.075$, $p < 0.01$); column (2) of Table 7 indicates the moderating variable management. The intervention of compensation significantly contributes to the relationship between the quality of internal control and the level of true corporate surplus management. The above results indicate that the study results are robust.

Table 7 Robustness Test Results

REM	(1)	(2)
IC	-0.075*** (-3.49)	-0.082*** (-3.79)
interact		-0.063*** (-2.65)
Control	yes	yes
cons	-0.025 (-0.64)	-0.025 (-0.63)
N	22128	22128
Industry	yes	yes
code		
year	yes	yes
df m	92	93
F	34.02	33.74
r2	0.124	0.125

Note: ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively.

4.5.2 Substituting Explanatory Variables with Accounting Information Robustness Cscore

This paper draws on existing scholars [11] and uses accounting information robustness (score) instead of accounting information transparency (DA). Considering multiple aspects of measuring the level of corporate surplus management, the models are as follows:

$$\frac{EPS_t}{P_{t-1}} = \theta_1 + \theta_2 DR_t + \theta_3 R_t + \theta_4 DR_t R_t + \varepsilon_t$$

$$Cscore = \theta_4 = \lambda_1 + \lambda_2 size_t + \lambda_3 \frac{M}{B_t} + \lambda_4 LEV_t$$

$$Gscore = \theta_4 = U_1 + U_2 size_t + U_3 \frac{M}{B_t} + U_4 LEV_t$$

In the above model, $EPS_{i,t}$ denotes the firm's stock price at the end of year t, R denotes the difference between the firm's stock return at the end of year t and the market return in year t, and DR is a dummy variable, which equals 0 when $R \geq 0$ and 1 when $R < 0$. Size is the firm size, LEV is the gearing ratio, and M/B is the market capitalization of the firm; Cscore and Gscore are brought into the Basu model for regression to obtain the Cscore of each firm, and the larger the Cscore value, the stronger the robustness of accounting information. The regression results are shown in Table 8, column (1) indicates that IC can significantly enhance the robustness of accounting information, and column (2) indicates that with the inclusion of management information level, it can significantly contribute to this effect. The above results indicate that the study results are robust.

Table 8 Robustness Test Results

cscore	(1)	(2)
IC	5.230*** (-3.23)	5.950*** -3.65
interact		6.718*** (-3.75)
Control	yes	yes
cons	6.991** (-2.4)	6.959** (-2.39)
N	20097	20097
Industry	yes	yes
code		
year	yes	yes
df m	93	94
F	17.16	17.14
r2	0.074	0.075

Note: ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively.

5. Research Conclusions and Recommendations

Based on the panel data of A-shares of listed companies from 2011-2021, this paper uses a fixed-effects model to test and analyze the following conclusions: (1) Implementing strict and effective internal controls and improving the quality of internal controls can significantly inhibit the surplus management behavior of enterprises, which is reflected in the transparency of accounting information, the quality of enterprises' true surplus management and the robustness of accounting information. Three aspects. (2) The improvement of management compensation can promote the influence of internal control quality on corporate surplus management behavior, which plays a positive moderating role.

The surplus management of enterprises has been a long-standing topic of concern in both academic and practical circles, and it is the key to the practical interests of many stakeholders. Based on this, the following suggestions are made: In order to alleviate the conflicts and contradictions of principal-agent of listed companies and improve the quality of corporate accounting information, we should start from two aspects, namely, improving the quality of corporate internal control and improving the salary level of management: (1) Improve the quality of enterprise internal control by designing effective risk assessment and response strategies, standardizing the collection and communication of information, etc., and enforcing the disclosure of enterprise accounting information from all aspects of accounting information collection, categorization, recording and summarization to reflect the true accounting activities and business performance of the enterprise. (2) Functional departments should regularly supervise and evaluate the internal control situation of listed companies, improve the internal control evaluation system as well as the supervision mechanism, and increase the punishment for surplus management behaviors. (3) According to the operation of the enterprise, the compensation incentive or equity incentive for management should be appropriately increased, so that both the management and the shareholders can share the common goal of maximizing the enterprise value. In this way, management will strengthen the governance of internal control activities of the enterprise, transmit high-quality accounting information to the outside, fully alleviate information asymmetry, reduce the manipulation of corporate surplus, and improve the quality of corporate accounting information.

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