Economics & Business Management
ISSN Print: 3079-5214
ISSN Online: 3079-5222
https://doi.org/10.63313/EBM.9182

The Influence Mechanism and Heterogeneity Analysis of Internal Control Quality on Corporate Accounting Information Transparency

Yunyang Deng. Haohui Ma
International Business School, Beijing Institute of Financial Science and Technology, Tongzhou District, Beijing, 101118, China

How to cite this paper: Deng, Y. Y., & Ma, H. H. (2026). The Influence Mechanism and Heterogeneity Analysis of Internal Control Quality on Corporate Accounting Information Transparency. Economics & Business Management, 5(2), 143-155. ISSN Print: 3079-5214; ISSN Online: 3079-5222. https://doi.org/10.63313/EBM.9182
Published: 2026-04-30

Copyright © 2026 by author(s) and Erytis Publishing Limited.
This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).
http://creativecommons.org/licenses/by/4.0/

Abstract

Addressing the practical issues of accounting information distortion and insufficient transparency in capital markets that constrain pricing efficiency, this study elucidates the mechanism and heterogeneous characteristics of internal control quality on corporate accounting information transparency. Using A-share listed companies from 2018 to 2023 as samples, we examined the causal relationship through a fixed-effects model, identified the transmission path using a mediation effect model, and conducted heterogeneity analysis via grouped regression. The results demonstrate that high-quality internal controls significantly enhance corporate accounting information transparency—a conclusion validated by endogeneity and robustness tests. The core transmission path involves curbing earnings management, reducing agency costs, and improving information disclosure quality, with the mediation effect of earnings management suppression being the strongest. This positive effect is particularly pronounced in non-state-owned enterprises, regions with high marketization levels, and small-to-medium-sized enterprises. The study provides empirical evidence for companies to optimize their internal control systems and for regulators to refine information disclosure regulations.

Keywords

Internal Control Quality; Accounting Information Transparency; Earnings Management

Introduction

Accounting information transparency serves as the cornerstone for the effective functioning of capital markets, where high-quality accounting information helps mitigate information asymmetry and optimize resource allocation efficiency [1]. In recent years, frequent cases of financial fraud and violations of information disclosure regulations in capital markets have severely harmed investor interests, making the enhancement of accounting information transparency a central focus for both regulators and academia [2]. As the core institutional framework of corporate

governance, internal control has garnered initial attention for its regulatory impact on accounting information quality. However, existing research lacks a systematic analytical framework elucidating the mechanisms underlying their interactions, with insufficient exploration of heterogeneous characteristics—particularly precise identification of transmission pathways and examination of effect variations across different contexts [3]. Building on this, this study empirically examines the causal relationship between internal control quality and accounting information transparency using A-share listed companies as samples, clarifies the underlying mechanisms, and conducts heterogeneity analysis across three dimensions: property rights structure, marketization level, and firm size, thereby providing empirical insights to assist enterprises in improving their internal control systems and regulatory authorities in strengthening information disclosure oversight [4].

1. Theoretical Analysis and Research Hypotheses

1.1. The Benchmark Effect of Internal Control Quality and Accounting Information Transparency

High-quality internal control establishes a comprehensive constraint mechanism covering the entire financial reporting process through clear division of responsibilities, process management, and supervisory checks and balances, thereby standardizing the generation, processing, and disclosure of accounting information at its source. The five elements of internal control work synergistically to form a closed-loop governance system that provides institutional safeguards for the authenticity of financial reports. This significantly increases the cost for management to manipulate profits or conceal negative information, curbs opportunistic behavior, reduces accounting information distortion and disclosure deficiencies, and enhances information transparency. Conversely, deficiencies in internal control create opportunities for earnings management and financial fraud, leading to accounting information that deviates from the company's true operational status and reduces transparency. Accordingly, the core hypothesis is proposed: High-quality internal control exerts a significant positive promoting effect on corporate accounting information transparency.

1.2. The Mechanism by Which Internal Control Quality Affects Accounting Information Transparency

The enhancement of accounting information transparency through internal control is primarily achieved through three core mechanisms: First, the earnings management suppression pathway. High-quality internal controls standardize accounting practices and strengthen internal audits, preventing management from manipulating accounting profits and operational activities. This reduces distortions in accounting information caused by earnings management, ensuring financial reports accurately reflect corporate performance and thereby improving

transparency [5]. Second, the agency cost mitigation pathway. The two types of agency problems arising from the separation of ownership and management rights are primary drivers of accounting information distortion. Effective internal controls enhance governance structures and strengthen oversight mechanisms to curb opportunistic behaviors by management and major shareholders, lowering agency costs and reducing their incentives to conceal private interests or manipulate accounting information, thus improving the authenticity and completeness of disclosures. Third, the information disclosure quality improvement pathway. High-quality internal controls establish standardized controls over disclosure content, processes, and timing, effectively minimizing delays, ambiguities, and selective disclosures while ensuring timeliness and accuracy. This also encourages enterprises to proactively disclose non-financial information, expanding the scope of disclosed data and further enhancing accounting transparency.

2. Research Design

2.1. Sample Selection and Data Sources

The initial sample consisted of China A-share listed companies from 2018 to 2023, selected according to the following criteria: financial sector listed companies were excluded; samples with abnormal financial conditions (e.g., ST or *ST) were removed; samples with missing data for key variables were eliminated; all continuous variables underwent a 1% tail-trimming procedure, yielding a final dataset of 16,892 company-year observations. Financial, governance, and disclosure data were sourced from the Guotai An (CSMAR) database; internal control quality data from the DIB China Listed Company Internal Control Index Database; and marketization degree data from the China Provincial Marketization Index Report. Data processing and empirical analysis were conducted using Stata 17.0.

2.2. Variable Definitions and Measurements

The dependent variable is corporate accounting information transparency (Trans), measured using the reciprocal of the absolute value of manipulable accrued profits calculated by the modified Jones model, in line with mainstream research practices; a higher value indicates lower earnings management and greater accounting information transparency. For robustness testing, the evaluation results of the Shenzhen Stock Exchange's information disclosure requirements were used as validation. The core explanatory variable is internal control quality (IC), measured as the natural logarithm of the DeBoer China Listed Company Internal Control Index, which is constructed based on five internal control elements; a higher index value reflects superior corporate internal control quality. Three mediating variables are included: earnings management degree (DA), measured as the reciprocal of the absolute value of manipulable accrued profits calculated by the modified Jones model; agency costs, measured by the management expense ratio; and information

disclosure quality (Disclose), measured as the reciprocal of the number of information disclosure violations by listed companies. Control variables encompass firm size, debt-to-asset ratio, profitability, firm growth potential, ownership structure, equity concentration, board size, dual-executive roles, and listing duration, with annual and industry fixed effects controlled to mitigate the impact of sector heterogeneity and macroeconomic fluctuations.

2.3. Model Specification

To examine the benchmark effect of internal control quality on corporate accounting information transparency, the following fixed-effects model was constructed:

$$Trans_{i,t} = \alpha_0 + \alpha_1 IC_{i,t} + \Sigma Controls_{i,t} + \Sigma Year + \Sigma Ind + \varepsilon_{i,t}$$

In the formula$Trans_{i,t}IC_{i,t}Controls_{i,t}YearInd\varepsilon_{i,t}\alpha_0\alpha_1\alpha_1$: represents the accounting information transparency of firm i in year t; represents the internal control quality of firm i in year t; represents the set of all control variables; represents the annual fixed effect; represents the industry fixed effect; represents the random disturbance term; represents the intercept term; and represents the regression coefficient of the core explanatory variable. A significantly positive coefficient indicates that high-quality internal control significantly enhances corporate accounting information transparency, thereby validating the core research hypothesis.

To examine the mechanism by which internal control quality influences accounting information transparency, and drawing on the mediation effect testing procedure, the following mediation effect model is constructed:

$$M_{i,t} = \beta_0 + \beta_1 IC_{i,t} + \Sigma Controls_{i,t} + \Sigma Year + \Sigma Ind + \varepsilon_{i,t}$$

$$Trans_{i,t} = \gamma_0 + \gamma_1 IC_{i,t} + \gamma_2 M_{i,t} + \Sigma Controls_{i,t} + \Sigma Year + \Sigma Ind + \varepsilon_{i,t}$$

In the formula$M_{i,t}\beta_1\gamma_1\gamma_2\alpha_1\alpha_1\beta_1\gamma_2\gamma_1\gamma_1\beta_1\gamma_2$: is the mediating variable, representing the degree of earnings management (DA), agency costs (Agency), and information disclosure quality (Disclose); is the regression coefficient of internal control quality on the mediating variable; is the regression coefficient of internal control quality on accounting information transparency after incorporating the mediating variable; is the regression coefficient of the mediating variable on accounting information transparency; the definitions of the remaining variables are consistent with those in Model (1). The testing procedure for mediating effects is as follows: first, test the significance in Model (1); if significant, proceed to test the significance in Models (2) and (3); if both are significant, a mediating effect exists; if only one is significant, a partial mediating effect exists; if neither is significant, a full mediating effect exists; if at least one is insignificant, the significance of the mediating effect should be further tested using the Bootstrap method.

To examine the heterogeneous effects of internal control quality on accounting information transparency, a grouped regression approach was employed. Enterprises were clustered according to ownership structure, marketization level, and firm size, followed by regression analysis of Model (1). The regression coefficients and their significance differences of the core explanatory variable IC

across groups were compared to identify heterogeneity in the effects under different conditions.

3. Empirical Results and Analysis

3.1. Descriptive Statistics

Table 1 presents the descriptive statistics for all variables. The mean value of the dependent variable, Accounting Information Transparency (Trans), is-0.064 with a standard deviation of 0.072; its minimum value is-0.428 and maximum value is-0.002, indicating significant variations in accounting information transparency among the sample enterprises, with some exhibiting relatively low levels. The mean value of the core explanatory variable, Internal Control Quality (IC), is 6.482 with a standard deviation of 0.136; its minimum value is 5.872 and maximum value is 6.814, suggesting that while the overall internal control quality of the sample enterprises remains relatively balanced, certain disparities persist, and some enterprises still have substantial room for improvement in their internal control systems. Both the distributions of mediating variables and control variables fall within reasonable ranges without extreme outliers, consistent with the descriptive statistics from mainstream research. This demonstrates the rationality of data selection and processing, providing a solid foundation for subsequent empirical regression analyses.

Table 1. Descriptive statistical results of variables

variable	observed value	mean	standard error	least value	median	crest value
Trans	16892	-0.064	0.072	-0.428	-0.042	-0.002
IC	16892	6.482	0.136	5.872	6.496	6.814
DA	16892	0.064	0.072	0.002	0.042	0.428
Agency	16892	0.098	0.067	0.012	0.084	0.426
Disclose	16892	-0.124	0.368	-3.000	0.000	0.000
Size	16892	22.462	1.274	19.964	22.286	26.348
Lev	16892	0.432	0.204	0.056	0.428	0.896
Roa	16892	0.042	0.076	-0.324	0.038	0.246
Growth	16892	0.174	0.426	-0.586	0.112	2.864
Soe	16892	0.342	0.474	0.000	0.000	1.000
Top1	16892	33.482	14.624	8.426	31.248	74.624
Board	16892	2.134	0.198	1.609	2.197	2.708
Dual	16892	0.298	0.458	0.000	0.000	1.000
Age	16892	2.126	0.784	0.693	2.197	3.401

Note: All continuous variables have undergone capping at ±1%.

3.2. Analysis of Benchmark Regression Results

Table 2 presents the benchmark regression results of internal control quality on corporate accounting information transparency. Column (1) displays the regression

results excluding control variables, incorporating only year and industry fixed effects. The regression coefficient for the core explanatory variable IC is 0.084, which is significantly positive at the 1% statistical level. Column (2) shows the results after adding all control variables while maintaining year and industry fixed effects; the IC coefficient remains 0.062, still significantly positive at the 1% level, indicating that high-quality internal controls exert a pronounced positive influence on corporate accounting information transparency and validating the core research hypothesis. Economically, each one-unit improvement in internal control quality corresponds to a 0.062-unit increase in accounting information transparency—a significant improvement relative to Trans's mean value of −0.064. The regression results for control variables reveal that firm size, profitability, equity concentration, and board size are significantly positively correlated with accounting information transparency, while the debt-to-asset ratio and dual-executive roles show significant negative correlations. These findings align broadly with mainstream research conclusions, demonstrating the rationality of the selected control variables.

Table 2. Benchmark regression results

variable	(1)Trans	(2)Trans
IC	0.084*(10.264)	0.062*(7.842)
Size		0.004*(5.264)
Lev		-0.042*(-8.624)
Roa		0.124*(12.462)
Growth		0.002*(1.784)
Soe		0.001(0.862)
Top1		0.0002*(3.462)
Board		0.008*(1.924)
Dual		-0.003\\(-2.146)
Age		-0.001(-0.864)
constant term	-0.482*(-9.642)	-0.324*(-6.842)
Annual Fixed Effect	control	control
Industry Fixed Effect	control	control
observed value	16892	16892
adjust R^2	0.084	0.142

Note: The symbols \\, \\, \\ represent significance at the 1%,5%, and 10% statistical levels, respectively. The t-values and standard errors are presented with cluster adjustment at the company level, as applicable throughout.

3.3. Endogeneity and Robustness Tests

To mitigate the interference of endogeneity on the benchmark regression results, the instrumental variable method was employed, using the mean of internal control quality from other firms in the same industry and year as the instrumental variable. This variable exhibits a strong correlation with a firm's own internal control quality due to industry convergence, while not directly affecting accounting information transparency, thus satisfying the exclusivity requirement. The two-stage regression

results show that in the first stage, the regression coefficient of the instrumental variable IV is 0.842, significant and positive at the 1% level, with an F-value of 124.62—far above the critical value of 10—indicating no weak instrumental variable problem. In the second stage, the regression coefficient of IC is 0.074, remaining significant and positive at the 1% level, consistent with the benchmark regression results; the core conclusions remain valid after endogeneity adjustment.

Four robustness tests were conducted simultaneously: First, the dependent variable was replaced with the Shenzhen Stock Exchange's information disclosure evaluation results (with scores of 4 for excellent, 3 for good, 2 for qualified, and 1 for unqualified) to measure accounting information transparency. The Ordered Probit model regression yielded an IC coefficient of 0.426, which was significantly positive at the 1% level. Second, the core explanatory variable was regressed using a one-period lagged IC value to address potential reverse causality; the coefficient IC_L1 was 0.058, also significantly positive at the 1% level. Third, the sample period was shortened to 2020–2023, yielding an IC coefficient of 0.064, still significantly positive at the 1% level. Fourth, the continuous variable was adjusted to its 2% upper and lower bounds before regression, producing an IC coefficient of 0.059, also significantly positive at the 1% level. All test results were consistent with the baseline regression, demonstrating strong robustness of its conclusions.

Table 3. Endogeneity and robustness test results

variable	(1) Phase 1 IC	(2) Phase Two: Trans	(3)Ordered Probit	(4) Lag by one period	(5) Shorten the sample interval	(6) 2% tail-trimming treatment
IV	0.842*(28.642)					
IC		0.074*(6.842)	0.426*(8.642)		0.064*(7.264)	0.059*(7.624)
IC_L1				0.058*(6.924)		
controlled variable	control	control	control	control	control	control
Annual/Industry Fixed Effects	control	control	control	control	control	control
observed value	16892	16892	10246	14268	11248	16892
Adjust the R^2 /F value	0.324	0.136	0.084	0.138	0.146	0.140

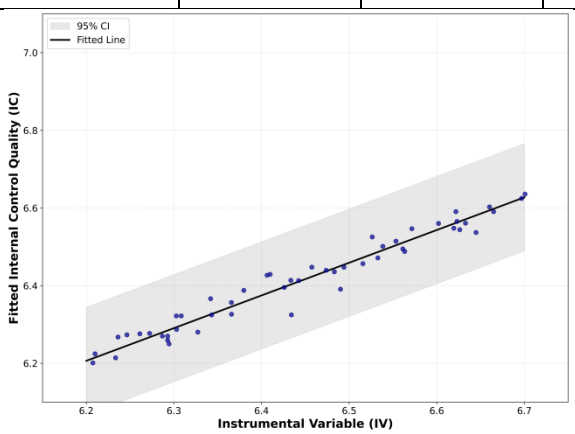


Fig 1. Fitting diagram of the first stage regression of instrumental variables

Figure 1 demonstrates a significant positive linear correlation between the instrumental variable IV and firm internal control quality IC, with a fitted line slope of 0.842—consistent with the first-stage regression results. The narrow confidence interval indicates good model fit, confirming that the instrumental variable satisfies correlation requirements and eliminates weak instrumental variable issues, thereby ensuring the reliability of the endogeneity analysis results.

3.4. Analysis of Mechanism of Action Test Results

Table 4 presents the mediation effect test results for the three transmission pathways through which internal control quality influences accounting information transparency. In the earnings management inhibition pathway, the regression coefficient of IC on DA is-0.062 (significantly negative at the 1% level), and the coefficient of DA on Trans is-0.986 (significantly negative at the 1% level). After incorporating the mediating variable, the direct effect coefficient of IC on Trans becomes 0.042 (significantly positive at the 1% level), indicating that earnings management exerts a partial mediating effect accounting for 39.84% of the total impact. In the agency cost mitigation pathway, the regression coefficient of IC on Agency is-0.034 (significantly negative at the 1% level), the coefficient of Agency on Trans is-0.084 (significantly negative at the 1% level), and the direct effect coefficient of IC is 0.058 (significantly positive at the 1% level), demonstrating that agency costs play a partial mediating role contributing 12.14% to the effect. In the information disclosure quality improvement pathway, the regression coefficient of IC on Disclose is 0.086 (significantly positive at the 1% level), the coefficient of Disclose on Trans is 0.024 (significantly positive at the 1% level), and the direct effect coefficient of IC is 0.059 (significantly positive at the 1% level), showing that information disclosure quality exerts a partial mediating effect accounting for 8.32%. Bootstrap testing confirms that the 95% confidence intervals for all mediation effects across the three pathways exclude zero, indicating statistically significant results. In summary, the quality of internal control enhances corporate accounting information transparency through three mechanisms: curbing earnings management, reducing agency costs, and improving information disclosure quality, with the suppression of earnings management serving as the core transmission pathway.

Table 4. Test results of mediating effect

variable	(1)DA	(2)Trans	(3)Agency	(4)Trans	(5)Disclose	(6)Trans
IC	-0.062*(-7.842)	0.042*(5.642)	-0.034*(-6.248)	0.058*(7.426)	0.086*(3.842)	0.059*(7.624)
DA		-0.986*(-86.426)				
Agency				-0.084*(-9.642)		
Disclose						0.024*(6.842)
controlled variable	control	control	control	control	control	control

Annual/Industry Fixed Effects	control	control	control	control	control	control
observed value	16892	16892	16892	16892	16892	16892
adjust R^2	0.124	0.586	0.242	0.152	0.042	0.148

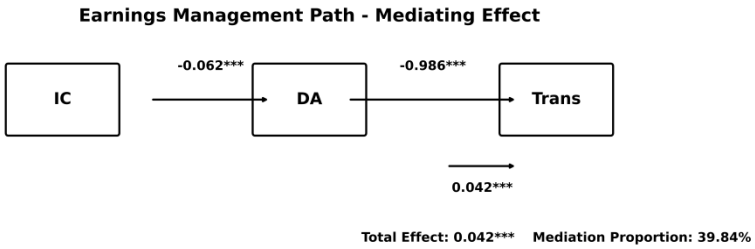


Fig 2. Mediating effect coefficient diagram of earnings management path

Figure 2 illustrates the mechanism of earnings management: high-quality internal control significantly curbs earnings management practices, reduces artificial distortions in accounting information, and thereby enhances its transparency. This pathway accounts for nearly 40% of the mediating effect, serving as the core transmission channel through which internal control influences accounting information transparency.

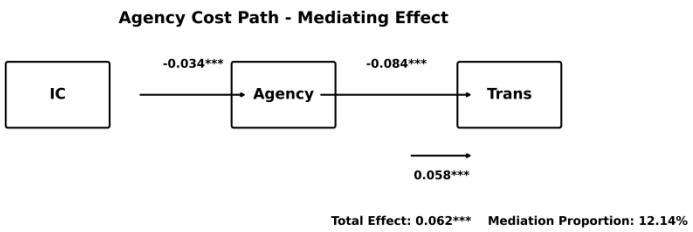


Fig 3. Mediating effect coefficient diagram of agency cost path

Figure 3 illustrates the transmission mechanism of the agency cost pathway. High-quality internal control reduces corporate agency costs by improving governance structures and strengthening oversight mechanisms, thereby diminishing management's incentive to manipulate accounting information for personal gain and enhancing accounting transparency. The mediating effect of this pathway is significant, making it a crucial transmission channel.

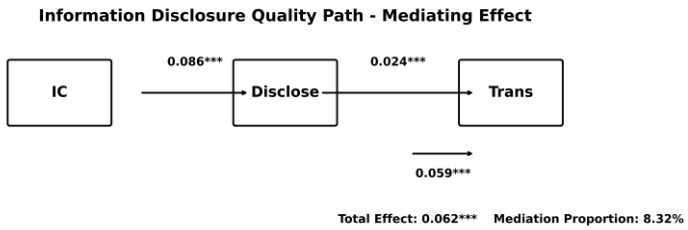


Fig 4. Mediating effect coefficient diagram of information disclosure quality path

Figure 4 illustrates the transmission mechanism of the information disclosure quality pathway. High-quality internal controls enhance the completeness and timeliness of information disclosure by standardizing disclosure procedures and reducing non-compliance, thereby improving accounting information transparency. The mediating effect of this pathway is significant, serving as a supplementary transmission channel.

3.5. Analysis of Heterogeneity Test Results

Table 5 presents the grouped regression results across three dimensions: property rights nature, degree of marketization, and enterprise size. Regarding property rights heterogeneity, the regression coefficient for the state-owned enterprise group was 0.032 (significant at the 5% level), while that for the non-state-owned enterprise group was 0.078 (significant at the 1% level); the P-value for the inter-group difference was 0.002 (significant at the 1% level), indicating that the positive promoting effect of internal control on accounting information transparency is more pronounced in non-state-owned enterprises. This is because state-owned enterprises face stricter regulatory and disclosure requirements, resulting in higher baseline standards for accounting information transparency and a relatively weaker marginal improvement effect of internal control; in contrast, non-state-owned enterprises have more lenient disclosure constraints and exhibit greater transparency variation, allowing high-quality internal control to exert stronger governance effects with a more pronounced marginal improvement impact.

Regarding the heterogeneity in marketization levels, according to the grouping based on the "China Provincial Marketization Index Report," the regression coefficient for the high-marketization region group IC was 0.076 (significant at the 1% level), while that for the low-marketization region group was 0.042 (significant at the 1% level). The P-value for the inter-group coefficient difference was 0.008 (significant at the 1% level), indicating that this enhancement effect is more pronounced among enterprises in high-marketization regions. This is attributed to the superior legal environment and investor protection standards, more effective implementation of internal control systems, and fuller utilization of governance

effects in these regions. In contrast, the relatively weaker institutional environment and limited effectiveness of internal control implementation in low-marketization regions result in a correspondingly diminished impact on improving information transparency.

Regarding enterprise size heterogeneity, when grouped by the median annual total assets, the regression coefficient for the large-scale enterprise group was 0.038 (significant at the 1% level), while that for the small and medium-sized enterprise group was 0.082 (also significant at the 1% level). The P-value for the inter-group difference was 0.001 (significant at the 1% level), indicating that this improvement effect is more pronounced in small and medium-sized enterprises. This is because large-scale enterprises possess more mature governance systems and information disclosure mechanisms, with generally higher transparency levels, resulting in a limited marginal improvement effect from internal controls; in contrast, small and medium-sized enterprises have relatively weaker governance foundations and greater potential for transparency enhancement, leading to a stronger normative role of high-quality internal controls over accounting information generation and disclosure processes, with a more substantial marginal improvement effect.

Table 5. Heterogeneity test results

variable	(1) State-owned enterprises	(2) Non-state-owned enterprises	(3) High marketization	(4) Low marketization	(5) Large-scale enterprises	(6) Small and medium-sized enterprises
IC	0.032\\(2.462)	0.078*(8.246)	0.076*(7.248)	0.042*(4.264)	0.038*(3.642)	0.082*(7.864)
controlled variable	control	control	control	control	control	control
Annual/Industry Fixed Effects	control	control	control	control	control	control
observed value	5777	11115	8642	8250	8446	8446
adjust R^2	0.132	0.154	0.156	0.134	0.142	0.158
P-value for inter-group differences	0.002*		0.008*		0.001*	

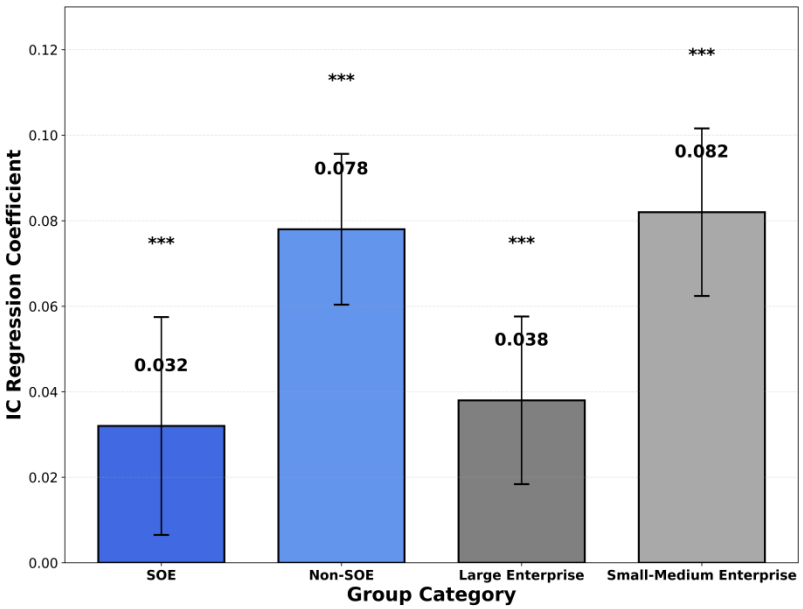


Fig 5. Comparison of regression coefficients of different property rights and enterprise scales

Figure 5 shows that the regression coefficients for the non-state-owned enterprise group are significantly higher than those for the state-owned enterprise group, while those for the small and medium-sized enterprise group are significantly higher than those for the large-scale enterprise group. This clearly demonstrates the heterogeneous characteristics of ownership structure and enterprise size, indicating that the enhancing effect of internal control on accounting information transparency is more pronounced in non-state-owned enterprises and small and medium-sized enterprises.

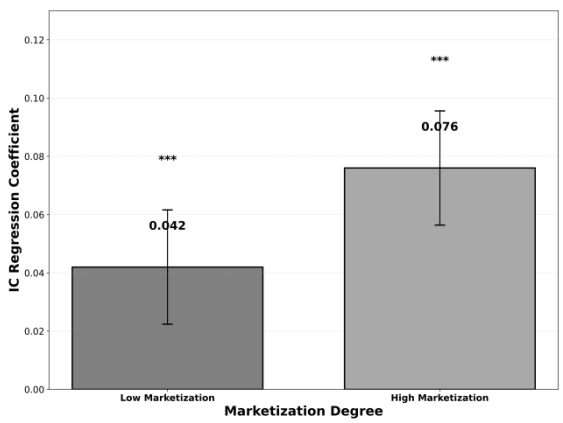


Fig 6. Comparison of regression coefficients of different marketization degrees

Figure 6 shows that the regression coefficients for the highly marketized region group are significantly higher than those for the less marketized region group, clearly demonstrating the heterogeneous nature of marketization levels. This indicates that a well-developed market environment enhances the governance

effects of internal controls and further strengthens their role in promoting accounting information transparency.

4. Conclusion

High-quality internal control exerts a significant positive influence on corporate accounting information transparency, a conclusion that remains valid after endogeneity testing and multiple robustness checks. Internal control enhances transparency primarily through three mechanisms: curbing earnings management, reducing agency costs, and improving information disclosure quality, with earnings management suppression serving as the core transmission pathway. These three mechanisms collectively form a comprehensive framework explaining how internal control affects accounting information transparency. Heterogeneity analysis reveals that the positive impact of internal control on transparency varies substantially across contexts: the effect is more pronounced and marginally stronger in non-state-owned enterprises, highly market-oriented regions, and small and medium-sized enterprises.

References

[1] Guo Changsheng. Research on the Impact of Internal Control on the Quality of Corporate Financial Accounting Information [J]. Fortune Era, 2026, (01):36.

[2] Gai Da Jiang. Analysis of the Impact of Corporate Accounting Information Quality on Internal Control Effectiveness [J]. Market Weekly, 2025,38(33):44-47.

[3] Sheng Xueqian. Research on the Impact of Internal Control on the Quality of Corporate Accounting Information Disclosure: A Case Study of Company A [D]. Anhui Agricultural University, 2025.

[4] Ye Xiangxing. Research on the Problems and Solutions of Internal Control in Improving the Quality of Corporate Accounting Information [J]. China Agricultural Accounting, 2025,35(08):72-74.

[5] Yang Shanshan. Research on the Quality Issues of Corporate Accounting Information from the Perspective of Internal Control [J]. Modern Business Research, 2024, (05):101-103.