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Study on the Influence Mechanism of Digital Intellectualization on Accrual Surplus Management in Enterprises with Different Ownership Properties

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Abstract

For a long time, information asymmetry has become a deep-rooted problem in modern enterprise management. It not only distorts market behavior, but also harms the value of the enterprise itself. With the rapid development of digital technology, enterprises have unprecedented opportunities to change financial information processing and disclosure, and digital technology such as big data and artificial intelligence is expected to alleviate the information asymmetry problem. In this study, we focus on the impact of digital intelligence on accruals management in firms with different ownership properties, and conduct an empirical analysis using panel data of Chinese A-share listed firms from 2012 to 2022. It is found that, firstly, Numerical Intelligence significantly inhibits firms' surplus management; secondly, with the addition of the moderating variable of property rights nature, Numerical Intelligence has a more significant inhibitory effect on firms' incentives to manage surplus; thirdly, heterogeneity analyses conclude that Numerical Intelligence's inhibitory effect on firms' surplus management is more pronounced in non-state-owned firms. Based on this, this study suggests that in order to further alleviate the problem of corporate information asymmetry, it is necessary to further deepen the level of enterprise's own Numerical Intelligence, improve the supervision of Numerical Intelligence, construct differentiated regulatory policies, and safeguard the rights and interests of the relevant stakeholders of the enterprise, so as to further optimize the synergistic development of corporate governance.

Keywords: digital intellectualization, accrual surplus management, different ownership properties

1. Introduction

1.1 Introduce the Problem

Information asymmetry has been a deep-rooted problem in modern enterprise management. Since corporate management usually holds more financial information than outside stakeholders, this information asymmetry often leads to speculative surplus management by enterprises to maximize their personal or organizational interests, especially in the environment of high pressure in the capital market, corporate managers may smooth profits or cover up unfavorable financial conditions through surplus management, thus affecting the authenticity and transparency of financial reporting.. Such behavior not only distorts the market's judgment of corporate operations, but also damages the long-term value of the firm itself[1]. In response to this situation, both the 14th Five-Year Plan and the 2035 Vision and Goals emphasize the importance of "compliance" in enterprise management, reflecting the importance of the national strategic level in the management of corporate compliance surplus. The in-depth integration of digital and intelligent technologies provides an opportunity to mitigate market-unfriendly surplus management, and enterprises have unprecedented opportunities for change in the processing and disclosure of financial information. Through technologies such as big data and artificial intelligence, the application of digital intelligence can be expected to alleviate information asymmetry, thereby enhancing the accuracy of enterprises' external disclosure of information[2]. At the same time, the regulatory role played by digital intelligence through blockchain, big data and other platforms can effectively improve corporate financial transparency and enhance the ability of outsiders to trace corporate information back to its source, thus inhibiting corporate surplus management.

Existing studies have mostly explored the impact mechanism of Numerical Intelligence (NI) on corporate surplus management at the macro level, but there is still insufficient research on how NI can inhibit surplus management by improving information transparency in enterprises with different property rights. In particular, state-owned

enterprises (SOEs) and non-state-owned enterprises (NSOEs) show large differences in information disclosure, governance structure, and incentive mechanism, which makes the application of Numerical Intelligence in these two types of enterprises have different effects, which in turn affects surplus management. Therefore, this paper aims to explore how Numerical Intelligence affects surplus management in state-owned and non-state-owned enterprises. Specifically, this paper takes A-share listed companies from 2012 to 2022 as a sample, firstly, to explore the impact of digital intelligence on corporate surplus management, and secondly, to explore the difference in the impact of digital intelligence on enterprises with different property rights, and to reveal the different mechanisms of its impact on surplus management, with a view to providing theoretical support for the practice of corporate surplus management, and providing some empirical evidence for the policies of the governmental departments.

1.2 Describe Relevant Scholarship

1.2.1 Earnings Management

In recent years, scholars at home and abroad have paid more and more attention to the research related to surplus management, and there is a trend of multi-level and depth research. At the connotation as well as the characteristic level, surplus management is the managers through the selection of accounting policies, or take practical measures to influence the surplus has realized some specific surplus reporting objectives [12]. Based on the reality level, there are two main ways for enterprises to carry out surplus management: one is the accrual surplus management, this method by changing the enterprise accounting policy or accounting estimates, thus changing the enterprise's profit time distribution; rather, it is the real surplus management will be integrated into the surplus management mode of daily business activities, relying on changing the real operating conditions of the enterprise to realize the surplus manipulation, there are mainly sales manipulation, expense manipulation and production There are mainly three modes of sales manipulation, expense manipulation and production manipulation. The influencing factors of corporate surplus management are mainly divided into two categories: internal governance mechanisms and external governance mechanisms: high-quality internal control[3], equity incentives[4], and the degree of shareholding concentration[5], and other internal corporate governance mechanisms can effectively influence corporate surplus management. Meanwhile, external governance mechanisms such as value-added tax[6], tax collection and management[7], and analysts' attention[8] also have a certain impact on corporate surplus management. In recent years, surplus manipulation for the purpose of whitewashing financial statements is not uncommon, and surplus management, as an effective information mechanism to external stakeholders to convey information about the enterprise, plays a pivotal role for investors as well as economic and social development, and thus, how to better apply surplus management has also become a problem that needs to be solved urgently by the academic community.

1.2.2 Digitization

Digital intelligence is the integration and upgrading of digitization and intelligence, a strategic organizational form with high innovation, strong permeability and wide coverage, and is regarded as an important engine to lead the new round of technological and industrial revolutions. It realizes data-driven management and analysis through the integration of digital and intelligent technologies, optimizes the economic growth mode and social governance structure, and promotes high-quality development. Relying on technologies such as big data and artificial intelligence, digital intelligence is considered to have two main characteristics: improving information transparency and strengthening regulation[9]. Specifically, Luo Jinhui and Wu Yilong point out that digital intelligence can alleviate the limitations of the "pyramid" hierarchical structure, and by exposing the management's surplus management activities of the company to the eyes of all departments, it can restrain the self-interested behavior of managers and show "governance effects", inhibiting the true surplus of the enterprise. It can restrain the self-interested behavior of managers and show "governance effect", which inhibits the real surplus management of enterprises[10]. Xin Chunhua et al. believe that with the help of digital intelligence technology, it can broaden the external supervision channels, strengthen the supervision, and effectively alleviate the problem of information asymmetry in the investment process.

Through the collation of previous literature, it is found that domestic and international studies on the influencing factors of surplus management present diverse characteristics, and there are also studies from the financial services digital intelligence to explore the impact on corporate surplus management behaviors, but there is little literature from the perspective of the nature of corporate property rights to explore the impact on corporate surplus management. Can digital intelligence truly curb surplus management? Is the intensity of the impact of Numerical Intelligence on the surplus management of both state-owned and non-state-owned enterprises consistent? This paper will further explore these questions.

2. Method

2.1 Theoretical Analysis and Research Hypothesis

The level of corporations' digital intelligence has a significant impact on the size and difficulty of corporate surplus management costs. On the one hand, an increase in the level of digital intelligence of enterprises will bring about an increase in the transparency of their information[11]. Through big data, cloud computing and other technologies, it improves the transparency of information within the enterprise and the convenience of data processing, alleviates the problem of information asymmetry, and intensifies the risk of illegal surplus management by the enterprise. At the same time, with the characteristics of fast information dissemination speed and wide dissemination range of digital intelligence technology, enterprises will pay a greater loss of reputation, and enterprises will be classified as high-risk objects in the credit assessment, which will exacerbate the problem of enterprise financing difficulties. On the other hand, the improvement of the level of enterprise digital intellectualization can promote the dynamic ability of enterprises. The use of big data, artificial intelligence, blockchain and other technologies can improve the sensitivity of enterprises to detect the external environment, such as market trends, customer demand and competitors' situation, and identify financial risks and anomalies earlier, so that they can take preventive facilities in time and reduce the incentives for surplus management. Based on this, this paper proposes hypothesis H1:

H1: The higher the level of development of digital intelligence, the lower the degree of management of corporate accrued surplus.

Based on the above analysis, from the perspective of information disclosure, there are great differences between both state-owned enterprises and private enterprises. In order to better examine the factors affecting the management of corporate accrued surplus by digital intellectualization, this paper includes the property rights factors into the theoretical framework as well.

State-owned enterprises in the disclosure of information not only face the market supervision, but also need to face the government and state-owned assets management organization of multiple supervision, compared with private enterprises, it was found that the risk of illegal surplus management is greater, the incentive to carry out surplus management is weaker. At the same time, the government will carry out a certain policy tilt to state-owned enterprises, state-owned enterprises, whether to the bank to obtain loans and financing or equity financing in the capital market have an advantage, which leads to state-owned enterprises financing constraints are relatively weak. From another point of view, due to the policy tilt, state-owned enterprises in the market facing the competitive pressure is also weaker, but also reduces its incentives to carry out the management of accrued surplus. As a result, this paper proposes hypothesis H2:

H2: The inhibitory effect of digitization on firms' accrual surplus management is more significant in state-owned firms

2.2 Sample Selection and Study Design

2.2.1 Sample Selection and Data Sources

This paper selects China's Shanghai and Shenzhen A-share listed companies as the research sample, and further screens 2012-2022 as the sample research interval. The financial data are from CSMAR database, and the annual reports required for text analysis are from Juchao.com. Based on this, the sample is cleaned as follows: (1) excluding the financial industry, ST and *ST as well as enterprises with serious missing data during the sample period; (2) excluding enterprises with missing key variables; (3) applying upper and lower 1% shrinking tail treatment to all continuous variables.

2.2.2 Model Setup

To verify H1, model (2) is constructed:

$$DD_{i,t} = \beta_0 + \beta_1 Intel_{i,t} + \beta_2 controls_{i,t} + \beta_3 year_t + \beta_4 firm_t + \varepsilon_{i,t} \quad (2)$$

In order to verify H2, based on model (2), the dummy variable nature of firm's ownership is introduced (Soe)

$$DD_{i,t} = \beta_0 + \beta_1 Soe_{i,t}\beta_1 Intel_{i,t} + \beta_2 controls_{i,t} + \beta_3 year_t + \beta_4 firm_t + \varepsilon_{i,t} \quad (3)$$

2.3 Indicator Construction

2.3.1 Explained Variable: Accrued Surplus Management

In this paper, we refer to Dechow and Dichev's methodology for model (1) stepwise regression by year and by industry, the residuals are defined as manipulable accrued profits, and the absolute value of the residuals is used to measure the degree of firms' accrued surplus management (denoted by DD).

$$\frac{\Delta WC_{i,t}}{TAST_{i,t}} = \alpha + \frac{\beta_1 CFO_{i,t-1}}{TAST_{i,t}} + \frac{\beta_2 CFO_{i,t}}{TAST_{i,t}} \frac{\beta_3 CFO_{i,t+1}}{TAST_{i,t}} + \varepsilon_{i,t} \quad (1)$$

where WC represents the firm's working capital (equal to zero operating profit before depreciation and amortization minus net cash flow from operating activities), CFO represents the firm's net cash flow from operating activities, and TAST represents the firm's average total assets at the beginning and end of the year.

2.3.2 Explanatory Variables: Digital Intellectualization

Drawing on the research of Wu Fei, Yu Baojun, and Wang Ziyin, this study organizes the annual reports of all A-share listed companies, classifies digital intelligence technology into five dimensions: digital intelligence business scenario application technology, artificial intelligence technology, big data technology, cloud computing technology, and blockchain technology, and constructs a keyword library of digital intelligence technology for text retrieval. Further, with the help of the Jieba function of Python software, the annual reports of each listed company are text-processed to obtain the measurement indexes of digital-intelligent transformation. Considering the typical "right-skewed" characteristics of this data, this paper is logarithmized. The specific thesaurus is shown in the following figure:

Table 1. Numerical Intelligence Keyword System

Digital Intelligence Business Scenario Application Technology	
Mobile Internet, Industrial Internet, Internet of Vehicles, Mobile Internet, System Integration, Data Management, Data Platform, Data Center, Digital Control, Digital Communication, Digital Network, Digital R&D, Digital Terminal, Internet Healthcare, E-commerce, Mobile Payment, Third-Party Payment, NFC Payment, Intelligent Energy, B2B, B2C, C2B, C2C, O2O, Internet Connection, Intelligent Wearable, Intelligent Agriculture, Intelligent Transportation, Intelligent Healthcare, Intelligent Customer Service, Intelligent Home, Intelligent Investment, Intelligent Literature and Tourism, Intelligent Logistics, Intelligent Environmental Protection, Intelligent Grid, Intelligent Marketing, Intelligent Energy, Intelligent Center, Intelligent Factory, Intelligent Talent, Intelligent Products, Intelligent Warehousing, Intelligent Supervision, Driverless, Autonomous Driver, Intelligent Speaker, Intelligent Chip, Intelligent Search, Intelligent Space, Intelligent Data, Intelligent Service, Intelligent Production, Smart Control, Smart Manufacturing, Smart Mobility, Smart Management, Smart Warehousing, Smart Technology, Smart Devices, Smart Grid, Mass Customization, Digital Ecosystems, Automation, Integration, Automation, Automated Control, Automated Monitoring, Automated Surveillance, Automated Inspection, Automated Production, CNC, Integration Control, Industrial Cloud, SAP, ERP, MES, PDM, SRM, CRM, SCM, RFID, digital marketing, unmanned retail, internet finance, digital finance, Fintech, fintech, quantitative finance, open banking	
artificial intelligence (AI) technology	big data technology
Artificial Intelligence, Business Intelligence, Image Understanding, Investment Decision Aids, Intelligent Systems, High-end Intelligence, Industrial Intelligence, Intelligent Terminals, Intelligent Troubleshooting, Digital Intelligence, Intelligent Data Analytics, Intelligent Robotics, Machine Learning, Deep Learning, Semantic Search, Biometrics, Face Recognition, Voice Recognition, Acoustic Recognition, Speech Synthesis, Identity Verification, Natural Language Processing, Neural Networks, Computer Vision, Robotic Process Automation, Support Vector Machines, Long and Short Term Memory, AIGC, AIoT, Multimodal Large Models	Data, data management, data analytics, text mining, information systems, data networks, data platforms, data centers, data science, big data, data mining, text mining, data visualization, heterogeneous data, credit, augmented reality, mixed reality, virtual reality, digital twins
Cloud Computing Technology	blockchain technology
Cloud Computing, Edge Computing, Streaming Computing, Graph Computing, In-Memory Computing, Multi-Party Secure Computing, Brain-Like Computing, Green Computing, Cognitive Computing, Converged Architecture, Billion Levels of Concurrency, EB Levels of Storage, Internet of Things, Information Physical Systems, Cloud Native, Cloud IT, Cloud Ecosystem, Cloud Services, Cloud Platforms	Blockchain, Digital Currency, Digital RMB, Virtual Currency, NFT, Distributed Computing, Distributed Systems, Differential Privacy Technology, Homomorphic Encryption, Asymmetric Encryption, Smart Financial Contracts

2.3.3 Moderating Variable: Nature of Property Rights

This paper determines whether an enterprise is a state-owned enterprise in accordance with the actual controller information downloaded from the Juchao website, and in accordance with the criterion that the number of main controllers of the enterprise related to the state-owned is greater than or equal to one. In this paper, the variable is set as a dummy variable, which is set as 1 for state-owned enterprises and 0 for non-state-owned enterprises.

2.3.4 Control Variable

In this paper, in the regression model, with reference to existing studies, we control for factors that may affect corporate surplus management: firm size (Size), gearing ratio (Lev), return on equity (ROE), equity checks and balances (Balance), and management expense ratio (Mfee). The above factors are thus used as control variables.

The variables are specified in Table 2.

Table 2. Variable Description

Variable type	variable symbol	variable name	Variable Definition
explanatory variable	DD	Accrued surplus management	Absolute value of manipulable accrued profits calculated by the DD model
explanatory variable	Intel	Enterprise Digital Intelligence Level	Logarithmic frequency of Numerical Intelligence words in the annual report.
moderator variable	Soe	Nature of enterprise ownership	Dummy variable, set to 1 for state-owned enterprises and 0 for non-state-owned enterprises
control variable	Size	Enterprise size	Total assets in logarithms
	Lev	gearing	Total assets at year-end/total liabilities at year-end
	ROE	return on net assets	Corporate profit/average net worth
	Balance	Shareholding checks and balances	Sum of shareholdings of the second to fifth largest shareholders/shareholding of the first shareholder
	Mfee	management cost ratio	Administrative expenses/operating income

3. Results

3.1 Analysis of Empirical Results

3.1.1 Descriptive statistics

According to the descriptive statistics in Table 3, the mean value of the level of accrued surplus management (DD) is 0.082 and the standard deviation is 0.205, indicating that there is a wide variation in the level of accrued surplus management in the sample. The minimum value is 0 and the maximum value is 15.7567, indicating that there are a few companies that may engage in excessive accrued surplus management in some years. The mean value of the level of intel (Intel) is 3.528, the standard deviation is 0.895, the minimum value is 0, and the maximum value is 7.236, which indicates that the level of intel varies among firms, and that this variation will affect the management of corporate surplus.

Table 3. Descriptive Statistics

variant	observed value	average value	(statistics) standard deviation	minimum value	maximum values
DD	29, 387	0.0819939	.2045012	0	15.7567
Intel	29, 387	3.528035	.8945203	0	7.235619
Size	29, 387	1.80e+10	8.78e+10	3083701	2.67e+12
Lev	29, 387	0.4084554	.2075458	-0.087195	1.340286
ROE	29, 387	0.0130823	.1497175	-21.13031	0.842163
Balance	29, 387	0.7270417	.6009482	0.0031	4
Mfee	29, 387	0.1359016	1.447081	0	202.1766

3.2 Results of Empirical Tests

Table 4. Results of regression analysis between the level of digitization and the management of corporate accrued surplus

	(1) DD	(2) DD	(3) DD	(4) DD
Intel	-0.003**	-0.004***	-0.002*	-0.003***
	(-2.0693)	(-2.9720)	(-1.8032)	(-2.5909)
Balance			0.001	-0.001
			-0.7365	(-0.3874)
Lev			0.015**	0.023***
			-2.0164	-2.889
Size			-0.000***	-0.000***
			(-5.8316)	(-4.7377)
ROE			0.004	0.004
			-1.4987	-1.5235
Mfee			0.002	0.002
			-1.2208	-1.2092
Soe		-0.011***		-0.013***
		(-4.1422)		(-4.3987)
Constant	0.091***	0.099***	0.084***	0.090***
	-19.939	-21.1137	-13.6854	-15.0593
N	29387	29387	29387	29387
Adjustd_R2	0	0.001	0	0.001

Note. ***, **, and * indicate 1%, 5%, and 10% significance levels, respectively. The t-values are in parentheses.

Table 4 reports the regression results of the fixed effects model (2) of the level of firms' digitization on the management of firms' accrued surpluses, where column (1), no control variables are added, column (2), the moderating variable of the nature of property rights is added, column (3), all of the paper's control variables are added on top of the no moderating variables, and column (4), the regression of the paper's control variables are added on top of the moderating variables. Results. As can be seen in Table 4, in the absence of control variables, the coefficient regression results of the level of digital intelligence is significantly negative at the 5% level; in the case of considering all the control variables, the level of digital intelligence on the management of corporate accrued surpluses is significantly negative at the 1% level, which indicates that the corporate digital intelligence

plays a significant inhibitory effect on the management of corporate surpluses, and the H1 has been proved; in the case of considering the nature of the property rights of the moderator variable, the level of digital intelligence is significantly negative at the 1% level, which indicates that corporate digital intelligence for corporate surplus management plays a significant inhibitory effect, and H1 has been proved. In the case of considering the moderating variable of the nature of property rights, the coefficient regression result of the number of intellectualization level is significantly negative at the 1% level, which indicates that the nature of property rights also plays a significant benefit for the enterprise's surplus management, H2 is proved.

3.3 Robustness Check

This paper adopts the form of replacing the explanatory variables for the robustness test, based on the modified Jones model (Dechow et al., 1995) measured non-manipulable accrued profits as a proxy variable for corporate accrued surplus management, and the results of its residual term regression are shown in column (2) of Table 5: Corporate Numerical Intelligence suppresses the corporate accrued surplus management at the significance level of 1%, which strongly supports the robustness of the The robustness of the inhibitory effect of Numerical Intelligence on surplus management is strongly supported by the fact that corporate Numerical Intelligence has an inhibitory effect on surplus management.

Table 5. Robustness Tests for Replacement Variables

	(1) DD	(2) NDD
Intel	-0.003*** (-2.5909)	0.004*** -2.6883
Soe	-0.013*** (-4.3987)	-0.010*** (-7.6395)
Balance	-0.001 (-0.3874)	0.007 -1.3276
Lev	0.023*** -2.889	-0.013*** (-3.6820)
Size	-0.000*** (-4.7377)	0 -0.548
ROE	0.004 -1.5235	-0.004 (-0.7290)
Mfee	0.002 -1.2092	0.001** -2.4587
Constant	0.090*** -15.0593	-0.014*** (-4.6090)
N	29387	29384
Adjustd_R2	0.001	0.003

Note. ***, **, and * indicate 1%, 5%, and 10% significance levels, respectively. The t-values are in parentheses

3.4 Heterogeneity Analysis

3.4.1 Corporate Property

Table 6. Firm Heterogeneity Test

	(1) DD (non-State)	(2) DD (State-owned)
Intel	-0.005*** (-2.8440)	0 (-0.1836)
Balance	0 -0.1646	-0.004 (-1.1561)
Lev	0.021* -1.9499	0.024** -2.3864
Size	0 -0.1452	-0.000*** (-5.6803)
ROE	0.007* -1.849	-0.005 (-0.7744)
Mfee	0.002 -1.023	0.002 -1.3285
Constant	0.094*** -11.8919	0.068*** -7.8718
N	18946	10441
Adjustd_R2	0.001	0

*Note.****, **, and * indicate 1%, 5%, and 10% significance levels, respectively. The t-values are in parentheses.

The above empirical studies show that corporate numerical intelligence can effectively curb accrual surplus management. The nature of enterprise property rights is the key institutional context that affects the choice of surplus management strategy. State-owned enterprises (SOEs) enjoy implicit protection of policies and tilted market resources, which weakens the driving effect of market constraints on the behavior of corporate surplus management; whereas non-SOEs, especially science and technology-based small and medium-sized enterprises (SMEs), have long been facing difficulties in financing due to the high-risk nature of innovation activities. This structural contradiction pushes them to carry out profit whitewashing through surplus management in order to obtain external disposable resources. This difference leads to a fundamental difference in the impact of the technology dividend on the two types of subjects. This leads to two propositions that need to be tested. How can the level of digital intelligence of the firm itself have a dampening effect on the surplus management of firms with different ownership natures? As can be seen from Table 6, the inhibitory effect of the level of enterprise digitization on the surplus management of non-state-owned enterprises is significant at the 1% level, while the effect on the surplus management of state-owned enterprises is not significant. This confirms that enterprise numerical intellectualization suppresses the accrual surplus management motive of non-state-owned enterprises by alleviating their financing constraints and thus suppressing their accrual surplus management motive.

4. Discussion

4.1 Findings

Based on the panel data of China's A-share listed companies in Shanghai and Shenzhen from 2012 to 2022, this paper investigates the impact effect and channel mechanism of enterprise numerical intelligence on the management of corporate accrued surplus in the context of enterprises with different property rights nature, and mainly draws the following conclusions: firstly, enterprise numerical intelligence significantly inhibits the

enterprise's surplus management; secondly, the moderating effect of enterprise numerical intelligence on corporate surplus management is even more significant with the addition of the moderating Second, with the addition of the moderating variable of property rights, the inhibiting effect of Numerical Intelligence on the motivation of enterprises' surplus management is more significant; Third, the conclusion of heterogeneity analysis concludes that the inhibiting effect of Numerical Intelligence on the surplus management of enterprises is more significant in non-state-owned enterprises.

4.2 Enlightenment

The findings of this paper provide multi-dimensional insights for promoting the upgrading of China's corporate digital intelligence, optimizing the corporate governance system, improving the quality of accounting information disclosure as well as protecting the rights and interests of stakeholders, and promoting the high-quality development of the national economy.

First, deepen the digital transformation of enterprises and improve digital supervision. Coordinate and promote the digital intelligent transformation strategy from the policy level, focus on the innovation of technology implementation path, strengthen the application of artificial intelligence, blockchain, and cloud computing in enterprise supervision, promote the deep integration of accounting standards and blockchain ledger technology, establish a tamper-evident financial data deposit chain, and automatically trigger the transaction review mechanism through smart contracts, so as to form a financial transparency guarantee system based on distributed ledger, and reduce the incentives and behaviors of enterprise surplus management. management motivation and behavior.

Secondly, enterprise regulation needs to be differentiated according to the nature of enterprise property rights, so as to better protect the interests of relevant enterprise stakeholders. Specific measures are as follows: First, for state-owned enterprises, promote the in-depth docking of regulatory data with the state-owned big data platform, and build a two-way empowerment mechanism of "system codification - technology penetration". At the technical level, embedding smart contracts to codify the rules of state-owned assets supervision, and at the same time building a real-time monitoring data system to identify abnormal asset transfers. At the institutional level, we have established a "three-rights separation" data rights framework, differentiated between encrypted transmission of confidential data and public data, and incorporated data quality and algorithm transparency indicators into the assessment system. The combination of system and wisdom, a two-pronged approach, thus cracking the traditional regulatory time lag problem, but also the institutional advantages into the effectiveness of governance; Second, for non-state-owned enterprises, the need to increase its regulatory efforts, at the technical level, to promote the high level of transformation of the enterprise digital intelligence, improve the transparency of corporate financial data. At the institutional level, a tiered governance standard of "basic data sharing obligations - authorized use of commercial data - independent isolation of core data" should be established, and the compliance response speed and data quality scores of enterprises should be incorporated into the enterprise credit assessment system. Technology and compliance are nested within each other, alleviating the dilemma of adverse selection triggered by information asymmetry, and transforming market constraints into endogenous compliance incentives, inhibiting the behavioral motives of non-state-owned enterprises to obtain excess returns through inappropriate surplus management, and shaping a closed loop of market-based regulation of "data credit enhancement - compliance consciousness".

Thirdly, the construction of a digitalized accounting governance system to promote the high-quality development of the national economy. The inhibiting effect of digital intelligence on corporate surplus management behavior is essentially a process of relying on technological rigidity to enhance the transparency of accounting information. High-quality accounting information not only constitutes the cornerstone of effective pricing in the capital market, but also promotes the high-quality development of enterprises themselves. At this stage, the government needs to strengthen the investment in the digital transformation of state-owned enterprises, but also to strengthen the supervision of non-state-owned enterprises. This three-dimensional corporate governance system of "hard constraints on technology, high transparency of information, and strong empowerment in decision-making" not only compresses the manipulative space of surplus management, but also promotes the benign development of the national economy and injects micro-energy into the high-quality development of the economy.

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