Equity structure, incentive and constraint mechanisms, and corporate agency costs: An empirical study of listed companies in China's textile industry

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ABSTRACT – REZUMAT

Equity structure, incentive and constraint mechanisms, and corporate agency costs: An empirical study of listed companies in China's textile industry

Equity structure forms the basis of governance, while incentive and constraint mechanisms represent its core. Together, they constitute a comprehensive corporate governance system. This study uses data from listed textile firms in China's Shanghai and Shenzhen A-share markets (2013–2024) to construct incentive and constraint mechanism indices via principal component analysis. It explores how equity structure and these mechanisms affect agency costs and examines their interrelationships. Results show that equity structure, incentive mechanisms, and constraint mechanisms all significantly reduce agency costs, with incentives being the most effective. There are complementary effects between equity structure and incentive mechanisms, and substitutability between equity structure and constraint mechanisms, as well as between incentive and constraint mechanisms. Robustness checks confirm the reliability of these findings. Based on these results, we recommend deepening equity-based incentive reforms, improving diversified monitoring systems, and integrating governance mechanisms to maximise marginal governance efficiency. This study not only provides a systematic theoretical foundation and actionable practical solutions for optimising corporate governance in textile enterprises, but also offers a transferable analytical framework to inform governance practices in other sectors.

***Keywords**: corporate agency costs, equity structure, constraint mechanism, incentive mechanism, China's textile industry*

Structura capitalului propriu, mecanismele de stimulare și de constrângere, precum și costurile de agenție corporativă: un studiu empiric privind societățile cotate la bursă din industria textilă din China

Structura capitalului propriu stă la baza guvernanței, în timp ce mecanismele de stimulare și de constrângere reprezintă nucleul acesteia. Împreună, constituie un sistem cuprinzător de guvernanță corporativă. Prezentul studiu utilizează date provenite de la întreprinderile textile cotate pe piețele de acțiuni de tip A din Shanghai și Shenzhen, China (2013–2024), pentru a construi indici ai mecanismelor de stimulare și de constrângere prin intermediul analizei componentelor principale. Studiul explorează modul în care structura capitalului propriu și aceste mecanisme influențează costurile de agenție și examinează interrelațiile dintre acestea. Rezultatele arată că structura capitalului propriu, mecanismele de stimulare și mecanismele de constrângere reduc semnificativ costurile de agenție, stimulentele fiind cele mai eficiente. Există efecte complementare între structura capitalului propriu și mecanismele de stimulare, precum și substituibilitate între structura capitalului propriu și mecanismele de constrângere, precum și între mecanismele de stimulare și cele de constrângere. Verificările de robustețe confirmă fiabilitatea acestor constatări. Pe baza acestor rezultate, recomandăm aprofundarea reformelor privind stimulentele bazate pe capitalul propriu, îmbunătățirea sistemelor de monitorizare diversificate și integrarea mecanismelor de guvernanță pentru a maximiza eficiența guvernanței marginale. Acest studiu nu numai că oferă o bază teoretică sistematică și soluții practice aplicabile pentru optimizarea guvernanței corporative în întreprinderile textile, ci oferă și un cadru analitic transferabil pentru a informa practicile de guvernanță din alte sectoare.

***Cuvinte-cheie**: costurile de agenție ale întreprinderilor, structura capitalului propriu, mecanism de constrângere, mecanism de stimulare, industria textilă din China*

INTRODUCTION

The separation of equity and control is a significant characteristic of modern corporate management. This division maximises the professional advantages of managerial executives but also leads to conflicts between management and shareholders. The agency problem has gradually garnered attention and has become one of the most critical aspects of modern corporate governance theory. The contractual relationship between owners and managers is primarily established through incentives and constraints imposed on management. The relationship between owners and managers regarding incentives and constraints affects the decision costs and benefits for managers, which in turn directly influences their decision-making motivations and effort levels. These factors ultimately impact the performance of the firm.

As a traditional manufacturing sector in China, the textile industry not only directly influences the level of national economic development but also plays a vital role in employment, trade exports, and technological innovation. Accordingly, the "14th Five-Year Plan" and the 2035 Vision Outline have repositioned the textile industry in China: it is described as "a pillar industry for national economic and social development, a foundational industry for improving livelihoods and enhancing quality of life, and a competitive industry for international cooperation and integration". The agency costs of management in textile enterprises have diminished operational efficiency and performance, becoming a primary issue that needs to be addressed in corporate governance. According to results from the Choice database, over the past decade, the proportion of management expenses in listed textile companies has increased by 26.6%, significantly higher than the 15.72% growth rate for the entire manufacturing sector. This indicates that the agency problem in listed companies within the textile industry is quite severe.

Equity structure serves as the cornerstone of corporate governance, encompassing the nature of shareholders and the degree of equity concentration. In this study, it is measured by the proportion of state-owned capital shareholding. Shareholders, as capital investors, hold ownership rights, which in turn grant them claims on residual profits and control. The contractual relationship between shareholders and management is primarily realised through incentive and constraint mechanisms. For shareholders seeking wealth maximisation, designing effective incentive and constraint mechanisms to optimise managerial behaviour and minimise agency costs is a critical issue faced by every company. Using listed textile firms in China as a sample, this study explores how equity structure and incentive-constraint mechanisms influence agency costs and examines their underlying mechanisms.

LITERATURE REVIEW

Under the modern enterprise system, the separation of ownership and management rights leads to the emergence of agency problems, consequently eroding firm value. As a significant component of the corporate landscape, listed textile companies also grapple substantially with the issue of agency costs. Numerous scholars have conducted in-depth research on this topic. Early literature primarily focused on the root causes and manifestations of agency costs. For instance, Jensen and Meckling proposed that the misuse of free cash flow and managerial defensive behaviours are key manifestations of agency problems, which can severely undermine firm value [1]. Subsequent research has progressively delved into the impact of various corporate governance elements on agency costs, providing a rich theoretical foundation for this study. However, there remains scope for improvement in the comprehensiveness, depth, and industry-specific applicability of these analyses.

Ownership structure and agency costs

Ownership structure, as one of the core elements of corporate governance, has attracted significant attention regarding its influence on agency costs. Nevertheless, academic consensus on this issue has yet to be reached. On the one hand, government shareholding has been empirically shown to have a U-shaped relationship with firm value [2]. Within the textile industry, when government ownership is low, insufficient government oversight may provide opportunities for managerial self-serving behaviour, leading to higher agency costs. Conversely, once government ownership exceeds a certain threshold, excessive government intervention in business operations may also impede value enhancement. On the other hand, direct shareholding by the actual controller can effectively mitigate conflicts among shareholders [3]. In listed textile companies, such direct holdings can strengthen the actual controller's motivation and capacity to supervise management, reducing moral hazard and adverse selection problems, thereby lowering agency costs.

Regarding the impact of ownership checks and balances (ownership concentration), existing research conclusions diverge significantly. Some scholars argue that moderate ownership concentration can enhance monitoring effectiveness [4]. In the textile sector, large shareholders possess greater incentives and resources to oversee management, curbing self-serving behaviours. Conversely, other scholars emphasise the role of ownership checks and balances in restraining self-serving actions by large shareholders [5]. The proportion of state-owned shares, a critical dimension of mixed-ownership reforms, exerts a significant influence on governance effectiveness within listed textile companies. Empirical studies confirm that the rational allocation of state-owned shares can improve social security contribution compliance [6], promote green innovation [7], and optimise human capital allocation [8]. This suggests that state-owned shares possess potential advantages in refining corporate governance structures and reducing agency costs. Based on this analysis, this paper proposes Hypothesis H1: The proportion of state-owned shares can effectively reduce agency costs in listed textile companies.

Incentive mechanisms and agency costs

Incentive mechanisms are crucial instruments for alleviating principal-agent problems. Theoretically, principal-agent theory emphasises designing rational incentive mechanisms to align the goals of management and employees with shareholder interests, thereby reducing agency conflicts. Human capital theory posits that effective incentive mechanisms can fully realise the value of human capital and enhance operational efficiency. Empirically, existing literature has yielded numerous findings. Research indicates

that the relationship between managerial ownership ratio and agency efficiency exhibits an inverted U-shape [9]. This suggests that increasing managerial ownership within a certain range can enhance responsibility and monitoring awareness, but excessively high ownership may trigger managerial shortsightedness, detrimental to long-term development. Performance-linked equity incentives can effectively weaken agency conflicts [10]. In listed textile companies, tying management's equity incentives closely to firm performance can motivate them to focus more on operational efficiency, reducing self-serving behaviour. Furthermore, employee stock ownership plans (ESOPs) demonstrate more pronounced effects in technology-intensive textile enterprises [11]. This is likely because, in such firms, employee knowledge and skills are vital to development; ESOPs can actively mobilise employee initiative and creativity, enhancing core competitiveness.

However, existing research still exhibits shortcomings concerning internal variations within incentive mechanisms and industry-specific applicability. In terms of compensation structure design, efficiency and fairness need to be balanced. Excessive pay disparity can easily trigger negative employee sentiment [12]. In the labour-intensive textile industry, stable employee morale is particularly crucial for maintaining production efficiency. Conversely, moderate pay disparity can enhance competitive efficiency [13]. Based on the above analysis, this paper proposes Hypothesis H2: Effective incentive mechanisms can reduce agency costs in listed textile companies.

Constraint mechanisms and agency costs

The impact of constraint mechanisms on agency costs exhibits duality. On the one hand, studies show that strong constraint mechanisms can effectively curb managerial defensive behaviours [14]. For example, establishing robust board of supervisors systems and external audit mechanisms can strictly monitor and constrain managerial actions, reducing behaviours like setting defensive clauses that harm firm value. Furthermore, the synergy between constraint mechanisms and incentive mechanisms can reduce costs [15]. In listed textile companies, reasonable constraint mechanisms can provide safeguards for the effective implementation of incentives, preventing management from taking excessive risks for personal gain. On the other hand, excessive constraints may exacerbate agency conflicts [16]. For instance, overly stringent budgetary constraints might lead management to cut necessary R&D investment to control costs, hindering long-term development.

The pathways through which constraint mechanisms operate primarily involve ownership concentration, checks and balances, and the independent director system. In listed textile companies, moderate ownership concentration can strengthen monitoring effectiveness [4], as large shareholders can leverage their ownership advantage to effectively supervise and constrain management. Ownership checks and balances can restrain self-serving actions by large shareholders [5], protecting the interests of minority shareholders. Additionally, the independent director system plays a vital role within constraint mechanisms. Independent directors, leveraging their independence and expertise, can oversee and balance management decisions, reducing agency conflicts. Nevertheless, existing research pays insufficient attention to the specific manifestations of constraint mechanisms across different industries and the differences in their pathways of action. Accordingly, this paper proposes Hypothesis H3: Sound constraint mechanisms can reduce agency costs in listed textile companies.

The literature review reveals that although numerous scholars have investigated corporate governance efficiency and agency costs in listed companies from various angles, most studies tend to focus on single governance elements. This results in fragmented analyses, and the synergistic interaction mechanisms between these elements remain inadequately explained. Within the specific segment of the textile industry, systematic research on the relationship between ownership structure, incentive-constraint mechanisms, and agency costs is relatively scarce. Therefore, this study focuses on A-share listed textile companies in the Shanghai and Shenzhen stock exchanges. Breaking away from traditional frameworks, it employs principal component analysis to construct comprehensive indices for incentive mechanisms and constraint mechanisms, respectively. It then builds an "incentive-constraint" synergistic governance model to delve into the dynamic interplay between ownership structure, incentive mechanisms, and constraint mechanisms. The aim is to provide more targeted theoretical support and practical guidance for textile enterprises to optimise their corporate governance pathways. This research seeks to bridge the gap in existing studies within this specific sector of the textile industry, offering valuable references and insights for enterprises striving to enhance governance efficiency and reduce agency costs in complex market environments.

RESEARCH DESIGN

Sample selection and data sources

This study selects listed textile companies from China's Shanghai and Shenzhen A-share markets between 2013 and 2024 as research samples. Based on the China Securities Regulatory Commission's "Industry Classification Guidelines for Listed Companies" (2012 revision), firms with the first two-digit codes of 17 and 18 were chosen, representing "Textile Industry" and "Textile, Apparel, and Accessories Industry" enterprises. A total of 93 firms were initially identified. After excluding 26 firms listed for less than five years, 3 firms that were *ST or ST during the study period, and 4 firms with undisclosed relevant data, 60 qualified sample firms remained. Data were sourced from the Choice Financial

Database, the China Stock Market and Accounting Research (CSMAR) Database, and annual reports of listed companies. Data processing was primarily conducted using Stata 17.0, while principal component analysis was performed using SPSSPRO.

Variable definition

The dependent variable in this study is Agency Cost (Agent), measured by the ratio of a firm's administrative expenses to its total operating revenue.

The independent variables include three aspects: Equity Structure (Share), Incentive Mechanisms (Ins), and Constraint Mechanisms (Res). Equity Structure is measured by the proportion of shares held by state-owned major shareholders in the enterprise. Incentive Mechanisms is a composite index derived through principal component analysis based on four underlying variables (see Supplementary Information for details).

Constraint Mechanisms is a composite index derived through principal component analysis based on four underlying variables (see Supplementary Information for details). Control variables include Capital Structure (Form), Asset Turnover Rate (Turn), Growth Ability (Grow), and Profitability (Prof). Detailed measurement definitions are provided in the Supplementary Information.

Principal component analysis

KMO tests and Bartlett's sphericity tests were performed on four indicators of incentive and constraint mechanisms. The KMO values of 0.642 and 0.505 indicate adequate correlations among the indicators for principal component analysis. The Bartlett's sphericity test values of 164.39 and 100.28 are significant at the 1% level, confirming the suitability of the data for principal component analysis. The principal component analysis results are provided in the Supplementary Information.

Model design

To validate the relationship between explanatory variables, their respective factors, and corporate agency costs, we construct Model 1. Each variable predominantly reflects a singular aspect of agency costs. Equity structure, incentive mechanisms, and constraint mechanisms are interrelated. Therefore, it is essential to incorporate interaction terms among these factors into the model. Consequently, we establish Model 2. The specific forms of the models are as follows:

$$Agent_{it} = \beta_0 + \beta_1 Exp_{it} + \beta_m Con_{it} + \varepsilon_{it} \quad (1)$$

$$Agent_{it} = \beta_0 + \beta_1 Exp_{it} + \beta_2 Exp_{a_{it}} \times Exp_{b_{it}} + \\ + \beta_m Con_{it} + \varepsilon_{it} \quad (2)$$

where $Agent_{it}$ represents the agency cost of the i-th company in the t-th year. Exp_{it} includes the equity structure, incentive mechanism, factors of the incentive mechanism, constraint mechanism, and factors of the constraint mechanism for the i-th company in the t-th year. Con_{it} represents the set of control variables.

EMPIRICAL ANALYSIS

Correlation analysis

Table 1 presents the results of the Pearson correlation test. It indicates that corporate agency costs are significantly correlated with all independent variables, highlighting their substantial impact on agency costs. Specifically, equity structure, incentive mechanism, and constraint mechanism exhibit negative correlations with agency costs at a significance level of at least 10%, providing preliminary support for hypotheses H1, H2, and H3.

To avoid multicollinearity, the VIF values for each explanatory variable were checked. The values were found to be below 5. This confirmed the absence of multicollinearity in the model. It also ensured the accuracy of the regression results.

Regression analysis

The regression results for Model 1 are in table 2. Model 1-1 shows a significant negative correlation between the state-owned shareholding ratio and agency costs at the 1% level. This confirms H1, indicating that higher state-owned shareholding helps reduce agency costs. Model 1-2 reveals a significant negative correlation between incentive mechanisms

Table 1

CORRELATION ANALYSIS OF VARIABLES

Variable	Agent	Share	Ins	Res	Form	Turn	Grow	Prof
Agent	1.00							
Share	–0.32***	1.00						
Ins	–0.19***	–0.28***	1.00					
Res	–0.12*	0.30***	–0.09*	1.00				
Form	–0.23***	0.26***	–0.22***	–0.08*	1.00			
Turn	–0.35***	0.15***	0.13**	0.28***	0.2**	1.00		
Grow	–0.11**	–0.29***	0.27**	0.09*	0.12*	0.12***	1.00	
Prof	–0.18*	–0.13**	0.33***	0.10*	–0.26**	0.25***	0.29***	1.00

Note: *, **, and *** respectively indicate significance at the 10%, 5%, and 1% levels (two-tailed).

Table 2

REGRESSION RESULTS OF VARIABLES IN MODEL 1						
Variable		**Model 1-1**	**Model 1-2**	**Model 1-3**	**Model 1-4**	**Model 1-5**
Share		–0.18*** (–3.46)				
Ceo	Ins		–0.24*** (–3.93)	–0.07* (–1.75)		
Msh				–0.11** (–2.34)		
Bsh				–0.24** (–2.48)		
Lsa				–0.18 (–1.44)		
Top	Res				–0.16** (–2.21)	–0.35* (–1.71)
Bal						–0.26** (–2.07)
Sta						–0.13 (–1.46)
Lsc						–0.63** (–2.46)
R^2		0.24	0.23	0.27	0.26	0.16
F-value		33.88	36.57	32.43	35.84	22.21

Note: ***, **, * respectively indicate significance at the 1%, 5%, and 10% levels, with the values in parentheses representing the corresponding z-values. This is consistent with table 3.

and agency costs at the 1% level. This confirms H2, showing that incentives mitigate agency costs. Model 1-4 indicates a negative correlation between constraint mechanisms and agency costs at the 5% level, supporting H3 and showing that constraint mechanisms reduce agency costs.

Comparing Models 1-2 and 1-4, the coefficient for incentive mechanisms (–0.24) is more negative than for constraint mechanisms (–0.16), indicating incentives are more effective in reducing agency costs. Overall, when examining equity structure, incentive mechanisms, and constraint mechanisms independently, all three show negative correlations with agency costs.

The coefficients for both the executive-employee pay gap and the proportion of independent directors are statistically insignificant. In the labour-intensive, low-margin textile industry, the pay gap between executives and employees is inherently constrained, resulting in insufficient incentive flexibility and thus an insignificant Lsa coefficient. Furthermore, state-mandated salary caps further compress the scope for differentiation. Although the average proportion of independent directors exceeds the regulatory minimum, they are composed predominantly of academics or retired officials who lack practical industry operational experience, rendering their supervision perfunctory. However, when the metric is replaced with the “proportion of independent directors with textile industry backgrounds”, it shows a significant negative correlation. This indicates that professional expertise, rather than mere numerical compliance, is the decisive factor driving effective oversight.

Table 3 presents the regression results for Model 2. The economic significance of the results is explained using Models 2-7 and 2-8 as examples. In Model 2-7, equity structure, incentive mechanisms, and constraint mechanisms are all significantly negatively correlated with agency costs. This aligns with the results in table 2. In Model 2-8, these three factors remain significantly negatively correlated with agency costs. Notably, equity structure and incentive mechanisms exhibit significant complementary effects. In contrast, equity structure and constraint mechanisms, as well as incentive mechanisms and constraint mechanisms, demonstrate significant substitutability.

Complementary effects between equity structure and incentive mechanisms. A reduction in equity structure (state-owned shareholding ratio) indicates a decrease in state-owned shares, which are transferred to operators or other entities. This process establishes stock-option incentive mechanisms, addressing the “absent owner” issue and clarifying the incentive provider. Such equity structures inherently possess incentive functions, creating an external incentive effect. They complement internal corporate incentive mechanisms, jointly enhancing managerial efficiency and reducing agency costs.

Substitutability between equity structure and constraint mechanisms. A reduction in equity structure (state-owned shareholding ratio) promotes equity diversification, especially with the participation of heterogeneous shareholders, enhancing equity balance. This equity structure improves corporate constraints and inherently exerts a certain level of constraining

Table 3

REGRESSION RESULTS OF VARIABLES IN MODEL 2								
Variable	**Model 2-1**	**Model 2-2**	**Model 2-3**	**Model 2-4**	**Model 2-5**	**Model 2-6**	**Model 2-7**	**Model 2-8**
Share	–0.24*** (–3.48)	–0.19** (–2.43)	–0.23*** (–4.06)	–0.25*** (–4.80)			–0.21*** (–3.88)	–0.12** (–2.37)
Ins	–0.16*** (–4.23)	–0.18*** (–4.21)			–0.09*** (–2.96)	–0.15*** (–3.41)	–0.14*** (–4.01)	–0.19*** (–3.65)
Res			–0.15*** (–2.69)	–0.16*** (–2.84)	–0.17** (–2.04)	–0.09** (–2.42)	–0.23** (–2.32)	–0.18*** (–2.96)
Share×Ins		–0.14* (–1.75)						–0.28*** (–3.47)
Share×Res				0.34** (2.28)				0.11** (2.37)
Ins×Res						0.25* (1.75)		0.16* (1.86)
R^2	0.28	0.24	0.28	0.22	0.23	0.28	0.24	0.24
F-value	35.63	33.30	35.97	29.68	30.86	34.68	31.59	27.85

effect. When the equity structure has a strong balancing effect, it weakens the role of constraint mechanisms. Conversely, constraint mechanisms can replace the weakly balanced equity structure for more effective constraints.

Incentive and constraint mechanisms exhibit significant substitutability. Effective incentive mechanisms, particularly equity-based incentives, enhance managerial effort and efficiency, thereby reducing agency costs. Constraint mechanisms, under the separation of ownership and control, limit managerial misconduct such as embezzlement, related-party transactions, and excessive perks, also lowering agency costs. Thus, when incentive mechanisms are robust, they can mitigate reliance on constraint mechanisms. Conversely, when incentives are weak, strengthening constraint mechanisms can effectively reduce agency costs.

Robustness test

To further validate the reliability of the empirical results, the following robustness checks were conducted:

(1) Adjusting the sample period. Considering the short-term impacts of the China-U.S. trade friction in 2019 and the global outbreak of COVID-19 in 2020 on the Chinese textile industry, the benchmark model was re-estimated by adjusting the sample period. This involved conducting regression analyses by excluding data from 2019, excluding data from 2020, and excluding data from both 2019 and 2020. The coefficients for equity structure, incentive mechanism, and constraint mechanism in these three scenarios remained consistent with the benchmark model results, indicating the robustness of the findings.

(2) Selecting a subsample. Given the significant differences in economic development levels and policy support environments across China's eastern, central, and western regions, which may influence the study's conclusions, the sample of companies from the central and western regions was excluded. Regression analyses were then performed on the remaining subsample. The estimated coefficients and significance levels of the explanatory variables closely matched those of the benchmark regression, further supporting the robustness of the benchmark model's results.

CONCLUSIONS

Based on data from China's Shanghai and Shenzhen A-share textile firms (2013–2024), principal component analysis was used to construct indices of incentive and constraining mechanisms. Results show that equity structure, incentive mechanisms, and constraint mechanisms all significantly reduce agency costs, with incentive mechanisms being the most effective. The proportion of board members' shareholding and leadership structure significantly curbs agency costs, while CEO/executive shareholding and equity balance are insignificant. Governance interactions reveal complementary effects between equity structure and incentives, and substitutability between equity structure and constraint mechanisms, as well as between incentives and constraint mechanisms.

Research recommendations are as follows:

(1) Deepen the incentive mechanism reform. Establish long-term equity incentive systems targeting management and core employees to strengthen shared interests. Implement differentiated pay systems to balance incentives and internal equity.

(2) Improve monitoring systems. Optimise equity concentration and balance to enhance internal supervision. Refine independent director selection and promote decision-making coordination between chairpersons and general managers.

(3) Synergistic governance mechanisms. Leverage the complementary advantages of equity structure and incentives, and coordinate the substitutability of constraint mechanisms, to maximise the marginal

benefits of governance combinations. This study confirms that multidimensional governance mechanisms hold systematic value in reducing agency costs.

This study is set against the backdrop of China's textile industry, and the generalizability of its conclusions must be evaluated within the context of sector-specific characteristics. The textile sector, characterised by labour intensity, thin profit margins, and policy sensitivity, may amplify the governance effects of state ownership. If applied to high-tech or financial industries, the marginal utility of equity incentives could diminish due to higher compensation benchmarks. Furthermore, the dual-class share structure and strong familial "relational governance" prevalent in textiles may weaken constraint mechanisms, potentially yielding different outcomes in multinational samples with more robust institutions. Future research could introduce moderating variables such as industry competitiveness and technological intensity, while selecting high-R&D sectors like biopharmaceuticals and digital platforms as comparative cases. This approach would help validate the boundary conditions of complementary or substitutive effects between incentive and constraint mechanisms, thereby enhancing the model's generalizability.

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REFERENCES

[1] Jensen, M.C., Meckling, W.H., *Theory of the firm: Managerial behaviour, agency costs and ownership structure*, In: Journal of Financial Economics, 1976, 3, 305–360, https://doi.org/10.1016/0304-405X(76)90026-X.

[2] Tian, L., Estrin, S., *Retained state shareholding in Chinese PLCs: Does government ownership always reduce corporate value?,* In: Journal of Comparative Economics, 2008, 36, 74–89, https://doi.org/10.1016/j.jce.2007.10.003

[3] Bena, J., Ortiz-Molina, H., *Pyramidal ownership and the creation of new firms,* In: Journal of Financial Economics, 2013, 108, 798–821, https://doi.org/10.1016/j.jfineco.2013.01.009

[4] Wang, S., Gao, L., Huang, Y., *Can state-owned shareholders improve social security compliance of private enterprises?* In: Business and Management Journal, 2022, 44, 42–58, https://doi.org/10.19616/j.cnki.bmj.2022.07.003

[5] Bie, A., Yang, S., Luo, X., *Can state-owned shareholders participating in private firms promote green innovation of the enterprises? – Empirical evidence based on the mixed ownership reform of private enterprises*, In: Journal of Central South University(Social Sciences), 2023, 29, 109–122, https://doi.org/10.11817/j.issn.1672-3104.2023.05.010

[6] Zhao, Y., Lai, P., *Can state-owned shareholders promote the upgrading of human capital structure in private enterprises?* In: Journal of Nanjing Audit University, 2024, 21, 44–55, https://doi.org/10.3969/j.issn.1672-8750.2024.01.005

[7] Cheng, K., Sun, H., *Ownership nature, managerial ownership and agency efficiency — measurements and analysis based on stochastic frontier model*, In: Journal of Shanxi University of Finance and Economics, 2012, 34, 97–105, https://doi.org/10.13781/j.cnki.1007-9556.2012.10.007

[8] Wang, S., *Performance-based equity incentives, agency conflicts, and corporate investment efficiency*, In: Communication of Finance and Accounting, 2021, 85, 77–80, https://doi.org/10.16144/j.cnki.issn1002-8072.2021.02.014

[9] Liu, L., Sun, D., Liu, R., *Employee stock ownership plans, agency costs, and corporate innovation performance research*, In: Macroeconomics. 2021, 161–175, https://doi.org/10.16304/j.cnki.11-3952/f.2021.06.014

[10] Niu, X., *Employee benefits, compensation disparities, and corporate innovation output*, In: Communication of Finance and Accounting, 2023, 64–67, https://doi.org/10.16144/j.cnki.issn1002-8072.2023.12.017

[11] Li, S., Lin, N., Yin, J., *The minority shareholders' governance and pay gap within companies – evidence from Non-SOEs*, In: Journal of Hunan University (Social Sciences), 2023, 81–90, https://doi.org/10.16339/j.cnki.hdxbskb.2023.05.011

[12] Zhu, G., Pengm T., Anm, M., *Managerial defence, internal and external constraints, and corporate financial asset holdings – a discussion on the mediating effect of agency costs,* In: Wuhan Finance, 2021, 22–29, https://doi.org/10.3969/j.issn.1009-3540.2021.12.003

[13] Wu, J., Chen, W., *A study on the influencing factors of governance efficiency in listed companies in China – from the perspective of the incentive-constraint mechanism of corporate governance structure*, In: Friends of Accounting, 2018, 37–42, https://doi.org/10.3969/j.issn.1004-5937.2018.10.008

[14] Guan, B., *The impact of equity structure, incentive and restriction on agent efficiency of GEM company: the analysis based on heterogeneous stochastic frontier model*, In: Journal of Harbin University of Commerce (Social Science Edition), 2019, 57, 67, https://doi.org/10.3969/j.issn.1671-7112.2019.01.005

[15] Fan, B., Sun, H., *R&D investment, ownership concentration and company growth*, In: Journal of Harbin University of Commerce (Social Science Edition), 2023, 35–46, https://doi.org/10.3969/j.issn.1671-7112.2023.03.003

[16] Zhu, W., Wei, B., *Directors and executives liability insurance, equity balance degree, and the sustainability of corporate earnings: an empirical study based on A-share listed companies*, In: The Chinese Certified Public Accountant, 2023, 59–66, https://doi.org/10.16292/j.cnki.issn1009-6345.2023.07.013

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