State-Owned Capital Participation in Private Enterprises: A Perspective of Debt Financing

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Abstract: *This study takes debt financing as the entry point and explores the impact of state-owned capital participation in private enterprises from the perspectives of "unarticulated rules" and "articulated rules". The study finds that state-owned capital participation significantly reduces the debt financing costs of private enterprises and expands the scale of their debt financing. This conclusion remains valid after a series of endogeneity and robustness tests. Further analysis of the mechanism reveals that state-owned capital participation improves the debt financing of private enterprises through multiple channels: Enhancing their social reputation, mitigating the "statistical bias" they face, optimizing their information quality, and reducing the "shareholder-creditor" agency problems. This paper conceptualizes these benefits as the "complementary advantages of heterogeneous shareholders". This not only constructs a theoretical framework for "reverse mixed-ownership reform" but also better narrates the Chinese story of "mixed-ownership reform" by adopting a more universally applicable theory of equity structure. Additionally, the paper supplements existing research on the macro- and meso-level relationship between the government and the market by exploring the government's positive role at the micro-level.*

Keywords: *Mixed-ownership reform, reverse mixed-ownership reform, state-owned capital, debt financing, heterogeneous shareholders*

JEL Classification Code: G32, G38
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1. Introduction

In the forty years since the initiation of China's reform and opening-up policies, the country has achieved remarkable economic success, showed by an average annual GDP growth rate of 9.4% and a trade growth rate of 14.8% between 1978 and 2018 (Lin, 2022). However, following years of rapid development, the current economic landscape has entered a new phase termed the new normal characterized by slower growth rates, increased challenges, and pressures from shrinking demand, disrupted supply, and weakening expectations, requiring comprehensive and in-depth reforms. The emphasis of these reforms lies in a transformation of the economic system which focuse on the

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relationship between the government and the market.[1] While classical theories such as Keynesianism (Keynes, 1936), Neoclassicism (Hayek, 1989), and the Theory of Developmental State (Wade, 2004) have extensively discussed this relationship, they are primarily based on Western experiences or East Asian experiences from different historical periods and do not fundamentally analyze and explain China's unique economic practices (Lin, 2010). To construct a theoretical framework capable of guiding modernization in the Chinese context, it is essential to revert to the nation's own history, culture, and national conditions to develop a concept, category, and model of Chinese-style development (Editorial Department of *Social Sciences in China*, 2021). The cultural and national context of China is characterized by a balance between Legalism and Confucianism[2], which in economic terms translates to a balance between the state and the market - the state allows the market to exist and function while simultaneously exerting its dominance (Zheng and Huang, 2021). In this broader context, three types of capital have emerged – the state-owned capital, the private capital, and a middle-ground capital. For a vast country like China, such a tripartite capital structure is a practical choice that aligns with its political, social, and cultural realities.

In light of this, within the existing framework of the political and economic structures, addressing how to further optimize and vitalize both the state and private economies is crucial for building more dynamic and efficient micro-market entities in the context of the new normal. To this end, the "Decision on Major Issues Concerning Comprehensively Deepening Reforms" (hereafter referred to as the *Decision*) adopted by Third Plenary Session of the 18th Central Committee of the Communist Party of China, explicitly advocated for the active development of a mixed-ownership economy. The concept of "mixed ownership" was first introduced in the report to the 15th National Congress of the Communist Party of China in 1997, and was further emphasized as "a significant form of the fundamental economic system" in *the 2013 Decision of the Central Committee of the Communist Party of China on Several Major Issues Concerning Comprehensively Deepening Reforms*. It is obvious that the Party and government have high expectations for a mixed-ownership economy. At the macro-level, the mixed-ownership economy represents the coexistence of state-owned and non-state-owned economies (Mao, 2020), resulting in an economic structure where public ownership ispredominant, developed alongside various other forms of ownership. This study names this situation as a "state-private coexistence". At the micro-level, mixed ownership is reflected in the equity structure of enterprises, where both state and non-state shareholders exist, leading to an equity structure form with "cross-shareholding and mutual integration of state-owned capital, collective capital, and non-state-owned capital". This is referred to in this paper as a "state-private integration". According to the spirit of the *Decision*, the current policy focus is on the "state-private integration" at the micro-equity level. In fact, the "state-private coexistence" at the macro level has always been a part of China's long political and economic history, playing an even more significant role since the reform and opening up. Therefore, whether the mixed-ownership reform moving from a "state-private coexistence" to a "state-private integration" in the context of the new normal can stimulate the vitality of market entities and realize the original policy intention of deepening reforms is a pressing question to be addressed.

In just a few years, mixed ownership has rapidly become a focal point in the fields of Chinese economics and finance studies (Hao and Gong, 2017). Scholars, drawing upon property rights theory (Hart, 1995), government intervention theory (Shleifer and Vishny, 1994), and agency theory (Jensen

[1] Extracted from the Decision of the Central Committee of the Communist Party of China on Major Issues Concerning Comprehensively Deepening Reforms, passed at the Third Plenary Session of the 18th CPC Central Committee.

[2] From the pre-Qin era, the Hundred Schools of Thought, led by Confucianism and Legalism, laid the cultural foundations that shaped China's social structure for two thousand years. In terms of economics, Confucianism advocated for "people-centric" principles, believing that the market's purpose is to increase the welfare of the people and that state intervention in the market is harmful. Legalism, on the other hand, held that the state's goal is to create and maintain social order, with everything, including the economy, serving as a tool to achieve this goal (Chen, 2015; Zheng and Huang, 2021).

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and Meckling, 1976) argue that introducing non-state shareholders into state-owned enterprises can reduce policy burdens (Chen and Tang, 2014; Zhang et al., 2016), enhance the efficacy of executive compensation contracts (Cai et al., 2018), and thereby effectively mitigate dual-agency problems (Chen et al., 2019) and improve corporate performance (Hao and Gong, 2017; Liu et al., 2018). These research findings provide substantial empirical evidence for mixed-ownership reform and explore further directions for policy optimization, marking significant achievements. However, a notable issue in the existing literature is its almost exclusive focus on the introduction of private capital into state-owned enterprises, with scant attention to the other key aspect of mixed-ownershipreform: The entry of state-owned capital into private enterprises. According to the "*Opinions on the Development of Mixed Ownership Economy in State-Owned Enterprises*" issued by the State Council (hereafter referred to as the *Opinions*)[3], mixed-ownership reform is a two-way process, involving not only the introduction of external capital into state-owned enterprises but also the "outward expansion" of state-owned capital. This market-driven outward expansion of state capital is colloquially referred to as "reverse mixed-ownership reform".

The concept of reverse mixed ownership reform suggests an increasing trend of state-owned capital participation in private enterprises. This raises a critical question: What impact does such reform have on private enterprises? The advancement of reform urgently requires theoretical analysis and guidance. From a specific research perspective, difficulties in financing and high financing costs have long been primary challenges faced by private enterprises. To address this, major policy documents from the Party and government have repeatedly emphasized the principle of competitive neutrality[4], which advocates for equal treatment of enterprises of all ownership types in aspects such as factor acquisition. This approach ranges from the 2005 *State Council Opinions on Encouraging, Supporting, and Guiding the Development of Individual, Private, and Other Non-Public Sectors of the Economy*, which called for an increase in financial and fiscal support for the non-public economy, to the 2013 *Decision of the Central Committee of the Communist Party of China on Several Major Issues Concerning Comprehensively Deepening Reforms* thatadvocated to ensure that all types of ownership economies can use production factors equally in accordance with the law, the detailed provisions of the 2019 *Opinions on Strengthening Financial Services for Private Enterprises*, and the 2021 *14th Five-Year Plan for National Economic and Social Development of the People's Republic of China and the Long-Range Objectives Through the Year 2035* that aimed at optimizing the development environment for private enterprises reducing overall financing costs and increasing credit support. The continuous and intensified efforts in policy over the years indirectly confirm that the financing difficulties of private enterprises have not been fundamentally resolved and continue hindering their effective development. Academically, there have been beneficial explorations into the debt financing of private enterprises from various perspectives, including the financial ecological environment (Wei et al., 2014), financial structure (Yao and Dong, 2015), functions of finance companies (Wu and Huang, 2017), and political connections (Yu and Pan, 2008; Yu et al., 2012; Dou et al., 2020). However, apart from a few earlier works like those by Lin and Li (2001) and Bai et al. (2005), most of the literature has focused on finding the factors that can improve the debt financing of private enterprises, lacking an in-depth analysis of the reasons why it is difficult for them to obtain debt financing. Before answering "the reason why", any study on "what to do" might be one-sided. Zhang (2021) noted the difficulty in implementing debt neutrality, with competitive neutrality not translating into actionable regulations. However, he regrettably did not delve further into the deeper underlying reasons from a theoretical perspective. In light of this, we will deeply analyze the factors leading to the financing difficulties of private enterprises, explore why there is a difference between "to

[3] Original text of the Opinions: "Encourage non-public capital to participate in the mixed-ownership reform of state-owned enterprises" and "Encourage state capital to invest in non-state-owned enterprises in various ways".

[4] "Competitive neutrality" refers to "eliminating resource allocation distortions caused by government ownership" (OECD, 2009).

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be" and "ought to be" in the competitive neutrality policy regarding debt financing and, on this basis, investigate the positive impacts that state-owned capital participation in private enterprises under the reverse mixed-ownership reform might bring[5].

In terms of specific research methods, this study uses data from A-share private listed companies in the Shanghai and Shenzhen Stock Exchanges from 2004 to 2019 to empirically test how state-owned capital participation affects the debt financing of private enterprises. The research finds that state-owned capital participation can significantly reduce the cost of debt financing for private enterprises and expand the scale of their debt financing. This conclusion holds valid after a series endogeneity and robustness tests, including difference-in-differences, selection of specific control groups, and changing explanatory variables. Furthermore, the paper explores the mechanisms by which state-owned capital participation affects the debt financing of private enterprises from the perspectives of "unarticulated rules" and "articulated rules" . The results show that state-owned capital participation improves debt financing of private enterprises through multiple channels: Enhancing the social status of private enterprises, mitigating the statistical bias they face, optimizing their information quality, and reducing the "shareholder-creditor" agency problems. The extended research finds that the impact of state-owned capital participation on debt financing is more significant in small and medium-sized enterprises and high-tech companies; state-owned capital participation increases the corporate value of private enterprises by expanding the scale of their debt financing.

This paper makes the following marginal contributions.

First, it discusses the positive role of the government at the micro-level and constructs a theoretical framework for "reverse mixed-ownership reform*"* from the dual perspectives of "complementarity" and "checks and balances". Classical theories on the relationship between government and the market mainly focus on macro and meso-levels. For instance, Keynesianism advocates for active fiscal and monetary policies by the government and central bank to mitigate the disruptions of economic cycles (Keynes, 1936); the Theory of Developmental Statesupports government's implementation of industrial policies to guide the flow of capital (Wade, 2004); Neoclassicism, on the other hand, insists that the government should not intervene in the market since economic fluctuations are caused by micro factors and macro interventions by the government cannot fundamentally solve recession issues (Hayek, 1989). Inspired by Hayek (1989), this paper is dedicated to exploring the positive role of the government at the micro-enterprise level. Specifically, this study uses debt financing as an entry point and focuses on how "reverse mixed ownership reform" affects private enterprises. It theorizes and empirically tests the influence of government participation in private enterprises, considering factors such as the superior social status and reputation of state shareholders (Sun and Tong, 2003; Wang, 2016), higher institutional normativity (Lin and Sun, 2005), lower levels of information asymmetry (Jiang et al., 2016), more corporate social responsibility (Zeng and He, 2021), and more robust investment strategies (Zhou and Yu, 2012). Our study examines the government's positive role at the micro-enterprise level in enhancing the social status of private enterprises, reducing statistical bias, improving their information quality, and lowering their risk-taking, thus constructing a theoretical framework for "reverse mixed-ownership reform" from the dual perspectives of "complementarity" and "checks and balances" .This presents a different research perspective compared to existing studies that view state shareholder participation in private enterprises as "state advances and private sector retreats" (Luo, 2013), or as a resort for private enterprises to

[5] Research on debt financing meets the dual requirements of representativeness and universality. Firstly, "credit discrimination" is a typical problem faced by private enterprises. Debt financing well encapsulates the research theme of "whether state capital participation can alleviate the 'discrimination' faced by private enterprises and thus achieve their 'joint development'". Secondly, the issue of private enterprises facing "discrimination" is typically reflected in the credit market but is not limited to it. Recent government work reports have consistently stated, "Treat all types of enterprises equally in terms of factor acquisition, access permission, operational management, government procurement, and bidding, according to the principle of competitive neutrality". This indirectly confirms that private enterprises face "discrimination" in various dimensions. Therefore, conclusions drawn from research on debt financing are expected to achieve universality from specificity.

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counteract “negative institutional externalities” (Yao et al., 2019), or that only emphasize the “resource effect” brought about by state shareholder participation (Song et al., 2014; Li and Yu, 2017).

Second, this study enriches the theoretical research in the field of equity structure by narrating the Chinese story of “reverse mixed ownership reform” through the universal theory of “complementary advantages of heterogeneous shareholders”. Existing research on equity structure has largely focused on “shareholder relationship models”, such as the “shareholder-manager” model under dispersed ownership structures (Jensen and Meckling, 1976; Cai et al., 2011), the “major-minor shareholder” model under concentrated ownership structures (Johnson et al., 2000; Jiang et al., 2015), and the “mutual checks and balances” or “collusive win-win” models among multiple major shareholders structure(La Porta and Lopez-de-Silanes, 2008; Jiang et al., 2020; Gomes and Novaes, 2006). Similarly, literature on mixed-ownership reform primarily fits within the framework of shareholder relationship models, such as how introducing private shareholders can alleviate the “shareholder-manager” agency problem because of the absence of state enterprise owners (Chen et al., 2019; Shen and Yang, 2019), or how the checks and balances among multiple major shareholders can mitigate the policy burdens caused by government intervention in state-owned enterprises (Zhang et al., 2016; Chen et al., 2019). However, the essence of mixed ownership reform lies in the mixing of state and private shareholders. Discussing mixed ownership reform within the shareholder relationship model does not reveal the crux of the issue; rather, it should be explored from the perspective of “shareholder heterogeneity”. For instance, the presence of multiple major shareholders, even if homogeneous, can mitigate the issue of dominance by a single shareholder through mutual checks and balances. However, the presence of heterogeneous shareholders can not only provide a checks and balances effect but also offer complementary benefits (Zeng et al., 2022). Jiang and Jin (2020), in their review of research on corporate governance issues in China, highlighted the importance of analyzing shareholder heterogeneity. This paper responds to that call and enriches the theoretical study of equity structure. A related topic is how China can better articulate its unique economic development model to the international community using theories that are comprehensible to outsiders. To this end, this study attempts to highlight the impact of state shareholders on private enterprises as “complementary advantages of heterogeneous shareholders”, aiming to use this distinctive concept to better communicate the story of China’s mixed-ownership reform to the world through the more universally applicable theory of equity structure.

Third, this paper provides a systematic analysis of both subjective and objective factors contributing to the financing difficulties and high financing costs faced by private enterprises. The existing literature has mostly analyzed the financing predicament of private enterprises from explicit factors, such as financial structure (“articulated rules”), with little in-depth exploration of implicit factors like cultural influences (“unarticulated rules”), and seldom addressed the shortcomings within private enterprises. This study systematically examines both subjective and objective factors, including the advantages of state-owned enterprises in terms of consciousness and social status shaped by Chinese culture (Bai et al., 2006; Zheng and Huang, 2021); the problem of distinguishing “good borrowers” among private enterprises due to statistical bias (Arrow, 1998; Stiglitz and Weiss, 1981); the low information quality of private enterprises (Yu et al., 2012); and the “asset substitution” issue leading to “shareholder-creditor” agency problems, stemming from the profit-seeking nature of private capital (Jensen and Meckling, 1976; Guo et al., 2017). A systematic and objective investigation into the root causes of private enterprises’ financing difficulties is crucial to identify effective solutions.

The structure of the article is organized as follows: The second section reviews existing literature and proposes research hypotheses based on China’s actual situation, the third section introduces the research design and data sources, the fourth section reports and analyzes empirical results, the fifth section explores the influencing mechanisms, the sixth section further tests key issues, and the seventh section presents conclusions and policy implications.

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2. Theoretical Analysis and Research Hypotheses

Friedrich Hayek distinguished between "articulated and unarticulated rules" (Hayek, 1976). The former refers to rules that exist in written form, while the latter refers to implicit behavior patterns formed over time through cultural sedimentation and not expressed in language. Hayek emphasized that human behavior is influenced not only by the known relationships between certain situations and their consequences but more significantly by implicit rules, hence placing greater importance on unarticulated rules over articulated rules. Similar notions are found in other theories, such as Michael Polanyi's (1958) distinction between "explicit and tacit knowledge", advocating that a significant portion of knowledge in society is implicit and cannot be easily articulated. Joseph Schumpeter (1990) states in "The Theory of Economic Development" that social processes are inseparable wholes, with nothing being purely economic; other dimensions always exist and are often more important.

Specifically, in the lending behaviors of financial institutions, decisions are influenced not only by "articulated rules" or "explicit knowledge", such as the financial status, information quality, and risk-taking level of the borrowing enterprises, but also by "unarticulated rules" or "implicit knowledge". For instance, private enterprises, with lower social status compared to state-owned enterprises, might face more discrimination. Therefore, this study will discuss the impact of state-owned capital participation on private enterprises under both unarticulated and articulated rules.

2.1 State-Owned Capital Participation, Social Status, and Debt Financing of Private Enterprises

Numerous studies have confirmed the prevalent financing constraints in private enterprises, which, compared to state-owned enterprises, receive less funding at a higher cost (Brandt and Li, 2003; Zhu and Lu, 2011). Many attribute this phenomenon to the government-dominated allocation of financial resources (Yu et al., 2012; Yao et al., 2019). This conclusion might have been less controversial in earlier times, but with the deepening of market reforms, when no substantial improvement is observed (Li and Liu, 2009), it is necessary to examine the underlying reasons again. In fact, commercial banks, even state-owned ones (not to mention the numerous joint-stock and city rural commercial banks), have largely become market-oriented entities through shareholding reforms and public listings since 2004, operating independently, bearing their own risks and accountability for their own profits and losses[6]. While in some cases commercial banks may provide special credit support to certain state-owned enterprises owing to factors like pursuing government fiscal deposits; in most cases, commercial banks, as distinct market entities with different interest demands from state-owned enterprises, cannot unconditionally, extensively, and continuously provide credit resources to them. Thus, explaining credit access for state-owned enterprises solely by the bank's subservience to government control is incomplete.

What, then, are the deeper reasons for state-owned enterprises' easier access to credit resources? State-owned enterprises, with the state as their shareholder, compared to private enterprises with individual shareholders, have higher social status and reputation and lower credit risk, making creditors more inclined to allocate financial resources to them. From an institutional economics perspective, in the interaction process of human society, information processing and environmental identification are conducted through preexisting mental constructs - consciousness, cognition, beliefs - and consequently evolve into rules and institutions aimed at simplifying processes and minimizing transaction costs (North, 1990). What constitutes these preexisting mental constructs? History and culture are key components; "all social institutions and phenomena are products of history and culture". Tracing back to Western history, in the struggle between ecclesiastical and royal powers in the Middle Ages, and the rise and success of

[6] By the end of the 20th century, China's banking industry was reborn through reform and transformation. China's banking industry now ranks first globally in total assets, with profit levels and capital quality among the top of comparable global peers (Jiang, 2018).

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the bourgeois revolution in the 17th and 18th centuries, the modern *state* in the West struggled to find its place between the *church* and the *market*; in the relationship between them, the state is permeated and shaped by the market (Xia, 2020). In contrast, tracing back to Chinese history, since the unification of China by Qin Shi Huang, despite numerous turbulent dynastic changes, the core of the political system remained stable; the *state* has always maintained a dominant position in "society", "economy", "military" and other aspects, with the economy embedded within the state and the market under state dominance (Wang, 2014; Zheng and Huang, 2021). Thus, the authority and status of the state in China have been deeply ingrained in the public's mind over thousands of years, internalizing as their behavioral norms and basis. Specifically, in the behavior of creditors lending out funds, creditors and the public spontaneously form a perception that state-owned enterprises have higher status and reputation, as well as lower risks, leading to biased support towards them. Although these behavioral norms are unarticulated, their influence on creditors might even surpass other articulated rules (Hayek, 1976), as Schumpeter (1990) pointed out, "nothing is purely economic; other dimensions always exist and are often more important". Therefore, the credit preference for state-owned enterprises might not necessarily be a passive result of government intervention, but rather an active behavior of creditors stemming from their consciousness and cognition. Gao (2019), using the context of the former China Banking Regulatory Commission's 2009 relaxation of market access for small and medium-sized commercial banks and employing a difference-in-differences approach, found that newly entering small and medium-sized commercial banks (not the five major state-owned commercial banks) were more inclined to lend to state-owned enterprises, especially central state-owned enterprises with higher status, particularly in their first year in the market[7]. This finding provides empirical evidence for the aforementioned hypothesis. Therefore, when private enterprises obtain participation from state-owned capital, transforming from purely private to a mix of state-owned and private ownership, their social status and reputation are expected to significantly improve, potentially alleviating their financing difficulties.

2.2 "Statistical Bias"

Apart from consciousness and cognition, information asymmetry is also a significant factor constraining the debt financing of private enterprises (Bai et al., 2005); they are likely to face "statistical bias" (Arrow, 1998). "Statistical (or group) bias" refers to making inferences about an individual based on the characteristics of the group they belong to. Specifically, most private enterprises are smaller in scale, established for a short period of time, and have fewer collateral assets compared to state-owned enterprises, resulting in greater operational risks (Brandt and Li, 2003). When a private enterprise seeks external financing and the creditor is not well-acquainted with the company, they often judge the specific enterprise based on the group characteristics of private enterprises (small scale, high risk). This statistical bias makes it challenging for private enterprises as a whole to access high-quality debt resources.

When private enterprises receive state-owned capital participation, the situation of *statistical bias* is expected to improve. State-owned capital participation can serve as a signal to the outside world (Song et al., 2014), since private enterprises that receive state-owned capital participation are likely to have certain advantages, whether in leading technology, good cash flow, or strong growth potential, and so on. State-owned capital participation sends a positive signal about the private enterprise's good qualification to the outside world, which helps resolve the creditor's dilemma of determining "who is a good borrower" (Stiglitz and Weiss, 1981).

2.3 Information Quality

Beyond subjective status recognition and statistical bia*s*, many private enterprises also have object

[7] For details, see "Opinions on Adjusting the Market Access Policy for Branches of Small and Medium-Sized Commercial Banks (Trial)" (Banking Regulatory Office Issue [2009] No. 143).

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problems, not limited to chaotic financial statements and the setting up of "multiple accounts" for tax evasion or external financing purposes, but also including infrequent disclosure of non-financial information (Yu et al., 2012). Since the creditors cannot directly take part in the management of the enterprise, the information disclosed by the lenders becomes the main basis for the former to identify and control credit risk. This is an important articulated rule in the debtor-creditor relationship. High-quality accounting information can reduce the information risk for creditors and improve the efficiency of establishing debt contracts, thereby helping enterprises obtain more debt (Li and Chen, 2013; Li et al., 2018). Conversely, companies with poor information quality or engaging in earnings management will be required to provide more collateral and pay higher interest rates for debt financing (Francis, 2005).

State-owned capital participation in private enterprises can enhance information quality. First, as a significant event in the capital market, state-owned capital participation in private enterprises often triggers media follow-up. Media attention can bring about a supervisory effect, helping companies correct irregularities (Li and Shen, 2010). Second, apart from increased media exposure, mixed-ownership reform projects may also attract more analyst coverage. Analysts, as professionals, not only have a stronger ability to interpret public information but can also uncover more confidential information through methods like field research (Chen et al., 2006), thus promoting corporate governance improvement. Third, besides external information governance effects from media and analysts, from an internal information governance perspective, state-owned enterprises are subject to regulation by multiple government departments, such as state-owned assets departments, discipline inspection and supervision departments, audit departments, and finance departments. Compared to private enterprises, state-owned enterprises have higher institutional normativity (Lin and Sun, 2005) and weaker motivations for earnings management (Bo and Wu, 2009). After participating in private enterprises, state-owned capital can actively involve itself in their corporate governance as a "major shareholder", enhancing institutional normativity and internal control quality (Boubakri and Sami, 2011), thereby improving the information quality of private enterprises.

2.4 "Shareholder-Creditor" Agency Problem

The profit-seeking nature of private enterprises leads to a greater asset substitution problem in the use of debt (Jensen and Meckling, 1976). From an agency perspective, creditors in debt financing receive fixed principal and interest and are willing to accept risks commensurate with this fixed return. Shareholders, on the other hand, have residual claim rights on the company's value and, due to limited liability, even in case of investment failure, their losses are capped. Therefore, to maximize their residual claim rights, shareholders are motivated to divert the original debt capital towards projects with higher risks and returns. However, due to information asymmetry and incomplete contracts, creditors cannot effectively restrict this asset substitution behavior (Guo et al., 2017), leading to the "shareholder-creditor" agency problem. Simultaneously, if the management's interests align with those of the shareholders, they are incentivized to undertake riskier investments, further worsening the shareholder-creditor agency problem. Consequently, when a company has a strong tendency towards asset substitution, creditors may reduce debt issuance, shorten debt maturities, and raise interest rate requirements, thereby increasing the company's agency costs. This forms another important articulated rule in the debtor-creditor relationship.

State-owned capital participation in private enterprises can, to a certain extent, help alleviate the shareholder-creditor agency problem. On the one hand, regarding risk-taking by enterprises, state-owned enterprises, unlike private enterprises that purely pursue profit, may consider corporate social responsibilities and pay more attention to stakeholders (creditors, employees, suppliers) (Zeng and He, 2021), choose more conservative investment strategies (Zhou and Yu, 2012), and have a lower level of risk-taking (Li and Yu, 2012; Boubakri et al., 2013). On the other hand, in terms of risk-taking by enterprise managers, the career paths of managers in state-owned enterprises are within a relatively closed system. This means that if they are forced to leave the system due to severe decision-making

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errors, their corresponding benefits are non-transferable. The higher the administrative level of the manager, the greater the non-transferable benefits. Thus, compared to private enterprises, decision-making by state-owned enterprise management is more cautious, and the probability of making rash and aggressive investments is lower. Overall, when state-owned capital participates in private enterprises, the prudent style of state-owned enterprises and the aggressive style of private enterprises are positively integrated at the corporate culture level, effectively reducing the enterprise's risk-taking level and mitigating the shareholder-creditor agency problem.

Based on the above analysis, this study proposes the following hypothesis:

Hypothesis: State-owned capital participation in private enterprises helps to reduce the cost of debt financing and expand the scale of corporate debt financing.

3. Research Design and Data Sources

3.1 Sample Selection and Data Collection

In October 2003, the Third Plenary Session of the 16th Central Committee of the Communist Party of China explicitly proposed to "vigorously develop a mixed-ownership economy"[8]. Based on this directive, we selected the annual data of A-share listed companies in the Shanghai and Shenzhen Stock Exchanges from 2004 to 2019 as the initial sample. The data are processed as follows to suit the research needs:

(i) Only samples in which the controlling shareholder's equity nature at the time of listing is private are retained. (ii) To better explore the impact of state-owned capital participation on private enterprises, samples where the control changed after the entry of state-owned capital are excluded. (iii) Samples from the financial industry are excluded. (iv) Samples with missing data for key variables are excluded. (v) To avoid the impact of outliers, continuous variables are winsorized at the 1% level at both the top and bottom. Data on shareholder nature were manually collected from annual reports of listed companies and the internet. Data on ultimate controllers were sourced from CCER (China Center for Economic Research). Debt financing cost data were obtained from RESSET, and other data were sourced from CSMAR (China Stock Market & Accounting Research database).

3.2 Regression Model

To test the impact of state-owned capital participation on the debt financing of private enterprises and in line with the majority of literature on mixed ownership reforms (Hao and Gong, 2017; Liu et al., 2018; Yang and Yin, 2018; Luo and Qin, 2019), we constructed an Ordinary Least Squares (OLS) regression model (1). The regression sample included cases where private enterprises already had state-owned capital at the time of listing (primary market holding) and situations where state-owned capital newly participated in private enterprises post-listing (such as secondary market purchase and private placement). This approach was adopted because "reverse mixed-ownership reform" is still in its initial stages, and there are few observations of state-owned capital newly participating as major shareholders in private enterprises. Using full sample data under OLS regression, which examines the effects of state shareholder participation in the past, can also provide policy implications for the current "reverse mixed-ownership reform". Furthermore, to enhance the specificity and credibility of the conclusions, in the robustness test phase, we also used observations of state-owned capital newly participating in private enterprises,employing a difference-in-differences (DID) approach to examine the dynamic impact of new entry of state-owned capital. The model (1) is as follows:

[8] The Decision of the Central Committee of the Communist Party of China on Several Issues Concerning Perfecting the Socialist Market Economy System, passed at the Third Plenary Session of the 16th CPC Central Committee, explicitly proposed "vigorously developing a mixed-ownership economy with the participation of state capital, collective capital, and non-public capital".

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$$Cod_{i,t}(Debt_{i,t})=\beta_0+\beta_1 Dsoe_{i,t-1}+\beta Controls_{i,t}+\lambda_k+\lambda_t+\varepsilon \quad (1)$$

In the model, the dependent variables are the cost of debt financing (Cod) and the scale of debt financing (Debt). Regarding Cod, some literature adopts the measurement of interest expense/total short-term and long-term liabilities. However, interest expenses might not fully reflect the actual cost of debt financing for private enterprises, especially in a context where interest rates are not fully marketized. With an upper limit on interest rates, creditors might transfer some costs to other items like service fees, thereby forming the comprehensive financing cost for the debtors[9]. Therefore, following Li and Liu (2009), we measured the comprehensive cost of debt financing as (interest expense + service fees + other financial expenses)/total short-term and long-term liabilities. Moreover, we used total short-term and long-term liabilities to measure the scale of debt financing (Debt), where short-term liabilities include short-term loans and current portions of non-current liabilities on the balance sheet, and long-term liabilities include long-term borrowings, bonds payable, and long-term payables. This approach ensures that the scale of debt financing encompasses not only bank loans but also public debts such as bond issuances, providing a more comprehensive reflection of the company's debt financing situation.

The specific definitions of the variables are presented in Table 1.

Table 1: Definitions of Variables

	Variable name	Definition	Measurement method
Dependent variables	*Cod*	Cost of debt financing	(Interest expense + service fees + other financial expenses) / total short-term and long-term liabilities
	Debt	Scale of debt financing	(Short-term liabilities + long-term liabilities) / total assets at the beginning of the period
Explanatory variables	*Dsoe*	Existence of state-owned majority shareholder	Takes the value of 1 if the largest shareholder is a state-owned entity with a shareholding of at least 5%, and 0 if there is no state-owned shareholder.
	Soeshare	Percentage of state-owned shareholders' ownership	Cumulative ownership percentage of state-owned shareholders
Control variables	*Size*	Company size	Natural logarithm of total assets
	Lev	Leverage ratio	Total debt-to-total assets ratio
	ROA	Return on total assets	Net profit margin
	Cash	Cash flow	Net cash flow from operating activities / current liabilities
	Tang	Fixed asset ratio	Fixed assets / total assets ratio
	Growth	Growth potential	Main business revenue growth rate
	First	Ownership percentage of the largest shareholder	Shareholding percentage of the largest shareholder
	Age	Age of the company at initial public offering	Logarithm of the number of years since listing
	PC	Political connection	If the chairperson or CEO has ever served or is currently a government official, is a deputy to a People's Congress, or is a committee member of the Chinese People's Political Consultative Conference (CPPCC), the variable "PC" is assigned a value of 1. Otherwise, it is assigned a value of 0.

4. Empirical Results and Analysis

4.1 Descriptive Statistics

Table 2 presents the descriptive statistics for the main variables. The data reveal that the mean value of Dsoe is 0.0857, showing that 8.57% of the observations in the sample have state-owned major

[9] In the "14th Five-Year Plan for National Economic and Social Development of the People's Republic of China and the Long-Range Objectives Through the Year 2035," the wording used is "optimize the development environment for private enterprises and reduce comprehensive financing costs". This reflects the fact that the financing costs borne by private enterprises are not limited to interest expenses.

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shareholders (defined as holding more than 5% of shares). Overall, the proportion of state-owned capital as a major shareholder in private enterprises is not very high, suggesting that the "reverse mixed ownership reform" is still in its initial stages. The average cost of debt financing (Cod) is 8.16%, which is largely consistent with mainstream literature (Zhou et al., 2017). We also calculated the cost of debt financing using the method of interest expenses to total short and long-term liabilities, yielding a mean value of 6.19%. This implies that the implicit cost of debt financing for Chinese private listed companies, measured in terms of handling fees and other financial expenses, is approximately 1.97% (8.16% - 6.19%). The mean value of debt financing scale (Debt) is 0.1985, indicating that the scale of interest-bearing debt of private listed companies accounts for less than 20% of their total assets. The mean value of political connections (PC) is 0.3846, suggesting that nearly 40% of the observations have political connections, which is a very common phenomenon among Chinese private listed companies.

Table 2: Descriptive Statistics of Main Variables

Variable name	Variable symbol	Mean	Median	Standard deviation	Minimum	Maximum	Sample size
Cost of debt financing	*Cod*	0.0816	0.0626	0.1055	0.0037	0.8667	7,551*
Scale of debt financing	*Debt*	0.1985	0.1631	0.1942	0.0000	0.9952	7,182
State-ownedcapital > 5% Holding	*Dsoe*	0.0857	0.0000	0.2799	0.0000	1.0000	10,116
State-owned share Proportion	*Soeshare*	0.0113	0.0000	0.0303	0.0000	0.1803	12,747
Company size	*Size*	21.6276	21.5481	1.0700	19.0060	24.7274	12,747
Leverage ratio	*Lev*	0.3829	0.3580	0.2186	0.0438	1.3550	12,747
Profitability	*ROA*	0.0393	0.0428	0.0777	-0.4738	0.2137	12,747
Cash flow	*Cash*	0.2290	0.1377	0.4483	-0.8095	2.3350	12,747
Tangible assets Proportion	*Tang*	0.1911	0.1681	0.1343	0.0021	0.5919	12,747
Growth	*Growth*	0.2319	0.1181	0.4560	-0.4327	3.0099	12,747
Largest shareholder Holding	*First*	0.3224	0.3007	0.1374	0.0848	0.7115	12,747
Company age	*Age*	1.4798	1.6094	0.9186	0.0000	3.3322	12,747
Political connection	*PC*	0.3846	0.0000	0.4865	0.0000	1.0000	12,747

Note: *Due to the multi-faceted nature of the debt financing indicator, composed of several fields, any missing field in the database results in the observation being treated as a missing value. Therefore, to preserve as much data as possible for other key variables, this study only excludes samples missing control variables.

4.2 Regression Results and Analysis

To test the impact of state-owned capital participation on the debt financing of private enterprises, we conducted a regression estimation on Model (1); the results are presented in Table 3. Columns (1) and (2) show that the coefficients of Dsoe and Soeshare are significantly negative at the 10% level, showing that state-owned capital participation significantly reduces the cost of debt financing for private enterprises. In terms of economic significance, taking column (1) as an example, the coefficient of Dsoe is -0.0081, which means that private enterprises with state-owned major shareholders have a 0.81% lower cost of debt financing compared to those without state-owned major shareholders, which is equivalent to a reduction of 9.93% based on the mean value (0.0081/0.0816). Columns (3) and (4) show that the coefficients of Dsoe and Soeshare are positive and significant at the 5% level, suggesting that state-owned capital participation significantly increases the scale of debt financing for private enterprises. For instance, in column (3), the coefficient of Dsoe is 0.0167, implying that private enterprises with state-owned major shareholders have an 8.41% higher scale of debt financing compared to those without (0.0167/0.1985). Furthermore, the coefficient of PC is not significant in both columns (3) and (4), suggesting that in terms of expanding the scale of debt financing, the role of political connections might be absorbed by the effect of state equity, indicating a substitutive effect of state ownership over political connections.

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Table 3: State-owned Capital Participation and Debt Financing of Private Enterprises

	(1)	(2)	(3)	(4)
	Cod	*Cod*	*Debt*	*Debt*
Dsoe	-0.0081*		0.0167**	
	(-1.9281)		(2.3577)	
Soeshare		-0.0606*		0.1563***
		(-1.8062)		(2.7782)
Size	-0.0101***	-0.0110***	0.0414***	0.0408***
	(-4.3213)	(-5.5597)	(14.4013)	(15.5370)
Lev	-0.0113	-0.0043	0.2804***	0.2849***
	(-0.8948)	(-0.3882)	(16.7678)	(18.4976)
ROA	-0.0291	-0.0286	-0.3252***	-0.3140***
	(-0.8899)	(-1.1144)	(-6.6877)	(-6.8325)
Cash	0.0222***	0.0225***	-0.0530***	-0.0565***
	(3.8547)	(4.2883)	(-13.0340)	(-14.1426)
Tang	-0.0391***	-0.0412***	0.1819***	0.2064***
	(-3.3386)	(-3.9826)	(11.0156)	(13.1045)
Growth	-0.0048	-0.0023	0.1181***	0.1228***
	(-1.0878)	(-0.5482)	(12.6881)	(14.0139)
First	-0.0090	-0.0034	0.0233*	0.0084
	(-0.7946)	(-0.3544)	(1.7415)	(0.6506)
Age	0.0039*	0.0043**	0.0082***	0.0032
	(1.8351)	(2.2695)	(3.0282)	(1.2513)
PC	-0.0058**	-0.0055**	0.0007	-0.0040
	(-2.1990)	(-2.3833)	(0.1837)	(-1.1695)
Constant	0.3011***	0.3173***	-0.7402***	-0.7434***
	(6.7528)	(8.5276)	(-12.9875)	(-14.3325)
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
N	6,222	7,529	6,217	7,162
Adj.R^2	0.0438	0.0477	0.4893	0.4863

Note: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively. The numbers in parentheses are *t*-statistics adjusted for heteroscedasticity.

4. 3 Endogeneity and Robustness Tests

4.3.1 Selection of a specific control group and reduction of sample scope

An important consideration in exploring the causal relationship between state-owned capital participation and debt financing of private enterprises is the potential endogeneity due to self-selection or omitted variables. That is, state-owned capital might choose to enter a private enterprise because of its sound financial situation or other favorable conditions, rather than improving the enterprise's situation after participation. To address this issue, following the approach of Bai et al. (2006), we define the treatment group as private enterprises that received new state-owned capital participation during 2017-2018, with the control group being the prior state (2017-2018) of private enterprises that received new state-owned capital participation in 2019. The rationale is that private enterprises receiving new state-owned capital in 2019 share similar characteristics (such as potential for growth or sound financial status) with those in the 2017-2018 cohort. These characteristics might be unobservable and vary over time. Therefore, using the pre-state capital participation status of later recipients as the control group enables greater homogeneity between the treatment and control groups, reducing inherent differences that could confound the causal relationship.

The sample is limited to the period after 2017, when for the first time in the work report, the government supplemented the previous exclusive focus on "deepening state-owned enterprise reform" with the notion of "strengthening, optimizing, and enlarging state-owned capital". This marked a clear

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policy shift towards “reverse mixed-ownership reform”. Thus, the situation of private enterprises receiving new state-owned capital participation after 2017 might significantly differ from previous instances. Despite reducing the sample size, such a research design is more likely to meet statistical homogeneity, enhancing the credibility of the results. Regression results are shown in Table 4. Columns (2) and (5) show that state-owned capital participation significantly increases the scale of debt financing for private enterprises, but columns (1) and (4) show that it has no significant effect on the cost of debt financing. This might be because the debt financing information disclosed in listed companies’ financial statements includes both outstanding and new debts, whilestate-owned capital participation can only improve the conditions of new debts. Due to the short observation period of this study design, there is no significant reduction in overall debt financing costs within the limited timeframe. To further examine this issue, we assessed the cost of new debt financing for private enterprises by examining newly issued bonds. Using the coupon rate of issued bonds (Bond-rate) as the dependent variable for a re-estimation of Model (1), the results in columns (3) and (6) show that the coefficient of state-owned capital participation is significantly negative, indicating that it significantly reduces the financing cost of new debt for private enterprises. Additionally, the R^2 values in Table 4 are notably higher than those in Table 3, suggesting that this research design largely eliminates the interference of other confounding factors, providing a cleaner examination of the impact of state-owned capital participation on private enterprises.

Table 4: Using Subsequent State Capital Participating in Private Enterprises as the Control Group

	(1)	(2)	(3)	(4)	(5)	(6)
	Cod	*Debt*	*Bond-rate*	*Cod*	*Debt*	*Bond-rate*
Dsoe	-0.0009	0.1435***	-1.5950**			
	(-0.2156)	(3.4235)	(-9.2251)			
Soeshare				-0.0002	0.0115**	-0.0980**
				(-0.4916)	(3.0073)	(-7.7728)
Size	-0.0035	-0.0477*	-0.2397	-0.0034	-0.0582**	-0.0584
	(-0.9060)	(-2.0865)	(-1.2353)	(-0.8951)	(-2.2944)	(-0.2426)
Lev	0.0489***	0.0354	-1.4710	0.0488***	0.0906	-2.4445
	(3.0243)	(0.1235)	(-0.8774)	(3.0362)	(0.2935)	(-1.1443)
ROA	-0.0342	1.1530**	11.8672	-0.0348	1.2183**	8.1195
	(-1.1482)	(3.0543)	(1.1358)	(-1.1815)	(3.0777)	(0.6506)
Cash	0.0066	-0.3524**	-4.5949	0.0068	-0.3308**	-3.9749
	(0.5998)	(-2.5125)	(-2.5557)	(0.6211)	(-2.4059)	(-2.2869)
Tang	0.0186	1.5346***	4.8745*	0.0190	1.5549***	2.1771
	(0.7385)	(5.0226)	(3.3986)	(0.7492)	(4.3578)	(1.4075)
Growth	0.0073	0.1521*	-1.2096*	0.0072	0.1272	-0.9000
	(1.2091)	(2.2498)	(-3.1534)	(1.2130)	(1.6574)	(-1.7366)
First	-0.0333**	0.2730**	-1.8706	-0.0336**	0.3304**	-2.9341
	(-2.0853)	(2.6835)	(-0.9366)	(-2.0977)	(2.3274)	(-1.2237)
Age	0.0067	0.0639*	0.6239	0.0067	0.0720**	0.5322
	(1.3488)	(2.1233)	(1.9530)	(1.3653)	(2.2626)	(1.4118)
PC	0.0069	0.0598*	-0.4098	0.0071	0.0494	-0.3601
	(1.2678)	(1.9987)	(-1.9597)	(1.2887)	(1.4611)	(-1.4193)
Constant	0.0847	0.8883*	12.5130	0.0836	1.0540*	9.5274
	(1.1046)	(1.8507)	(2.7430)	(1.0906)	(2.0948)	(1.7373)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
N	118	105	28	118	105	28
Adj.R^2	0.4454	0.7708	0.9499	0.4466	0.7209	0.9421

Note: ***, **, and * respectively denote significance at the 1%, 5%, and 10% levels. The numbers in parentheses are *t*-statistics adjusted for heteroscedasticity.

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4.3.2 Propensity score matching - difference-in-differences (PSM-DID)

This section employs the observations of state-owned capital newly entering private enterprises and applies the difference-in-differences (DID) method to test the impact of state capital participation. In terms of research design, since the nature of the policy of "reverse mixed-ownership reform" is a guideline rather than mandatory, the timing of introducing state capital varies among private enterprises. Drawing on the approaches of Angrist and Pischke (2014) and Wang et al. (2019), we adopted a multi-period DID approach, as specified in Model (2):

$$Cod_{i,t}(Debt_{i,t})=\beta_0+\beta_1 SOE_{i,t}+\beta Controls_{i,t}+\lambda_i+\lambda_t+\varepsilon \quad (2)$$

Here, SOE stands for whether a private enterprise (i) has a new state-owned shareholder in the year (t). A value of 1 is assigned for the three years following the entry of the state-owned shareholder[10], while a value of 0 is assigned for the three years before the entry. This automatically creates a treatment group and a control group, as well as the "before treatment" and "after treatment" differences for the DID analysis.

To minimize differences between the treatment and control groups, the study employs propensity score matching (PSM) before conducting the DID test. Specifically, private enterprises that experienced the entry of a state-owned major shareholder are considered as the treatment group. They are matched on a one-to-one nearest-neighbor basis with control group firms that never had a state-owned major shareholder entry. These control firms are selected from the same year and the same industry with the closest propensity score to the treatment enterprises. In selecting matching variables, the study incorporated not only micro-level company characteristics like size, leverage ratio, and operating cash flow to current liabilities, but also macro-level factors such as stock returns, stock price crash risk, and the per capita GDP of the region where the private enterprise is located in that year. This consideration is crucial as the entry of state-owned capital into private enterprises might be influenced by "bailout" needs or other macroeconomic factors[11].

A key precondition for the effective implementation of the DID method is that the trends in the treatment and control groups prior to the event (state-owned capital entry) are parallel, meaning they do not significantly differ and there is no issue of sample self-selection. Owing to the varying times of introducing state-owned shareholder across different private enterprises, traditional methods for parallel trend testing like trend comparison charts could not be used, which are only applicable when the policy occurs at a single point in time. Instead, we employed an event study approach, testing interaction terms between the treatment group and year dummy variables. This allows for both the verification of trends before the event and the examination of effects post-event, such as how long after state capital owned participation it impacts the debt financing of private enterprises and whether this impact is sustainable. The specifics of this approach are detailed in Model (3):

$$\begin{aligned} Cod_{i,t}(Debt_{i,t})=&\beta_2+\beta_3 SOE_{i,t}^{-3}+\beta_4 SOE_{i,t}^{-2}+\beta_5 SOE_{i,t}^{-1}+\beta_6 SOE_{i,t}^{0}+\beta_7 SOE_{i,t}^{+1}+\beta_8 SOE_{i,t}^{+2} \\ &+\beta_9 SOE_{i,t}^{+3}+\beta Controls_{i,t}+\lambda_i+\lambda_t+\varepsilon \end{aligned} \quad (3)$$

[10] The situation of shareholder participation is complex. Some state-owned shareholders exit private enterprises a few years after entering. Therefore, setting all years after the entry of state-owned capital as 1 does not reflect reality. In the sample selection process of this paper, we ensured that the entry period of state-owned capital lasted at least 3 years or more, excluding samples that exited in less than 3 years. Moreover, as analyzed in the main test, since "reverse mixed-ownership reform" is just starting, there are few observations where state-owned capital newly enters private enterprises with more than a 5% stake. Therefore, in the DID test phase, this paper relaxed the shareholding ratio requirement for state-owned capital participation, including observations where state-owned capital newly enters private enterprises with a 1% or higher stake.

[11] The stock market downturn in 2018 led to many private enterprise major shareholders facing margin call risks. General Secretary Xi Jinping pointed out in a symposium on private enterprises: "For private enterprises facing equity pledge liquidation risks, relevant departments and localities should urgently study and take special measures to help the enterprises overcome difficulties and avoid issues like the transfer of corporate ownership". Subsequently, various provinces and cities introduced related policies, encouraging state-owned capital to provide support to private enterprises listed on the stock market, alleviating their liquidity risks.

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where $SOE_{i,t}^{\pm m}$ represents a series of dummy variables. In the m years before state-owned capital enters private enterprises, $SOE_{i,t}^{-m}$ takes the value of 1; in the m years after state-owned capital enters private enterprises, $SOE_{i,t}^{+m}$ takes the value of 1; otherwise $SOE_{i,t}^{\pm m}$ takes the value of 0. This allows for a direct assessment of the situation in each year before and after state-owned capital enters private enterprises through the coefficients of $SOE_{i,t}^{\pm m}$. To avoid multicollinearity, the dummy variable for the third year before the entry of state-owned capital was excluded from the analysis.

The regression results of Model (2) are presented in columns (1) and (2) of Table 5. The coefficient of *SOE* in column (1) is significantly negative, indicating that the participation of state-owned capital significantly reduces the debt financing cost of private enterprises. In column (2), the coefficient of SOE is significantly positive at a level close to 10%. To investigate the reason for the low significance of the coefficient in column (2), Model (3) was further tested, with results shown in columns (3) and (4). Firstly, the coefficients of SOE^{-2} *and* SOE^{-1} in columns (3) and (4) are not significant, meaning that there is no significant difference in debt financing situation between the treatment and control groups before the participation of state-owned capital, confirming the parallel trend assumption. Secondly, in column (3), the coefficient of SOE^{0} is not significant, but the coefficients of SOE^{+1}, SOE^{+2} *and* SOE^{+3} are significant at the 10% level. This indicates that state-owned capital participation did not significantly impact the debt financing cost of private enterprises in the year of entry but began to reduce the cost in the first year after entry. In column (4), the coefficients of SOE^{0} *and* SOE^{+1} are not significant, while those of SOE^{+2} *and* SOE^{+3} are significant at the 10% level, and their absolute values increase notably, suggesting that state-owned capital starts to expand the scale of debt financing from the second year after entry. This result aligns with practical scenarios, as previously explained, that overall debt includes both outstanding and new debts, but state-owned capital participation can only improve the situation of new debts. Therefore, some time is needed for an overall improvement in debt financing. This also explains why the coefficients in column (2) are only significant at a level close to 10%, as the non-significant results in the short term (the year of entry and the following year) affect the overall significance. This outcome underscores the necessity of conducting segmentation verification of policy effects on time trends.

Table 5: Difference-in-Differences, Parallel Trends, and Policy Effect Tests

	(1)	(2)	(3)	(4)
	Cod	*Debt*	*Cod*	*Debt*
SOE	-0.0144**	0.0471		
	(-2.1787)	(1.6078)		
SOE^{-2}			-0.0146	-0.0045
			(-1.2931)	(-0.2779)
SOE^{-1}			-0.0150	0.0119
			(-1.2669)	(0.7219)
SOE^{0}			-0.0173	0.0005
			(-1.1202)	(0.0237)
SOE^{+1}			-0.0259**	0.0012
			(-1.9736)	(0.0433)
SOE^{+2}			-0.0253*	0.0762**
			(-1.7972)	(2.1654)
SOE^{+3}			-0.0282*	0.0858*
			(-1.7501)	(1.7944)
Size	0.0030	0.0084	-0.0030	0.0178
	(0.5203)	(0.1803)	(-0.4572)	(0.4439)
Lev	-0.0232	0.3103**	-0.0304	0.2813**
	(-0.8296)	(2.3100)	(-1.1034)	(2.2246)

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Table 5 Continued

	(1)	(2)	(3)	(4)
	Cod	*Debt*	*Cod*	*Debt*
ROA	-0.0707*	-0.4019**	-0.0392	-0.5581**
	(-1.8280)	(-2.2923)	(-1.0019)	(-2.5666)
Cash	0.0146	-0.0984***	0.0118	-0.0924***
	(1.4070)	(-4.2154)	(0.9636)	(-3.7985)
Tang	0.0559	0.0562	0.0651	0.0593
	(1.3411)	(0.5178)	(1.6460)	(0.5927)
Growth	0.0135	0.1990***	0.0131	0.1892***
	(1.4580)	(5.4767)	(1.3862)	(5.6045)
First	-0.1274***	0.1828	-0.1242***	0.1609
	(-2.9907)	(0.8371)	(-2.9887)	(1.0227)
Age	-0.0299**	0.0470**	-0.0251**	0.0584***
	(-2.2345)	(2.2103)	(-2.0094)	(2.8138)
PC	-0.0073	0.0007	-0.0083	-0.0001
	(-1.5524)	(0.0247)	(-1.5902)	(-0.0066)
Constant	0.1158	-0.2777	0.2360*	-0.5153
	(0.9440)	(-0.2610)	(1.6785)	(-0.5602)
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
N	752	588	882	698
Adj.R^2	0.3079	0.7747	0.2609	0.7561

Note: ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. The numbers in parentheses are *t*-statistics adjusted for heteroscedasticity.

4.3.3 Replacing explanatory variables

In the main analysis, the explanatory variables used were the presence of a state-owned major shareholder, Dsoe (defined as holding more than 5% of shares), and the cumulative shareholding percentage of state-owned shareholders, Soeshare. For robustness testing, we redefined the explanatory variables using a threshold of 10% shareholding (as per La Porta et al., 1999) to redefine Dsoe as Dsoe10. Additionally, the shareholding percentage of the largest shareholder group, Soelargest, is calculated. These new explanatory variables are then used to re-estimate Model (1). The results are shown in Table 6. Apart from a reduction in the significance of the coefficient in column (1), the other conclusions are still robust.

Table 6: Changing the Explanatory Variables

	(1)	(2)	(3)	(4)
	Cod	*Cod*	*Debt*	*Debt*
Dsoe10	-0.0068		0.0253***	
	(-1.0977)		(2.7619)	
Soelargest		-0.0878**		0.1669**
		(-2.4379)		(2.4927)
Size	-0.0102***	-0.0110***	0.0415***	0.0408***
	(-4.0946)	(-5.5749)	(14.2091)	(15.5460)
Lev	-0.0144	-0.0042	0.2754***	0.2848***
	(-1.0724)	(-0.3784)	(16.1677)	(18.4974)
ROA	-0.0363	-0.0287	-0.3253***	-0.3136***
	(-1.0533)	(-1.1200)	(-6.6344)	(-6.8182)

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Table 6 Continued

	(1)	(2)	(3)	(4)
	Cod	*Cod*	*Debt*	*Debt*
Cash	0.0230***	0.0225***	-0.0523***	-0.0565***
	(3.7897)	(4.2858)	(-12.6596)	(-14.1334)
Tang	-0.0399***	-0.0411***	0.1848***	0.2064***
	(-3.2179)	(-3.9704)	(10.9638)	(13.1009)
Growth	-0.0041	-0.0023	0.1181***	0.1228***
	(-0.8868)	(-0.5470)	(12.4581)	(14.0085)
First	-0.0086	-0.0038	0.0220	0.0076
	(-0.7298)	(-0.3972)	(1.6175)	(0.5904)
Age	0.0038*	0.0043**	0.0098***	0.0033
	(1.7426)	(2.2736)	(3.5563)	(1.2864)
PC	-0.0046*	-0.0055**	0.0010	-0.0039
	(-1.6908)	(-2.3814)	(0.2768)	(-1.1337)
Constant	0.3025***	0.3183***	-0.7457***	-0.7433***
	(6.3937)	(8.5655)	(-12.9140)	(-14.3293)
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
N	5,939	7,529	5,954	7,162
Adj.R^2	0.0434	0.0478	0.4940	0.4862

Note: ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. The numbers in parentheses are *t*-statistics adjusted for heteroscedasticity.

5. Mechanism Test

The previous sections demonstrated that state-owned capital participation helps to reduce the cost of debt financing and expand the scale of debt financing for private enterprises, consistent with the findings of existing literature (e.g. Song et al., 2014; Yao et al., 2019). A crucial question arises: What are the specific mechanisms behind this effect? The theoretical analysis in this study proposes several potential pathways through which state-owned capital participation might affect the debt financing of private enterprises: (i) enhancing social status, (ii) releasing signal effects, (iii) improving information quality, and (iv) mitigating the shareholder-creditor agency problem. This section further tests which of these mechanisms, or combination thereof, are operative.

5.1 Enhancing Social Reputation

Under the framework of cognitive theory, due to the authority of the government, state-owned capital participation can elevate the social status and reputation of private enterprises, thereby improving their debt financing. However, it is challenging to accurately measure social status, an unarticulated rule or a form of tacit knowledge based on subjective perception. The study approaches this problem by examining the accounts receivable component of commercial credit. The rationale behind this is that commercial credit, being a type of operating liability and an important source of funds similar to financial liabilities, does not incur interest. Companies with higher status and more bargaining power are motivated to use operating liabilities to squeeze the liquidity of their trading counterparts (Zhang et al., 2012); correspondingly, it's common for companies with lower status to have a larger scale of accounts receivable. Therefore, using the size of accounts receivable to represent the status of a company is theoretically and practically reasonable (Janetti et al., 2011; Wu et al., 2019). Following this logic, after private enterprises receive state-owned capital participation and their social status improves, they are more likely to reverse the passive situation of liquidity being occupied, resulting in a reduction

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in the scale of accounts receivable. To test this, we used accounts receivable/total assets (Rcv) as the dependent variable for re-estimation of Model (1), with results presented in Table 7. Columns (1) and (2) of Table 7 show that the coefficients of Dsoe and Soeshare are negative and significant at the 5% level, indicating that state-owned capital participation significantly reduces the scale of accounts receivable for private enterprises, reversing their disadvantage of liquidity occupation. This confirms the mechanism of enhancing social status.

Table 7: Testing the "Enhancing Status" Mechanism

	(1)	(2)
	Rcv	*Rcv*
Dsoe	-0.0081**	
	(-2.1962)	
Soeshare		-0.0727***
		(-2.6372)
Size	-0.0055***	-0.0060***
	(-3.6731)	(-4.5082)
Lev	0.0602***	0.0604***
	(7.2204)	(8.1713)
ROA	0.1538***	0.1533***
	(8.5917)	(9.8903)
Cash	-0.0663***	-0.0643***
	(-22.4857)	(-24.5079)
Tang	-0.1475***	-0.1488***
	(-16.4155)	(-18.8981)
Growth	0.0937***	0.0946***
	(20.0182)	(21.7716)
First	-0.0543***	-0.0472***
	(-6.1982)	(-6.0223)
Age	-0.0224***	-0.0221***
	(-13.4909)	(-14.8525)
PC	0.0033	0.0060***
	(1.4233)	(2.9861)
Constant	0.2089***	0.2158***
	(6.8493)	(8.0808)
Year FE	Yes	Yes
Industry FE	Yes	Yes
N	10,086	12,712
Adj.R^2	0.4054	0.3997

Note: ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. The numbers in parentheses are *t*-statistics adjusted for heteroscedasticity.

5.2. Releasing Signal Effects

This paper tests the mechanism of releasing signal effect using a subsample of private enterprises where their state-owned shareholders are financial institutional investors, specifically referring to securities institutional investors whose equity nature is state-owned like CITIC Securities, but not including the "national team" such as Central Huijin Investment Ltd., nor fund institutional investors; our logic here is, unlike the "national team" that functions for stabilizing capital market and undertakes long-term value investment, or individual investors lacking information access and analytical capabilities, general state-owned institutional investors are short-term financial investors with information advantages

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and professional capabilities (Liu and Xu, 2012; Yu and Fang 2020). This positioning provides an excellent opportunity to test the releasing signal effects. Firstly, institutional investors, being more market-oriented than typical state-owned shareholders and owning lower status in "the order of stratified closeness" due to their distance from government authority[12] (Fei, 1947), are less likely to enhance social status. Secondly, since these investors generally hold shares in multiple companies with a generally low percentage in each, they are unlikely to become active shareholders involved in corporate governance, hence not likely to directly improve information quality or reduce the shareholder-creditor agency problem (Yao and Liu, 2009)[13]. However, as institutional investors with professional information and financial advantages (Li and Li, 2008), their participation may carry significant signal effects. Therefore, this study uses the shareholding percentage of state-owned financial institutional investors (*Fin_soeshare*) as an explanatory variable to re-estimate Model (1), with results shown in Table 8. Column (1) of Table 8 shows that the coefficient of *Fin_soeshare* is significantly negative, showing that a higher shareholding by state-owned financial institutional investors reduces the debt financing cost for private enterprises. However, in column (2), the coefficient of *Fin_soeshare* is not significant, suggesting that an increase in their shareholding does not promote the overall scale of debt financing. Further, the study re-estimates Model (1) using the structure of debt financing (measured by the proportion of bond financing in total debt financing, *Bond_ratio*) as the dependent variable. The result in column (3) shows that a higher shareholding percentage by state-owned financial institutional investors correlates with a higher proportion of bond financing in total debt financing. Combining the results of columns (3) and (2) it can be inferred that banks, which are more able to process private information (Berger and Udell, 1995), are less reliant on signal effects, whereas market creditors, who rely more on public information, respond more positively to the signal of state-owned shareholding. The combination of these factors results in a non-significant coefficient for the overall scale of debt financing but a significant coefficient for the structure of debt financing. Column (4) shows that the relationship between the shareholding percentage of state-owned financial institutional investors and the scale of accounts receivable is not significant, which aligns with the expectation that the participation of financial institutional investors may not necessarily enhance the social status of private enterprises.

Table 8: Testing the "Releasing Signal Effects" Mechanism

	(1)	(2)	(3)	(4)
	Cod	*Debt*	*Bond_ratio*	*Rcv*
Fin_soeshare	-0.0032**	-0.0015	0.0139***	-0.0002
	(-2.4631)	(-0.4437)	(2.8526)	(-0.0774)
Size	-0.0130***	0.0455***	0.0446***	-0.0065***
	(-5.0393)	(15.3254)	(17.7924)	(-4.0846)
Lev	-0.0002	0.2700***	0.0170*	0.0637***
	(-0.0177)	(15.7459)	(1.6889)	(7.0515)
ROA	-0.0304	-0.3842***	-0.0423	0.1465***
	(-0.8631)	(-7.9336)	(-1.5152)	(7.8481)
Cash	0.0256***	-0.0522***	0.0218***	-0.0701***
	(4.0361)	(-12.2143)	(2.7206)	(-22.8774)

[12] "The order of stratified closeness" refers to a model where a center is formed in various relationships, and adjustments of different degrees are made according to the closeness or distance of the objects from the center. This pattern is like ripples formed by a stone thrown into water; the closer to the center, the closer the relationship, the deeper the ripples; the farther from the center, the more distant the relationship, the shallower the ripples.

[13] Yao and Liu (2009) found that securities institutional investors do not have a significant corporate governance role, while fund institutional investors do have governance effects. Therefore, the sample in this section is set as securities institutional investors to strip away the "governance effect" mechanism.

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Table 8 Continued

	(1)	(2)	(3)	(4)
	Cod	*Debt*	*Bond_ratio*	*Rcv*
Tang	-0.0397***	0.1861***	-0.0496***	-0.1499***
	(-3.0008)	(10.7237)	(-2.6512)	(-15.6293)
Growth	0.0004	0.1101***	-0.0087*	0.0971***
	(0.0712)	(11.6975)	(-1.8889)	(20.1587)
First	-0.0115	0.0305**	-0.0336**	-0.0595***
	(-0.9661)	(2.1787)	(-2.2661)	(-6.5717)
Age	0.0032	0.0117***	-0.0013	-0.0232***
	(1.4126)	(3.9658)	(-0.5100)	(-13.3002)
PC	-0.0021	0.0020	0.0115***	0.0043*
	(-0.7560)	(0.5285)	(2.8406)	(1.7864)
Constant	0.3470***	-0.8998***	-0.9355***	0.2343***
	(6.6951)	(-12.2944)	(-18.1730)	(7.1686)
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
N	5,474	5,443	7,469	9,372
Adj.R^2	0.0482	0.4964	0.0844	0.4075

Note: ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. The numbers in parentheses are *t*-statistics adjusted for heteroscedasticity.

5.3 Improving Information Quality

Regarding information quality, existing literature has established mature measurement methods for this articulated rule. This study, drawing on the approach of Li et al. (2018), uses accounting earnings to measure information quality. We used the modified Jones model (Dechow et al., 1995) to estimate discretionary accruals (*DisAcc*), and then takes the absolute value of these accruals *(AbsDA*). A higher absolute value indicates a greater likelihood of earnings manipulation and, consequently, poorer information quality.

In this analysis, information quality (AbsDA) is used as the dependent variable. The study also includes governance-related variables as control variables, such as equity balance (*Balance*) and the duality of positions (*Dual*), to re-estimate Model (1). The results are presented in Table 9. Table 9 shows that the coefficients in columns (1) and (2) are negative and significant at the 5% level. This suggests that state-owned capital participation plays a positive role in enhancing the information quality of private enterprises.

Table 9: Testing the "Improving Information Quality" Mechanism

	(1)	(2)
	AbsDA	*AbsDA*
Dsoe	-0.0081**	
	(-2.1765)	
Soeshare		-0.0559**
		(-2.2321)
Size	-0.0083***	-0.0082***
	(-6.5358)	(-7.9275)
Lev	0.0159**	0.0168***
	(2.1622)	(2.7591)
ROA	-0.1690***	-0.1896***
	(-6.6501)	(-8.6598)

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Table 9 Continued

	(1)	(2)
	AbsDA	*AbsDA*
Cash	-0.0253***	-0.0217***
	(-7.9639)	(-7.8529)
Tang	-0.0543***	-0.0488***
	(-6.3552)	(-6.9636)
Growth	0.0438***	0.0420***
	(13.2146)	(14.3768)
First	0.0055	0.0071
	(0.7723)	(1.2043)
Age	0.0019	0.0014
	(1.5222)	(1.2826)
PC	0.0015	0.0018
	(0.8194)	(1.1970)
Balance	0.0168	0.0086
	(1.5968)	(1.6424)
Dual	-0.0045**	-0.0027*
	(-2.4254)	(-1.7571)
Constant	0.2654***	0.2640***
	(10.3333)	(12.6060)
Year FE	Yes	Yes
Industry FE	Yes	Yes
N	6,862	9,442
Adj.R^2	0.1976	0.1900

Note: ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. The numbers in parentheses are *t*-statistics adjusted for heteroscedasticity.

5.4 Reducing the Shareholder-Creditor Agency Problem

To test the mitigation of the agency problem, this study, following the approach of Guo et al. (2017), uses the level of risk-taking to measure the "shareholder-creditor" agency problem, and also references Yu et al. (2013) in using the volatility of firm earnings to gauge the level of risk-taking. Higher volatility in earnings indicates a higher level of risk-taking and a more severe shareholder-creditor agency issue. To re-estimate Model (1), risk-taking (*Risk*) was used as the dependent variable. Results in Table 10 show that the coefficients in columns (1) and (2) are not significant, suggesting that state-owned capital participation does not significantly affect the risk-taking of private enterprises in the full sample. This might be because, from a creditor's perspective, lower risk-taking is preferable; however, from a shareholder's perspective, especially in the case of state-owned capital participation, increased risk-taking might be more desirable, potentially leading to greater investment in research and development. Therefore, state-owned capital participation might have varying impacts on private enterprises depending on the context, and these diverse influences might neutralize each other in the full sample. To further explore this, this study conducts a subsample test based on the degree of separation between cash flow rights and control rights of the private controlling shareholders ("two rights separation"). Observations with a degree of separation higher than the annual industry average are categorized as the high-separation group, and those lower as the low-separation group. This approach is based on the premise that if the controlling shareholder's control rights exceed their cash flow rights, the asymmetry in rights and responsibilities might amplify their risk preference under limited liability (Claessens et al., 2002). The higher the degree of separation between the two rights, the lower the actual cost borne by the controlling shareholder for wrong decisions, potentially leading to higher levels of risk-

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taking. Columns (3) and (4) of Table 10 show that the coefficient of state-owned capital participation is significantly negative at the 1% level, showing that in the subsample with a higher degree of "two rights separation", state-owned capital participation effectively reduces the risk-taking level of private enterprises.

Table 10: Testing the "Reducing 'Shareholder-Creditor' Agency Problem" Mechanism

	(1)	(2)	(3)	(4)
	Risk	*Risk*	*Risk*	*Risk*
	Full sample	Full sample	High separation degree of the two rights	High separation degree of the two rights
Dsoe	-0.0008		-0.0154***	
	(-0.2623)		(-3.0222)	
Soeshare		-0.0186		-0.1021***
		(-0.7977)		(-2.6234)
Size	-0.0216***	-0.0210***	-0.0221***	-0.0226***
	(-15.2406)	(-17.2501)	(-7.7650)	(-9.6050)
Lev	0.0823***	0.0779***	0.0812***	0.0804***
	(8.8258)	(9.5904)	(4.6041)	(5.3863)
ROA	-0.4283***	-0.4272***	-0.4520***	-0.4291***
	(-14.8640)	(-16.5203)	(-7.7428)	(-8.2377)
Cash	0.0183***	0.0189***	0.0184***	0.0187***
	(7.7472)	(8.8054)	(3.4956)	(4.1505)
Tang	-0.0313***	-0.0292***	-0.0298*	-0.0315**
	(-3.8385)	(-3.9236)	(-1.8852)	(-2.3172)
Growth	0.0173***	0.0181***	0.0182***	0.0196***
	(6.3242)	(7.3923)	(3.4500)	(4.4596)
First	0.0142**	0.0119**	0.0034	0.0022
	(2.5144)	(2.4691)	(0.3010)	(0.2297)
Age	0.0153***	0.0155***	0.0106***	0.0141***
	(11.3695)	(13.4651)	(4.1106)	(6.4182)
PC	-0.0037**	-0.0036***	-0.0033	-0.0014
	(-2.5733)	(-2.8409)	(-1.1647)	(-0.5865)
Constant	0.5273***	0.5172***	0.5240***	0.5374***
	(16.9354)	(19.8300)	(9.3554)	(11.7603)
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
N	8,063	10,494	2,248	3,100
Adj.R^2	0.3775	0.3724	0.3904	0.3750

Note: ***, **, and *denote significance at the 1%, 5%, and 10% levels, respectively. The numbers in parentheses are *t*-statistics adjusted for heteroscedasticity.

6. Further Research

This section explores other key issues derived from the main test, such as which types of enterprises benefit more from state-owned capital participation and whether the positive impact of state capital-owned participation on debt financing can further enhance company performance.

6.1 Which Enterprises Benefit More from State-owned Capital Participation?

State-owned capital participation has been shown to reduce debt financing costs and expand the scale of debt financing for private enterprises. Then, which types of enterprises are more likely

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to benefit from state capital participation? Following the logic discussed earlier, state-owned capital participation can enhance social status, release signal effects, improve information quality, and reduce the shareholder-creditor agency problem, all of which may benefit private enterprises' debt financing. Small and medium-sized enterprises (SMEs) are likely to benefit more from state-owned capital participation because they often have a lower social status, lack collateral, face higher risks, have less institutional regulation, and struggle to obtain external financing, requiring more social status support from state-owned shareholders and improvements in corporate governance. High-tech enterprises may also benefit from state-owned capital participation, since they may be reluctant to disclose specific R&D details due to intellectual property protection concerns; and even if disclosed, ordinary creditors might not understand the specialized information, leading to severe information asymmetry (Li et al., 2014).

We divided the sample into large enterprises and SMEs based on the annual industry median size and categorizes them into high-tech and ordinary enterprises following Luo and Qin (2019)[14]. This study re-estimates Model (1) using these subsamples, with results presented in Table 11. Column A of Table 11 reports the results for SMEs, showing that state-owned capital participation reduces debt financing costs and expands the scale of debt financing in SMEs, with no significant effect in large enterprises. The between-group coefficient test confirms a significant difference between the two groups at the 5% level. Column B of Table 11 reports the group test results for high-tech enterprises. Column (1) demonstrates that in high-tech enterprises, the participation of state-owned capital significantly reduces the cost of debt financing. In contrast, column (2) shows that in ordinary enterprises, the participation of state-owned capital does not significantly affect the cost of debt financing. Additionally, the coefficient of *Soeshare* in column (1) is more than ten times that in column (2). This suggests that, in economic terms, the impact of state-owned capital participation on the debt financing costs of high-tech enterprises is considerably greater than in ordinary enterprises. Statistically, the difference in coefficients between the groups is also significant at the 1% level. The results in columns (3) and (4) are not substantially different, which indicates that state-owned capital participation can play a role in expanding the scale of debt financing for both high-tech and ordinary enterprises. Overall, the group test results are generally in line with expectations.

Table 11: Which Enterprises Benefit More from State Capital Participation?

Column A: Grouping of SMEs				
	(1)	(2)	(3)	(4)
	Large enterprises	SMEs	Large enterprises	SMEs
	Cod	*Cod*	*Debt*	*Debt*
Soeshare	0.0487	-0.1533***	0.0765	0.2400***
	(0.8819)	(-3.5319)	(0.6964)	(3.6927)
Constant	0.0244	0.5619***	0.3491***	-1.4622***
	(0.4463)	(6.2061)	(3.6517)	(-14.7534)
Control variables	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
N	3701	3827	3023	4138
Adj.R^2	0.0514	0.0525	0.5249	0.4476
Group coefficient test	0.000***		0.022**	

[14] Referencing Luo and Qin (2019), this paper defines the following industries as high-tech enterprises: Information (I), Pharmaceutical Manufacturing (C27), Aerospace (C37), Computer, Communication, and Other Electronic Equipment Manufacturing (C39).

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Table 11 Continued

Column B: Group inspection of high-tech enterprises				
	(1)	(2)	(3)	(4)
	high-tech enterprises	ordinary enterprises	high-tech enterprises	ordinary enterprises
	Cod	*Cod*	*Debt*	*Debt*
Soeshare	-0.1910***	-0.0110	0.1682**	0.1545**
	(-3.7015)	(-0.2634)	(2.1143)	(2.4494)
Constant	0.4618***	0.2557***	-1.2587***	-0.6879***
	(6.1961)	(5.4326)	(-11.7274)	(-10.3239)
Control Variables	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
N	1,769	5,760	2,016	5,989
Adj.R^2	0.0441	0.0512	0.5011	0.4957
Group coefficient test	0.004***		0.866	

Note: ***, **, and *denote significance at the 1%, 5%, and 10% levels, respectively. The numbers in parentheses are *t*-statistics adjusted for heteroscedasticity.

6.2 Can Improved Debt Financing Further Enhance Company Value?

Given that capital participation in private enterprises helps reduce their debt financing costs and expand the scale of debt financing, it could be expected that it would further enhance company value through improved debt financing. To test this hypothesis, we constructed Models (4) and (5) to examine the impact of state-owned capital participation on company value. The dependent variable is company value, measured by *TobinQ* (the ratio of the market value of equity plus liabilities to total assets). Other variables are similar to those in Model (1).

$$TobinQ_{i,t}=\beta_0+\beta_1 Dsoe_{i,t}+\beta_2 Dsoe_{i,t}\times Cod_{i,t}+\beta_3 Cod_{i,t}+\beta Controls_{i,t}+\lambda_k+\lambda_t+\varepsilon \quad (4)$$

$$TobinQ_{i,t}=\beta_0+\beta_1 Dsoe_{i,t}+\beta_2 Dsoe_{i,t}\times Debt_{i,t}+\beta_3 Debt_{i,t}+\beta Controls_{i,t}+\lambda_k+\lambda_t+\varepsilon \quad (5)$$

The regression results are presented in Table 12. Columns (2) and (4) of Table 12 show that the coefficients of the interaction terms *Dsoe*Debt and Soeshare*Debt* are significantly positive. This indicates that state-owned capital participation enhances the company value of private enterprises by expanding their scale of debt financing. On the other hand, the interaction terms in columns (1) and (3) are not significant, suggesting that the role of state-owned capital participation in enhancing company value through the reduction of debt financing costs is not significant. Overall, the participation of state-owned capital has a positive impact on the value of private enterprises, predominantly through the expansion of their debt financing scale. This finding underscores the importance of state-owned capital participation in improving the financial structure and market valuation of private enterprises.

Table 12: State Capital Participation, Debt Financing, and Company Value

	(1)	(2)	(3)	(4)
	TobinQ	*TobinQ*	*TobinQ*	*TobinQ*
Dsoe	0.0022	-0.1737*		
	(0.0354)	(-1.7297)		
Soeshare			-0.1670	-1.9001**
			(-0.3174)	(-2.3916)
*Dsoe*Cod*	-0.2568			
	(-0.4099)			

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Table 12 Continued

	(1)	(2)	(3)	(4)
	TobinQ	*TobinQ*	*TobinQ*	*TobinQ*
Dsoe*Debt		0.6058*		
		(1.8701)		
Soeshare*Cod			0.1255	
			(0.0218)	
Soeshare*Debt				6.7668**
				(2.5307)
Cod	0.7409***		0.6243***	
	(2.9838)		(2.6791)	
Debt		-0.7028***		-0.6954***
		(-4.1985)		(-4.6065)
Constant	15.1587***	16.9923***	15.3021***	17.7108***
	(26.4920)	(29.3224)	(31.1873)	(33.5100)
Control Variables	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
N	6,490	6,518	8,199	7,959
Adj.R^2	0.4416	0.4660	0.4361	0.4651

Note: ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. The numbers in parentheses are *t*-statistics adjusted for heteroscedasticity.

7. Conclusions and Policy Implications

This article examines Chinese A-share private listed companies from 2004 to 2019 as research samples. From the perspective of debt financing, it empirically tests whether and how "reverse mixed ownership reform" affects private enterprises, yielding the following main conclusions:

(i) State-owned capital participation significantly reduces the cost of debt financing for enterprises, expands the scale of their debt financing, thereby effectively alleviating the financing difficulties and high costs faced by private enterprises.

(ii) The mechanism analysis conducted at two levels, unarticulated rules and articulated rules, reveals that state-owned capital participation improves private enterprises debt financing through various channels. These include enhancing the social status of private enterprises, mitigating the "statistical bias" they face, improving of their information quality, and reducing the "shareholder-creditor" agency problems.

(iii) In small and medium-sized enterprises as well as high-tech enterprises, the role of state-owned capital participation in reducing the cost of corporate debt financing and expanding its scale is more pronounced. This not only reaffirms the effectiveness of channels such as enhancing social status and reducing information asymmetry as mentioned in the mechanism analysis but also provides policy insights for the optimization of the state-owned economy layout.

(iv) State-owned capital participation, by expanding the debt financing scale of private enterprises, enhances their corporate value, thereby robustly safeguarding the interests of all owners, including state-owned and private shareholders. This effectively achieves a synergistic effect of the two types of ownership capital.

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