

Article

Can Fulfillment of Social Responsibility Enable Enterprises to Innovate? The Role of Corporate Financialization and Agency Costs

Huiping Zhu ¹, Haifeng Gu ^{1,*} and Habiba Halepoto ² 

¹ Glorious Sun School of Business and Management, Donghua University, Shanghai 200051, China

² Engineering Research Center of Digitized Textile and Fashion Technology, Donghua University, Shanghai 201620, China

* Correspondence: guhaifeng@dhu.edu.cn

Abstract: This study constructs a panel model to conduct an empirical analysis on the influence of fulfillment of social responsibility on corporate innovation and its mechanism based on the annual data of A-share listed companies in China from 2010 to 2020. Research results show that (1) fulfillment of social responsibility has a positive effect on corporate innovation. Compared with enterprises with high economic policy uncertainty and low equity balance and non-state-owned enterprises, the implementation of social responsibility has a larger impact on the innovation of enterprises with low economic policy uncertainty and high equity balance and state-owned enterprises. (2) Corporate financialization and agency costs play a mediating role in the relationship between fulfillment of social responsibility and corporate innovation. Fulfillment of social responsibility can promote enterprise innovation by alleviating the capital-crowding effect caused by enterprise financialization and reducing agency costs. (3) Commercial credit has a positive moderating effect on the relationship between fulfillment of social responsibility and enterprise innovation. (4) Institutional investors have a negative moderating effect on the relationship between the fulfillment of social responsibility and enterprise innovation. The results can provide important theoretical guidance and serve as a decision-making reference for standardizing corporate social responsibility behavior and realizing the high-quality development of the Chinese economy.

Keywords: agency costs; corporate financialization; corporate innovation; social responsibility



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1. Introduction

In recent years, while China continued to deepen the reform of the market economic system, its social responsibility issues also received considerable attention from all sectors of society, such as vaccines for biological life problems, the deforestation of Nongfu Spring to extract water, and the illegal collection of information by Didi. Moreover, there has been increasing awareness of carbon information disclosure in the context of corporate social responsibility [1,2]. Actively assuming social responsibility is an important way to coordinate the interrelated development of economic and social benefits and achieve high-quality economic development. Thus, the government and regulatory authorities strove to guide the public to take the initiative to assume social responsibility by promulgating corresponding legal documents to establish a positive social image. From the promulgation of the “Guidelines on Social Responsibility of Listed Companies” by the Shenzhen Stock Exchange in 2006 to the Company Law implemented in 2014, which elevated corporate social responsibility to the level of the law, and the 2018 CSRC’s (China Securities Regulatory Commission) “Code of Governance for Listed Companies,” which was issued in 2008, the governance of fulfillment of social responsibilities was further refined, highlighting the standard protocols that enterprises must follow in their daily business process of assuming social responsibility. In management theory, social responsibility is a comprehensive

concept with rich connotations, which means that companies must take responsibility for many stakeholders and actively assume social and environmental responsibility. As a major participant in market economic activities, enterprises' active fulfillment of their social responsibility can help enhance their sustainable competitive advantage and is an important medium for transmitting nonfinancial information to the world by disclosing their social responsibility performance, which can optimize the information environment to a certain extent and enhance their social value. At present, research on the economic consequences of fulfillment of social responsibility mainly focuses on product market performance [3], investment [4,5], and credit rating [6–8], but the research results are not conclusive, and further exploration is still needed.

Enterprise innovation involves identifying the source of value growth by improving independent research and development capabilities and is the key focus of the acceleration of the construction of an innovative country to promote high-quality economic development. The 14th Five-Year Plan emphasizes the need to adhere to the innovation-driven development strategy to shape new advantages for holistic development. Therefore, increasing enterprise innovation aligns with the long-term development strategy and can enhance the objective requirements of comprehensive national strength. At the same time, the long-term cyclicity, high risks, and uncertainty of innovation activities may be prohibitive for some enterprises. Decision makers may also worry about the risk of failure caused by accidental factors for their reputation and career considerations and how to effectively stimulate enterprises' enthusiasm for innovation and reduce anxiety surrounding innovative activities to improve willingness to innovate. Thus, boosting enterprise innovation has become a real problem that must be addressed. As innovation must break through the original technical bottleneck to achieve connotative growth, requiring enterprises to maintain a benign interactive relationship with stakeholders, it pays attention to the harmony and win-win situation of all parties while pursuing profit maximization, which in turn can help enterprises obtain increased innovative resources. Research on the influencing factors of enterprise innovation in the literature is mainly about internal and external factors [9–12]. In addition, the literature presents two completely different views on the impact of social responsibility on corporate innovation. Thus, whether fulfillment of social responsibility will affect corporate innovation and the channels through which this mechanism acts on corporate innovation have become an important part of the exploration in this study.

Social responsibility reduces short-sighted behavior and focuses on long-term value by raising businesses' public awareness, thereby encouraging companies to take on high levels of innovation risk. Against the background of China's economy entering the new normal, science reveals the law of the impact of social responsibility on enterprise innovation. This is of considerable theoretical and practical significance for effectively standardizing and enhancing enterprises' innovation momentum to improve the scientific nature of their micro-innovation decision-making behavior and achieve the high-quality development of China's economy. This article selects the A-share listed companies in China from 2010 to 2020 data using the empirical analysis to explore the influence of fulfilling social responsibility on corporate innovation. It is believed that fulfilling social responsibility has a positive effect on corporate innovation

The main contributions of this study are as follows: first, the impact of social responsibility on corporate innovation, which deepens and expands not only the theory and literature on the economic consequences of fulfilling social responsibility but also corporate innovation, is discussed. The relevant theories and literature have important theoretical value. Second, the degree of economic policy uncertainty, equity balance, and nature of enterprise property rights are tested in groups, and the impact of heterogeneity characteristics on the relationship between social responsibility and enterprise innovation is examined. Third, the intermediary variables of corporate financialization and agency costs are constructed, and whether corporate financialization and agency costs play an intermediary role in the relationship between social responsibility and corporate innovation is investigated. Fourth, an adjustment variable between commercial credit and institutional

investors is constructed, and the regulatory role of commercial credit and institutional investors in the relationship between fulfillment of social responsibility and enterprise innovation is explored. The research results can provide important theoretical guidance and serve as a decision-making reference for effectively improving the level of corporate social responsibility and empowering enterprise innovation, thereby realizing the high-quality development of the Chinese economy.

2. Literature Review

2.1. Economic Consequences of Fulfillment of Social Responsibility

The literature on the implementation of social responsibility mostly examines its economic consequences at the macro and micro levels. Massa et al. [3] found that companies' active social responsibility can significantly improve product market performance at the macro level. Corporate social responsibility can not only increase the scale of outbound investment through the information effect but also directly improve the performance of companies, thereby helping to indirectly weaken the negative impact of international investment protection on cross-border investment [4]. With regard to the impact of social responsibility on stock price crash risk, existing research has yet to reach a consensus. Bouslah et al. [13] showed that corporate social responsibility curbs the risk of stock price crashes by mitigating the effects of negative news shocks. Kim et al. [14] found that corporate disclosure of social responsibility information can significantly reduce the risk of stock price crashes. However, other scholars have a vastly different view, arguing that corporate management has an incentive to manipulate the disclosure of social responsibility information, thereby considerably increasing the risk of stock crashes [15].

At the micro level, social responsibility has an impact on corporate investment efficiency, corporate value, financial and innovation performance, executive behavior, financing constraints, and credit ratings. Samet and Jarbouli [5] observed that corporate social responsibility can help curb underinvestment and overinvestment, which in turn can improve investment efficiency. Ding et al. [16] and Bardos et al. [17] revealed that the fulfillment of social responsibility has a positive effect on corporate value, but this effect is lagging. Kim et al. [18] argued that a positive correlation exists between corporate social responsibility and financial performance. Ghardallou [19] revealed that firms engaged in corporate social responsibility practices tend to have better financial performance. Lins et al. [20] found that companies with high and low social responsibility intensity have high growth rates in terms of sales revenue and profit. Ghardallou and Alessa [21] found that corporate social responsibility does not help to boost corporate value until it exceeds the value transition threshold. Cook et al. [22] asserted that CSR disclosure contributes to the growth of the total number of corporate patent applications. In terms of executive behavior, Cheng and Kung [23] determined that corporate social responsibility is effective in not only curbing moral hazards but also restraining executives' opportunistic behaviors. Sun et al. [24] believed that companies that are actively socially responsible are likely to hire industry expert auditors. Bae et al. [25] argued that corporate social responsibility is against violations, and the social image after the exposure of the behavior shows a "buffer effect." Cheng et al. [26] indicated that corporate social responsibility can help alleviate financing constraints. Some scholars also found that corporate social responsibility has a signaling function, promoting the improvement of corporate reputation by sending positive signals to stakeholders, which is conducive to increasing the credit rating of enterprises [6–8].

2.2. Influencing Factors of Enterprise Innovation

Research on the influencing factors of enterprise innovation in the literature focuses mainly on internal and external factors. The impact of internal factors on innovation focuses mainly on compensation and incentive policies, the characteristics of senior management teams, media reports, investment behaviors, equity structures, and property rights. Vancin and Kirch [27] and Saens and Tigero [9] found that if companies implement mandatory dividend policies, then they can help increase investment opportunities but will exacerbate

the financing constraints caused by innovative investments. Corporate compensation incentives are not only for management but also nonexecutive employee equity incentives, which can help alleviate agency issues to motivate employees to increase their risk tolerance and actively participate in corporate innovation [10,28]. However, Bova et al. [29] argued that the more the long-term equity incentives of employees, in addition to stock options, the less the investment of companies in innovation. An et al. [30] determined that a board's diverse corporate governance experience is extensive, and the ability to deal with complex issues contributes to exploratory and innovative activities.

Further research by Griffin et al. [11] demonstrated that having a gender-diverse board of directors can significantly increase the number of novel patents and innovation efficiency. Dai et al. [31] reported a significant negative correlation between media coverage and corporate innovation. A corporation's external guarantee behavior can increase its risk level and weaken its ability to raise funds, which may force it to reduce its investment expenditure on innovation [32,33]. Regarding the impact of a double-tier equity structure on enterprise innovation, scholars presented different views, arguing that a double-tier equity structure can promote enterprise innovation through asset specificity and may inhibit enterprise innovation by exacerbating agency problems [34,35]. Wang et al. [36] demonstrated that the nature of property rights affects the extent to which the cost of financing plays a role in corporate innovation.

Factors outside an enterprise, including economic policies, the level of financial development, the macro environment, and the performance of customer earnings, can impact enterprise innovation. In terms of economic policies, Hori [37] found that the impact of monetary policies on enterprise innovation investment and financing depends mainly on the level of R&D productivity. By building models, Moran and Queralto [38] determined that monetary policies may have an impact on the effect of innovation incentives. Julio and Yook [12] revealed that an increase in policy discontinuities would lead to the strong inhibition of corporate innovation through the shadow banking scale of nonfinancial enterprises. In terms of the level of financial development, Chittoor et al. [39] observed that with the improvement of financial openness, foreign participation in equity led to a significant increase in the quality and quantity of innovation in enterprises. Chen et al. [40] encouraged green marketing strategies to promote corporate green innovation activities. In addition, Chen et al. [41] emphasized that fintech development can significantly promote corporate green innovation activities.

Meanwhile, Cornaggia et al. [42] believed that intensified financial competition might crowd out the supply of innovation funds, thereby limiting corporate innovation. Regarding the impact of the macro environment on corporate innovation, some scholars asserted that strengthening IP protection can mitigate the degree of infringement by imitators against innovators; thus, the more adequate the information disclosed by an enterprise is, the more significant the spillover effect of the disclosure of the information will be [43–45]. A positive correlation exists between the number of universities around enterprises and innovation, and a negative correlation exists between distance from universities and innovation, indicating that knowledge spillover from universities is also a key factor affecting innovation (Plank, 2016) [46]. Claver-Cortés et al. [47] revealed that firm agglomeration has a different impact on innovation in multinational companies through knowledge spillover effects. The better the customer surplus performance is, the larger the increase in the innovation investment scale by supplier companies will be [48]. In addition, government preferential tax policies are key factors affecting enterprise innovation. Some scholars discovered that tax incentives have a promoting effect on business innovation [49,50], whereas Chen et al. [51] believed that companies have an incentive to arbitrage tax incentives by whitewashing R&D expenses and are not actually engaged in innovative activities.

3. Theoretical Analysis and Research Assumptions

3.1. Impact of Fulfillment of Social Responsibility on Enterprise Innovation

The active fulfillment of social responsibility is not only an informal contract but also an important part of enterprises' competitive strategy, which can help provide high-quality products and services to society and increase innovation to create high social value. The impact of social responsibility on corporate innovation is reflected mainly in the following aspects. First, the fulfillment of social responsibility has the function of transmitting the good reputation of an enterprise and its initiative to assume responsibility, which is convenient for external stakeholders to understand the enterprise's operation and development status to provide diversified information channels, thereby effectively alleviating the problem of information asymmetry, broadening the source of corporate financing, and addressing the issue of financing constraints, which in turn can facilitate the implementation of innovative decisions in the enterprise [22,26]. The nonfinancial information transmitted by corporate social responsibility can be complemented by traditional financial information, thereby reducing creditors' risk perception and capital costs and providing generous financial support for enterprise innovation to a certain extent [18]. Second, fulfilling their social responsibility can help companies win favor in the HR market and attract professional talents for innovative projects to improve the quality of human capital. The positive atmosphere created by corporate social responsibility can enhance employees' sense of belonging, loyalty, and cohesion, thereby motivating them to actively participate in the work and improve labor productivity and reducing the adjustment costs caused by high turnover rates. It can also increase employees' willingness to innovate, thereby ensuring the continuity of innovative activities [17]. Third, actively assuming social responsibility can help enterprises build a satisfactory social relationship network and improve their ability to use the network to obtain innovative resources and information to accumulate social capital to serve enterprise innovation. Companies that focus on fulfilling their social responsibility tend to consider the protection of the rights and interests of stakeholders, thereby reducing the degree of uncertainty in the business environment and increasing the focus on innovation. Whether an enterprise assumes social responsibility to shareholders and creditors or to employees, suppliers, customers and consumers, and so on, it can help achieve positive interaction between the members of social networks, effectively increase the innovation knowledge stock, and maintain business stability, thereby improving its innovation decision-making ability. At the policy level, assuming social responsibility can help enterprises establish a satisfactory relationship with the government and receive favorable tax treatment, government subsidies, and preferential interest rates, which effectively reduce the costs of enterprise innovation with rich political resources. The mandatory normative nature of fulfillment of social responsibility means that the disclosure of social responsibility information can provide oversight for enterprise managers and strictly punish illegal operations, thereby effectively curbing managers' opportunistic behavior and improving the quality of corporate innovation decision making [5,52]. In addition, enterprises' active social responsibility can help improve not only the governance structure but also organizational flexibility and operational efficiency, and enterprises adjust their business strategies in a timely manner, thereby increasing their innovation flexibility and risk tolerance.

From the corporate financialization channel, the profit-seeking nature of capital prompts enterprises to pour a large amount of funds into the financial field, with high returns. The "derealization of capital" intensifies the financialization phenomenon of enterprises, causing them to tilt toward short-term and reversible financial assets when allocating funds, thereby squeezing out their innovation funds [53]. Fulfillment of social responsibility can increase the scale of corporate innovation by curbing corporate financialization to alleviate the crowding effect. First, corporate social responsibility can help reduce short-sighted behavior of management, prompting it to increase long-term interest-based investment projects to alleviate the negative impact of corporate financialization, thereby providing financial guarantees for corporate innovation. Corporate innovation is a

high-risk, long-term, and return-cycle investment activity compared with the short-term, high-return characteristics of financial investment management. Management may be forced by performance pressure to decrease innovation investment, resulting in a reduction in resource investment in innovative equipment, R&D personnel, and other resources under the condition of resource constraints, thereby reducing willingness to innovate. If enterprises actively assume social responsibility, they can effectively curb the phenomenon of financialization, thereby enhancing the discretion of their innovation funds. Second, fulfillment of social responsibility can effectively mitigate the impact of uncertainty and reduce the number of enterprises. As a “risk defense” motivation, financial asset holdings can be increased. Released squeezed funds can be invested in innovative projects, thereby increasing the intensity of enterprise innovation. Finally, as corporate financialization is also an effective way for enterprises to manipulate surpluses, social responsibility information disclosure can inhibit the smoothing of income, whitewashing statements, and so on, thereby prompting enterprises to reduce hiding negative information, shifting the focus of the business to enterprise innovation, which can enhance sustained competitive advantages. In addition, though corporate financialization can generate certain benefits in the short-term for innovative projects, it may not be invested in and may weaken management’s innovation motivation and willingness and prompt it to abandon some innovative projects to expand financial investment, thereby gradually increasing dependence on profits. The fulfillment of corporate social responsibility is subject to the supervision of government departments, and policy compulsion can effectively reduce enterprises’ excessive dependence on financial investments, thereby forcing them to return to their core business and enhance their market competitiveness through R&D innovation.

From the agency cost channel, the relationship between shareholders and management is at the core of corporate governance. The confidentiality and high uncertainty of corporate innovation activities aggravate the degree of information asymmetry between the two parties, which can lead to internal controllers’ excessive attention to short-term performance goals and negligence of corporate innovation. Fulfillment of social responsibility can drive innovation by reducing agency conflicts and governance costs. First, in view of the mandatory CSR information disclosure policy, management will consciously regulate operations to reduce on-the-job consumption, moral hazards, and excessive investment, thereby reducing the degree of information asymmetry between shareholders and management, saving on agency costs and enhancing the flexible space for enterprises to conduct innovative activities [54]. Second, fulfilling social responsibility is conducive to curbing management’s motivation to pursue private interests through surplus manipulation and can effectively improve the transparency of accounting information while reducing agency costs to facilitate fundraising from external sources at low financing costs to provide continuous financial security for innovative projects. Third, enterprises’ practice of social responsibility is not only in line with the law of social development but also the embodiment of their pursuit of long-term interests, requiring management to not limit itself to the acquisition of short-term profits when selecting investment projects but to pay attention to long-term value and drive its long-term interests as well as those of shareholders to demonstrate convergence. This practice may encourage management to take the initiative to safeguard the interests of the enterprise and reduce its self-interest behavior by alleviating agent conflicts, thereby improving the risk-bearing level of enterprise innovation. At the same time, the reduction of enterprise agency costs can help reduce resource waste to optimize the allocation efficiency of distinct types of innovative resources. Based on this argument, this study proposes the following hypothesis.

Hypothesis 1 (H1). *Fulfillment of social responsibility promotes corporate innovation.*

Hypothesis 2 (H2). *Corporate financialization plays an intermediary role in the impact of social responsibility on corporate innovation.*

Hypothesis 3 (H3). *Agency costs play an intermediary role in the impact of social responsibility on corporate innovation.*

3.2. Regulatory Role of Commercial Credit and Institutional Investors

Commercial credit is a deferred payment behavior agreed upon by the two parties of a transaction based on their trust relationship established through daily operations, which can effectively reduce transaction costs and lead to the adjustment of the structure of enterprise assets and liabilities, thereby impacting innovative decisions and behaviors. The regulatory mechanism of commercial credit in the relationship between social responsibility and enterprise innovation is as follows: first, according to the theory of alternative financing, banks and other financial institutions generally practice credit allocation when issuing loans, and the information advantage of commercial credit financing can have a certain substitution effect on bank loans, thereby broadening the financing channels of enterprises, alleviating cash flow pressure, and providing a potential source of funds for enterprise innovation [55]. Through interest-free, unsecured, and simple business credit, companies can reduce their financing costs and allocate increased resources to innovative projects. Second, commercial credit is the indirect financing provided by suppliers to trading enterprises. Suppliers continuously monitor enterprises' financial and operating conditions in long-term trade transactions and conduct on-the-spot enterprise inspections. Business operations will also have a supervisory and governance effect. Suppliers are one of the most important dimensions of corporate social responsibility, and the camera governance effect of their claims can effectively restrain management's opportunistic behavior and improve the corporate governance model, thereby helping to enhance the implementation of corporate innovation decisions. Third, commercial credit is the suppliers' performance in the market in passing on a company's recognized operating results, reflecting the company's ability to perform in a timely manner with minimal risk of default, thereby sending a positive signal to stakeholders to reduce risk expectations. In addition, in fierce market competition, commercial credit is enterprises' means of competition. Specifically, the reputation value created by a positive social image is an important intangible asset that has a favorable impact on improving the trust between enterprises and external stakeholders, making it advantageous for enterprises to organize innovative activities to win support from all parties. Based on this argument, this study proposes the following hypothesis:

Hypothesis 4 (H4). *Business credit will exacerbate the role of social responsibility in promoting corporate innovation.*

Institutional investors play an important role in influencing corporate strategic decisions. Moreover, when they play the role of profit takers, they pay excessive attention to short-term performance, which can trigger management to significantly reduce its short-sighted behavior of corporate innovation to alleviate short-term performance pressure. First, "collusion" between institutional investors and management based on profit-seeking motives will weaken the governance effect of internal controls, resulting in reduced information transparency and increased agency problems, which in turn will adversely affect the development of corporate innovation activities. Second, as institutional investors in China's capital markets are mostly short-term traders, they may inhibit high-risk and long-term innovation projects and favor other investments that are likely to highlight short-term performance, thereby prompting companies to gradually develop a short-sighted investment style. When short-term corporate performance is pessimistic, institutional investors tend to sell stocks to stoke management concerns about high compensation or status uncertainty, forcing enterprises to reduce their willingness to innovate. In addition, institutional investors' lack of access to enterprise-specific information makes it difficult for them to truly play an external governance role to effectively integrate innovation projects that can achieve long-term value and use their voting rights to hinder resource support for innovative proposals, thereby inhibiting the development of the innovation activities of socially

responsible enterprises. Finally, institutional investors will induce management to engage in “market value management” to meet their needs, such as insider trading, manipulation of surplus, and the timing of surplus announcements, resulting in a significant reduction in the trust of information users in their operating performance, thereby causing unnecessary interference in the formulation, evaluation, and implementation of corporate innovation strategies. Based on this argument, this study proposes the following hypothesis:

Hypothesis 5 (H5). *Institutional investors weaken the role of social responsibility in promoting corporate innovation.*

4. Empirical Research Design

4.1. Sample Data Sources

In this study, the annual data of Chinese A-share listed companies from 2010 to 2020 were selected as the research sample. The data are processed through the following steps. First, according to the 2012 version of the industry classification standard, financial listed companies are excluded as well as ST and ST* companies and listed companies with missing data. A total of 23,446 observations were obtained. The data used in this study were collected mainly from the Wonder database and CSMAR database. Data on economic policy uncertainty were collected from the China economic policy uncertainty index constructed by Baker et al. [56].

4.2. Variable Construction and Definitions

4.2.1. Explained Variable: Enterprise Innovation (Rd)

In the literature on the indicators of enterprise innovation, the proportion of R&D investment in the total assets or operating income and increase in the intangible assets in the fiscal year are used as proxy variables for the measurement. This study draws on the research of Aghion et al. [57] regarding this adoption. The proportion of the R&D investment in the total assets is a measure of enterprise innovation, and the larger the proportion, the stronger the innovation investment. In the robustness test, the proportion of the R&D investment in the operating income is used as a proxy variable for enterprise innovation.

4.2.2. Explanatory Variable: Social Responsibility (Re)

Drawing on the practices of Cheng et al. [23] and Cook et al. [22], the scoring method of the social responsibility evaluation index system is used in this study to weigh each social responsibility dimension to calculate the total score. The social responsibility report data of the listed companies of the Hexun Network are used in this study for the measurement, and the index is quantified from five dimensions: shareholder responsibility, employee responsibility, customer responsibility, social responsibility, and environmental responsibility. Thus, the index construction is highly scientific and reasonable, and the higher the CSR score, the better the performance of the enterprise in fulfilling its social responsibility.

4.2.3. Control Variables

The size of the enterprise is the natural logarithm of the total assets at the end of the period, the gearing ratio (Lev) is the ratio of total liabilities to total assets at the end of the period, and cash from operations is the ratio of net cash flow from operations in the current period to total assets at the end of the period. In addition, return on assets (ROA) is expressed as the ratio of the net profit to total assets, the size of the board (Board) is measured by the total number of individuals on the board of directors of the enterprise, and the proportion of independent directors (Ind) is the ratio of the number of independent directors to the total number of directors on the board. Furthermore, the degree of equity concentration (Top) is the proportion of the shares held by the largest shareholder, and *Dual* is whether the general manager and chairman of the board of directors are the same person. The industry dummy variable (Industry) takes a value of 1 in industry and 0 otherwise. The annual dummy variable (Year) takes a value of 1 in year *t* and 0 otherwise.

4.2.4. Mediation Variables

Corporate Financialization (Fin)

Drawing on the approach of Gao et al. [53], this study measures the level of corporate financialization using the proportion of corporate financial asset holdings in total assets at the end of the period, specifically, the ratio of financial trading assets, financial assets available for sale, holding-to-maturity investments, and real estate investments to the total assets at the end of the period.

Agent Costs (Mc)

Agency costs are a key indicator reflecting the severity of the problem of trusting an enterprise based on the research of Anderson et al. [58], and the management expense rate is used in this study to measure agency costs, that is, the ratio of management expenses to the core business income.

4.2.5. Moderator Variables

Commercial Credit (Tc)

Commercial credit is an important part of the external financing of enterprises, and compared with traditional bank credit financing, its advantages of being unsecured and having low costs provide diversified channels for alleviating financing constraints. The ratio of the sum of accounts payable, notes payable, and advance receipts to the total assets at the end of the period is used in this study to represent the scale of enterprise commercial credit financing.

Institutional Investors (Ins)

With the development and growth of China's capital market, institutional investors have relied on their professional background and resources to become important participants in enterprises' daily business decisions. Their short-term profit-seeking motivation may restrict the implementation of long-term innovation strategies. The ratio of institutional investors to the total share capital of a listed company is used in this study to measure this variable.

4.2.6. Heterogeneity Variables

Economic Policy Uncertainty (Epu)

Economic policy uncertainty is measured in this study using the economic policy uncertainty index constructed by Baker et al. [56] and the larger the index, the higher the degree of uncertainty in the macroeconomic policy. In this study, the economic policy uncertainty index is divided by mean, and the above-average definition is 1 for the group with high economic policy uncertainty and 0 for the group with low economic policy uncertainty.

Equity Balance (Bal)

The ratio of equity balance is the shareholding ratio of the second to fifth largest shareholders of the enterprise to the shareholding ratio of the largest shareholder, and the larger the value, the higher the degree of balance. The equity balance of an enterprise minus the annual average is used in this study, and if the equity balance is greater than the mean, then the enterprise belongs to the group with a high equity balance. However, in this study, enterprises are defined as a group with low equity balance.

Nature of Enterprise Property Rights (Soe)

According to the nature of the ultimate controller, enterprises are classified in this study as state-owned or non-state-owned. A state-owned enterprise is assigned a value of 1, and a non-state-owned enterprise is assigned a value of 0. Thus, the sample of enterprises is divided into a subsample of state-owned enterprises and a subsample of non-state-owned enterprises. All of the variable name, symbol and definitions are presented in Table 1.

Table 1. Variable name, symbol and definitions.

Variable Name	Variable Symbol	Variable Definition
Enterprise innovation	Rd	Ratio of R&D investment to total assets at the end of the period
Social responsibility	Re	Hexun Network Social Responsibility Report Database
Corporate financialization	Fin	Proportion of financial assets held by the enterprise in the total assets at the end of the period
Agent costs	Mc	Management expenses as a percentage of the core business income
Commercial credit	Tc	(Accounts payable + notes payable + accounts receivable in advance)/total assets at the end of the period
Institutional investors	Ins	Institutional investors as a percentage of the total share capital of a listed company
Economic policy uncertainty	Epu	Takes the value of 1 if the degree of uncertainty is above the mean, and 0 otherwise
Equity balance	Bal	Takes the value of 1 if the value is above the annual mean, and 0 otherwise
Nature of property rights	Soe	If the value of a state-owned enterprise is 1, then the value of a non-state-owned enterprise is 0
Enterprise size	Size	Natural logarithm of total assets at the end of the period
Gearing ratio	Lev	Ratio of total liabilities to total assets at the end of the period
Operating net cash flow	Cash	Ratio of net cash flow from operations to total assets at the end of the period
Return on assets	ROA	Ratio of net profit to total assets
Board size	Broad	Number of board members
Proportion of independent directors	Ind	Proportion of independent directors in the total number of board members
Equity concentration	Top	Shareholding ratio of the largest shareholder
Two jobs in one	Dual	Takes the value of 1 if the general manager and chairman are the same individual, and 0 otherwise
Industry dummy variable	Industry	Takes the value of 1 if it belongs to industry <i>i</i> , and 0 otherwise
Annual dummy variable	Year	Takes the value of 1 if it belongs in year <i>t</i> , and 0 otherwise

Construction of Econometric Models

To examine the impact of social responsibility on corporate innovation, this study constructs a panel regression benchmark model, as follows:

$$Rd_{i,t} = \alpha_0 + \alpha_1 Re_{i,t} + \alpha_2 Size_{i,t} + \alpha_3 Lev_{i,t} + \alpha_4 Cash_{i,t} + \alpha_5 Roa_{i,t} + \alpha_6 Broad_{i,t} + \alpha_7 Ind_{i,t} + \alpha_8 Top_{i,t} + \alpha_9 Dual_{i,t} + Industry_i + Year_t + \varepsilon_{i,t} \quad (1)$$

where the interpreted variable $Rd_{i,t}$ represents enterprise innovation, which is measured by the ratio of R&D investment to total assets; the explanatory variable is $Re_{i,t}$ social responsibility, which is measured by Hexun Social Responsibility Report Index; α_0 is an intercept item; coefficient, α_1 represents fulfillment of social responsibility, which is measured by enterprise innovation degree of impact; $\varepsilon_{i,t}$ is a residual term; and the remaining variables are the control variables. To further investigate the degree of influence of enterprise heterogeneity on the relationship between fulfillment of social responsibility and enterprise innovation, in this study, economic policy uncertainty is divided into a group with high economic policy uncertainty and a group with low economic policy uncertainty, and equity balance is divided into a group with a high equity balance and a group with a low equity balance. Furthermore, enterprises are divided into state-owned enterprises and non-state-

owned enterprises according to the nature of the enterprise property rights, and the model is divided into the above models for the group regression testing.

In this study, referring to Baron et al. [59], a three-step intermediary effect test procedure is used to verify whether the intermediary mechanism of corporate financialization and agency costs is established. First, the fulfillment of social responsibility in model (1) has a significant impact on corporate innovation. Second, whether the impact of social responsibility on corporate financialization and agency costs is significant is determined. Finally, the fulfillment of social responsibility and corporate financialization and agency costs are included in the regression model at the same time, and whether the coefficient of the two variables is significant is determined. If the coefficients are significant, then the intermediary channels are identified. Specifically, to investigate whether the fulfillment of social responsibility affects corporate innovation through the corporate financialization channel, a mediation effect test model is constructed, as follows:

$$Fin_{i,t} = \alpha_0 + \alpha_1 Re_{i,t} + \alpha_2 Size_{i,t} + \alpha_3 Lev_{i,t} + \alpha_4 Cash_{i,t} + \alpha_5 Roa_{i,t} + \alpha_6 Broad_{i,t} + \alpha_7 Ind_{i,t} + \alpha_8 Top_{i,t} + \alpha_9 Dual_{i,t} + Industry_i + Year_t + \varepsilon_{i,t} \quad (2)$$

$$Rd_{i,t} = \alpha_0 + \alpha_1 Re_{i,t} + \alpha_2 Fin_{i,t} + \alpha_3 Size_{i,t} + \alpha_4 Lev_{i,t} + \alpha_5 Cash_{i,t} + \alpha_6 Roa_{i,t} + \alpha_7 Broad_{i,t} + \alpha_8 Ind_{i,t} + \alpha_9 Top_{i,t} + \alpha_{10} Dual_{i,t} + Industry_i + Year_t + \varepsilon_{i,t} \quad (3)$$

To examine whether the fulfillment of social responsibility affects enterprise innovation through the agency cost channel, a mediation effect test model is constructed, as follows:

$$Mc_{i,t} = \alpha_0 + \alpha_1 Re_{i,t} + \alpha_2 Size_{i,t} + \alpha_3 Lev_{i,t} + \alpha_4 Cash_{i,t} + \alpha_5 Roa_{i,t} + \alpha_6 Broad_{i,t} + \alpha_7 Ind_{i,t} + \alpha_8 Top_{i,t} + \alpha_9 Dual_{i,t} + Industry_i + Year_t + \varepsilon_{i,t} \quad (4)$$

$$Rd_{i,t} = \alpha_0 + \alpha_1 Re_{i,t} + \alpha_2 Mc_{i,t} + \alpha_3 Size_{i,t} + \alpha_4 Lev_{i,t} + \alpha_5 Cash_{i,t} + \alpha_6 Roa_{i,t} + \alpha_7 Broad_{i,t} + \alpha_8 Ind_{i,t} + \alpha_9 Top_{i,t} + \alpha_{10} Dual_{i,t} + Industry_i + Year_t + \varepsilon_{i,t} \quad (5)$$

To examine the regulatory role of commercial credit, a moderating effect test model is constructed, as follows:

$$Rd_{i,t} = \alpha_0 + \alpha_1 Re_{i,t} + \alpha_2 Tc_{i,t} + \alpha_3 Re_{i,t} * Tc_{i,t} + \alpha_4 Size_{i,t} + \alpha_5 Lev_{i,t} + \alpha_6 Cash_{i,t} + \alpha_7 Roa_{i,t} + \alpha_8 Broad_{i,t} + \alpha_9 Ind_{i,t} + \alpha_{10} Top_{i,t} + \alpha_{11} Dual_{i,t} + Industry_i + Year_t + \varepsilon_{i,t} \quad (6)$$

To examine the regulatory role of institutional investors, a regulatory effect test model is constructed, as follows:

$$Rd_{i,t} = \alpha_0 + \alpha_1 Re_{i,t} + \alpha_2 Ins_{i,t} + \alpha_3 Re_{i,t} * Ins_{i,t} + \alpha_4 Size_{i,t} + \alpha_5 Lev_{i,t} + \alpha_6 Cash_{i,t} + \alpha_7 Roa_{i,t} + \alpha_8 Broad_{i,t} + \alpha_9 Ind_{i,t} + \alpha_{10} Top_{i,t} + \alpha_{11} Dual_{i,t} + Industry_i + Year_t + \varepsilon_{i,t} \quad (7)$$

Descriptive Statistics of Variables

Table 2 presents the descriptive statistical results of the main variables, with a total of 23,446 observations over the 2010–2020 sample period. The mean of enterprise innovation is 0.0227, and the standard deviation is 0.0193. The average value of social responsibility is 0.2322, and the standard deviation is 0.1427, indicating that corporate social responsibility behavior must be strengthened. The mean of corporate financialization is 0.0049, and the standard deviation is 0.0132. The mean of agent costs is 0.1795, and the standard deviation is 0.1619. The average value of commercial credit is 0.1569, and the standard deviation is 0.1113, thereby reflecting the small scale of the enterprises using commercial credit financing. The average value of institutional investors is 0.4196, which means that most of the companies have institutional investor shareholdings. The mean value of the economic policy uncertainty variable is 0.6054, thereby indicating that economic policy uncertainty varied considerably during the sample period. The average of equity balance is 0.3980, the mean of nature of enterprise property rights is 0.3024, and the standard deviation is 0.4593. Regarding the control variables, the average enterprise size is 22.0442, indicating that the sample enterprises have a certain scale. The average asset–liability ratio is 0.3976, which

is relatively high owing to enterprises' tendency to finance debts. The average operating net cash flow is 0.0486, which means that cash flow sustainability is a key factor affecting corporate innovation. The average return on assets is 0.0481, the average board size is 8.5008, and the standard deviation is 1.6027. The average ratio of independent directors and equity concentration is 0.3755 and 0.5470, respectively, the average of Dual is 0.3094, and the standard deviation is 0.4622.

Table 2. Descriptive statistical results of main variables.

Variable Name	Sample	Mean	Standard Deviation	Minimum	Maximum
Enterprise innovation	23,446	0.0227	0.0193	0.0001	0.1055
Social responsibility	23,446	0.2322	0.1427	−0.0289	0.7314
Corporate financialization	23,446	0.0049	0.0132	−0.0211	0.0865
Agent costs	23,446	0.1795	0.1619	0.0261	1.0473
Commercial credit	23,446	0.1569	0.1113	0.0081	0.5183
Institutional investors	23,446	0.4196	0.2542	0.0025	0.9167
Economic policy uncertainty	23,446	0.6054	0.4888	0.0000	1.0000
Equity balance	23,442	0.3980	0.4895	0.0000	1.0000
Nature of property rights	23,446	0.3024	0.4593	0.0000	1.0000
Enterprise size	23,446	22.0442	1.2644	19.8732	26.0398
Gearing ratio	23,446	0.3976	0.2017	0.0477	0.8837
Operating net cash flow	23,446	0.0486	0.0662	−0.1388	0.2376
Return on assets	23,446	0.0481	0.0647	−0.2271	0.2319
Board size	23,446	8.5008	1.6027	5.0000	14.0000
Proportion of independent directors	23,446	0.3755	0.0530	0.3333	0.5714
Equity concentration	23,446	0.5470	0.1490	0.2147	0.8863
Two jobs in one	23,446	0.3094	0.4622	0.0000	1.0000

5. Empirical Testing and Analysis of Results

5.1. Benchmark Model Test: Impact of Social Responsibility on Enterprise Innovation

Table 3 reports the impact of social responsibility on corporate innovation and the results of its intermediary role. According to the regression results in column (1), the impact coefficient of social responsibility on corporate innovation is 0.0027 and significant, which means that a significant positive correlation exists between social responsibility and corporate innovation. Thus, H1 is supported. Active social responsibility has a signaling function, which can help reduce information asymmetry between enterprises and external stakeholders to obtain innovation support funds by alleviating financing constraints. Enterprises that focus on fulfilling their social responsibility can effectively attract innovative talents, thereby increasing their human capital value to conduct innovative activities. In addition, by fulfilling their social responsibility, enterprises can create a positive social image and obtain policy resources easily to tilt corporate innovation, thereby accumulating increased social capital to alleviate innovation constraints. Regarding the control variables, the coefficient of enterprise size is −0.0057 and significant at the 1% level, thereby indicating that large enterprises may restrict corporate innovation in fulfilling their social responsibility owing to their large organizational structure and high operating costs. The coefficients of the asset–liability ratio and operating net cash flow are significantly positive, indicating that corporate debt financing and sufficient self-owned funds have a supporting effect on enterprise innovation, which can help alleviate the financing constraints of innovation. The coefficient of board size is also significantly positive, possibly because a diversified board structure can improve the objectivity and rationality of innovation decisions, thereby reducing the sunk costs of corporate innovation. If the equity concentration is high, then major shareholders' motivation to participate in corporate supervision and governance and pursue long-term interests will be strong. Thus, they will be particularly concerned about innovative projects that can achieve long-term value. The coefficient of Dual is significantly positive, thereby indicating that the championship effect of corporate management can im-

prove executives' risk tolerance and focus on cultivating continuous innovation advantages to achieve self-worth and social recognition.

Table 3. Impact of social responsibility on corporate innovation and results of its intermediary role.

	(1) Rd	(2) End	(3) Rd	(4) Mc	(5) Rd
Re	0.0027 *** (2.62)	−0.0587 *** (−12.58)	0.0027 ** (2.53)	−0.0292 ** (−2.07)	0.0027 ** (2.56)
End			−0.0015 (−0.96)		
Mc					−0.0021 *** (−3.93)
Size	−0.0057 *** (−19.44)	−0.0192 *** (−14.54)	−0.0058 *** (−19.44)	0.0590 *** (14.82)	−0.0056 *** (−18.93)
Lev	0.0064 *** (7.02)	0.0891 *** (21.86)	0.0065 *** (7.09)	−0.0690 *** (−5.60)	0.0063 *** (6.86)
Cash	0.0084 *** (4.45)	−0.1225 *** (−14.50)	0.0082 *** (4.33)	0.0448 * (1.76)	0.0085 *** (4.50)
ROA	−0.0018 (−1.14)	0.5045 *** (69.91)	−0.0011 (−0.59)	−0.1663 *** (−7.63)	−0.0022 (−1.35)
Broad	0.0006 *** (3.58)	−0.0015 ** (−2.14)	0.0005 *** (3.56)	0.0001 (0.03)	0.0006 *** (3.58)
Ins	0.0056 (1.52)	0.0080 (0.49)	0.0056 (1.52)	0.0716 (1.44)	0.0058 (1.56)
Top	0.0042 ** (2.45)	−0.0362 *** (−4.74)	0.0041 ** (2.41)	0.0180 (0.78)	0.0042 ** (2.47)
Dual	0.0012 *** (3.10)	0.0012 (0.73)	0.0012 *** (3.11)	−0.0113 ** (−2.18)	0.0012 *** (3.04)
F value	26.88	145.69	26.16	28.87	26.58
Constant term	0.1436 *** (19.79)	0.4300 *** (13.24)	0.1443 *** (19.79)	−1.2349 *** (−12.59)	0.1410 *** (19.36)
Industry	Control	Control	Control	Control	Control
year	Control	Control	Control	Control	Control
Sample	23,446	23,446	23,446	23,446	23,446

Note: *, **, and *** indicate statistical significance at the 1%, 5%, and 10% levels, respectively; t values are in parentheses.

5.2. Intermediary Role Test: Enterprise Financialization and Agency Costs

Columns (2)–(5) of Table 3 show the results of the test of the intermediary role of corporate financialization and agency costs. From column (2), it can be seen that the impact coefficient of social responsibility on corporate financialization is −0.0587 and significant at the 1% level, thereby indicating that the fulfillment of social responsibility can help curb the phenomenon of corporate financialization. In column (3), the impact coefficient of social responsibility fulfillment and corporate financialization on enterprise innovation is 0.0027 and −0.0015, respectively, but the coefficient of corporate financialization is not significant. The Sobel test results reveal that the z-value is 3.041 and significant, thereby indicating that corporate financialization affects fulfillment of social responsibility and plays a partial intermediary role in the relationship between fulfillment of social responsibility and enterprise innovation. From the perspective of the corporate financialization channel, enterprises that actively assume social responsibility can inhibit the capital crowding effect brought about by corporate financialization, prompt management to reduce its short-sighted behavior, and increase long-term value-creating investment activities. Socially responsible companies have high requirements for information disclosure quality, and mandatory regulatory measures may force them to reduce their short-term arbitrage behavior, thereby increasing innovation to achieve a sustained competitive advantage. Column (4) reveals that the impact coefficient of social responsibility on agency costs is −0.0292 and significant at the

5% level, thereby indicating that the fulfillment of social responsibility reduces agency costs for enterprises. In column (5), the impact coefficient of social responsibility and agency costs on enterprise innovation is 0.0027 and -0.0021 , respectively, and significant at the 5% and 1% levels, respectively, indicating that agency costs bear part of the intermediary role of fulfilling social responsibility in the impact of corporate innovation. From the perspective of the agency cost channel, fulfilling social responsibility is conducive to reducing agent conflicts and restricting the self-interest behavior of management, thereby reducing the degree of information asymmetry between shareholders and management and providing an organizational guarantee of enterprise innovation. Fulfillment of social responsibility emphasizes that corporate investment should not be limited to short-term profits. However, it should focus on long-term value, and corporate innovation is a concrete embodiment of the convergence of long-term interests between shareholders and management, which in turn can motivate management to improve its risk tolerance and reduce its moral hazard behavior.

5.3. Regulatory Role Test: Commercial Credit and Institutional Investors

Table 4 reports the results of the reconciliation test for business credit and institutional investors. Column (1) shows that the multiplication coefficient is 0.0002 and significant, indicating that business credit has a positive regulatory effect. Thus, consistent with the assumptions, H4 is supported. Corporations with social responsibility have a good reputation, and upstream suppliers are willing to provide them with easy-to-use commercial credit financing to alleviate cash flow pressure, thereby reducing the negative impact of bank credit rationing. Commercial credit has a supervision and governance effect on the daily operations of enterprises, and if violations or high-risk behaviors are found, then the commercial credit scale may be reduced in a timely manner to avoid risks. This process may force enterprises to perform on time and improve their governance model continuously, thereby enhancing the implementation efficiency of innovative projects. The multiplication coefficient between social responsibility and institutional investors in the column (2) regression is -0.0063 and significant at the 10% level, which means that institutional investors inhibit the development of corporate innovation activities, which is in line with the assumption proposed in H5. The “collusion” behavior of institutional investors and management will increase the short-term performance pressure on management, which will prompt it to pay excessive attention to short-term performance and ignore the long-term value of the enterprise, thereby engaging in short-sighted behaviors that are not conducive to the company’s innovative activities. Institutional investors have yet to improve their ability to obtain or select information for genuine integration into corporate governance mechanisms and may hinder the adoption and implementation of innovative solutions, which may adversely affect the continued implementation of socially responsible corporate innovation projects.

Table 4. Results of examination of moderating role of commercial credit and institutional investors.

	(1) Rd	(2) Rd
Re	0.0001 (0.07)	0.0060 *** (2.85)
Tc	0.0060 ** (2.28)	

Table 4. Cont.

	(1) Rd	(2) Rd
Tc × Re	0.0002 ** (2.16)	
Into		−0.0038 ** (−2.12)
Ins × Re		−0.0063 * (−1.72)
Size	−0.0058 *** (−19.56)	−0.0056 *** (−18.49)
Lev	0.0049 *** (5.05)	0.0065 *** (7.09)
Cash	0.0075 *** (3.92)	0.0085 *** (4.52)
ROA	−0.0019 (−1.18)	−0.0020 (−1.21)
Broad	0.0005 *** (3.48)	0.0006 *** (3.64)
In	0.0054 (1.47)	0.0052 (1.40)
Top	0.0043 ** (2.54)	0.0078 *** (3.79)
Dual	0.0012*** (3.18)	0.0012 *** (3.12)
F value	26.09	25.88
Constant term	0.1443 *** (19.88)	0.1391 *** (18.91)
Industry	Control	Control
year	Control	Control
Sample	23,446	23,446

Note: *, **, and *** indicate statistical significance at the 1%, 5%, and 10% levels, respectively; t values are in parentheses.

5.4. Robustness Test

To test the reliability of the above results, a robustness test was conducted in this study.

1. The explained variable measurement method was changed. Table 5 reports the robustness and endogenous test results as follows: in column (1), replace the enterprise innovation measurement with a dependent variable, adopt R&D investment as the percentage of the operating income, and use Rd1 as a proxy variable for enterprise innovation. The results of the regression analysis are presented. The coefficient of influence of fulfillment of social responsibility on corporate innovation is 0.6598 and significant at the 5% level. This result shows that the conclusion of this study is relatively stable.
2. Considering the implementation of the Company Law in 2014, the fulfillment of corporate social responsibility is determined as a form of law, so 2014–2020 was selected as the sample range in this study. Column 2 of Table 5 shows that the impact of social responsibility on corporate innovation remains significantly positive, further validating the hypotheses.

Table 5. Robustness and endogenous test results.

	Replace the Dependent Variable (1) Rd1	Change the Sample Interval (2) Rd	Phase I (3) Re	Phase II (4) Rd
Re	0.6598 ** (2.10)	1.2129 ** (2.39)		0.0173 *** (6.53)
Re-IV			0.4260 *** (79.11)	
Size	−0.1409 (−1.59)	−0.2034 (−1.44)	0.0154 *** (21.03)	−0.0027 *** (−17.80)
Lev	−0.2044 (−0.75)	−0.3603 (−0.92)	−0.0165 *** (−4.04)	0.0028 *** (3.28)
Cash	−2.4594 *** (−4.33)	−3.6726 *** (−4.61)	0.1129 *** (10.46)	0.0208 *** (9.20)
ROA	−2.9021 *** (−5.98)	−3.9501 *** (−5.94)	0.4162 *** (43.65)	0.0130 *** (6.53)
Broad	0.0049 (0.11)	0.0124 (0.17)	0.0014 ** (2.52)	0.0002 (1.32)
In	0.0792 (0.07)	0.1264 (0.07)	0.0109 (0.72)	0.0061 * (1.92)
Top	0.2050 (0.40)	0.2067 (0.23)	0.0391 *** (7.89)	0.0011 (1.09)
Dual	0.0113 (0.10)	0.0012 (0.01)	−0.0009 (−0.53)	0.0020 *** (5.92)
F value	2.20	2.54	510.77	138.45
Constant term	3.1600 (1.45)	4.5472 (1.25)	−0.2893 *** (−15.59)	0.5691 *** (7.37)
Industry	Control	Control	Control	Control
year	Control	Control	Control	Control
Sample	23,446	18,061	23,445	23,445

Note: *, **, and *** indicate statistical significance at the 1%, 5%, and 10% levels, respectively; t values are in parentheses.

5.5. Endogenous Testing

To alleviate the interference of endogenous problems on the conclusions of this study, the tool variable method was used for the verification. In this study, the social responsibility index, with a lag of one period, was selected as a tool variable for the explanatory variable. The results of the endogenous tests are reported in columns (3) and (4) of Table 5. Specifically, the coefficient of the instrumental variable and social responsibility in column (3) in the first phase is 0.4260 and significant at the 1% level. The second phase in column (4) fulfills social responsibility for corporate innovation. The results of this study are consistent with the above results, with an impact coefficient of 0.0173, which is significant at the 1% level, thereby indicating that the model estimates in this study are valid.

6. Further Research: Enterprise Heterogeneity Analyses

6.1. Group Test of Economic Policy Uncertainty

In this study, the sample enterprises were divided into a group with high economic policy uncertainty and a group with low economic policy uncertainty and examined separately to examine the heterogeneity characteristics of the impact of social responsibility on corporate innovation in terms of economic policy uncertainty. Table 6 reports the heterogeneity test results, which show that social responsibility is fulfilled in the subsample with high economic policy uncertainty, and the coefficient of enterprise innovation is −0.0061 and significant. In the subsample with low economic policy uncertainty, the impact of social responsibility on corporate innovation is 0.0023 and significant at the 10% level. The results reveal that efforts to maintain a stable macroeconomic policy environment are conducive to enhancing the role of social responsibility in promoting corporate innovation. This result is observed because the degree of risk of enterprise innovation increases when economic policy uncertainty is high, and the force majeure factors of the macro environment will increase the difficulty of the timely adjustment of innovation strategies, which will re-

duce management's willingness to bear the risk of high-risk innovation projects, thereby inhibiting enterprise innovation.

Table 6. Results of group test on economic policy uncertainty.

	Group with High Economic Policy Uncertainty Rd	Group with Low Economic Policy Uncertainty Rd
Re	−0.0061 *** (−6.58)	0.0023 * (1.67)
Size	−0.0021 *** (−8.10)	−0.0060 *** (−8.63)
Lev	−0.0014 * (−1.96)	0.0239 *** (8.69)
Cash	0.0110 *** (7.62)	0.0144 *** (3.22)
ROA	−0.0090 *** (−8.01)	−0.0156 *** (−3.43)
Broad	0.0002 (1.04)	0.0003 (0.72)
In	0.0039 (1.17)	0.0250 *** (2.83)
Top	−0.0078 *** (−4.29)	−0.0047 (−1.10)
Dual	−0.0005 * (−1.70)	0.0030 *** (3.04)
F value	15.07	13.65
Constant term	0.0723 *** (10.32)	0.1163 *** (6.74)
Industry	Control	Control
year	Control	Control
Sample	14,193	9253

Note: *, and *** indicate statistical significance at the 1%, and 10% levels, respectively; t values are in parentheses.

6.2. Group Inspection of Equity Balance

According to the enterprise equity balance, the sample was divided into a group with high equity balance and a group with a low equity balance, and the results of the group regression analysis are shown in Table 7. Specifically, in the group with a high equity balance, the impact coefficient of social responsibility on enterprise innovation is 0.0049 and significant at the 5% level. In the group with low equity balance, the impact coefficient of social responsibility on corporate innovation is 0.0028 and significant at the 5% level, which means that when the equity system is high, the fulfillment of social responsibility strongly promotes corporate innovation. Specifically, if the equity system of an enterprise is high, then it can help prevent the major shareholders from encroaching on the interests of the small and medium-sized shareholders and improve the scientific rationality of decision making. Equity checks and balances can enhance the supervision effect on the controlling shareholders and management, optimize resource allocation by improving the incentive and punishment mechanisms, stimulate management's enthusiasm for innovation, and improve enterprise innovation efficiency.

Table 7. Results of group test on equity balance.

	Group with High Equity Balance Rd	Group with Low Equity Balance Rd
Re	0.0049 ** (2.15)	0.0028 ** (2.54)
Size	−0.0106 *** (−16.74)	−0.0036 *** (−10.21)
Lev	0.0175 *** (8.67)	0.0015 (1.49)
Cash	0.0078 ** (2.02)	0.0071 *** (3.43)
ROA	−0.0059 * (−1.81)	−0.0019 (−0.82)
Broad	0.0013 *** (3.95)	0.0001 (0.87)
In	0.0253 *** (3.21)	−0.0011 (−0.27)
Top	0.0034 (0.83)	0.0061 *** (2.99)
Dual	0.0008 (1.01)	0.0016 *** (3.78)
F value	19.10	12.78
Constant term	0.2574 *** (16.51)	0.0912 *** (10.61)
Industry	Control	Control
year	Control	Control
Sample	9333	14,113

Note: *, **, and *** indicate statistical significance at the 1%, 5%, and 10% levels, respectively; t values are in parentheses.

6.3. Group Inspection of Nature of Enterprise Property Rights

The nature of property rights is an important institutional factor affecting enterprises' innovation decision making. In this study, the sample enterprises are classified as a state-owned enterprise or non-state-owned enterprise according to the nature of the final controller. Table 8 reports the regression analysis results of the property rights nature group test. Specifically, the impact coefficient of social responsibility on enterprise innovation among the state-owned enterprises is 0.0025 and significant at the 10% level. Among the non-state-owned enterprises, the impact coefficient of social responsibility on enterprise innovation is 0.0024 but not significant, thereby indicating that the active assumption of social responsibility by the state-owned enterprises has a strong positive impact on the development of their innovation activities. The main reason for this result is that China's unique ownership structure determines the significant differences between state-owned and non-state-owned enterprises in terms of their business model and performance goals. State-owned enterprises are the main body leading the fulfillment of social responsibility, and their business strategy is policy-oriented and enjoys the inherent advantages of funds; thus, they can pursue economic benefits while bearing the increased social burden. Hence, state-owned enterprises actively obey state policy guidelines to advocate the enhancement of independent innovation capabilities and submit to policies and strategies to build an innovative country by increasing the intensity of enterprise innovation.

Table 8. Results of group test on nature of enterprise property rights.

	State-Owned Enterprises Rd	Non-State-Owned Enterprises Rd
Re	0.0025 * (1.66)	0.0024 (1.61)
Size	−0.0026 *** (−4.23)	−0.0071 *** (−19.57)
Lev	−0.0008 (−0.36)	0.0079 *** (7.66)
Cash	0.0087 *** (2.66)	0.0074 *** (3.21)
ROA	0.0062 (1.49)	−0.0029 (−1.60)
Broad	−0.0002 (−0.71)	0.0011 *** (5.15)
In	0.0037 (0.64)	0.0093 * (1.89)
Top	−0.0000 (−0.01)	0.0028 (1.25)
Dual	0.0027 *** (3.33)	0.0008 * (1.78)
F value	6.53	26.70
Constant term	0.0719 *** (5.17)	0.1796 *** (19.64)
Industry	Control	Control
year	Control	Control
Sample	7090	16,356

Note: *, and *** indicate statistical significance at the 1%, 5%, and 10% levels, respectively; t values are in parentheses.

7. Conclusions and Policy Recommendations

This study selects the annual data of Chinese A-share listed companies from 2010 to 2020 as the research sample and empirically analyzes the impact of social responsibility on corporate innovation and its mechanism of action. This study further investigates the intermediary role of corporate financialization and agency costs and the moderating role of commercial credit and institutional investors. The main conclusions of this study are summarized as follows: (1) fulfillment of social responsibility has a promoting effect on corporate innovation. The active fulfillment of social responsibility can help build a satisfactory social relationship network, thereby improving access to and support for enterprise innovation resources and increasing the scale of enterprise innovation. (2) Compared with enterprises with high economic policy uncertainty, fulfillment of social responsibility promotes the innovation of enterprises with low economic policy uncertainty. Compared with enterprises with low equity balance, fulfillment of social responsibility will promote the innovation of enterprises with high equity balance. Compared with non-state-owned enterprises, fulfillment of social responsibility will promote the innovation of state-owned enterprises more intensively. (3) Corporate financialization and agency costs play an intermediary role in the relationship between fulfillment of social responsibility and corporate innovation. (4) Commercial credit has a positive regulatory effect on the relationship between fulfillment of social responsibility and enterprise innovation. (5) Institutional investors have a negative regulatory effect on the relationship between the fulfillment of social responsibility and corporate innovation.

In view of the above conclusions, this study gives the following policy recommendations. (1) Actively fulfilling social responsibility can help enterprises obtain various resources through social relationship networks. As fulfillment of social responsibility has a boosting effect on enterprises' innovation decision-making and behavior, government regulatory departments should focus on implementing normative corporate social responsibility policies, encourage enterprises to enhance their initiative of voluntary disclosure

of social responsibility reports to create a positive social image, and include fulfillment of social responsibility in the assessment scope of corporate sustainable development strategies. In addition, the positive incentive effect of the fulfillment of social responsibility on corporate innovation should be strengthened. (2) In view of the impact of economic policy uncertainty, government departments should coordinate the continuous stability of policies when formulating economic policies, reasonably grasp the strength and rhythm of policy adjustments, and strive to maintain the dynamic balance of the enterprise innovation environment. In terms of the impact of equity balance, enterprises should pay attention to the governance effect of a scientific and reasonable equity structure to reduce the negative impact of entrustment and agency problems on the flexibility of an organization to optimize its allocation of innovative resources. With regard to the impact of the nature of property rights, government departments should strengthen the transparency of the disclosure of social responsibility information of state-owned enterprises and urge such enterprises to increase their efforts to lead innovation through public supervision. (3) Regulatory authorities related to the intermediary role of corporate financialization should establish and improve the early warning risk mechanism of corporate financialization, dynamically monitor the potential risks brought about by capital arbitrage behavior, enhance the capital market ecology, optimize the development of the financial market in a timely manner, avoid the excessive influx of real funds into the virtual economy, and alleviate the crowding effect of corporate financialization on innovation at the institutional environment level, which can help boost enterprises' willingness to innovate. (4) In view of the intermediary role of agency costs, enterprises must continuously optimize and improve their compensation incentive mechanism to inhibit management's moral hazard behavior and establish a flexible compensation system linked with innovative performance and salary appraisal. This practice may stimulate management to shift its focus on innovative projects that focus on the long-term value of the enterprise, thereby reducing the degree of information asymmetry between shareholders and management and agency conflicts to create a satisfactory internal environment for enterprise innovation. (5) In terms of the regulatory role of commercial credit, enterprises must build a timely and efficient information disclosure mechanism to strengthen management of commercial credit financing. In the daily operation process, credit financing decisions should be made according to actual operation situations. Attention should be paid to improving the efficiency of the use of commercial credit, thereby improving the discretion of enterprise innovation funds. (6) Regarding the regulatory role of institutional investors, enterprises should strengthen their ability to identify institutional investors' motivations to prevent them and management from jointly engaging in "collusion" behavior to encroach on the interests of the organization. Enterprises should also actively guide institutional investors to effectively participate in corporate governance and broaden participation channels to reduce resistance to innovation and help improve innovation efficiency.

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