

A multi-Factor Analysis for Corporation's CSR and Creativity: Evidence From Chinese Listed Companies

Yun-Xi Wang and Xiao-Shan Huang*

Nanfeng College, Guangzhou, China

Abstract This study applies the data of 2018-2022 Chinese listed companies in the Shanghai and Shenzhen stock market to examine the relationship between corporate social responsibility (CSR), female executives and directors, institutional environment, ownership, and company innovation. The results show that companies prioritizing CSR also emphasize innovation. Additionally, a higher proportion of female executives leads to increased focus on innovation investment, while the findings for female directors are opposite. A strong institutional environment promotes corporate innovation but weakens CSR contribution. The ownership also has a certain influence on both CSR contribution and innovation. However, it is important to note that the pathways of impact are not singular and multiple factors affect both CSR fulfillment and innovative behavior. Overall, this study arises attention that organizations need a comprehensive understanding of the complex relationship between CSR and innovative pursuits to foster sustainable progress and societal well-being.

Keywords Corporate social responsibility; Corporate innovation; Board gender diversity; Executive gender diversity; Institutional environment; Stakeholders

Cite This Article Wang Y.X. and Huang X.S. A multi-Factor Analysis for Corporation's CSR and Creativity: Evidence From Chinese Listed Companies. Cross-Border Trade and E-commerce. 2023, 2(3): 48-61.
<https://doi.org/10.55571/cte.2023062>

Copyright © 2023 by The Authors. Published by Four Dimensions Publishing Group INC. This work is open access and distributed under Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).



Received: October 2, 2023 / Accepted: October 7, 2023 / Published: October 30, 2023

Introduction

In the post-epidemic era, it becomes more difficult for corporations to survive. The society also raised a higher expectation on corporations' performance on Corporate social responsibility(CSR). Meanwhile, as the argument presented by Na et al. (2019), creativity and innovation served as a crucial role for sustainable competitive advantage.

Both elements are essential, many scholars have connected corporate social responsibility with innovation in their previous research. However, the current research is more unilateral or two-sided. Corporations need to take more elements into decision making. When taking other factors into consideration, such as executives' gender or industry types, how should they determine an appropriate measurement model? This topic deserves an in-depth study. Moreover, it is hoped that with the results

of this research, a practical model can be implemented to truly help enterprises balance resources input and strive to maximize the benefits of their investments.

Theoretical background

CSR

Corporate social responsibility (CSR) is a broad concept brought by Sheldon (1924), which described a company should be socially accountable to not only itself, its employees but also its various stakeholders and the public. Engaging in CSR requires corporations to operate in positive ways to all perspectives of society. There are multiple CSR rating methods to describe how corporations behaves in this realm. In this research, an overall rating is applied since it is more suitable to measure CSR performance as a single variable. The potential data of CSR rating for Chinese corporations is MCTI Ratings from RKS. Also, China Corporate Social Responsibility Development Index released by the Chinese Academy of Social Sciences will be referred.

Upper Echelons Theory

Hambrick and Mason(1984) presented Upper Echelons Theory indicated that the senior management team plays a core role in an organization, and the individual characteristics of team members have an important impact on corporate decision-making. Later Conyon and Mallin, (2010) indicated that these characteristics affect the company's strategic and performance. In the existing literature, many scholars use board gender diversity as a key factor influencing CSR and creativity. Hence in this research, board gender will also be included as a key element under Upper Echelons Theory.

Social Role Theory

There are diverse characteristics of senior management team. Social Role Theory explained the differences between males and females in social roles and characters under different social activities (Eagly, 1987). Hence, due to the differences in social roles, female are more altruistic with greater empathy, which also shows in corporate governance. In the process of corporate governance, female directors can pay more attention to the fulfillment of corporate social responsibility. Compared with male, they are willing to spend more time to assume the responsibilities and obligations to others (Newman, 1996). On the other hand, how different social roles of females have impact on creativity is discussed in literature review. Some scholars indicated that female directors were more risk averse which lead to a negative impact on corporate creativity. Therefore, in this research, board gender diversity is considered as a major impact from the characteristics of senior management team.

Corporate social responsibility(CSR) and creativity become mutual significant on corporations' survival. The connections between the two factors has been recognized by scholars in recent years. Since Sheldon (1924) presented the CSR theory, it has been applied into practical fields related to strategy, value chain, performance and etc. Yang and Xu (2018) argued that CSR theory also evaluate how corporations create value for their stakeholders from economic, social and environmental perspectives. Meanwhile, diverse knowledge contributed from the outside enhances the capability of creativity (Wang et al, 2014). To fulfill its social responsibility also abundant its resources of knowledge from various stakeholders (Li et al, 2013). For an instance, customers, as key stakeholders, provide catalyst for corporations' new product (Fang, 2008). Therefore, corporations which actively fulfill their social responsibilities, achieve more resources and diverse knowledge for creativity (Li et al, 2013).

However, one way or mutual connection between CSR and creativity is insufficient. Both elements are under complex influence of multi-factors, while the mediation effect need to be considered as well. Upper Echelons Theory believes that the characteristics of board members will affect the decision

making and the performance of an enterprise (Conyon and Mallin, 2010; Daily et al, 2003.). Based on this theory, many scholars explore how the characteristics of board members or high-level executives are able to effect corporations' creativity. Groysberg et al. (2013) noted that the family role of female helps female board members to focus more on consumers' market, which enables them to provide a more distinctive direction for the company's product or service innovation. Li and Xie (2016) argued that female directors have no significant impact on the company's technological creativity, but they have an effective role in shaping company's innovation strategy when three or more than three female directors attend the board. However, scholars have not reached a consensus on the impact of board gender diversity on corporate creativity. Female are usually considered more risk averse because of physical differences (Zuckerman, 1994). Blake and Hanson (2005) suggested that Female directors and executives based on risk assessment, their participation in innovation is significantly lower than that of males accompanies. On the other hand, some scholars focus their studies on how board gender diversity impacts CSR. Ethics research justified that female pay more attention to ethics than men, which led to a different consequence in CSR decisions (Galbraith and Stephenson, 1993). Xu, et al. (2018) stated that the increase of female in the board will help companies fulfill their social responsibilities to multiple stakeholders due to female board members listen and focus on different stakeholders. Bernardi et al. (2009) indicated that corporations with female board members are more likely to enter the "World's Best Ethical Companies" rankings, since female members more likely to apply charity activities as an effective way to establish public relations (Marx, 2000).

Other scholars focused on different factors which might contribute different level of CSR engagement or creativity. Zhang (2011) indicates that due to institutions in different countries or regions, there are obvious differences in the level of corporate CSR contribution, while the focus on CSR is also different. Campbell (2007) found that both formal institutional rules and social norms have an impact on corporate CSR choices. Meanwhile, Li and Yang (2019) showed in their research that different areas caused different level of impact from CSR to creativity.

In recent years, researchers started to discover the relationships among three variables. Xu and Li (2018) studied executives' gender, institutional environment and decision making process of CSR, which showed that the less developed institutional environment where the corporation is located, the more obvious the positive effect female executives can offer to the company's CSR. While Li and Yang (2019) looked for the relationship between CSR and creativity under the impact of board members' gender. They indicated that the proportion of female board members had negative impact on creativity, but CSR performance mediated this negative effect. Xu et al. (2020) broke down to specific industry, they argued that in media companies, the proportion of female executives has a positive impact on both corporate social responsibility and corporate performance.

However, the existing literature on four factors, which connects CSR and creativity with two more related variables is limited. The literature works for more than four factors is even seldom. How many factors involved and to what level one factor can affect CSR and corporate creativity is still puzzled. The medium effect within factors should also be discussed more prudently.

Hypotheses Development

Corporate Social Responsibility (CSR) and corporate creativity have been one of the hottest issues that attracted common attention from both academic and practical realms in recent years. Studying the output mechanism of the two factors can help scholars to better understand the mechanism of resource allocation and governance model for companies, and at the same time help enterprises improve the resource allocation mechanism, assisting management team to make better decisions. High level of CSR performance and innovation capability continuously contribute competitive advantages for enterprises. Therefore, based on data analysis and modeling, this research will try to sort out the impact of different indicators on the two factors of CSR and creativity, and clarify the relationship between them. On this basis, a measurement model using CSR and innovation as the dual output indicators is constructed to

provide practical suggestions and applicable analysis models for companies to measure resource input in different directions and how affect the output of CSR and innovation.

From previous studies, scholars have incorporated different indicators into the correlation analysis, such as gender of the board of directors, gender of senior management, institutional environment, industry characteristics, and employee engagement. In this topic, these indicators will also be used to analyze the correlation between a single dependent variable and multiple independent variables on a company's CSR and innovation performance, so as to clarify the relationship between different indicators and CSR and innovation. And the mediating effect between factors will also be tested.

The crucial and difficult point of this research at this stage is how to sort out the interrelationships of different indicators and how to deal with the mediating effect between indicators after undertaking the regression model. However, the research at this stage can classify and summarize the indicators previously studied by scholars in the same dimension, and draw a complete conclusion about their impact on the two factors of CSR and innovation, which has certain practical significance.

Based on the discussion, this research arise following hypotheses:

H1: CSR has a positive impact on corporate innovation,

H2a: The gender of the board of directors or senior management has a positive impact on corporate innovation

H2b: The gender of the senior management has a positive impact on corporate innovation

H3: The institutional environment has a positive impact on corporate innovation

H4: the character of property rights has a negative influence on corporate innovation

In previous studies, different scholars have rarely reached a consensus on the impression of a single factor on corporate social responsibility or innovation. This is due to the mediating effect between factors.

Based on the research results of first regression, the mechanism by which multiple factors can simultaneously affect CSR and corporate innovation should have been sorted out. On this basis, this topic will use Structural Equations Model (SEM) to establish a model of CSR and innovation.

The most important and difficult point of the research at this stage is how to construct the model, how to express latent variables through observation variables, and construct a structural model between latent variables. However, the research at this stage can build a model with multiple independent variables with CSR and innovation as output variables through SEM synchronously, which can help companies detect the impact of multiple indicators on CSR and innovation at the same time, which has certain practical value. Based on this discussion, the model in figure.1 is designed.

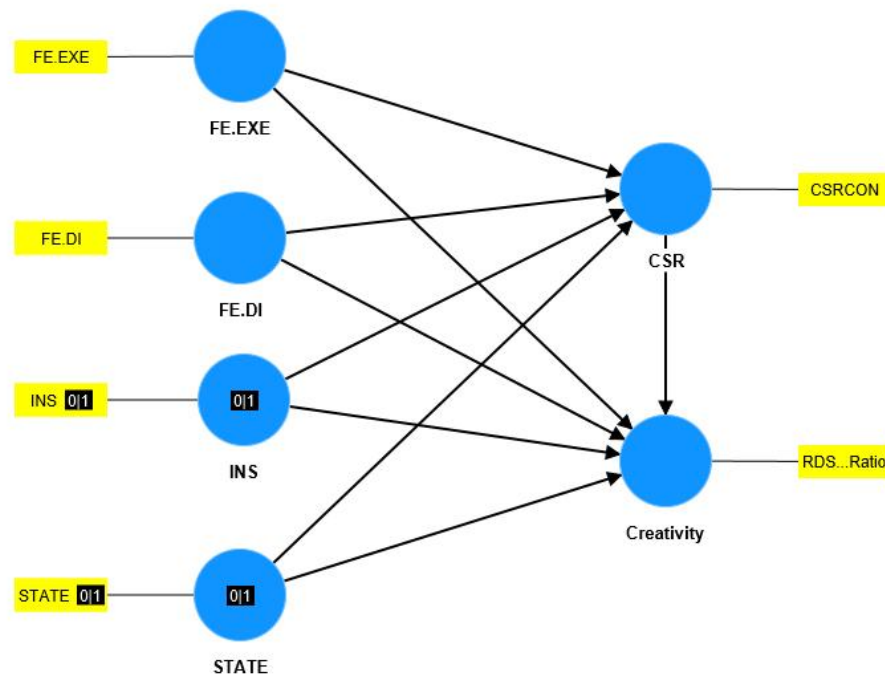


Figure 1. Research model

Methodology

Data collection and analysis

The study focuses on a sample of Chinese listed companies in the Shanghai and Shenzhen stock markets from 2018 to 2022. Considering the substantial differences in operational practices, business nature, capital structure, and key financial indicators between financial and non-financial companies, this study excludes companies from the financial and insurance industries to ensure comparable research objects within the same frame. Furthermore, samples containing ST and *ST companies, which have experienced abnormal financial or other conditions and received special treatment from the China Securities Regulatory Commission, are also excluded. Additionally, extreme values are addressed through supplementary treatments. Ultimately, a total of 2884 "firm-year" observations constitute the research sample.

Data on variables related to corporate technological innovation and the proportion of female directors are obtained from the "Listed Company Innovation Research Database" and the "Listed Company Personal Characteristics Database" of CSMAR. Variables related to corporate social responsibility performance, financial performance, and other dimensions are calculated based on relevant fields in CSMAR "Financial Statement Database." Control variables are sourced from the "Shareholding Nature Database" and the "Financial Indicator Analysis Database" of CSMAR. To mitigate the influence of extreme values, Winsorization method is applied to truncate the sample beyond the 1st and 99th percentiles for the main variables. Data processing is performed using Excel 2019, while model development and estimation are conducted using SPSS 26 and SMART-PLS 4.0.

Variable definition

(1)Dependant variable:

Corporate innovation investment (RDSSR)

Since the innovation activities of enterprises are essentially the process of output brought by innovation input, the existing literature generally chooses the enterprise innovation input or technological innovation output results to measure the innovation performance of enterprises. For innovation investment generally measured by R&D spending (Hagedoorn et al, 2003), there are relevant scholars based on the number of R&D personnel innovation (Huang et al, 2018), or with enterprise patent applications, including invention patent, utility model patent and appearance design patent, new product output to measure (Chen et al, 2017). This paper draws on the past research of scholars, and measures the enterprise innovation investment with the ratio of R & D investment and operating income.

(2) Explanatory variable:

Corporate social responsibility contribution (CSRCON)

Most of the past literature measured the level of CSR by using the comprehensive results of social responsibility evaluation disclosed in the CSR rating database. In this study, the contribution of CSR was measured based on the theory of stakeholders, and the calculation index was designed to measure CSR performance based on data availability. This paper evaluates the social responsibility performance of enterprises by the social responsibility contribution, the proportion of donation expenditure on total operating income.

Female Executive (FE.EXE)

Senior executives refer to the senior managers of the enterprise who, according to the provisions of the Company Law, the managers, deputy managers, financial officers, secretary of the board of directors of the listed company and other personnel stipulated in the articles of association (Xu et al., 2020). Considering the convenience of data acquisition, this study defined senior executives as the proportion of female executives as senior managers.

Board of Directors, gender diversity (FE.DI)

Most of the existing studies measure the gender diversification of female directors based on the proportion of female directors in the board of directors, and construct virtual variables or proportional variables as basic indicators of female directors (Li and Yang, 2019). This paper uses the proportion of female directors in the board of directors as a surrogate variable to measure the gender diversity of the board of directors, namely the ratio of the number of female directors to the total number of board members.

Institutional environment (INS)

According to the method of Wang Xiaolu and Fan Gang, the sample areas were divided into "areas with sound institutional environment" (INS = 1) and "areas with backward institutional environment" (INS = 0). Among them, the areas with sound institutional environment include Beijing, Tianjin, Shanghai, Zhejiang, Jiangsu, Fujian, Guangdong, Liaoning, Shandong and Hebei, and the rest of the provinces are listed as the areas with backward institutional environment (Wang and Fan, 2004).

Property Property (STATE)

According to the property right (STATE), the samples are divided into "SOEs" (STATE = 1) according to the property right (STATE).

(3) controlled variable

Drawing on previous studies, the control variables selected in this paper mainly include company size (AssetSize), capital structure (Leverage), liquidity (Fluidity), profitability (ROA) and enterprise growth (Growth). The description of each variable and the detailed measures are shown in Table 1.

Table 1. Variable Description

Type of variable	Variable name	Variable symbol	Variable metric
Dependant variable	Corporate innovation investment	RDSSR	The proportion of R & D investment in operating revenue
Explanatory variable	Corporate social responsibility contribution	CSRCON	Donation expenditure / total operating revenue

	Female executive ratio	FE.EXE	Number of female senior executives / total number of senior executives
	The proportion of female directors	FE.DI	Number of female directors / total number of directors
	Institutional environment	INS	The area with a sound institutional environment is 1, and the rest is 0
	Property nature	STATE	State-owned enterprises are 1, and the rest is 0
Controlled variable	Company size	AssetSize	Natural logarithm of the total assets
	Capital composition	Leverage	Total liabilities / total assets at the end of the year
	Current ratio	Fluidity	Current liabilities / current assets
	Profitability	ROA	Net profit rate on Total assets (ROA)
	Enterprise growth	Growth	Increase rate of business revenue

Model Construction

To test hypotheses H1-H5, this study selects corporate innovation (innovation investment) as the dependent variable while controlling for other characteristics of the company. The study examines the impact of corporate social responsibility contribution, board gender diversity, top management team diversity, institutional environment, and ownership nature on corporate innovation (innovation investment). Thus, the study constructs both a basic regression model and a structural equation modeling (SEM) model.

$$RDSSR = \beta_0 + \beta_1 CSRCON + \beta_2 FE.EXE + \beta_3 FE.DI + \beta_4 INS + \beta_5 STATE + \beta Controls + \varepsilon$$

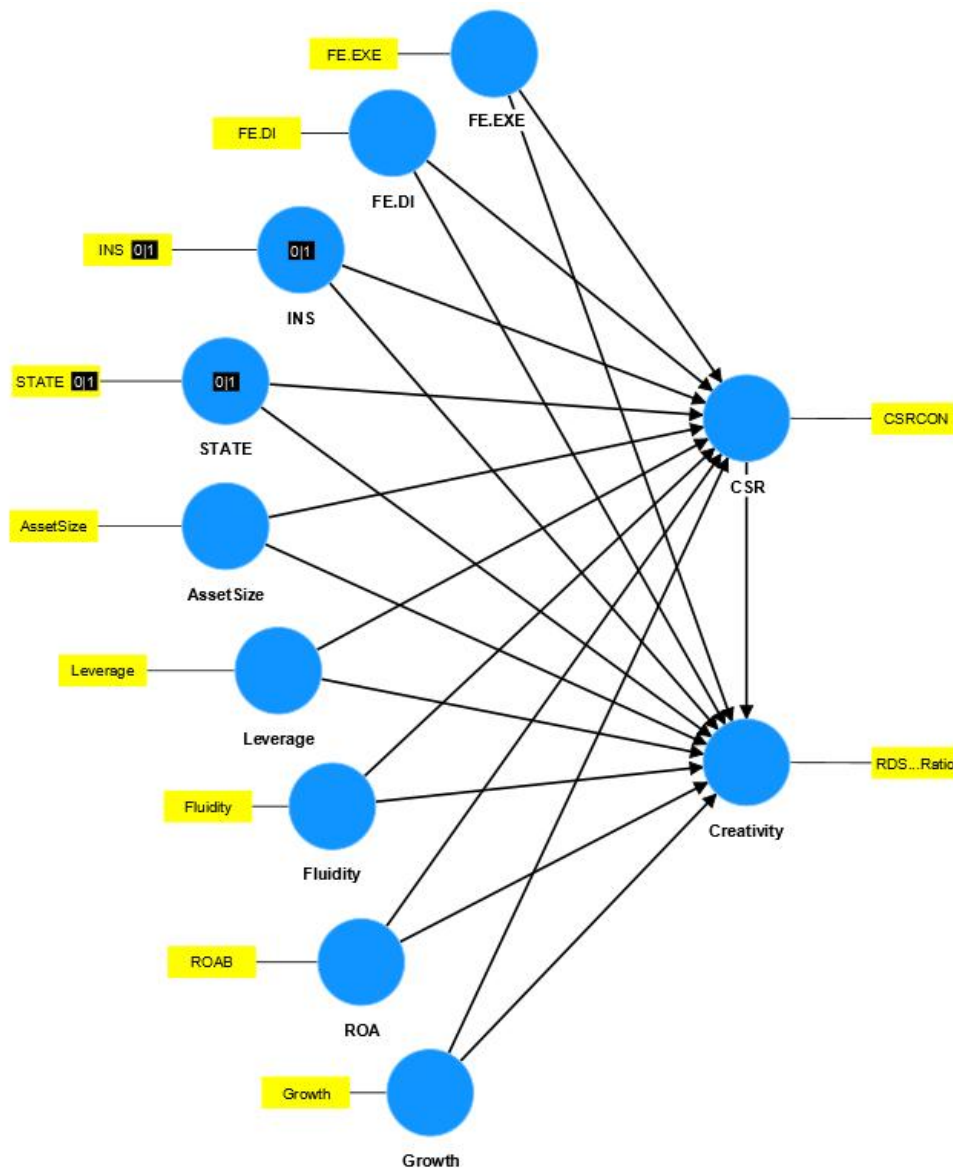


Figure 2. Research model with controls

Results and Discussion

Descriptive Statistical Analysis

Table 1 reports the descriptive statistical results of the main variables in this study. The mean value of the dependent variable, innovation investment (RDSSR), is 0.0513 with a standard deviation of 0.0510. The maximum value is 0.2898, and the minimum value is 0.0002, indicating substantial variations in the level of innovation investment within this population. Of particular interest is the mean value of the explanatory variable, corporate social responsibility contribution (CSRCON), which is 0.0009, with a standard deviation approximately twice as large as the mean, suggesting significant differences in social responsibility performance among different sample companies. Moreover, concerning the control variables, the mean value of leverage (Leverage) is 0.4059, with a standard deviation of 0.1911, and the maximum value reaches 0.8594, indicating a relatively high level of debt financing for the sampled firms. The growth variable (Growth) has a minimum value of -0.4667 and a maximum value of 1.8564,

reflecting significant variations in the revenue growth rate among the sample companies. Other control variables align with existing literature and are not further elaborated here.

Table 2. Descriptive Statistics

	Min.	Max	Mean	SD
RDSSR	0.000	0.290	0.051	0.051
CSRCON	0.000	0.014	0.001	0.002
FEEXE	0.000	0.667	0.167	0.163
FEDI	0.000	0.571	0.164	0.135
INS	0.000	1.000	0.730	0.442
STATE	0.000	1.000	0.260	0.440
AssetSize	20.300	27.290	22.731	1.539
Leverage	0.058	0.859	0.406	0.191
Fluidity	0.408	14.256	2.591	2.443
ROA	-0.221	0.293	0.061	0.069
Growth	-0.467	1.856	0.189	0.327

Correlation Analysis

The results of the correlation analysis between variables are presented in Table 3. Among them, corporate social responsibility contribution (CSRCON) exhibits positive correlations with both innovation investment (RDSSR) and female executives (FE.EXE). Conversely, CSRCON has negative correlations with female directors (FE.DI), institutional environment (INS), and ownership nature (STATE). The absolute values of the correlation coefficients among the control variables are less than 0.5, indicating no severe issue of multicollinearity. Additionally, there are negative correlations between company size (AssetSize) and both corporate social responsibility contribution (CSRCON) and innovation investment (RDSSR). This suggests that larger companies have broader considerations and relatively allocate less proportionately towards R&D innovation or social responsibility initiatives.

Table 3. Pearson correlation analysis

	RDSSR	CSRCON	FE.EXE	FE.DI	INS	STATE	AssetSize	Leverage	Fluidity	ROA	Growth
RDSSR	1										
CSRCON	0.356**	1									
FE.EXE	0.061**	0.022*	1								
FE.DI	-0.019	-0.012	0.358**	1							

INS	0.056* **	-0.018	0.062* **	0.025*	1						
STATE	-0.107 ***	-0.046 ***	-0.166 ***	-0.21* **	-0.09 5	1					
AssetS ize	-0.132 ***	-0.038 **	-0.146 ***	-0.182 ***	-0.01 1	0.464* **	1				
Lever age	-0.086 ***	-0.038 **	-0.112 ***	-0.129 ***	-0.02 6*	0.297* **	0.57** *	1			
Fluidit y	0.108* **	0.051* **	0.091* **	0.071* **	0.04 3**	-0.174 ***	-0.319 ***	-0.571 ***	1		
ROA	-0.135 ***	-0.051 ***	0.031* *	0.047* **	0.00 9	-0.139 ***	-0.101 ***	-0.35* **	0.187 ***	1	
Growt h	0.33** *	0.17** *	0.045* **	0.013	0.01 7	-0.018	-0.016	-0.004	0.059 ***	-0.054 ***	1

Note: *, **, and *** respectively indicate significant differences at the 10%, 5%, and 1% levels

Regression analysis

(1) Regression analysis on corporate social responsibility contribution, proportion of female executives and directors, and corporate innovation investment

Table 4 shows the regression results of various elements such as corporate social responsibility contribution, proportion of female executives and directors, and corporate innovation investment. Model 1 retains some validated outliers, thus being closer to the real situation, and the R-square is slightly higher than model 2. Both models are significant at the 1% level. At the same time, the variance inflation factor (VIF) can be used to determine the multicollinearity in the model. The mean VIF values of both models are less than 2, indicating the absence of multicollinearity among the variables in the regression model. From the results of the model, it can be observed that corporate social responsibility contribution has a positive impact on corporate innovation investment at the 1% significance level, with a coefficient of 0.293. This suggests that companies that emphasize social responsibility also pay more attention to innovation development. The proportion of female executives in a company has a positive impact on innovation investment to some extent, and this result is significant at the 5% level, with a coefficient of 0.036. However, in contrast, the proportion of female directors does not have a positive impact on corporate innovation, and it may even reduce innovation investment to some extent. Therefore, it is necessary to consider the inherent position issues brought by this, such as the agency problem. At the same time, empirical results indicate that regions with sound institutions have a positive impact on innovation investment, which is significant at the 1% level, with a coefficient of 0.048, supporting the hypothesis. This result also suggests that a sound institutional environment encourages companies to invest in their own development. Finally, the nature of being a state-owned enterprise also has a certain impact on corporate innovation investment, as state-owned enterprises invest slightly less in innovation compared to enterprises with other property ownership.

(2) Multiple factors and their impact on corporate social responsibility contribution and innovation investment

this article further explores in multiple factors and their impact on corporate social responsibility contribution and innovation investment, as shown in the model results in Figure 4. Firstly, this study found that the proportion of female executives and the proportion of female directors have consistent effects on both corporate social responsibility contribution and innovation investment, while coefficients of FE.EXE are 0.016 and 0.035 respectively. The increase in the proportion of female executives has a positive impact on both, while the changes of the proportion of female directors has a

negative impact on both, suggesting a need to further explore the reasons for the differences between executives and directors. However, the institutional environment has a negative impact on corporate social responsibility, which is inconsistent with the conclusion that a sound institutional environment promotes innovation investment. The possible reason for this result is that regions with sound institutions have less demand for corporate social responsibility contribution, thereby reducing local corporate social donation expenditure. The impact of property ownership on both factors is consistent, with negative coefficients for both. In conclusion, when discussing the impact of gender, institutional environment, and property ownership on corporate social responsibility and innovation, it is necessary to include the effects of multiple elements on both factors in order to construct a comprehensive analysis model.

Table 4. Regression analysis

	Model1		Model2	
	Beta	t value	Beta	t value
(intercept)		5.133		7.827
CSRCON	0.293***	17.704	0.074***	4.418
FE.EXE	0.036**	2.072	0.022	1.264
FE.DI	-0.06***	-3.386	-0.12***	-6.751
INS	0.048***	2.918	0.086***	5.218
STATE	-0.058***	-3.063	-0.141***	-7.415
AssetSize	-0.071***	-3.265	-0.072***	-3.286
Leverage	-0.043*	-1.778	-0.186***	-6.721
Fluidity	0.045**	2.279	0.216***	9.277
ROA	-0.143***	-8.093	-0.207***	-10.75
Growth	0.266***	16.056	0.101***	5.748
R2	0.241		0.228	
F value	91.387***		84.922***	
Mean VIF	1.34		1.49	

Note: a. Dependent variable: RDSSR

b. *, **, and *** respectively indicate significant differences at the 10%, 5%, and 1% levels

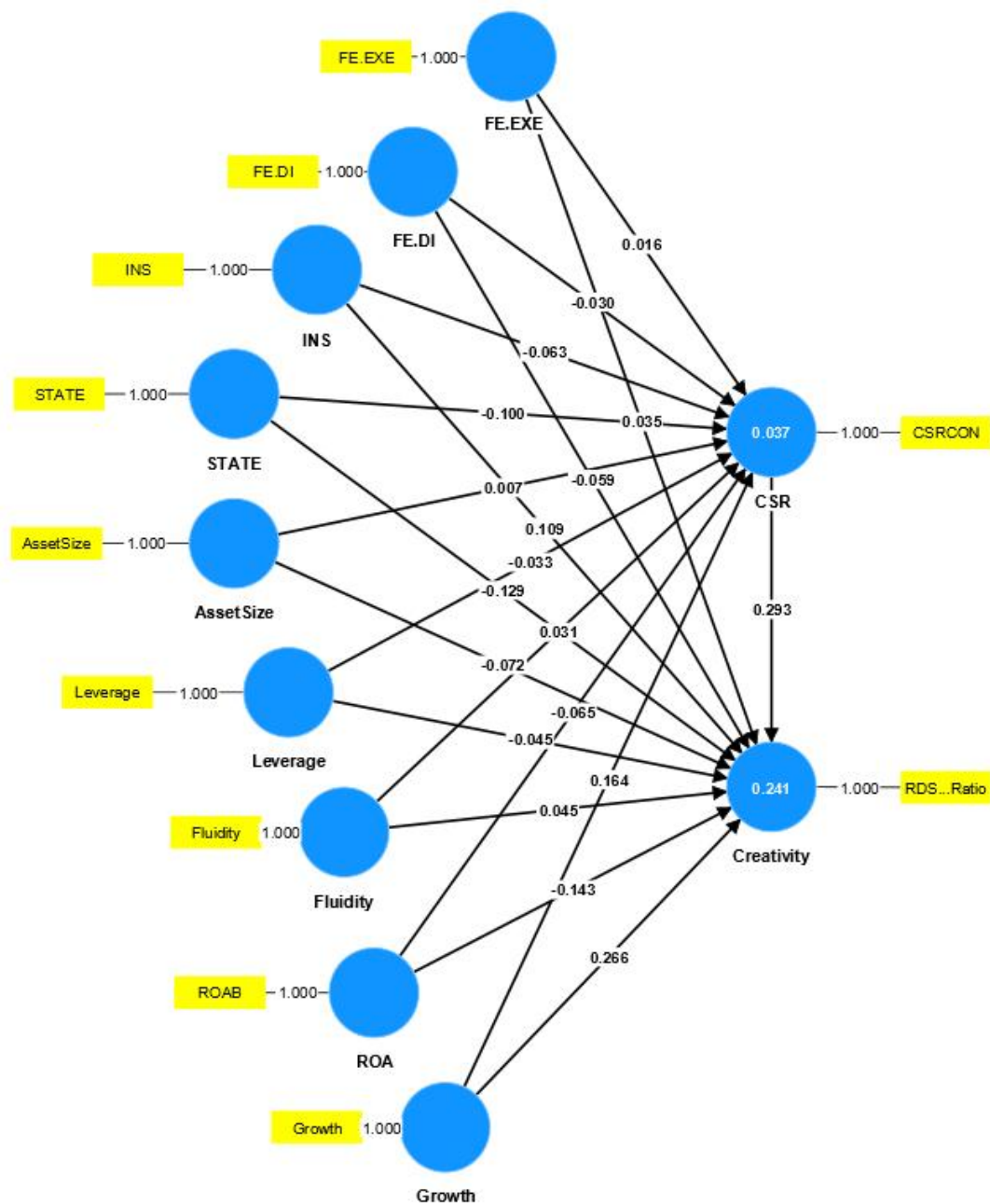


Figure 3. SEM model analysis

Conclusions

This study examines the relationship between corporate social responsibility, female executives and directors, institutional environment, ownership and company innovation based on data from Chinese listed companies in the Shanghai and Shenzhen stock markets from 2018 to 2022. The following conclusions are drawn:

First, companies that prioritize corporate social responsibility also emphasize innovation.

Second, a higher proportion of female executives is associated with increased focus on innovation investment, while the findings for female directors are opposite.

Third, a more robust institutional environment promotes corporate innovation but weakens social responsibility contribution.

Fourth, the ownership system has a certain influence on both corporate social responsibility contribution and innovation.

Lastly, when analyzing these influences, it is crucial to note that the pathways of impact are not singular, instead multiple factors simultaneously affect both the fulfillment of corporate social responsibility and innovative behavior within companies.

Meanwhile, this study has several limitations that should be acknowledged. Firstly, the data used in this study are sourced from the CSMAR database, and the completeness of indicators may not be comprehensive. In future research, it would be beneficial to consider using different samples with more comprehensive data sources.

Secondly, this study solely relies on data from listed companies to assess the impact of fulfilling social responsibility practices. This approach may not provide a complete understanding of the overall effects. As available data expand in the future, subsequent studies can gradually incorporate non-listed companies into the analysis to comprehensively evaluate the overall effectiveness of fulfilling social responsibility on investment in research and development innovation.

In conclusion, it is evident that multiple factors exert influence on the interplay between corporate social responsibility and investment in R&D and enterprises creativity. These intricate dynamics necessitate a comprehensive understanding of the complex relationship between ethical obligations and innovative pursuits. By recognizing and addressing these factors holistically, organizations can strive towards a harmonious integration of social responsibility and R&D efforts, thus fostering sustainable progress and societal well-being.

References

1. Bernardi, R. A. Bosco, S. M. & Columb, V. L. (2009). Does female representation on boards of directors associate with the 'most ethical companies' list?. *Corporate Reputation Review*, 12(3), 270-280.
2. Blake, M. K., & Hanson, S. (2005). Rethinking innovation: context and gender. *Environment & Planning A*, 37(4), 681-701.
3. Campbell, D., Moore, G., & Metzger, M., et al. (2002). Corporate philanthropy in the UK 1985 – 2000 some empirical findings. *Journal of Business Ethics*, 39(1), 29-41.
4. Chen Si, He Wenlong, and Zhang Ran. (2017). Venture capital and enterprise Innovation: Impact and potential mechanisms [J]. *Management world*, (1): 158-169.
5. Conyon, M.J., & Mallin, C. (2010). Women in the boardroom: Evidence from large UK companies. *Corporate Governance an International Review*, 5(3), 112-117.
6. Daily, C., Dalton, D. and Rajagopalan, N. (2003). Governance Through Ownership: Centuries of Practice, Decades of Research. *Academy of Management Journal*, 46(2), 151-158.
7. Eagly, A.H. (1987). *Sex Differences in Social Behaviour: A Social Role Interpretation*. Hillsdale: Erlbaum.
8. Fang, E. E. (2008). Customer participation and the trade-off between new product innovativeness and speed to market. *Journal of Marketing*, 72(4), 90-104.
9. Galbraith, S., Stephenson, H.B. (1993). Decision rules used by male and female business students in making ethical value judgments: another look. *Journal of Business Ethics*, 12(3), 227-233.
10. Groysberg, Boris, Bell, & Deborah. (2013). Dysfunction in the boardroom. *Harvard Business Review*.
11. Hambrick, D.C., Mason, P.A.(1984). Upper echelons: The organization as a reflection of its top managers. *Academy of Management Review*, 9(2), 193-206.
12. Hagedoorn J, Cloudt M. (2003). Measuring innovative performance: Is there an advantage in using multiple indicators?[J]. *Research Policy*, 32(8):1365-1379.
13. Huang Jingjing, Yuan Yi Jun. (2018). Research on industry-university-research cooperation and enterprise innovation performance based on propensity score matching model [J]. *Research and Development Management*, 30 (2): 1-9.

14. Li, Y. Wei, Z. Zhao, J. Zhang, C. & Liu, Y. (2013). Ambidextrous organizational learning, environmental munificence and new product performance: moderating effect of managerial ties in china. *International Journal of Production Economics*, 146(1), 95-105.
15. Li, C., & Xie, Y. (2016). Regional economic development level and the influence of female directors on the company's technology innovation strategy. *Comparison of economic and social systems* (4), 12.
16. Li, J., & Yang, Z. (2019). Board Gender Diversity, Corporate Social Responsibility and Technological Innovation: An Empirical Study based on Listed Firms in China. *SCIENCE OF SCIENCE AND MANAGEMENT OF S.&T*, 40(5), 35-51.
17. Marx, J. D. (2000). Women and human services giving. *Social Work*(1), 27-38.
18. Na, Y., Kang, S., & Jeong, H. (2019). The Effect of Market Orientation on Performance of Sharing Economy Business: Focusing on Marketing Innovation and Sustainable Competitive Advantage. *Sustainability*, 11(3), 729. MDPI AG. Retrieved from <http://dx.doi.org/10.3390/su11030729>.
19. Newman, R. (1996). Know your donor: Gender differences in charitable giving. *Fund Raising Management*, 27(1), 31-34.
20. Sheldon, O. (1924). *The Philosophy of Management*. London: Sir Isaac Pitman and Sons Ltd.
21. Wang, C. Rodan, S. Fruin, M. & Xu, X. (2014). Knowledge networks, collaboration networks, and exploratory innovation. *The Academy of Management Journal*, 57(2), 484-514.
22. Wang Xiaolu, Fan Gang(2004). The tendency and determinants of China's regional differences. *Economic Research Journal*, (1) : 33 — 44.
23. Xu, S., & Li, Y. (2018). Management gender, institutional environment and CS R decisions of enterprises. *Science Research Management*, 39(3), 80-89.
24. Xu, L., Guo, L., & Zhang, P. (2020). Female executives, corporate social responsibility and corporate performance —— Take listed cultural and media companies as an example. *FRIENDS OF ACCOUNTING*(10), 50-55.
25. Yang, Z., & Xu, Y.(2018). Corporate social responsibility governance under the background of platform economy. *Enterprise economy*, 37(5), 9.
26. Zhang, J. (2011). The drivers of foreign donations: A two — stage institutional model. *Management World*, (7) 98- 112.
27. Zuckerman, M. (1994). *Behavioral expressions and biosocial bases of sensation seeking*. Cambridge University Press.