

The valuation effects of corporate social responsibility (CSR) on mergers and acquisitions: Evidence from Chinese state-owned enterprises

Abstract

The purpose of this study is to investigate the impact of corporate social responsibility of Chinese state-owned enterprises on their acquirer value. We found that the corporate social responsibility performance and corporate social responsibility practices of the acquired state-owned enterprises significantly improved the value of the acquired enterprises. In addition, especially when the acquired party engages in sustainable development projects, the positive valuation effect of corporate social responsibility is more pronounced. However, for the types of state-owned enterprises, local state-owned enterprises are more suitable for the above results. Our evidence is reliable for multiple sensitivity tests. Consistent with the stakeholder theory of maximizing stakeholder value, investing in corporate social responsibility can create value in M&A transactions.

JEL Classification: F21, G34, M14

Keywords: Corporate social responsibility (CSR), Mergers & acquisitions, Stated-owned enterprises, firm value-added

Introduction

From a business perspective, corporate social responsibility (CSR) is a way for business entities to incorporate social values into their strategic arrangements, so that they can be socially responsible (Okpara et al., 2013). It is generally believed that any enterprise that creates an ethical relationship with stakeholders will adopt a strategy conducive to the company and society. Similarly, if CSR is regarded as a method to the agency problem, beneficial governance should value it and be used to appreciate the value of the company in the market, but if it is regarded as an agency problem, governance should reduce the value of CSR (Nwude & Nwude, 2021). Existing literature has analyzed the direct relationship between CSR and corporate value. Although contributed these efforts, whether and how CSR relates to corporate value remains a source of debate among managerial researchers (Wang & Sarkis, 2017). Recent

researchers have shown that CSR affects corporate value (Hu et al., 2018), risk management (Naseem et al., 2020), and cost of capital (Ng & Rezaee, 2015). On the contrary, some researchers believe that CSR activities have a negative net influence on the value of enterprises, because it possibly represent the pure expenditure of enterprises in areas unrelated to operations, thus reducing the efficiency of the usage of enterprise resources (Jensen, 2010). On the other hand, the idea of maximizing the value of stakeholders believes that corporate social responsibility can increase the value of the company by inducing stakeholders' support for the company (Porter & Kramer, 2006). Because these views lead to contradictory conclusions about the role of corporate social responsibility in corporate valuation, the literature lacks a clear consensus. Although amounts of studies on this topic have provided pros and cons descriptions of CSR, few clear conclusions can be shown. So far, the research on the relationship between CSR and corporate value is still unclear to a large extent.

In order to investigate whether CSR creates or destroys value for firm's value, this study carries out an analysis based on mergers and acquisitions (M&A). M&A is one of the most important corporate strategies for external growth, because it allows acquirers and target companies to obtain new resources, expand to new markets, improve operational efficiency, and create corporate value (Tampakoudis et al., 2020). Unlike daily operational decisions, the M&A framework provides a good environment for better understanding the financial impact of CSR activities, because it can potentially generate positive synergies, but it may also affect significant financial and operational risks for all stakeholders (Arouri et al., 2019).

We focus on M&A of Chinese companies for several reasons. First of all, China's strict policy restrictions mean that China's M&A activities are seriously affected by the policies and measures of the Chinese government, especially the state-owned enterprises under the central control of China. As we all know, the government usually intervenes in enterprise decision-making to pursue various social, political and environmental agendas in China (Qin et al., 2019). Therefore, the strategic value of corporate social responsibility may be particularly prominent for Chinese enterprises seeking M&A transactions.

Secondly, the merger and acquisition of China's state-owned enterprises is a noticeable event, which can improve the understanding of all stakeholders on the participation of enterprise risk management in corporate social responsibility activities. Previous literature shows that an important aspect of corporate social responsibility strategy is to improve stakeholders' understanding of corporate social responsibility activities and improve corporate reputation (Zerbini, 2017). Based on the corporate social responsibility plan, the company issued their commitment to social responsibility to stakeholders (Fordham et al., 2017).

Facing the increasingly stringent requirements of the central government on CSR, central enterprises must carry out corporate social responsibility practice in a broader and deeper level, so as to improve business conditions and become corporate citizens with social responsibility. Previous studies have shown that for China's non-state-owned enterprises (non-SOEs), the decentralization of corporate ownership has a positive impact on the practice of CSR, but for state-owned enterprises (SOEs), the impact is the opposite (Li & Zhang, 2010). However, in the research of Hu et al. (2018), CSR has more marginal effect on the value of SOEs. The existing research on the impact of social responsibility between SOEs and non-SOEs on enterprise value is not unified. This paper aims to expand the study of CSR to the background of developing countries by studying the relationship between CSR practice and performance improvement in typical Chinese companies (i.e. SOEs), so as to reflect the current situation of CSR practice in this typical developing country.

First, after a brief introduction to the CSR practice and reasons of choosing M&A, we use stakeholder theory to develop the dimensions of CSR practice and the four assumptions describing the relationship between CSR practice and performance in Section 2. In Section 3, we introduce the model construction and data collection process used in this study. Section 4 presents the analysis results and discussion. Finally, we summarize the research results and draw conclusions, and provide future research directions for the practice of CSR in Section 5.

LITERATURE REVIEW

2.1 M&A and CSR

Numerous papers have explored the impact of corporate social responsibility (CSR) on the financial performance of companies in M&A transactions (Krishnamurti et al., 2021). In the context of Australia, Krishnamurti et al. (2019) used sample of 776 firms to show that acquirers with CSR orientation significantly benefit from positive market returns during M&A transactions, just as their shareholders forecast this action to be a value-earning strategy.

Although amounts of studies have examined the positive effect of CSR in the M&A, studying the value impact of CSR on M&A from the perspective of state-owned enterprises is still an unresolved topic. Normally, acquirers face high-level risks of M&A, including investigation costs and investment concentration costs related to the divestment of acquired businesses (Gomes & Marsat, 2018). However, building a good relationship with stakeholders by shouldering CSR activities reduces these risks. According to Gomes and Marsat (2018), the M&A bidders value the good CSR activities of acquired firms, and the CSR performance of the acquired company is positively correlated with the bidding premium, as M&A bidders believe that acquiring a company with CSR awareness is a value-added strategy.

This study supplements the research on the impact of CSR on corporate value appreciation, and investigates whether market investors value acquired targets with strong CSR performance. We argue that acquiring a target firm with stronger CSR performance is a value-added strategy, and therefore acquirers accept to pay a higher acquisition premium. This is consistent with the theory of maximizing stakeholder value, which states that M&A bidders hope to acquire a company with higher CSR in order to increase or maintain sustained relationships with relevant stakeholders (Tampakoudis et al., 2020). Therefore, this paper assume that the acquired firm's CSR performance would benefit itself because the acquirer will pay more reasonable price for its CSR contributions. Based on these arguments, we make the following hypothesis:

H1: The stronger the CSR performance of the acquired company, the greater the help in

improving the company's value.

2.2 State-owned enterprises and CSR

State-owned enterprises are special enterprises in China. Under the pressure of Chinese public groups as well as the requirements made by the Chinese central government, state-owned enterprises (SOEs) have begun to practise CSR activities to respond the CSR trends in China (Li & Belal, 2018). In China, companies with better performance tend to disclose their CSR efforts (Wang & Li, 2016). According to the requirements of the central government, SOEs are more proactive in disclosing corporate social responsibility reports. In 2000, China Petroleum released its Health, Safety and Environment Report. Baosteel released an environmental protection report as early as 2003 (Zhu et al., 2016). In March 2006, State Grid Corporation of China released its first corporate social responsibility report. As of the end of 2011, 76 out of 117 state-owned enterprises regularly released corporate social responsibility reports. As of the end of 2012, this CSR disclosure practice covered 109 out of 113 state-owned enterprises, and it is expected that this growth trend will continue in the coming years (Osmani, 2019). Compared with developed countries, the CSR report of Chinese SOEs is still in its early stages and faces many challenges. Most Chinese SOEs are unclear about what practices their CSR work should include (Zhu & Zhang, 2015). Due to the melamine pollution incident in 2008, China began to realize that consumer rights are also a key aspect that needs to be addressed in CSR, and the government and investors should also play a role in promoting corporate social responsibility domestically (Baxi & Ray, 2012).

However, though SOEs face more challenges in CSR reporting, managers of SOEs should more actively participate in CSR activities, compare with the non-SOEs in China, because SOEs not only have the innate advantage of obtaining more government support, but also have more marginal effects than non-SOEs while receiving positive stakeholder responses (Hu et al., 2018). Due to the preferential treatment in terms of input and access to products and capital markets (Wang et al., 2008), managers of state-owned enterprises usually do not need to worry about political access as managers of

non-SOEs. According to Kaufmann and Kraay (2003) concluded that state-owned enterprises have safer property, greater contractual rights, and closer government relations, while non-SOEs' property and contractual rights are less secure. Therefore, SOEs have gained significant advantages and presented better development. On the other hand, state ownership can also produce positive stakeholder reactions. In China, state ownership is a natural signal, and stakeholders will spontaneously believe that this means that these companies have political advantages, which in turn will attract more attention from stakeholders (Hu et al., 2018). Generally speaking, for SOEs, scarce resources are obtained through political channels. In addition to the inherent advantages of having more political resources, if SOEs participate more in CSR activities, it will exceed the initial expectations of stakeholders and bring more positive stakeholder responses, such as providing more cooperation and support, which will often improve the value of the company. Thus, we developed the second hypothesis:

H2: For state-owned enterprises, corporate social responsibility will have a stronger positive correlation effect on the value increase of state-owned enterprises.

2.3 State-owned enterprise and M&A

Due to the increasing competitiveness of China's state-owned enterprises (SOEs), more and more SOEs have achieved rapid growth through M&A (Song et al., 2011). According to the 2017 China bulletin, 765 M&A projects of China's state-owned enterprises have been implemented, involving 74 countries (regions), with an actual transaction volume of US \$35.33 billion (Gu et al., 2020).

According to the traditional agency theory, the stimulating effect of state ownership on enterprise capability is limited. But in fact, some SOEs in China are more dynamic than in the past (Zhou et al., 2017). There are more than 115 Chinese enterprises in the 2017 Fortune Global 500, of which about three fifths are SOEs. Unlike private enterprises (POE), SOEs tend to have risks (Li & Xia, 2008), have more informal performance evaluation and compensation systems for senior managers (Rodríguez Bolívar et al., 2015), and have priority in resource allocation (Nem Singh & Chen, 2018). The motivation of the top managers of SOEs to promote the M&A of state-owned

enterprises is not only to improve the economic performance of local governments, but also to achieve the political goals and social welfare goals at the national level (Florio et al., 2018). In addition, the incompatibility between China's political system and foreign political market system reduces the difficulty of Chinese SOEs' M&A activities. For Chinese SOEs, the government and system have a significant impact on the improvement of financial performance after M&A (Liu et al., 2019). In addition, China's SOEs account for a large proportion, and the development among regions and the development of central and local SOEs are very uneven. Therefore, the final question this study aims to solve is whether the economic differences between the central and local governments have different effects on the value-added of state-owned enterprises at all levels, and whether the economic differences between the central and local governments offset the positive impact of corporate social responsibility on M&A transactions.

H3: Compared with the local state-owned enterprises, the central state-owned enterprises' corporate social responsibility is more effective for the value increase brought by enterprise mergers and acquisitions.

DATA AND SAMPLE

3.1 Data Sources

Our sample includes state-owned enterprises from 2010 to 2022. We obtained China's domestic M&A data and other enterprise level financial information from China's securities market and accounting research (CSMAR) database. We use Huazheng ESG database to provide CSR scores of state-owned enterprises. In the process of sample construction, we first included all state-owned enterprises in the initial sample according to the central state-owned enterprises and local state-owned enterprises. The sample period began in 2008, because this is the first time rks has provided corporate social responsibility rating for China's financial reporting standards. We waive the following: (1) frms belongs to the financial service industry; (2) Frm annual observations with incomplete financial and corporate governance information.

In addition, there are several reasons why we choose 2010 to 2022 as the data cycle. First of all, the China Securities Regulatory Commission (CSRC), the main regulator of China's securities industry, issued the guidance on Chinese securities owners' demand for regulators in 2005 (Hu et al., 2018). Considering the significant structural changes of the Chinese government's policy on independent directors, we limit the start time of the sample period to after 2006. Secondly, Chinese enterprises began their corporate social responsibility activities after the 2008 Sichuan disaster, and the empirical data of corporate social responsibility began to be disclosed after the 2008 Sichuan disaster (Hu et al., 2018). Therefore, we began to search CSR data in 2010. Finally, considering the lag of the impact of corporate social responsibility on corporate value, our corporate value data lags behind the corporate social responsibility data for at least one year, and the corporate financial data after 2023 has not been disclosed, so we finally choose 2010-2022 as the corporate value data.

3.2 Variables

3.2.1 Dependent Variable

We use cumulative abnormal returns (CAR) as dependent variable. This measures the stock price reaction of the acquiring firm around the announcement of the merger or acquisition. According to Papadakis and Thanos (2010), CAR directly reflects the change in stock price following the announcement of the transaction, so it can directly measure the impact of the transaction on the company's value. This makes CAR an important indicator for assessing the success of an M&A transaction, its ability to create value, and investor confidence in the company's prospects post-transaction.

3.2.2 Independent Variable

We use corporate social responsibility (CSR) performance as independent variable. This variable can be operationalized using various measures such as CSR ratings, CSR index scores, or specific CSR activities disclosed by the firms. In this paper, we use Huazheng ESG database to provide CSR scores of state-owned enterprises.

3.2.3 Control variables

We considered several objectives and transaction characteristics as control variables. We use the natural logarithm of the company's total assets, the logarithm of the market

value of assets and the book value of assets, the ratio of long-term debt to the total market value and the return on assets to control the target scale. Transaction characteristics include payment method, industry relevance of the acquisition, whether the transaction is a hostile acquisition and whether the transaction involves two companies in the high-tech industry, which follow the definition of Loughran and Ritter (2004). We also controlled the anti-takeover protection measures of Bebchuk et al. (2009), which investigated whether the acquirer's corporate governance affected the relationship between CSR differences and car. Finally, we control the industry and annual fixed effect.

3.2.4 Model construction

The regression model can be expressed as:

$$\begin{aligned}
 CAR_{it} = & \beta_0 + \beta_1 CSR_{it} + \beta_2 \ln(Total\ Assets)_{it} \\
 & + \beta_3 \ln(Market\ Value\ of\ Assets)_{it} \\
 & + \beta_4 \ln(Book\ Value\ of\ Assets)_{it} \\
 & + \beta_5 \frac{Long-term\ Debt}{Market\ Value\ of\ Assets_{it}} + \beta_6 ROA_{it} \\
 & + \beta_7 Payment\ Method_{it} + \beta_8 Industry\ Relevance_{it} \\
 & + \beta_9 Hostile\ Acquisition_{it} + \beta_{10} High-tech\ Industry_{it} \\
 & + \beta_{11} Anti-takeover\ Protection_{it} \\
 & + \beta_{12} Corporate\ Governance_{it} + \alpha_i + \gamma_t + \varepsilon_{it}
 \end{aligned}$$

3.2.5 Descriptive statistics

Table 1 presents the summary of statistics. The mean of the *car* is -11.990, with a standard deviation of 439.657. The main independent variable, *csr*, has mean of 0.739, and the standard deviation of 0.063, shows that there are not large differences in CSR performance across the sample frame.

[Insert Table 1]

Empirical results

4.1 Correlation Analysis

Table 2 presents the results of our correlation analysis. As can be seen from the table, the impact of CSR on CAR is positive and statistically significant. This result shows that stronger CSR performance of the acquired company is positively related to acquisition premiums for shareholders of acquiring firm. There is a significant negative correlation between CAR and the logarithm of asset book value, whether it is a hostile acquisition, and whether it involves high-tech industries, in terms of the correspondence between control variables and dependent variables. The asset return rate of the acquired party shows a significant positive correlation with CAR.

[Insert Table 2]

4.2 Regression Analysis

Table 3 lists the acquired SOEs of CSR and CAR, and the year of double fixed effect regression. It can be found that when there is no control variable added in column (1), the coefficient of CSR to CAR is 0.143, which is significant at the statistical level, that is, the higher the CSR, the higher the level of CAR. In column (2), in the regression after adding control variables, the coefficient of CSR on CAR is 0.142, which is also significant at the detection level, similar to that in column (1), indicating that the acquired SOEs practicing CSR activities can effectively improve the level of corporate value. Therefore, hypothesis 1 is acceptable.

[Insert Table 3]

4.3 CSR Dimensions Analysis

To complement our findings, we analyze the three different dimensions of CSR based on Huazheng CSR database: corporate governance (c), including ethical business practice and stakeholder engagement), sustainable development (s), and corporate responsibilities (r), including environment responsibility and social responsibility. All the three dimensions of CSR have significant positive relationship with CAR, thus, we accept hypothesis 2. The results in Table 4 further show that acquired SOEs pay much effort on practicing sustainable development will bring more premium for acquirer, comparing with corporate governance and corporate responsibilities. The reasons to explain the results are that, first, acquired SOEs practice sustainable development usually focus more on long-term value creation rather than just short-term profits. They may adopt more sustainable and responsible business practices to ensure the long-term sustainability of the business. This long-term oriented business strategy may bring more stable and sustainable performance growth to the acquirer, thereby increasing its value. Second, acquired SOEs' efforts in sustainable development tend to enhance their reputation and trust in society and the market. These businesses may be more likely to be recognized and supported by consumers, investors, and other stakeholders. Therefore, acquirers may be willing to pay a higher premium to gain such reputation and trust.

[Insert Table 4]

4.4 Heterogeneity of property rights

Table 5 lists the heterogeneity test results of CAR in CSR of different types of acquired SOEs. It can be found that the coefficient of CSR to CAR in column (1) is -0.321, which is not significant at the statistical level. This result shows that the CSR practice of the acquiree of the central SOEs has no or few impact on the acquirer. In column (2), the coefficient of CSR to CAR is 0.130, which is positively significant at the detection level, indicating that the value-added effect of CSR practice on local state-owned enterprises

is more significant. Therefore, the hypothesis 3 is rejected.

This paper suggests several reasons to explain the results. First, central SOEs and local SOEs may be affected by different policy environments and regulatory systems. Central enterprises are usually subject to more stringent and unified supervision and policy guidance, and their social responsibility practices may be subject to more direct intervention and guidance from the government. Therefore, acquirers may believe that the social responsibility practices of central enterprises are more affected by government policies and have less impact on their own decision-making and performance. Second, Local state-owned enterprises may be more affected by the regional and industrial environment, and their social responsibility practices may be closer to local social and market needs. Acquirers may view the social responsibility practices of local SOEs as a strategy to integrate and interact with local society, thereby generating greater recognition and support for them. The social responsibility practices of central enterprises may be more affected by national-level policies and guidance, and their connection with local society may be relatively weak. Finally, Central SOEs and local SOEs may have differences in business models and development goals. Central enterprises tend to have broader business scope and more complex business structures, and their social responsibility practices may be more consistent with their overall strategies and business goals. Local state-owned enterprises may pay more attention to establishing a good image in the local society and gaining support from the local government, so their social responsibility practices may be more valued by acquirers.

[Insert Table 5]

4.5 Robustness Testing

In the research of finance and economics, the event window period is usually used to analyze the impact of a certain event on a company's stock price or other financial indicators (Shah et al., 2014). In our case of a M&A event, we choose three trading days before and after the event announcement as the event window period to observe the market's response to the event. In order to conduct robustness testing, we chose to expand the event window period to (-3,3), which is to analyze within three trading days before and after the event announcement date. This approach ensures that the research

results are not affected by the selection of event window periods, while also verifying the robustness and consistency of the results (Akben-Selcuk & Finance, 2015). Table 7 lists the robustness test regression between CSR and CAR (-3, 3) after replacing the initial event window period. It can be found that before and after adding control variables, the coefficients of CSR on CAR were 0.026 and 0.010 respectively, which were significant at the statistical level, that is, the higher the CSR, the higher the level of CAR. This is consistent with the results in the basic regression, which shows that the empirical results of this paper are robust, that is, CSR can effectively improve the level of acquired SOEs value.

Conclusion

This paper has several contributions. First, our findings support CSR has positively relationship with firm's value-added effect. We further show that the acquired SOEs' CSR performance is positively associated with acquirer's wealth, highlighting the importance of considering the CSR activities as a value-added item when selecting the acquiree. Our second contribution is to classify CSR into three subsets according to the Huazheng database to study the premium relationship between CSR and acquirers. Our results indicate that when the acquired party engages in CSR activities, the acquiring party should pay more attention to sustainable development activities in CSR activities. Compared to corporate governance and corporate responsibility, practicing sustainable development can bring relatively greater value-added opportunities to the acquiring party. Our main contribution to existing papers is the differentiation of SOEs into central state-owned and local state-owned, which is an innovation for previous acquisition research. The research results indicate that the positive value-added effects brought by CSR activities of acquired state-owned enterprises have requirements for the type of state-owned enterprise. Only when the state-owned enterprise being acquired is a local country, will it bring a premium or value-added effect to the acquirer.

Our research findings also have management implications for business managers, investors, and policy makers. For managers, we provide evidence supporting corporate social responsibility as a value enhancement strategy. In this context, target companies

should consider strategically investing in corporate social responsibility to increase corporate value and acquisition premiums in M&A transactions. Specifically, for sustainable development projects where managers can maximize corporate social responsibility, for investors, comparing the corporate social responsibility performance of the target company and the acquirer is one of the main determining factors in increasing potential acquisition returns in mergers and acquisitions. In addition, investors not only need to consider differences in corporate social responsibility, but also the quality of corporate governance of the acquired party, in order to maximize personal interests. Finally, policy makers should encourage companies to disclose information about their corporate social responsibility activities to protect market participants from the impact of merger and acquisition uncertainty, which mainly comes from information asymmetry between the target company and the acquirer.

This study also has some limitations. Due to China's special policies towards central state-owned enterprises, our conclusions are limited to the Chinese context. Secondly, the division of CSR dimensions in the Huazheng database is not precise enough. Future research on CSR dimensions can delve into six dimensions to study the acquisition issues of state-owned enterprises: product quality (PRO), employee relationships (EMP), environment (ENV), community (COM), diversity (DIV), and human rights (HUM) (Cho et al., 2021). In-depth future corporate social responsibility research into the above six dimensions can more comprehensively evaluate the performance and value of acquired companies, and provide deeper insights and analysis for the study of SOEs acquisition issues.

In summary, the valuation effect of corporate social responsibility on mergers and acquisitions has attracted the attention of scholars and managers. However, previous studies did not consider the specific types of state-owned enterprises in China, nor did they focus on studying the value-added effects of CSR activities of the acquired party on the acquiring party under this type. To fill this gap, this study first attempts to investigate whether there is a stronger corporate social responsibility performance of

the target company that creates value for the acquirer in M&A transactions. Our research findings provide evidence to support the stakeholder theory, which states that fulfilling the needs of stakeholders through the implementation of corporate social responsibility by the acquired party ultimately benefits the shareholders of the acquiring party.

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Table 1 Descriptive Statistics

	(1)	(2)	(3)	(4)	(5)
VARIABLES	N	mean	sd	min	max
car	10,725	-11.990	439.657	-20,945.260	4.504
roa	10,725	0.022	0.132	-3.164	0.327
bm	10,725	0.756	0.286	0.070	1.485
tech	10,725	0.009	0.096	0.000	1.000
Hostile takeover	10,725	0.442	0.497	0.000	1.000
size	10,725	23.049	1.527	18.871	28.636

logvalue	10,725	23.428	1.315	20.991	28.569
debtbi	10,725	0.082	0.109	-0.024	0.577
csr	10,725	0.739	0.063	0.412	0.929

Table 2 Correlation Analysis

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) car	1.000								
(2) esg	0.054***	1.000							
(3) size	0.004	0.392***	1.000						
(4) logvalue	-0.001***	0.394***	0.950	1.000					
(5) debtbti	-0.033	0.124*	0.482*	0.389**	1.000				
(6) Hostiletakeover	-0.037***	-0.017	0.067**	0.048*	0.056	1.000			
(7) bm	0.012	0.173***	0.613**	0.352**	0.502***	0.081***	1.000		
(8) tech	-0.006**	0.016	0.012***	0.011***	0.007***	0.044*	0.000***	1.000	
(9) roa	0.002***	0.212***	0.112	0.115*	-0.025***	-0.020***	0.027	0.013*	1.000

This table reports correlations of forecast and analyst characteristics used in our main regression analyses. The correlation coefficients are highlighted in asterisks if they are significant at the 1% (5%) level based on two-tailed tests. Our sample period covers fiscal years from 2010 to 2022. Detailed variable definitions are provided in Appendix.

Table 3 Regression Analysis

	(1)	(2)
VARIABLES	car	car
csr	0.143*** (6.29)	0.142*** (5.59)
size		-0.008 (-0.76)
logvalue		0.005 (0.55)
debtbi		-0.029 (-1.61)
Hostiletakeover		-0.008*** (-3.00)
bm		0.042** (2.29)
tech		-0.012 (-0.83)
roa		-0.023** (-2.08)
Constant	-0.107*** (-6.34)	-0.082** (-2.58)
Industry fixed	Yes	Yes
Year fixed	Yes	Yes
Observations	10,725	10,649
R-squared	0.161	0.163

The cumulative abnormal returns (car) is used as dependent variable. Corporate social responsibility (csr) is used as independent variables. All symbols and definitions can be found in Appendix. Columns (1) and (2) report the multiple regression results, and the

values in the column (2) are derived from the impact of the independent variable on the dependent variable (car) when other control variables are present. Robust t-statistics in parenthesis. *, **, and *** represent the statistical significance at the 0.1, 0.05, and 0.01 levels respectively.

Table 4 CSR Dimensions Analysis

	(1)	(2)	(3)
VARIABLES	car	car	car
c	0.058*** (3.31)		
s		0.053*** (3.47)	
r			0.075*** (3.97)
size	-0.007 (-0.71)	-0.006 (-0.65)	-0.003 (-0.35)
logvalue	0.006 (0.65)	0.006 (0.59)	0.003 (0.29)
debtbi	-0.034* (-1.88)	-0.036** (-2.03)	-0.028 (-1.54)
Hostiletakeover	-0.008*** (-2.94)	-0.008*** (-3.00)	-0.009*** (-3.11)
bm	0.042** (2.29)	0.042** (2.28)	0.036** (1.97)
tech	-0.012 (-0.90)	-0.010 (-0.71)	-0.011 (-0.79)
roa	-0.011 (-1.06)	-0.019* (-1.78)	-0.018* (-1.65)

Constant	-0.047	-0.052*	-0.065**
	(-1.52)	(-1.68)	(-2.07)
Industry fixed	Yes	Yes	Yes
Year fixed	Yes	Yes	Yes
Observations	10,649	10,649	10,649
R-squared	0.161	0.161	0.161

The cumulative abnormal returns (car) is used as dependent variable. Corporate social responsibility (csr) is used as independent variables. All symbols and definitions can be found in Appendix. Columns (1), (2) and (3) report the car results under different csr dimensions, and the values in the column (1), (2) and (3) are derived from the impact of the independent variable on the dependent variable (car) when other control variables are present. Robust t-statistics in parenthesis. *, **, and *** represent the statistical significance at the 0.1, 0.05, and 0.01 levels respectively.

Table 5 Heterogeneity of property rights

	(1)	(2)
VARIABLES	car	car
	Central SOEs	Local SOEs
csr	-0.321	0.130***
	(-1.47)	(5.11)
size	-0.128**	-0.002
	(-2.19)	(-0.19)
logvalue	0.142**	-0.000
	(2.42)	(-0.01)
debtbi	0.100	-0.027
	(0.51)	(-1.52)
Hostiletakeover	-0.043***	-0.007***
	(-2.81)	(-2.67)

bm	0.220*	0.032*
	(1.80)	(1.73)
tech	0.095**	-0.007
	(2.05)	(-0.48)
roa	-0.229	-0.019*
	(-1.51)	(-1.80)
Constant	-0.253	-0.070**
	(-0.98)	(-2.22)
Industry fixed	Yes	Yes
Year fixed	Yes	Yes
Observations	535	10,114
R-squared	0.699	0.260

This table presents the heterogeneity analyses results on dividing SOEs into central SOEs and Local SOEs between 2009 to 2022. The column (1) and (2) represent the reflection of the influence of the independent variable on the dependent variable (car) when all other control variables are present. t-statistics (in parentheses) are based on standard errors that are clustered by analyst and year. *, ** and *** denote statistical significance at 10%, 5% and 1% levels using two-tailed student t-tests, respectively. Detailed variable definitions are provided in Appendix.

Table 6 Robustness testing

	(1)	(2)
VARIABLES	car3	car3
csr	0.026*** (5.15)	0.010** (2.15)
size		-0.009*** (-5.19)
logvalue		0.008*** (4.75)
debtbi		0.006* (1.87)
Hostiletakeover		-0.002*** (-3.94)
bm		0.023*** (6.91)
tech		0.016*** (6.56)
roa		0.007*** (3.62)
Constant	-0.020*** (-5.40)	-0.006 (-1.07)
Observations	10,725	10,649
R-squared	0.163	0.203

This table presents the robustness analyses results on expanding the event window period to (-3,3), which is to analyze within three trading days before and after the event announcement date between 2009 to 2022. The column (1) and (2) represent the reflection of the influence of the independent variable on the dependent variable (car3)

when all other control variables are present. t-statistics (in parentheses) are based on standard errors that are clustered by analyst and year. *, ** and *** denote statistical significance at 10%, 5% and 1% levels using two-tailed student t-tests, respectively. Detailed variable definitions are provided in Appendix.

Appendix

Variable type	variable name	variable code
Explained variable	Cumulative abnormal returns	car
Independent variables	Corporate social responsibility	csr
control variables	Return on Assets	roa
	book-to-market ratio	bm
	Whether it involves a hostile takeover	Hostiletakeover
	Whether it involves high-tech industry	tech
	The natural logarithm of the company's total assets	size
	Logarithm of asset book value	logvalue
	Long-term debt to total market capitalization ratio	debtbi