

The Nonlinear Impact of Corporate Social Responsibility on Stock Returns

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How to cite this paper: Zhang, Y., Liu, W.Q. and Xie, L.X. (2020) The Nonlinear Impact of Corporate Social Responsibility on Stock Returns. *Theoretical Economics Letters*, 10, 17-39.

<https://doi.org/10.4236/tel.2020.101002>

Received: December 17, 2019

Accepted: January 14, 2020

Published: January 17, 2020

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Abstract

“Can companies benefit from corporate social responsibility?” is still unsolved. This study investigates how corporate social responsibility impacts stock returns with Hexun’s CSR rating for first time. The sample is based on Chinese A-share listed companies for the period 2010-2017. We adopt threshold regression and multiple regression and find that: first, there is a U-shaped relationship between CSR and stock returns. This finding suggests that the relationship between CSR and stock return is affected by cut-off point, which is negative before cut-off point, and positive after cut-off point. In addition, this relationship has nothing to do with the nature of enterprise property rights. Second, fulfilling CSR affects corporate reputation and relieves information asymmetry, corporate reputation and institutional investors are the channels through which CSR influences stock returns. Fourth, we demonstrate the moderating effect of external legal environment between CSR and stock return. This paper provides new evidence for understanding the impact of CSR on enterprise value.

Keywords

Corporate Social Responsibility, Stock Return, Corporate Reputation, Institutional Investors, External Legal Environment

1. Introduction

Changsheng Biology (002680.SZ) was delisted by Shenzhen Stock Exchange on November 27, 2019, which is the first enterprise delisted due to violations of the law (fake vaccines). It is not a unique instance, but has its counterpart. Sanlu company went bankrupt due to “milk scandal” in 2009. These companies have a common problem: that is, they neglect or ignorance to fulfill their corporate so-

cial responsibilities (CSR). CSR is a practical activity that enterprises voluntarily and rationally allocate their resources in order to improve social welfare and enhance the relationship between enterprises and core stakeholders. CSR is the cornerstone of firms' sustainable development, and it is needed to adapt to social development and economic globalization. It is a kind of intangible assets of firms. Among the 250 largest enterprises in the world, the number of enterprises that publish CSR reports has increased from 44% in 2011 to 78% in 2017. The survey of 4900 firms also shows that the number of firms that publish CSR reports has increased from 30% to 81% from 2015 to 2017 (KPMG) [1]. CSR is so important. Why do some enterprises ignore it? There has always been a dispute about it. Specifically, can CSR make firms benefit from it? So the purpose of this paper is to study how CSR performance impacts stock returns. We aim to address the following questions. Does CSR increase stock return? Is the effect of CSR on stock return different across firms? How CSR affects stock returns?

While a lot of studies investigate the CSR and firm performance relationship and offer valuable insights (Luo and Bhattacharya; Peloza and Shang; Servaes and Tamayo; Mishra and Modi; Lenz *et al.*) [2] [3] [4] [5] [6]. While most of them have been conducted in developed economies, they have not reached a consistent conclusion at present. One view is that CSR is conducive to optimize corporate image, reduce financing costs, improve financial performance and competitiveness, and contribute to the sustainable development of enterprises, for example, Lenz *et al.* [6] find CSR activities enhance firm value. Another view is that the resources of an enterprise are limited; the only responsibility of an enterprise is to maximize the interests of shareholders, to make profits for shareholders by using limited resources, and to fulfill CSR will consume the resources, reduce profits and damage financial performance, for example, Margolis and Walsh [7] find that CSR activities may damage firm value. There is still gap about CSR research in developed and developing countries. There are two reasons for choosing China Securities Market as an example to study CSR. First, more and more Chinese enterprises have begun to realize the importance of CSR and have launched an upsurge of active involvement in CSR. The total number of CSR reports was 24 from 2001 to 2005. After the publication of the Guidelines on Social Responsibility of Listed Companies in 2006, the number of social responsibility reports was 33 in 2006. By the end of 2018, the number of social responsibility reports increased to 2097, and 1779 of 2097 are by Chinese listed companies, which accounted for 84.8%. Second, with the increasing importance and influence of China in the global economy, the attention of international investors for Chinese stocks is also increasing, and the influence of Chinese stock market in the world is gradually increasing.

Compared with using financial index to measure firm performance or enterprise value, using accounting indicators to measure enterprise value has certain shortcomings, on the one hand, accounting indicators are difficult to reflect the long-term performance of firms, on the other hand, it is easy to be manipulated. Therefore, this paper chooses stock returns in capital market to measure firms'

performance. This paper chooses a comprehensive indicator to measure CSR, which is different from the previous indicators. CSR score is the evaluation about firms' CSR by third party organizations (hexun.com), which include shareholder responsibility, employee responsibility, supplier and customer relations, environment and social charity responsibility. The calculation of CSR involves two categories: numerical index and logical index. Numerical indicators get accurate scores according to the Hexun data center calculation model, logical indicators give scores according to whether the social responsibility report discloses the indicators and whether the disclosure is detailed or not. The indicators calculated in this way can comprehensively and detailed measure the performance of corporate social responsibility.

We find that there is a nonlinear relation between CSR and stock returns, specifically, there is a U shape between them. In a nutshell, stock returns tend to decline with the increase of CSR at first, when CSR exceeds a certain threshold, stock returns increase with the increase of CSR. At first, with the increase of CSR investment, firms are unable to recover the actual cash flow generated by CSR performance temporarily, not only stock returns not be stimulated by CSR but also may decline at first. However, CSR is a type of long-term investment, fulfilling CSR can provide competitiveness and profitability for firms, this positive effect of CSR will be highlighted after some time, investors also discover the growth potential of these companies and thus increase their stock purchases, which is conducive to improving stock returns, so we can find the positive effect of CSR on financial performance. Besides, there is no difference between CSR and stock return for state-owned enterprises and non-state-owned enterprises. We take our findings one step further, we study the impact of different parts of CSR (based on first-level) on stock returns, we find that there is a U-shaped relationship between CSR of different groups and stock returns except employee responsibility, there is an inverted U-shaped relationship between employee responsibility and stock return. Why cannot the concern of firms for employees produce lasting promotion for the development of enterprises? This is a very interesting question. We will study it in future.

Furthermore, we explore intermediary mechanisms to explain the relationship between CSR and corporate performance. We find that corporate reputation and institutional investors' investment strategies are two potential channels for CSR performance influence stock returns. Specifically, CSR is conducive to improve corporate reputation, which will affect investors' attention to enterprise, thus increasing the purchase of stocks, which lead the rise of stock returns. Firms with high CSR scores send positive signals, institutional investors has abundant professionals and abundant funds, therefore, institutional investors respond to CSR information issued by firms in timely, institutional investors will adjust their investment strategies in timely according to information, so we find that institutional investors play a mediating role in the impact of CSR on stock returns. We also find the moderating role of external legal environment in the impact of CSR

on stock returns. This is because that external legal environment of firms located affects the enthusiasm and effectiveness of the firms in fulfilling its CSR. More concretely, good legal environment is conducive to the better performance of firm's CSR. On the contrary, in the absence of strict laws and system constraints, the understanding of CSR system interpretation and implementation is also greatly different from the expectations of relevant policymakers. The uncertainty of the external legal environment will lead to the uncertainty of CSR. We consider the relation between CSR and stock return in conjunction with external legal environment. This allows us to evaluate the role of a local's legal environment in relation to CSR, and additionally yields important implications for regulators.

The remainder of the paper is structured as follows. Section 2 presents a literature review and hypotheses development. Section 3 discusses our data and methodology. In Section 4, we analyze how CSR scores impact stock returns and the influence mechanism. Section 5 presents additional analyses and robustness test, and Section 6 concludes the paper.

2. Literature Review and Hypotheses Development

2.1. Corporate Social Responsibility and Stock Return

There are two main lines in the current areas about CSR and stock returns. One is that CSR is positively correlated with stock returns. McGuire and Schneeweis [8] prove that firms with low CSR have lower returns on stock than those with high CSR. Luo and Bhattacharya [2] measure corporate performance by stock returns and use the CSR index provided by FAMA database, and they find that CSR has a positive correlation with stock return. Hill *et al.* [9] point out that CSR can filter out high-quality enterprises, so the better CSR of company, the more favored by value investors, therefore, holding a portfolio of stocks with high CSR will benefit in the long run. Deng *et al.* [10] find that compared to low CSR acquirers, high CSR acquirers realize higher merger announcement returns. Lins *et al.* [11] find that firms with high CSR ratings outperform firms with low CSR ratings during the crisis. Another viewpoint is that CSR has nothing to do with stock returns or that CSR is not conducive to improving stock returns. Brammer *et al.* [12] find that CSR was significantly negatively correlated with stock returns, which can be rationalized by multi-factor models for explaining the cross-sectional variation in returns. Mackey *et al.* [13] argue that stock prices have nothing to do with CSR in a balanced market, because the effect of CSR on stock returns will be eliminated through arbitrage.

These studies show mixed results of CSR and stock return: positive and negative. Such questionable conclusions create a research gap, allowing for more research in an effort to acquire satisfactory results. In fact, the impact of CSR on stock returns is a gradual process, with a certain lag. CSR investment as a hidden investment will lead to higher costs in the short term but not necessarily get a return in the current period. That is, within a certain period with the increase of CSR investment, firms are unable to recover the actual cash flow generated by

CSR temporarily, during this period, not only will stock returns not be stimulated by CSR but also may decline, at the same time, the market is not perfect in reality and there are many irrational factors, which make it difficult for all investors to grasp the information about CSR in timely and comprehensively. However, in the long term, firms' active performance of social responsibility is conducive to their sustainable development, thus helping improve the value of firms, which is beneficial to improve stock returns. Enterprises win the trust and support from stakeholders by undertaking CSR, which help to boost share price. As Balabanis *et al.* [14] argue CSR is not conducive to corporate financial performance in the short term, but after a while, we can see the positive effect of CSR on financial performance. Servaes & Tamayo [4] argue that CSR promotes corporate performance only under certain conditions. Based on the above analysis, we raise hypothesis 1:

H1: There is a nonlinear relation between CSR and stock returns.

2.2. The Mediating Role of Corporate Reputation

According to the theory of enterprise resources, corporate reputation is an important intangible asset, which is scarce, difficult to imitate and replace, and can create value for enterprises (Hall; James *et al.*) [15] [16]. Research has proved that CSR helps enhance corporate reputation. Specifically, Firms with better CSR tend to disclose more positive image to investors and other stakeholders, the disclosure of CSR-related information sends a signal of incomplete self-interest to stakeholders, which helps enterprises to form a good reputation for investors. When such signals are continuously released and effectively received by external investors, firms can accumulate and form reputation capital. As time goes by, for companies that perform CSR better, investors are more likely to judge that these companies have a good social reputation and low operating risk, and make a higher expectation of the company's future earnings and stock value, and then have a strong willingness to invest in the company's stock, with the increase of purchase, it will promote the stock price, such as, Luo and Bhattacharya [2] argue that CSR increases customer loyalty, leading to firms having more pricing power, Ailawadi *et al.* [17] and Hilger *et al.* [18] find that firms to sell more or at higher prices those products that have CSR features.

In reality, a large number of investors cannot fully understand the social responsibility information disclosed by firms due to the limitation of their abilities, media supervision provides strong support for investors to understand firms (Miller [19]). On the one hand, the media actively publicize CSR activities to build a good reputation for the enterprise, thereby increasing customer loyalty and satisfaction to the firm. On the other hand, the exposure and tracing of irresponsible acts of firms by the media result in the loss of responsible reputation and deterred irresponsible acts of firms, such as tax evasion, manipulation of financial information, food safety risks (Luo *et al.*) [20], forming a "reputation responsibility." Therefore, investors can understand the corporate reputation

according to media coverage of firms, which means that media reports about firms can be used as an alternative variable of corporate reputation.

Summarize the above conclusions, the impact of CSR on corporate performance is actually the impact of CSR performance on corporate reputation. That is to say, corporate reputation is a potential channel through which CSR performance affects stock returns. Therefore, this paper uses corporate reputation as an intermediary variable to conduct a more scientific study on the impact of CSR on stock returns and proposes Hypothesis 2.

H2: Corporate reputation plays a mediating role in the impact of CSR performance on stock returns.

2.3. The Mediating Role of Institutional Investors

It has been proved that firms with better CSR will disclose more information, reducing the information asymmetry between firms and capital markets (Mohr and Webb; Brammer and Millington; Prior *et al.*; Dhaliwal *et al.* Kim *et al.*) [21] [22] [23] [24] [25]. From the perspective of investors, the disclosure of CSR information can be used as an effective non-financial information communication channel to alleviate information asymmetry, especially when the quality of financial information is insufficient, investors can get a better understanding of the financial health of enterprises (Lizzeri) [26]. Investor's investment decision-making is more reasonable and wise, such as, Simms [27] surveys of more than 400 fund managers and analysts in nine European countries and finds that about 50% of respondents expressed that they would use the CSR information disclosed by management in investment decision-making. Flammer [28] analyzes the stock market and also finds that investors dislike companies with bad social responsibility problems, it means that corporate social responsibility (CSR) affects investors' evaluation and trust in the firms, which changes investors' portfolios and then may affect those firms' stock returns,

Disclosure of CSR information will change the decision-making of information users, however, there are differences in the market for various types of investors to receive information, including time and cost for information processing. Compared with retail investors, institutional investors have abundant professionals and funds, which can take advantage of information gathering as professional investment institutions. Institutional investors respond to CSR information issued by firms soon and adjust their investment strategies in timely, retail investors will imitate the investment strategies of institutional investors to improve stock returns, such as, Wang and Qian [29] find that institutional investors voted with their feet on the behavior of dairy firms without social responsibility based on China's melamine incident in 2008, furthermore, individual investors follow the pace of institutional investors. According to the above discussion, we raise the following hypothesis:

H3: Institutional investors play a mediating role in the impact of CSR on stock returns.

2.4. The Moderating Role of External Legal Environment

Marquis *et al.* [30] find that the uncertainty of regulatory systems will lead to the uncertainty of CSR performance. In the social environment with higher marketization process, stakeholders have enhanced their ability to protect their rights by using laws, regulations and market regulations, and have more information channels (media and intermediary organizations, etc.) to obtain and screen the authenticity and reliability of CSR information (Cambell; Wang *et al.*) [31] [32]. In other words, a higher institutional environment in the process of marketization will help improve the authenticity, reliability, and transparency of CSR information.

On the contrary, in the social environment with low marketization process, due to the lack of effective external supervision and restraint mechanism, the imperfection of laws and regulations and market mechanism, managers are inclined to adopt symbolic disclosure of CSR information, such as “dishonest” to improve corporate image. However, due to the imperfection of market information transmission mechanism and the lack of effective external supervision and restraint mechanism. The underdeveloped market intermediary organizations make it difficult for stakeholders to review and verify the authenticity and reliability of CSR information. Therefore, we have reason to believe that good external legal environment will help firms to better fulfill their social responsibilities and propose the Hypothesis 4.

H4: External legal environment plays a moderating role in the impact of CSR on stock returns.

This paper intends to explore the CSR role in stock return, with the mediating effects of corporate reputation and institutional investors, and the moderating effects of external legal environment, as shown in **Figure 1**.

3. Data and Methodology

3.1. Sample

The sample consists of a panel of China A-share listed companies from 2010 to 2017 with a total of 19,802 firm year observations. The measurement index of external legal environment comes from NERI INDEX of marketization of China’s Provinces 2018 Report. We use the number of news media and newspapers

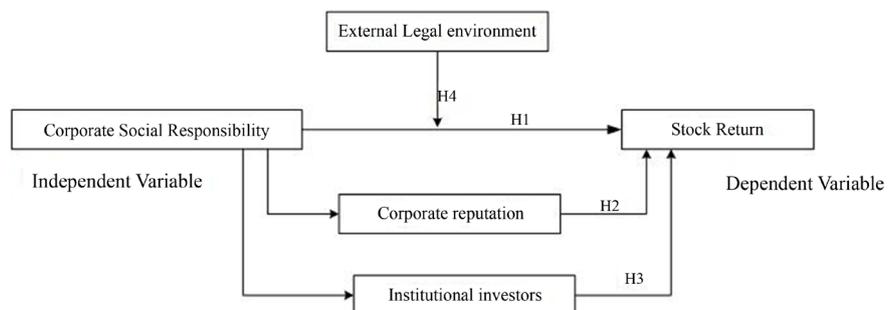


Figure 1. Conceptual framework.

report on firms to measure the reputation of firms. Data come from Chinese Research Data Services (CNRDS). Other financial data are from the Chinese Security Market and Accounting Research (*CSMAR*) database.

Furthermore, we use the following filters to get the final sample. First, according to previous studies, financial firms and ST and *ST listed companies are excluded. Second, the companies whose CSR score is missing are also excluded. Third, all variables are winsorized at the 1st and 99th percentiles of their distributions except CSR score.

3.2. Definition of Variables

3.2.1. CSR Score

CSR score is the evaluation about firms' CSR by third party organizations (hexun.com). Hexun.com is a website about finance and economics, which is the first to build a social responsibility evaluation system with objective and open data in China, has scored the CSR performance of more than 2000 listed companies in China every year since 2010. CSR score combines information on the firm's performance across shareholder relations, employee relations, supplier and customer relations, environment and social responsibility, which includes five first-level indicators, specifically refer to shareholder responsibility, employee responsibility, supplier and customer and consumer rights responsibility, environmental responsibility and social responsibility, second and third-level indicators are set under each first-level indicator, there are 13 sub-items in the secondary index and 37 sub-items in the third index. The scores constructed by this method to comprehensively and objectively measure firms' CSR. We use CSR score to evaluate the firm performance of CSR, the higher the score, the more active the firm is fulfilling its social responsibility. The more detailed descriptions of the CSR data are in **Table A1** in **Appendix**.

3.2.2. Other Variables

This paper uses the number of times that news media and newspapers report on firms to measure the reputation of firms. In order to measure corporate reputation more realistic, we choose the number of positive reports from news media and newspapers to further measure the reputation of firm. Previous studies have revealed risk factors and firms' characteristics that affect stock return, and these factors or characteristics should be controlled. In multivariate analysis motivated by prior research, we include the following control variables: debt asset ratio, market value, price-to-book ratio, firm risk, firm growth. **Table 1** describes and defines all variables used in this study.

Table 2 shows summary statistics of these variables, including the stock return, CSR, and the control variables. The first row shows that the dependent variable—stock return, with a mean value of 0.1505 and a median value of 0.0074. The second row shows that primary variable—CSR (CSR score), with a mean value of 26.2023 and a median value of 22.0500, with a standard deviation of 17.9185, this means that there are great differences in corporate social responsibility

Table 1. Description of variables in the analysis.

Variable	Explanation
<i>ret</i>	Yearly stock return
<i>CSR</i>	Corporate social responsibility rating by Hexun network
<i>median</i>	the number of news media and newspapers report about firms to measure the reputation of firms
<i>leverage</i>	total liability divided by total assets
<i>size</i>	firm size is the log of the market value of equity
<i>growth</i>	$1 - (\text{grosssales}_t / \text{grosssales}_{t-1})$
<i>beta</i>	Annual systematic risks faced by firms
<i>pbr</i>	Price-to-Book Ratio
<i>shareholding</i>	Shareholding ratio by institutional investors
<i>law index</i>	The measurement index of external legal environment comes from NERI INDEX of marketization of China's Provinces 2018 Report

Table 2. Summary statistics.

Variable	Mean	Min	Max	Median	Std.	Skewness	Kurtosis
<i>ret</i>	0.1505	-0.8384	15.2113	0.0074	0.5882	3.7755	45.5471
<i>CSR</i>	26.2023	-18.1500	90.8700	22.0500	17.9185	1.2128	1.0686
<i>growth</i>	-0.1492	-3414.72	0.9999	0.1097	25.3664	-133.6394	17,982.34
<i>beta</i>	1.1049	-0.1764	5.8761	1.1046	0.2810	0.6335	6.7809
<i>pbr</i>	8.8434	-0.9997	134,607.06	0.1232	1002.23	132.8251	17,817.73
<i>leverage</i>	0.4541	-0.1946	29.4539	0.4365	0.4333	29.2780	1494.11
<i>size</i>	15.3109	12.1657	21.3178	15.2636	1.0543	0.4812	0.9701

Note. This table reports descriptive statistics of the main variables. The sample period is from 2010 to 2017.

between enterprises, it is of great significance to study the impact of CSR on stock returns. The third to seventh rows in **Table 2** also provide descriptive statistics for firm characteristics that we use as control variables, for example, the average of growth value is -0.1492, the average beta value is 1.1049.

3.3. Model Setting

We use model 1 and 2 to test the influence of CSR performance on stock return (Hypothesis 1).

$$ret_{i,t} = \alpha_0 + \alpha_1 CSR_{i,t-1} \cdot I(CSR \leq \gamma) + \alpha_2 CSR_{i,t-1} \cdot I(CSR > \gamma) + \sum a_k controls_{i,t-1} + \varepsilon_{i,t} \quad (1)$$

$$ret_{i,t} = \alpha_0 + \alpha_1 CSR_{i,t-1} + \alpha_2 CSR_{i,t-1}^2 + \alpha control_{i,t-1} + \varepsilon_{i,t} \quad (2)$$

where $CSR_{i,t-1}$ is the third party's evaluation of the enterprise's corporate social responsibility in firm i at year $t - 1$, $ret_{i,t}$ is the return for stock i in year t , in the rest of the model, the meanings of these two variables are the same for the

rest models, so they are not repeated in the next. All independent variables are lagged by one year to avoid endogenous problems.

After firstly testing the effects of CSR on stock return, we extend the previous analysis to examine if the presence of corporate reputation and institutional investors has the mediating effect on the relationship between stock return and CSR by model (3) to model (4).

$$median_{i,t} = \alpha_0 + \alpha_1 CSR_{i,t-1} + \alpha control_{i,t-1} + \varepsilon_{i,t} \quad (3)$$

$$ret_{i,t} = \alpha_0 + \alpha_1 CSR_{i,t-1} + \alpha_2 CSR_{i,t-1}^2 + \alpha_3 median_{i,t} + \alpha control_{i,t-1} + \varepsilon_{i,t} \quad (4)$$

$$shareholding_{i,t} = \alpha_0 + \alpha_1 CSR_{i,t-1} + \alpha control_{i,t-1} + \varepsilon_{i,t} \quad (5)$$

$$ret_{i,t} = \alpha_0 + \alpha_1 CSR_{i,t-1} + \alpha_2 CSR_{i,t-1}^2 + \alpha_3 shareholding_{i,t} + \alpha control_{i,t-1} + \varepsilon_{i,t} \quad (6)$$

where $median_{i,t}$ represents the number of news media and newspapers report on firm i at year t reported by Internet and Newspapers, $shareholding_{i,t}$ represents shareholding ratio of institutional investors of firm i at year t .

Furthermore, we test the moderating effect of the external legal environment on CSR performance and stock return by utilizing the interaction term of CSR and external legal environment (*law index*).

$$ret_{i,t} = \alpha_0 + \alpha_1 CSR_{i,t-1} + \alpha_2 CSR_{i,t-1}^2 + \alpha_3 lawindex_{t-1} + \alpha_4 lawindex_{t-1} * CSR_{i,t-1} + \alpha_5 lawindex_{t-1} * CSR_{i,t-1}^2 + \alpha control_{i,t-1} + \varepsilon_{i,t} \quad (7)$$

where $lawindex_{i,t}$ represents the legal environment index of the region where the firm is located at year t . $control_{i,t}$ represents other variables of firm i at year t , which may affect stock returns. We control time and firm fixed effect in regression (1) to (7).

4. Results and Discussion

This section describes the main empirical results. Specifically, the influence of CSR on stock returns is demonstrated from different perspectives in Section 4.1, the corporate reputation plays an intermediary role in the influence of CSR on stock returns in Section 4.2, the intermediary role of institutional investors and the regulatory role of external legal environment are respectively proved in Section 4.3.

4.1. Corporate Social Responsibility and Stock Return

To examine how CSR performance affects stock return, we regress stock return on CSR proxies and control variables by panel threshold model and OLS regression (model 1 and model 2). **Table 3** reports our main results. We find that *score* variable has a threshold from Panel A of **Table 3**, based on threshold estimator in Panel B of **Table 3** we find that, when *score* is less than 59.99 the coefficient on score is negatively and statistically significant at the 1% level, when *score* is more than 59.99 the coefficient on score is positively and statistically significant at the 5% level, this shows that the relationship between CSR and stock return is not monotonically increasing.

Table 3. Effects of corporate social responsibility on stock return.

Panel A: Threshold Effect Test							
Variable	Threshold	F-stat	Prob	Bootstrap	Crit1	Crit5	Crit10
CSR (Th-1)	59.99	74.66	0.0250	500	77.0446	69.2829	64.6528
Panel B: Regression Results							
Threshold Estimator		OLS Regression					
<i>CSR</i> ≤ 59.99	-0.0025*** (-4.33)		Full sample (1)	State-owned Enterprises (2)	Non-state-owned Enterprises (3)		
<i>CSR</i> > 59.99	0.0008** (2.08)	<i>CSR*CSR</i>	0.0394*** (3.85)	0.1002*** (6.36)	0.0453** (2.84)		
<i>leverage</i>	0.1671*** (4.26)	<i>score</i>	-0.0013* (-1.69)	-0.0072*** (-5.57)	-0.0024* (-1.88)		
<i>size</i>	-0.2592*** (-25.28)	<i>leverage</i>	0.0576*** (3.68)	0.1091** (2.79)	0.0329* (1.78)		
<i>pbr</i>	-0.0008 (-0.22)	<i>size</i>	-0.3214*** (-37.36)	-0.2512*** (-23.45)	-0.3146*** (-25.32)		
<i>beta</i>	-0.3457*** (-15.76)	<i>pbr</i>	-0.0007 (-0.23)	-0.2857 (-1.12)	-0.0006 (-0.19)		
<i>growth</i>	0.0004** (2.29)	<i>beta</i>	-0.0072 (-0.44)	-0.4360*** (-17.78)	0.0282 (1.17)		
<i>_cons</i>		<i>growth</i>	0.0001 (0.67)	-0.0400*** (-3.85)	0.0001 (0.17)		
WR ²	0.1508	Firm fixed	Y	Y	Y		
BR ²	0.0001	Year fixed	Y	Y	Y		
OR ²	0.0545	Adj_R ²	0.4322	0.4247	0.4708		

Note. Dependent variable is annual stock return. CSR changes 1% every time, ***, ** and * show the significance levels at 1%, 5% and 10% respectively.

Furthermore, we add the square term to the regression to study the relationship between CSR performance and stock return. Additionally, we examine whether the relationship between CSR and stock return changes with ownership. Column (1) shows that the coefficient on *CSR*CSR* is positively and statistically significant at the 1% level. Column (2) and column (3) show the results of different samples, which is classified according to the ownership of firms. For state-owned enterprises, the coefficient on *CSR*CSR* is positively and statistically significant at the 1% level. For non-state-owned enterprises, the coefficient on *CSR*CSR* is positively and statistically significant at the 5% level. According to column (1), column (2) and column (3), there is a U-shaped relationship between CSR and stock returns.

Besides, public utilities and residents' daily life are inseparable, and the stock price is relatively stable, can CSR affect stock returns in this industry? We divide the sample into the public utility industry and non-public utility industry; Appendix **Table A2** shows that the U-shaped relationship between CSR performance and stock return is relatively more stable in the public utility industry. In

a nutshell, stock returns tend to decline with the increase of CSR at first, when CSR exceeds a certain threshold, stock returns increase with the increase of CSR.

Maignan and Ferrell [33] argue that firms may injure other stakeholders while satisfying certain stakeholders. For example, shareholders are most concerned about the continuous profit creation of firms, creditors are concerned about whether firms can repay their accounts on time, the government hopes that firms can operate in a standardized manner and pay taxes actively, employees expect better wages and welfare levels, consumers are mainly concerned about whether the products produced by firms are safe and reliable. Becchetti *et al.* [34] find that various CSR activities might affect firms' cost of equity in different ways. So we further study the impact of different parts of CSR (based on first-level) on stock returns. In Table 4, we find that there is a U-shaped relationship between CSR of different groups and stock returns except employee responsibility, there is an inverted U-shaped relationship between employee responsibility and stock return, and this is a puzzle. Why cannot the concern of firms for employees produce lasting promotion for the development of enterprises? This is a very interesting question; we will study it in future.

Table 4. Corporate social responsibility of different groups and stock return.

	shareholder responsibility	employee responsibility	supplier and customer and consumer rights responsibility	environmental responsibility	social responsibility
<i>CSR*CSR</i>	0.0989*** (9.67)	-0.0722** (-2.13)	0.1564*** (5.51)	0.0290* (1.75)	0.0239** (2.68)
<i>CSR</i>	-0.0231*** (-9.26)	0.0199*** (4.17)	-0.0239*** (-5.20)	-0.0054 (-1.63)	-0.0017 (-1.27)
<i>leverage</i>	0.0234 (1.16)	0.0571*** (3.68)	0.0404** (2.02)	0.0411** (2.04)	0.0175 (1.38)
<i>size</i>	-0.2481*** (-35.20)	-0.3221*** (-37.63)	-0.2496*** (-35.26)	-0.2468*** (-34.91)	-0.0956*** (-23.96)
<i>pbr</i>	-0.0009 (-0.23)	-0.0007 (-0.24)	-0.0009 (-0.24)	-0.0009 (-0.24)	-0.0017 (-0.48)
<i>beta</i>	-0.3574*** (-17.92)	-0.0072 (-0.44)	-0.3530*** (-17.65)	-0.3546*** (-17.71)	-0.3301*** (-21.61)
<i>growth</i>	0.0002 (0.94)	0.0001 (0.78)	0.0001 (0.79)	0.0001 (0.79)	0.0001 (0.88)
Firm fixed	Y	Y	Y	Y	Y
Year fixed	Y	Y	Y	Y	Y
Adj_R ²	0.0553	0.4325	0.0503	0.0482	0.0642

Note. Dependent variable is the annual stock return. Shareholder responsibility comprehensively measures the profitability, innovation ability, shareholder income, debt retirement ability and credit of the enterprise. Employee responsibility stands for employees' interests, including employees' income, employee training, safety inspection and training, and enterprise's care for employees. Supplier and customer and consumer rights responsibility stands for enterprise's product quality and after service, integrity and reciprocity in business relations. Environmental responsibility stands for the relevant input and work of enterprises in environmental governance. Social responsibility measures corporate taxes and donations. ***, ** and * show the significance levels at 1%, 5% and 10% respectively.

4.2. Mediating Effects of Corporate Reputation

In this section, we follow a three-step procedure to test hypothesis 2. In the first step, we model stock return as a function of CSR. In the second step, we model corporate reputation as a function of CSR. In the third step, we include both corporate reputation and CSR as determinants of stock return. We assess the mediating role of corporate reputation in the relationship between CSR and stock return by examining the significance and magnitude of the coefficients of CSR in all three steps. From **Table 3**, we find that CSR could significantly explain stock return (step 1); the conclusions of steps 2 and 3 are detailed in **Table 5** and **Table 6**.

In **Table 5**, we use positive reported data of firm as a substitute variable for corporate reputation, according to the source of news media, the positive reported data of firms can be divided into three categories: positive reported data from internet and newspapers (column1), positive reported data from newspapers (column3), and positive reported data from internet (column5). In step 2,

Table 5. CSR and stock return with the mediating effects of corporate reputation.

	Positive Reports by Internet and Newspapers (1)	Positive Reports Return (2) by Newspapers (3)	Positive Reports Return (4) by Newspapers (3)	Positive Reports by Internet (5)	Return (6)	
<i>CSR*CSR</i>		0.0397*** (3.90)		0.0408*** (3.95)	0.0397*** (3.90)	
<i>CSR</i>	0.9152*** (4.14)	-0.0014* (-1.69)	0.0775* (1.70)	-0.00014* (-1.75)	0.7415*** (4.59)	-0.0013* (-1.68)
<i>median</i>		0.0002*** (10.54)		0.0001** (2.57)		0.0002*** (12.28)
<i>leverage</i>	52.5963*** (4.66)	0.0556*** (3.57)	3.3758 (1.36)	0.0573*** (3.66)	38.7356*** (4.70)	0.0557*** (3.59)
<i>size</i>	197.4766*** (46.52)	-0.3254*** (-37.96)	5.2903*** (3.85)	-0.3239*** (-37.37)	146.6766*** (47.29)	-0.3255*** (-38.04)
<i>pbr</i>	0.7735 (0.23)	-0.0007 (-0.23)	-0.0318 (-0.06)	-0.0007 (-0.23)	0.5965 (0.25)	-0.0007 (-0.24)
<i>beta</i>	-76.7323*** (-5.36)	-0.0133 (-0.81)	7.1362** (2.69)	-0.0084 (-0.51)	-49.2627*** (-4.71)	-0.0141 (-0.86)
<i>growth</i>	0.0510 (0.39)	0.0001 (0.67)	0.0003 (0.02)	0.0001 (0.68)	0.0422 (0.44)	0.0001 (0.67)
Firm fixed	N	Y	Y	Y	N	Y
Year fixed	Y	Y	Y	Y	Y	Y
Adj_R ²	0.1781	0.4382	0.8286	0.4344	0.1886	0.4399

Note. Positive reports by internet and newspapers stands for the total number of all positive news about the company in financial newspapers and network news media in a day, which includes news title and news content, we calculate the daily data to get the monthly data, and then calculate the monthly data to get the annual data. Return stands for yearly stock return. Positive Reports by Newspapers stands for the total number of all positive news, which comes from financial newspapers. Positive Reports by Internet stands for the total number of all positive news, which comes from network news media, we also convert daily data into annual data.***, ** and * show the significance levels at 1%, 5% and 10% respectively.

Table 6. CSR and stock return with the mediating effect of corporate reputation.

	Reports by Internet and Newspapers	return	Reports by Newspapers	return	Reports by Internet	return
<i>CSR*CSR</i>		00366*** (3.59)		0.0394*** (3.85)		0.0363*** (3.56)
<i>CSR</i>	1.1834** (2.65)	0.0012 (-1.45)	0.4064*** (3.96)	-0.0013* (-1.65)	0.7769** (2.04)	-0.00117 (-1.41)
<i>median</i>		0.0001*** (9.71)		0.0001** (2.19)		0.00007*** (10.81)
<i>leverage</i>	36.0542 (1.48)	0.0558*** (3.58)	8.8148 (1.57)	0.0569*** (3.64)	27.2393 (1.31)	0.0559*** (3.59)
<i>size</i>	89.7075*** (6.65)	-0.3273*** (-38.11)	22.0041*** (7.10)	-0.3234*** (-37.52)	67.7033*** (5.89)	-0.3272*** (-38.15)
<i>pbr</i>	-0.0774 (-0.02)	-0.0007 (-0.22)	0.0107 (0.01)	-0.0007 (-0.23)	-0.0881 (-0.02)	-0.0007 (-0.22)
<i>beta</i>	86.5049*** (3.33)	-0.0121 (-0.74)	24.8963*** (4.17)	-0.0087 (-0.53)	61.6086** (2.78)	-0.0117 (-0.72)
<i>growth</i>	-0.0077 (-0.04)	0.0001 (0.68)	0.0004 (0.01)	0.0001 (0.67)	-0.0082 (-0.05)	0.0001 (0.68)
Firm fixed	Y	Y	Y	Y	Y	Y
Year fixed	Y	Y	Y	Y	Y	Y
Adj_R ²	0.8098	0.4375	0.8563	0.4334	0.7673	0.4385

Note. Return stands for yearly stock returns. Reports by internet and newspapers stand for the total number of all news about the company in financial newspapers and network news media in a day, which includes news title and news content, we calculate the daily data to get the monthly data and then calculate the monthly data to get the annual data. Reports by Newspapers stand for the total number of all news, which comes from financial newspapers. Reports by Internet stands for the total number of all news, which comes from network news media, we also convert daily data into annual data. ***, ** and * show the significance levels at 1%, 5% and 10% respectively.

column (1) of **Table 5** shows that the coefficient on *score* is positively and statistically significant at the 1% level, column (3) of **Table 5** shows that the coefficient on *score* is positively and statistically significant at the 10% level, column (5) of **Table 5** shows that the coefficient on *score* is positively and statistically significant at the 1% level, this shows that there is a positive correlation between CSR and corporate reputation.

In step 3, the regression equation includes CSR and corporate reputation, the coefficients on *score*score* are positively and statistically significant at the 1% level in column (2), column (4) and column (6), this means that the corporate reputation to serve as a moderator on CSR and stock return.

In **Table 5**, we have analyzed in detail the mediation role of good reputation of firms, but there is also bad reputation of firms. Under the influence of bad reputation, the stock price of firms will inevitably decline, so what is the role of corporate reputation when there is good reputation and bad reputation? In **Table 6**, we perform similar analysis as in **Table 5** using all the reported data of firm as a substitute variable for corporate reputation. We found the same results

as in **Table 5**. In summary, **Table 5** and **Table 6** provide the results of the regression analysis testing the mediating role of corporate reputation in the relationship between CSR and stock return from different perspectives.

4.3. Mediating Effects of Institutional Investor and Moderating Effect of External Legal Environment

We use the same method proposed in hypothesis 2 to test the mediating effect of institutional investors. The results of our empirical analyses were in **Table 7**. Column (1) of **Table 7** shows a significant coefficient on score ($p < 0.05$), indicating that CSR has a significant positive effect on institutional investors. Furthermore, we find that the coefficient on shareholding is significantly positive in columns (2). These results suggest that institutional investors play a mediating role in the impact of CSR on stock returns. So far we have proved the hypothesis 3.

Table 7. CSR and stock return with the mediating effect of corporate reputation and the moderating effect of external legal environment.

	mediating effect of shareholding		moderating effect of external legal environment (3)
	Shareholding (1)	Return (2)	
<i>CSR*CSR</i>		0.0378*** (3.72)	-0.0132 (-0.39)
<i>CSR</i>	0.0188** (2.02)	-0.0009** (-2.11)	0.0034 (1.34)
<i>shareholding</i>		0.0051*** (17.10)	
<i>leverage</i>	-0.6256 (-1.17)	0.0913*** (5.19)	0.0601*** (3.81)
<i>size</i>	5.0212*** (17.62)	-0.4051*** (-41.53)	-0.3223*** (-37.13)
<i>pbr</i>	-0.1205 (-1.25)	-0.0004 (-0.15)	-0.0007 (-0.22)
<i>beta</i>	-3.0487** (-5.24)	0.0136 (0.83)	-0.0086 (-0.52)
<i>growth</i>	0.0024 (0.61)	0.0001 (0.96)	0.0001 (0.67)
<i>lawindex</i>			0.4322*** (5.46)
<i>lawindex*CSR</i>			-0.0011* (-1.93)
<i>lawindex*CSR²</i>			0.0129* (1.77)
Firm fixed	Y	Y	Y
Year fixed	Y	Y	Y
Adj_R ²	0.7178	0.4466	0.4328

Note. Dependent variable is yearly stock return. Shareholding stands for the shareholding ratio of institutional investors. External legal environment stands for the legal situation of the region where the firm is located. ***, ** and * show the significance levels at 1%, 5% and 10% respectively.

To test the moderating effect of the external legal environment, regression analysis was carried out according to model 6. In column 3 of **Table 7** presents the estimations of coefficients of variables to test the relationship between CSR and stock return with the moderating effect of external legal environment, *lawindex* is positive and statistically significant at the 1% level with a coefficient value of 0.4322, the positive coefficient value of interaction term *lawindex*score*² is 0.0129, and is statistically significant at the 10% level. This means that external legal environment is conducive to enhancing the positive impact of CSR on stock returns and reducing the hindrance of CSR on stock returns. Hypothesis 4 was proved.

5. Additional Analyses and Robustness Tests

5.1. Additional Analyses

In the analysis of Section 4, we did not consider the differences in CSR of enterprises itself. In this section, we will further analyze the impact of CSR on stock returns from the perspective of the differences in CSR of enterprises. In reality, not all enterprises publish CSR reports, and not all enterprises voluntarily publish CSR reports. So we test whether voluntary disclosure of CSR and mandate disclosure of CSR have different effects on stock returns. In column 1 of **Table 8**

Table 8. CSR and stock return with different sample.

	Nondisclosure		Disclosure		
	(1)	Voluntary (2)	Mandate (3)	Audit (4)	No audit (5)
<i>CSR*CSR</i>	0.0001** (2.63)	0.0001** (2.65)	0.0002*** (6.55)	0.003** (2.22)	0.0002*** (5.79)
<i>CSR</i>	-0.0079*** (-4.84)	-0.0113*** (-3.62)	-0.0152*** (-6.69)	-0.0291** (-2.59)	-0.0085*** (-5.42)
<i>leverage</i>	0.0116 (0.53)	0.3461** (2.08)	0.2851* (1.94)	0.3779 (1.31)	0.1158*** (3.22)
<i>size</i>	-0.2464*** (-28.79)	-0.2638*** (-11.06)	-0.2931*** (-14.53)	-0.0299 (-0.91)	-0.07535*** (-11.39)
<i>pbr</i>	-0.0011 (-0.25)	-0.0024 (-1.04)	-0.0969*** (-3.78)	-1.8923 (-1.51)	-0.0019 (-1.32)
<i>beta</i>	-0.3541*** (-13.98)	-0.3548*** (-4.83)	-0.3266*** (-7.40)	-0.4631** (-2.63)	-0.3232*** (-11.66)
<i>growth</i>	0.0001 (0.66)	-0.09832** (-2.19)	0.0303 (1.42)	1.8640 (1.22)	-0.01261 (-0.77)
Ind fixed	Y	Y	Y	N	N
Year fixed	N	N	N	N	N
Adj_R ²	0.0298	0.0373	0.0777	0.1728	0.0646

Note. Dependent variable is yearly stock return. According to whether the enterprise independently discloses the corporate social responsibility information, we divide them into two groups: the disclosure group and the non-disclosure group, we further divided them into different sub samples in the disclosure group. ***, ** and * show the significance levels at 1%, 5% and 10% respectively.

reports the regression results of the group that does not disclose corporate social responsibility information, $score*score$ is positive and statistically significant at the 5% level with a coefficient value of 0.0001. In column 2 of **Table 8** presents the estimations of coefficients of variables to test the relationship between CSR and stock return in the sample of voluntary disclosure corporate social responsibility, $score*score$ is positive and statistically significant at the 5% level with a coefficient value of 0.0001. In column 3 of **Table 8** reports the results of companies that required disclosure CSR, $score*score$ is positive and statistically significant at the 1% level with a coefficient value of 0.0002. This means that there is a U shape between CSR and stock return has nothing to do with whether the corporate social information is disclosed.

Some of firms' CSR reports are audited by a third party, while most of firms' CSR reports have not been audited by a third party. So we further divide the disclosure group based on this. In column 4 of **Table 8** reports the results of the sample group whose CSR report is audited by the third party, $score*score$ is positive and statistically significant at the 5% level with a coefficient value of 0.003. In column 5 of **Table 8** reports the results of the sample group whose CSR report is not audited by the third party, $score*score$ is positive and statistically significant at the 1% level with a coefficient value of 0.0002. This means that there is a U shape between CSR and stock return has nothing to do with whether CSR report is audited by the third party.

5.2. Robustness Tests

We take one step forward by using different CSR measures to check the robustness of the relationship. We learn from Stig and Jesper [35], we orthogonalize score with respect to mean score of the same property right in the same industry in the same year by running the regression:

$$CSR_{i,t} = \alpha + \alpha_1 meanscore_t + CSR_{i,t}^{\perp} \quad (8)$$

where $CSR_{i,t}$ is the third party's evaluation of the enterprise's corporate social responsibility in firm i at year t , $meanscore_t$ is then mean score of the same industry in the same year or the same property right in the same industry in the same year, CSR^{\perp} is the residual, to evaluate how much independent explanatory power is left by mean score after controlling for the information in industry. As the next step, we then use CSR^{\perp} (lagged) as the explanatory variable in our predictive regressions for one-year-ahead stock return ($ret_{i,t+1}$), run the regression according to model 2. The results are in **Table 9**. The results show that there is significant explanatory power left in CSR when adjusted for industry information, there is a stable U-shaped relationship between corporate social responsibility and stock return.

6. Conclusions

In this paper, we not only study the relationship between CSR performance and stock returns but also discuss the underlying mechanism, which affects their

Table 9. Robustness tests—CSR and stock return.

	the residual—the same industry in the same year	the residual—the same property right in the same industry in the same year
$CSR_{\perp}^2 * CSR_{\perp}^2$	0.0002*** (3.20)	0.0002*** (3.31)
CSR_{\perp}	0.0090*** (6.85)	0.0091*** (6.90)
<i>leverage</i>	0.0519*** (3.37)	0.0525*** (3.41)
<i>size</i>	-0.3472*** (-37.17)	-0.3476*** (-37.20)
<i>pbr</i>	-0.0012 (-0.39)	-0.0012 (-0.39)
<i>beta</i>	-0.0304* (-1.74)	-0.0307* (-1.76)
<i>growth</i>	0.0001 (0.52)	0.0001 (0.53)
Firm fixed	Y	Y
Year fixed	Y	Y
Adj_R ²	0.4386	0.4387

Note. Dependent variable is yearly stock return. $score_{\perp}$ is the residual from the regression of score on mean score.***, ** and * show the significance levels at 1%, 5% and 10% respectively.

relationship. We find that there is a U-shaped relationship between CSR and stock returns, which is not affected by the nature of firm property rights. Furthermore, we try to find out that the channels of CSR performance affect stock returns. We find that corporate reputation and institutional investors are two channels for CSR performance to influence stock returns. Specifically, CSR can improve corporate reputation, which helps to enhance the attention of investors to the company and boost the rise of stock returns. CSR can reduce information asymmetry, and institutional investors can timely grasp favorable information, so as to change their investment strategies. Furthermore, retail investors will follow institutional investors, thus promoting the rise of stock returns. We also examine the moderator role of external legal environment on CSR and stock return. External legal environment promotes CSR to enhance its positive role and slow down its negative role.

Our research contributes to the literature in several ways. First, we broaden the range of empirical evidence on the relation between CSR and firm performance in stock market with new data. This paper first uses score on CSR of Hexun to study the impact of CSR on stock market. Second, while prior studies produce conflicting results on the relation between CSR and firm performance, we provide a new way to understand the role of CSR on firm performance. Third, this paper uncovers corporate reputation and investment strategy of institutional investors are the channels through which CSR affects stock market, contributes to a growing body of CSR literature by providing new evidence on the moderating effect of external legal environment between CSR and stock return.

Based on the findings of this paper, we have several suggestions to further improve CSR activities in China. For investors, they should pay more attention to the information about CSR, which is conducive to improving the accuracy of

investment decisions, for example, they can try to give more weight to the stocks with higher CSR in the investment portfolio. For firms, they should pay attention to fulfilling CSR, integrate it closely with the development of enterprises, so as to improve the competitiveness of firms. For the Chinese government, vigorously promoting the rule of law and establishing a legalized society is very important for the operation of the capital market.

Funding

This work is supported by the National Social Science Fund (grant number 15BJY164).

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

- [1] KPMG (2017) The KPMG Survey of Corporate Responsibility Reporting. <https://home.kpmg/xx/en/home/insights>
- [2] Luo, X. and Bhattacharya, C.B. (2006) Corporate Social Responsibility, Customer Satisfaction and Market Value. *Journal of Marketing*, **70**, 1-18. <https://doi.org/10.1509/jmkg.70.4.1>
- [3] Pelozo, J. and Shang, J. (2011) How Can Corporate Social Responsibility Activities Create Value for Stakeholders? A Systematic Review. *Journal of the Academy of Marketing Science*, **39**, 117-135. <https://doi.org/10.1007/s11747-010-0213-6>
- [4] Servaes, H. and Tamayo, A. (2013) The Impact of Corporate Social Responsibility on Firm Value: The Role of Customer Awareness. *Management Science*, **59**, 1045-1061. <https://doi.org/10.1287/mnsc.1120.1630>
- [5] Mishra, S. and Modi, S.B. (2016) Corporate Social Responsibility and Shareholder Wealth: The Role of Marketing Capability. *Journal of Marketing*, **80**, 26-46. <https://doi.org/10.1509/jm.15.0013>
- [6] Lenz, I., Wetzel, H.A. and Hammerschmidt, M. (2017) Can Doing Good Lead to Doing Poorly? Firm Value Implications of CSR in the Face of CSI. *Journal of the Academy of Marketing Science*, **45**, 677-697. <https://doi.org/10.1007/s11747-016-0510-9>
- [7] Margolis, J.D. and Walsh, J.P. (2003) Misery Loves Companies: Rethinking Social Initiatives by Business. *Administrative Science Quarterly*, **48**, 268-305. <https://doi.org/10.2307/3556659>
- [8] Mcguire, J.B., Schneeweis, T. and Branch, B. (1990) Perception of Firm Quality: A Cause or Result of Firm Performance. *Journal of Management*, **16**, 167-180. <https://doi.org/10.1177/014920639001600112>
- [9] Hill, R.P., Ainscough, T., Shank, T., *et al.* (2007) Corporate Social Responsibility and Socially Responsible Investing: A Global Perspective. *Journal of Business Ethics*, **70**, 165-174. <https://doi.org/10.1007/s10551-006-9103-8>
- [10] Deng, X., Kang, J. and Low, B.S. (2013) Corporate Social Responsibility and Stakeholder Value Maximization: Evidence from Mergers. *Journal of Financial Economics*, **10**, 87-109. <https://doi.org/10.1016/j.jfineco.2013.04.014>

- [11] Lins, K.L., Servaes, H. and Tamayo, A. (2017) Social Capital, Trust, and Firm Performance: The Value of Corporate Social Responsibility during the Financial Crisis. *The Journal of Finance*, **72**, 1785-1822. <https://doi.org/10.1111/jofi.12505>
- [12] Brammer, S., Brooks, S. and Pavelin, S. (2006) Corporate Social Performance and Stock Returns: UK Evidence from Disaggregate Measures. *Financial Management*, **35**, 97-116. <https://doi.org/10.1111/j.1755-053X.2006.tb00149.x>
- [13] Mackey, A.T., Mackey, T.B. and Barney, J.B. (2007) Corporate Social Responsibility and Firm Performance: Investor Preferences and Corporate Strategies. *Academy of Management Review*, **32**, 817-835. <https://doi.org/10.5465/amr.2007.25275676>
- [14] Balabanis, G., Phillips, H.C. and Lyall, J. (1998) Corporate Social Responsibility and Economic Performance in the Top British Companies: Are They Linked. *European Business Review*, **9**, 25-44. <https://doi.org/10.1108/09555349810195529>
- [15] Hall, R. (1992) The Strategic Analysis of Intangible Resources. *Strategic Management Journal*, **2**, 135-144. <https://doi.org/10.1002/smj.4250130205>
- [16] James, A., Oieksiy, O. and Samoel, M.P. (2015) Corporate Reputation Measurement: Alternative Factor Structure, Nomological Validity, and Organizational Outcomes. *Journal of Business Ethics*, **130**, 485-506. <https://doi.org/10.1007/s10551-014-2232-6>
- [17] Ailawadi, K.L., Luan, Y.J., Neslin, S.A. and Taylor, G.A. (2014) Does Retailer CSR Enhance Behavioral Loyalty: A Case for Benefit Segmentation. *International Journal of Research in Marketing*, **31**, 156-167. <https://doi.org/10.1016/j.ijresmar.2013.09.003>
- [18] Hilger, J., Hallstein, E., Stevens, A. and Villas-Boas, S.B. (2018) Measuring Willingness to Pay for Environmental Attributes in Seafood. *Environmental and Resource Economics*, **73**, 307-332. <https://doi.org/10.1007/s10640-018-0264-6>
- [19] Miller, G.S. (2006) The Press as a Watchdog for Accounting Fraud. *Journal of Financial Economics*, **44**, 1001-1033. <https://doi.org/10.1111/j.1475-679X.2006.00224.x>
- [20] Luo, J., Meier, S. and Oberholzer-Gee, F. (2012) No News Is Good News: CSR Strategy and Newspaper Coverage of Negative Firm Events. Harvard Business School, Working Paper, Boston.
- [21] Mohr, L.A. and Webb, D.J. (2005) The Effects of Corporate Social Responsibility and Price on Consumer Responses. *The Journal of Consumer Affairs*, **39**, 121-147. <https://doi.org/10.1111/j.1745-6606.2005.00006.x>
- [22] Brammer, S. and Millington, A. (2006) Firm Size, Organizational Visibility and Corporate Philanthropy: An Empirical Analysis. *Business Ethics: A European Review*, **15**, 6-18. <https://doi.org/10.1111/j.1467-8608.2006.00424.x>
- [23] Prior, D., Surroca, J. and Tribo, J.A. (2008) Are Socially Responsible Managers Really Ethical? Exploring the Relationship between Earnings Management and Corporate Social Responsibility. *Corporate Governance: An International Review*, **16**, 160-177. <https://doi.org/10.1111/j.1467-8683.2008.00678.x>
- [24] Dhaliwal, D.S., Li, O.Z., Tsang, A. and Yang, Y.G. (2011) Voluntary Non-Financial Disclosure and the Cost of Equity Capital: The Initiations of Corporate Social Responsibility Reporting. *The Accounting Review*, **86**, 59-100. <https://doi.org/10.2308/accr.00000005>
- [25] Kim, Y., Li, H. and Li, S. (2014) Corporate Social Responsibility and Stock Price Crash Risk. *Journal of Banking and Finance*, **43**, 1-13. <https://doi.org/10.1016/j.jbankfin.2014.02.013>

-
- [26] Lizzeri, A. (1999) Information Revelation and Certification Intermediaries. *Journal of Economics*, **30**, 214-311. <https://doi.org/10.2307/2556078>
- [27] Simms, J. (2002) Business: Corporate Social Responsibility—You Know It Makes Sense. *Accountancy*, **130**, 48-50.
- [28] Flammer, C. (2013) Corporate Social Responsibility and Shareholder Reaction: The Environmental Awareness of Investors. *Academy of Management Journal*, **56**, 758-781. <https://doi.org/10.5465/amj.2011.0744>
- [29] Wang, H. and Qian, C. (2011) Corporate Philanthropy and Corporate Financial Performance: The Roles of Stakeholder Response and Political Success. *Academy of Management Journal*, **54**, 1159-1181. <https://doi.org/10.5465/amj.2009.0548>
- [30] Marquis, C., Zhang, J. and Zhou, Y. (2011) Regulatory Uncertainty and Corporate Responses to Environmental Protection in China. *California Management Review*, **54**, 39-63. <https://doi.org/10.1525/cmr.2011.54.1.39>
- [31] Cambell, J.L. (2007) Why Would Corporations Behave in Socially Responsible Ways? An Institutional Theory of Corporate Social Responsibility. *Academy of Management Review*, **32**, 946-967. <https://doi.org/10.5465/amr.2007.25275684>
- [32] Wang, Q., Dou, J. and Jia, S. (2016) A Meta Analytic Review of Corporate Social Responsibility and Corporate Financial Performance: The Moderating Effect of Contextual Factors. *Business and Society*, **55**, 1083-1121. <https://doi.org/10.1177/0007650315584317>
- [33] Maignan, I. and Ferrell, O.C. (2004) Corporate Social Responsibility and Marketing: An Integrative Framework. *Journal of the Academy of Marketing Science*, **32**, 3-19. <https://doi.org/10.1177/0092070303258971>
- [34] Becchetti, L., Ciciretti, R. and Conzo, P. (2013) The Legal Origins of Corporate Social Responsibility. *CEIS Tor Vergata Research Paper Series*, **11**, No. 291. <https://doi.org/10.2139/ssrn.2336179>
- [35] Stig, V.M. and Jesper, R. (2018) Global Economic Growth and Expected Returns around the World: The End-of-the-Year Effect. *Management Science*, **64**, 573-591. <https://doi.org/10.1287/mnsc.2016.2589>

Appendix

Table A1. Specific contents of CSR indicator.

First-level	Second-level	Third-level
Shareholder Responsibility (Weight 30%)	Profit (Weight 10%)	Rate of return on common stockholders' equity (weight 2%)
		Return on total assets (weight 2%)
		Operating profit ratio (weight 2%)
		Ratio of profits to cost and expense (weight 1%)
		Earnings per share (weight 2%)
	Debt (Weight 3%)	Total undistributed profits divided by total equity (weight 1%)
		Quick ratio (weight 0.5%)
		Current ratio (weight 0.5%)
		Cash ratio (weight 0.5%)
		Equity ratio (weight 0.5%)
	Return (Weight 8%)	Debt asset ratio (weight 1%)
		Divide dividends by financing (weight 2%)
	Credit (Weight 5%)	Dividend yield ratio (weight 3%)
		Divide dividends by distributable profits (weight 3%)
	Innovation (Weight 4%)	Number of penalties imposed by exchanges (weight 5%)
Expenditure on product development (weight 1%)		
Concept of technological innovation (weight 1%)		
Employee Responsibility (Weight 15%) (10% for consumer industry)	Employee training and income (Weight 5%)	Number of technological innovations (weight 2%)
		Per-capita wage (weight 4% or 3%)
	Security (Weight 5%)	Employee training (weight 1%)
		Security check (weight 2% or 1%)
	Care for employees (Weight 5%)	Safety training (weight 3% or 2%)
		Sympathy and solicitude (weight 1%)
Supplier and Customer and Consumer rights Responsibility (Weight 15%) (20% for consumer industry)	Quality (Weight 7%)	Sympathy for employees (weight 2% or 1%)
		Consolation money (weight 2% or 1%)
	After-sale service (Weight 7%)	Awareness of quality management (weight 3% or 5%)
		Quality management system certificate (weight 4% or 4%)
Good faith reciprocity (Weight 5%)	Survey of customer satisfaction (weight 3% or 4%)	
	Fair competition among suppliers (weight 3% or 4%)	
Environmental Responsibility (Weight 20%) 30% for manufacturing industry; 10% for service industry	Environmental governance (Weight 20%)	Anti-Commercial Bribery Training (weight 2% or 3%)
		Awareness of environmental protection (weight 2% or 4% or 2%)
		Environmental management system certification (weight 3% or 5% or 2%)
		Investment in environmental protection (weight 5% or 7% or 2%)
		Number of pollutant discharge types (weight 5% or 7% or 2%)
		Number of energy saving types (weight 5% or 7% or 2%)

Continued

Social Responsibility (Weight 20%) 10% for manufacturing industry; 30% for service industry	Contribution to society (Weight 20%)	Income tax divided by total profit (weight 10% or 5% or 15%) Amount of public welfare donation (weight 10% or 5% or 15%)
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Note. Description of distribution of weight proportion in different industries: by default, the weight of shareholders' responsibility accounts for 30%, the weight of employees' responsibility accounts for 15%, the weight of rights and interests of suppliers, customers and consumers accounts for 15%, the weight of environmental responsibility accounts for 20%, and the weight of social responsibility accounts for 20%. Among them, the responsibility weight of employees in the consumer industry accounts for 10%, the rights and interests of suppliers, customers and consumers account for 20%, and the weight of other indicators remains unchanged; the environmental responsibility weight of manufacturing industry accounts for 30%, the social responsibility weight accounts for 10%, and the weight of other indicators remains unchanged; the environmental responsibility weight of service industry accounts for 10%, the social responsibility weight accounts for 30%, and the weight of other indicators remains unchanged.

Table A2. CSR performance and stock return based on the nature of industry.

	public utility industry	non-public utility industry	public utility industry	non-public utility industry
<i>CSR* CSR</i>	0.0001*** (3.34)	0.0001*** (4.88)	0.00008** (2.69)	0.00002* (1.66)
<i>CSR</i>	-0.0059** (-2.26)	-0.0016* (-1.92)	-0.0056** (-2.23)	-0.0001 (-0.15)
<i>leverage</i>	0.0758** (2.58)	0.07674*** (7.71)	0.0201 (0.75)	0.0067 (0.67)
<i>size</i>	-0.1465*** (-15.51)	-0.0858*** (-22.97)	-0.2407*** (-19.42)	-0.1778*** (-32.13)
<i>pbr</i>	-0.0022 (-0.43)	-0.0009 (-0.02)	-0.0020 (-0.47)	-0.0047 (-0.16)
<i>beta</i>	-0.0741*** (-3.30)	-0.07458*** (-8.36)	0.0879** (2.28)	0.0524*** (3.82)
<i>growth</i>	0.0002 (1.18)	0.0007 (0.18)	-0.00002 (-0.09)	0.0056* (1.75)
Firm fixed	N	N	Y	Y
Year fixed	N	N	Y	Y
Adj_R ²	0.0847	0.0474	0.4703	0.4059

Note. Dependent variable is yearly stock return. ***, ** and * show the significance levels at 1%, 5% and 10% respectively.