*Journal of Finance and Economics, 2018, Vol. 6, No. 2, 67-74*
Available online at http://pubs.sciepub.com/jfe/6/2/5

DOI:10.12691/jfe-6-2-5

# The Inverted U-shaped Impact of Corporate Social Responsibility on Corporate Performance

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**Abstract** With the development of economic globalization, economic growth, industry upgrading, deepening exchanges and cultural integration have important influence on the company's traditional values and responsibilities. Paying more attention to natural resources, ecological environment, workers' rights and business ethics, and taking more responsibility to stakeholders and society have become the trend of global enterprise development. Since ancient times, China has had a humanistic tradition of "shoulder social responsibilities". The moral idea of "Enjoying the world afterwards" requires leaders from all walks of life to consider social factors fully. The purpose is to achieve harmony between human and nature, as well as human and society. This is not only the common responsibility of global companies, but also the inherent requirement for building a harmonious society in China. Based on the perspective of stakeholders, this paper uses 2,618 observations of companies listed on GEM from 2010 to 2016 to empirically test the impact of corporate social responsibility on corporate performance. This study finds that the relationship between corporate social responsibility and corporate financial performance is inverted U-shaped, and accounting indicators have stronger explanatory power than market indicators.

***Keywords:*** *social responsibility, accounting performance, market performance*

**Cite This Article:** Xindong Zhang, and Ruiyun Guo, "The Inverted U-shaped Impact of Corporate Social Responsibility on Corporate Performance." *Journal of Finance and Economics*, vol. 6, no. 2 (2018): 67-74. doi: 10.12691/jfe-6-2-5.

## 1. Introduction

With the construction of a modernized country, the strategy of "innovation, coordination, green, openness, and sharing" has gradually become one of the basic strategies to follow and develop the socialism with Chinese characteristics in the new era. At the same time, it is also the new concept of company development. To implement new development concepts and build a modern economic system, we should strive to achieve development more efficient, more equitable, and more sustainable with higher quality. In other words, companies not only are supposed to innovate their own development methods, but also fully consider the fairness of the stakeholders involved and comprehensively consider the coordinated development of the economy, society and the environment.

The assumption of corporate behavior, "maximizing shareholder wealth level", has gradually been questioned by the academic community in recent years. The related "stakeholder" theory believes that the purpose of business management is to realize the common interests of stakeholders. Research on the correlation between corporate social responsibility and corporate performance emerges in an endless stream. Because of different sample selections, different ways of measuring social responsibility, and different performance indicators, the relationship between these two does not form a consistent conclusion. Regard to the companies listed on GEM, the number of corporate social responsibility disclosure data has doubled from 2010 to 2016. More and more small and medium-sized enterprises begin to pay attention to social responsibility. What is the relationship between social responsibility and corporate performance? This article will select 2,618 observations of companies listed on GEM from 2010-2016. Based on the CSR rating data in Hexun Website, it empirically tests the impact of social responsibility on corporate accounting performance and market performance. This paper finds the inverted U-shaped relationship between these two, and accounting indicators have stronger explanatory power than market indicators.

The company's social responsibility has received more and more attention and gradually becomes an indicator of the evaluation of a company's image and culture. It will also has a greater impact on the company's operating performance. The research significance of this article mainly has two aspects. One is theoretical significance. The article selects Hexun Website CSR rating data, comprehensively considers five indicators such as shareholders, employees, suppliers, customers and consumers' rights, environment and social responsibility. Empirical research finds the inverted U-shaped relationship between social responsibility and corporate performance. The concept of "threshold" is different from the linear relationship proposed by previous scholars, which will further enrich theoretical research. Second is the practical significance. The theory guides the companies to undertake certain social responsibilities, find what level of social responsibility is the most beneficial to the enterprise, and ultimately achieve a win-win situation for social benefits and corporate economic benefits. Taking it from society, and practicing it in society. It forms a virtuous cycle of society.

The structure of the article is as follows: the first part is the introduction; the second part is the theoretical analysis and research assumption; the third part is the research design; the fourth part is the empirical test and result analysis; the fifth part is the robustness test; the sixth part is the conclusion.

# 2. Theoretical Analysis and Research Assumption

## 2.1. A Literature Review of Corporate Social Responsibility

The British scholar Oliver Sheidon first proposed the concept of Corporate Social Responsibility (CSR) in 1924. He believes that the purpose of the company's existence is not only to maximize the interests of shareholders, but also to maximally meet the interests of other stakeholders other than shareholders. In 1953, Bowen Howard R. published a book entitled "Corporate Social Responsibility." He pointed out three elements of corporate social responsibility: a large modern company is the subject of corporate social responsibility; the manager is responsible for organizing the implementation; and following the voluntary principle. Carroll's definition of corporate social responsibility in four parts was proposed in 1979. It includes the economic, legal, ethical, and discretionary expectations of economic organizations. In 1991, Carroll also improved his four parts definition of corporate social responsibility. He defined the responsibility of freedom decision as a charity responsibility. Afterwards, the issue of whether companies should shoulder social responsibility had aroused greater repercussions in the academic community. The most representative view is Friedman's classical view of social responsibility. He starts with economic liberalism and opposes the state intervention. He believes that the only social responsibility of an enterprise is to pursue profits. These activities beyond legal requirements, such as curbing inflation, charitable donations, less pollution, eliminating social poverty, and increasing employment, which actually spend money on the company and not belong to the scope of corporate society responsibility. Since the 1990s, with the development of economic globalization, social responsibilities for protecting human rights, labor rights, and the natural environment have gradually received widespread attention from the international community. In 1997, the British scholar John Elkington proposed the triple bottom line theory, saying that enterprises should comprehensively consider the triple bottom line of economy, society and environment, and pay attention to social justice and environmental protection on the basis of ensuring the economic strength of enterprises' survival. This theory has developed into the foundation of the concept of corporate social responsibility. The latest definition of social corporate responsibility by the International Organization for Standardization (ISO) is "Corporate social responsibility is the behavior of the company to take responsibility for the social and environmental impacts of its operations." That is, the behavior must conform social interests and sustainable development. It is based on ethical behavior, complies with laws and intergovernmental contracts, and fully assimilates into the company's activities.

The concept of corporate social responsibility has undergone a tremendous transformation in China. In the 1990s, this concept was more equivalent to "International Labor Standards" and was considered as a trade barrier imposed by developed countries on Chinese companies. With the implementation of the scientific outlook on development comprehensively and the establishment of a socialist harmonious society, the concept of corporate social responsibility has been concerned by the government, enterprises, and society. In the "Governance Guidelines for Listed Companies" issued on January 7, 2002, it was stipulated that listed companies should respect the legal rights of banks and other creditors, employees, consumers, suppliers, communities, and other stakeholders; listed companies should pay attention to the issues such as welfare, environmental protection, and public welfare in their communities, and attach importance to corporate social responsibility while meeting the interests of shareholders. The China Business Council for Sustainable Development defines corporate social responsibility as: Not only should the company be responsible for shareholders, but should also be responsible to other stakeholders who contribute to the company or are affected by the business activities of the company.

## 2.2. A Literature Review of Corporate Social Responsibility and Corporate Performance

### 2.2.1. Foreign Research

Regarding to the relationship between corporate social responsibility and corporate financial performance, foreign scholars have conducted a lot of research. But due to different research samples and perspectives, a unified conclusion has not yet been formed. By sorting out existing literature, there are mainly three perspectives on the relationship between them.

The first view is that corporate social responsibility is negatively correlated with financial performance. Based on Friedman's neo-classical economics, this view points out that the only corporate social responsibility is to pursue the maximization of shareholders' profits. Otherwise, the company will suffer losses. In addition, the trade-off theory believes that the implementation of social responsibility will increase financial costs, thereby affect the improvement of financial performance.

The second view is that corporate social responsibility is positively related to financial performance. For example, Waddock & Graves pointed out that shouldering corporate social responsibility could meet the interests of various stakeholders and bring about good performance from the perspective of stakeholders. When the company can't bear the corresponding responsibility to the stakeholders, the hidden costs in the business activities will be converted into explicit costs, so that it will reduce the financial performance.

The third view is that the impact of social responsibility on financial performance is “U” shape. Brammer & Millington (2008) set out that the corporate financial performance of better and poorer corporate social responsibility is better than the companies belong to the middle type from the perspective of competitive strategy. They believe that companies with poor performance on social responsibility seek low-cost advantages by avoiding investment in resources, and companies with better performance on social responsibility have differentiated advantages that are difficult to be imitated by competitors, so they both have high financial performance.

#### 2.2.2. Domestic Research

With the development of a socialist harmonious society, more and more companies have begun to pay attention to and disclose corporate social responsibility information. Scholars have also conducted many studies on the relationship between corporate social responsibility and corporate performance. The main research findings are as follows.

Hongtao Shen selected non-financial listed companies from 1997 to 2003 in Shanghai and Shenzhen stock exchange as research samples, which based on the theory of stakeholders. Empirical research found that there is a significant positive correlation between social responsibility and financial performance. They influence each other, and promote each other. Meng Zhao selected enterprises in the food industry for independent disclosure of corporate social responsibility reports from the Shanghai and Shenzhen stock exchange during the period of 2010-2013 as research samples. They discussed social responsibility of the company to shareholders, customers, employees, creditors, government, environment, and society public welfare is positively related to corporate performance. Guoping Ji, Yunyan Yan, and Wuhui Wu conducted empirical research on 188 listed companies on the Shanghai and Shenzhen Board of Directors and SME Board in 2009-2013 based on the theory of corporate stakeholders and competitive strategies. The results show that corporate financial performance which social responsibility fulfills better or poor is better than the performance which social responsibility fulfills being in general. It means that corporate social responsibility has a U-shaped effect on corporate financial performance. Jiawen Zhouzhang and Huanzhang Xu took the listed company on the “New Silk Road Economic Belt” as a sample and built a closed loop of social responsibility-financial performance -social responsibility. They found that fulfilling social responsibility and financial performance influence each other and fulfilling social responsibilities can bring benefits to the company. Based on the collaborative hypothesis perspective, through the analysis the data of 333 listed companies in China, Yamin Hu, Jianqiang Li, Lianqi Miao shows that the correlation between individual corporate social responsibility contribution rate and corporate value is not significantly. It is necessary to fully consider the consumer's recognition. In addition, the interaction between corporate social responsibility and propaganda costs after fulfilling social responsibility has a significant impact on the value of the company.

## 2.3. Research Hypothesis

The assumption of corporate behavior “maximizing shareholder wealth level” has gradually been questioned by the academic community in recent years. The related stakeholder theory believes that the purpose of business management is to realize the common interests of stakeholders. Stakeholders include trading partners, pressure groups and the object directly or indirectly affected by the business activity such as natural environment and human offspring. Among them, trading partners include shareholders, creditors, employees, consumers and suppliers. Pressure groups include government departments, local residents, local communities, media, and environmentalism. These stakeholders are closely related to the survival and development of enterprises. Some of them share the company’s operating risks, some of them pay for the company’s operating activities, and some of them supervise and control the enterprises. The company’s business decisions must consider their interests or accept their constraints. In this sense, the enterprise is an institutional arrangement for intellectual and management specialization investment. The survival and development of the enterprise depend on the quality of the enterprise's responding to the interests of various stakeholders, not just depend on the shareholders. So the stakeholder theory believes that corporate social responsibility will promote the growth of corporate financial performance.

The contract theory believes that there are explicit and implicit contracts between enterprises and stakeholders. Explicit contracts clearly stipulate the relationship of all parties in the form of laws, while implicit contracts do not have clear rules. If the company doesn’t participate in social responsibility activities, the hidden costs will be converted into explicit costs, finally lose the competitive advantage. The contract theory holds that if an enterprise ignores the hidden benefits of stakeholders, the enterprise may pay a high price, or the hidden costs will be converted into higher explicit costs. For this reason, companies should treat meeting these stakeholders as an essential expenditure. Even Friedman, who has always regarded social responsibility as detrimental to the company's financial performance, also proposed in 1970 that taking social responsibility can help companies bring goodwill values, such as attracting high-quality labor, reducing labor costs, reducing theft and sabotage, even other benefits.

This article believes that increasing corporate social responsibility at the outset is undoubtedly beneficial to the company. Because the company’s stakeholders will be more willing to provide key resources for the company. However, as corporate social responsibility continues to increase, the increments in corporate earnings will gradually slow down. There are two reasons. First, although stakeholders are willing to support enterprises in fulfilling their social responsibilities and are willing to provide them with key resources, the resources of these stakeholders who care about corporate responsibilities are limited. It's a natural restriction for enterprises to get profit from social responsibility. Second, the level of profitability of enterprises cannot increase linearly. When an enterprise uses excessive human resources, material resources, and financial resources to fulfill its social responsibilities, it inevitably may transfer these costs to other stakeholders, such as higher product prices, lower employee compensation, lower investment remuneration, etc. Although stakeholders are willing to sacrifice some of their wealth to fulfill its social responsibilities, they still hope to obtain reasonable and higher compensation. Therefore, when corporate social responsibility increases to a certain critical point, these stakeholders will no longer be willing to accept lower and lower rates of return. Thereby they will reduce the resources provided to the company. In other words, as corporate social responsibility continues to increase, the marginal benefits of corporate performance will gradually decrease. In summary, this article proposes the following research hypotheses:

H1: The relationship between corporate social responsibility and corporate performance is inverted U-shaped.

For corporate financial performance indicators, there are usually two measurement methods, namely, accounting indicators and market indicators. From the perspective of reflecting company characteristics, corporate social responsibility has distinct individual characteristics. Market returns are affected more by the overall trend of the market, while accounting indicators can better reflect the specific characteristics of each company. From the perspective of index stability, the market returns are more fluctuate, whereas accounting indicators are more stable controlled by the management. In general, this article proposes the following assumptions:

H2: The accounting index has stronger CSR explanation than the market index.

# 3. Research Design

## 3.1. Sample Selection and Data Sources

Companies listed on the China's Growth Enterprises Market (GEM) are mostly small and medium-sized enterprises, and many of them belong to high-tech industries. They generally exhibit high growth, but they are also accompanied by great instability. At present, the relevant documents for the disclosure of social responsibility information of listed companies on GEM are almost zero. The disclosure of social responsibility information as an auxiliary report can truly reflect the contribution of the company to stakeholders during the development process. Since 2010, the number of disclosures of social responsibility information in GEM has doubled. Therefore, this paper selects companies listed on GEM of China from 2010 to 2016 as research samples to empirically test the impact of corporate social responsibility on the financial performance. We hope that GEM listed companies can further identify their own problems, standardize their own behavior, and promote standardized management by analyzing their commitment to social responsibility. At the same time, it can also promote the good development of the relations among the various stakeholders of the listed company, so that GEM companies can have a better environment for development.

The initial sample was screened as follows: (1) Removed missing data samples; (2) Removed samples of listed companies with special treatment (ST and *ST) in the current year. (ST stocks indicate that the company's financial conditions have deteriorated, such as net assets below face value, losses for consecutive years, etc. These companies are imposed by the stock exchange or listed companies themselves to special treatment. *ST refers to the "special handling of the risk of termination of listing of stocks".) Finally, 2618 sample observations were obtained. The corporate social responsibility data comes from the CSR rating of Hexun. (Hexun.com is the only website in China that has a license for internet news information services, licenses for audiovisual programs on information networks, and securities investment consulting.) The company's financial performance data comes from the China Stock Market & Accounting Research Database (CSMAR).

## 3.2. Research Variable Definition and Measurement

### 3.2.1. Corporate Social Responsibility

The internationally influential index system for measuring CSR includes the Dow Jones Sustainability Index (DJSI), the Dominican Social Accountability Index (KLD), the Global Reporting Initiative (GRI), and ISO 26000. DJSI is concerned about the triple impact of corporate development on environmental protection, social and economic development. The Dominican Social Index 400 is published by KLD, which evaluates the company's seven dimensions such as environment, diversity, employee relations, human rights, community relations, product quality and safety. The GRI <Sustainability Reporting Guidelines> guides companies to prepare sustainable development report or social responsibility report from three perspectives of economic, environmental and social performance. The ISO26000 standard covers nine aspects that is organizational responsibility, human rights, labor, environment, fair management, protection of consumer rights, community participation, social development, and stakeholder cooperation. At present, domestic scholars have conducted active researches on the evaluation system of social responsibility. These studies can draw on foreign research results based on the actual situation of Chinese enterprises. The evaluation indicators and systems are more comprehensive and operational.

Based on the perspective of stakeholders and the existing research results, this paper comprehensively considers the availability of data and the degree of social recognition of indicators. This paper adopts the professional evaluation system in Hexun Website to measure social responsibility learning from the measurement methods of Xingping Jia, Yi Liu, Chuntao Li, and Yuan Xue, etc. The CSR rating data of Hexun website is based on the social responsibility report and annual report issued by the official website. It examines the five indicators, which are shareholder responsibility, employee responsibility, supplier customer and consumer rights, environmental responsibility and social responsibility. Under the first-level indicators, a total of 13 secondary indicators and 37 tertiary indicators were set up for comprehensive evaluation. Considering that different industries have different emphasis on the five indicators, there are corresponding adjustments in the weight of assignments. By default, the shareholder responsibility accounts for 30%, the employee responsibility accounts for 15%, the supplier, customer, and consumer rights together account for 15%, environmental responsibility accounts for 20%, and social responsibility accounts for 20%.

#### 3.2.2. Corporate Performance

Corporate performance is comprehensive, diversified, and dynamic. This paper divides corporate performance into two categories, accounting and market indicators. The accounting index is measured by return on total assets (ROA) referring to the measurement method of Murray (1989) et al. ROA is also one of the most common indicators for measuring the company's accounting performance. The market index selects the market-adjusted stock return rate (RET), which can remove the "noise" contained in the stock price to a certain extent. The formula is: $\prod_{t=1}^{12}(1+R_{it})-\prod_{t=1}^{12}(1+M_t)$. Among them, $R_{it}$ is the monthly stock return rate that stock $i$ considers cash dividend reinvestment at time $t$. $M_t$ is the monthly market return rate at time t. The calculation period is from January to December of that year.

#### 3.2.3. Control Variable

After sorting out relevant literature on the factors affecting corporate performance, the paper systematically controls the four variables that reflect the financial characteristics of the company: size, asset-liability ratio, liquidity ratio, and operational capacity. In addition, it controls the company's industry and year.

**Table 1. Research Variable Definition**

| Variable | Variable Name | Variable Definition |
|---|---|---|
| Interpreted Variables | | |
| ROA | return on total assets | Net Profit/Total Assets |
| RET | stock returns | Market adjusted stock returns |
| Explanatory Variables | | |
| CSR | corporate social responsibility | Listed company social responsibility report professional evaluation system in Hexun Website |
| Control Variables | | |
| Size | business size | $Ln$(Total assets) |
| Leverage | asset liabilities rate | Total Liabilities/Total Assets |
| Liquitidy | liquidity ratio | Total current assets/Total assets |
| Operational | operational capability | Main Business Income/Total Assets |
| IND | Industry | IND refers to the 2012 SFC Industry Classification Standard |
| YEAR | Year | YEAR sets 7 annual dummy variables |

The specific definitions of the above interpreted variables, explanatory variables, and control variables are shown in Table 1.

### 3.3. Empirical Model Setting

This paper constructs the following two empirical models to test hypotheses 1 and 2.

Social Responsibility - Accounting Performance Model:

$$\begin{aligned} ROA = \alpha &+ \beta_1 CSR + \beta_2 CSR^2 + \beta_3 Size \\ &+ \beta_4 Leverage + \beta_5 Liquitidy \\ &+ \beta_6 Operational + \varepsilon_{it} \end{aligned} \tag{1}$$

Social Responsibility - Market Performance Model:

$$\begin{aligned} RET = \alpha &+ \beta_1 CSR + \beta_2 CSR^2 + \beta_3 Size \\ &+ \beta_4 Leverage + \beta_5 Liquitidy \\ &+ \beta_6 Operational + \varepsilon_{it} \end{aligned} \tag{2}$$

## 4. Empirical Test and Result Analysis

### 4.1. Descriptive Statistics and Correlation Analysis of Variables

This paper selects 2618 sample observations from 493 GEM listed companies from 2010 to 2016, and uses Stata Statistical Software to process the original data. The descriptive statistical analysis results are shown in Table 2. According to the analysis in Table 2, the sample company's CSR standard deviation is 12.260, the minimum value is -18.22, and the maximum value is 86.63. This shows that the GEM listed companies perform a greater diversity of social responsibilities. The average CSR value is 23.632, which indicates that the social responsibility level is relatively poor. The average ROA is 0.056, the standard deviation is 0.052, the RET average is 0.001, and the standard deviation is 0.035. It can be seen that there is no big difference between the sample companies' accounting performance indicators, but there is a big difference between the market performance indicators. Researching corporate social responsibility has certain statistical significance on the different effects of corporate accounting and market performance.

**Table 2. Descriptive Statistics (N=493, T=2010-2016, NT=2618)**

| Variable | Mean | Median | Standard Deviation | Minimum | Maximum |
|---|---|---|---|---|---|
| ROA | 0.056 | 0.054 | 0.052 | -0.646 | 0.469 |
| RET | 0.001 | 0 | 0.035 | -1.532 | 10.785 |
| CSR | 23.632 | 22.11 | 12.260 | -18.22 | 86.63 |
| Size | 21.017 | 20.925 | 0.748 | 18.679 | 24.447 |
| Leverage | 0.256 | 0.225 | 0.162 | 0.011 | 0.886 |
| Liquitidy | 0.670 | 0.682 | 0.173 | 0.089 | 0.994 |
| Operational | 0.459 | 0.407 | 0.353 | 0.026 | 11.416 |

Correlation tests are performed on each variable. As can be seen from Table 3, ROA and CSR are significantly positively correlated, but RET and CSR are positively correlated with low significance level. The correlation coefficients of the variables are all less than 0.75, indicating that there is no serious multicollinearity problem, which helps to further test the hypothesis proposed.

## 4.2. Analysis of Empirical Results

The empirical analysis of the impact of corporate social responsibility on corporate accounting performance is shown in Table 4. From the second column, we can see that after controlling a series of variables, the regression coefficient of CSR to ROA is 0.007, the t value is 34.03, and the regression coefficient of squared item $CSR^2$ to ROA is -0.001, t value is -27.82. The one-time coefficient is significantly positive, and the two-term coefficient is significantly negative, indicating that the social responsibility and the company's accounting performance have an inverted U-shaped relationship. That is to say, the more the company fulfills its social responsibilities, the higher its accounting performance is. But once it exceeds a certain threshold, accounting performance decreases with the increase of social responsibility. Assume H1 is verified.

**Table 3. Correlation Analysis Table**

| | ROA | RET | CSR | Size | Leverage | Liquitidy | Operational |
|---|---|---|---|---|---|---|---|
| ROA | 1.000 | 0.035* | 0.645*** | -0.143*** | -0.268*** | 0.232*** | 0.259*** |
| RET | -0.024 | 1.000 | 0.033* | -0.028 | -0.040** | 0.015 | -0.006 |
| CSR | 0.400*** | 0.007 | 1.000 | -0.008 | -0.273*** | 0.190*** | 0.043** |
| Size | -0.119*** | -0.002 | 0.100*** | 1.000 | 0.375*** | -0.298*** | -0.091*** |
| Leverage | -0.249*** | -0.029 | -0.150*** | 0.400*** | 1.000 | -0.325*** | 0.312*** |
| Liquitidy | 0.213*** | -0.018 | 0.075*** | -0.303*** | -0.278*** | 1.000 | 0.017 |
| Operational | 0.079*** | -0.055*** | -0.013 | -0.029 | 0.260*** | 0.063*** | 1.000 |

Note: Pearson correlation analysis is in the lower left corner and spearman correlation analysis is in the upper right corner.
*P<0.1, **P<0.05, ***P<0.01 (two-sided test)

**Table 4. Effect of Corporate Social Responsibility on Corporate Accounting Performance**

| | ROA | Regional Attributes | | | Ultimate Controller Attribute | |
|---|---|---|---|---|---|---|
| | | East | Central | East | State-owned | Non-state owned |
| CSR | 0.007***<br>(34.03) | 0.007***<br>(30.22) | 0.007***<br>(10.54) | 0.006***<br>(11.35) | 0.005***<br>(5.26) | 0.007***<br>(34.03) |
| $CSR^2$ | -0.001***<br>(-27.82) | -0.001***<br>(-24.44) | -0.001***<br>(-9.40) | -0.001***<br>(-8.71) | -0.001***<br>(-4.08) | -0.001***<br>(-27.82) |
| Size | -0.004***<br>(-3.24) | -0.005***<br>(-3.73) | 0.006<br>(1.62) | -0.012***<br>(-3.11) | -0.012**<br>(-1.76) | -0.004***<br>(-3.24) |
| Leverage | 0.015***<br>(3.09) | 0.014**<br>(2.52) | 0.013<br>(1.03) | 0.020<br>(1.24) | -0.042<br>(-1.35) | 0.015***<br>(3.09) |
| Liquitidy | -0.030***<br>(-5.13) | -0.217***<br>(-3.27) | -0.063***<br>(-3.38) | -0.054***<br>(-3.18) | -0.029<br>(-0.89) | -0.030***<br>(-5.13) |
| Operational | 0.016***<br>(7.02) | 0.014***<br>(5.62) | 0.053***<br>(5.08) | 0.019<br>(1.56) | 0.047**<br>(2.49) | 0.016***<br>(7.02) |
| IND/YEAR | YES | YES | YES | YES | YES | YES |
| $Adj-R^2$ | 0.4119 | 0.3914 | 0.4103 | 0.5699 | 0.3678 | 0.4119 |
| F | 295.01 | 222.02 | 38.81 | 49.15 | 9.53 | 295.01 |
| number | 2618 | 2072 | 327 | 219 | 89 | 2529 |

Note: The values in brackets are t. *, **, and *** are significant at the levels of 10%, 5%, and 1%, respectively.

**Table 5. Effect of Corporate Social Responsibility on Corporate Market Performance**

| | RET | Regional Attributes | | | Ultimate Controller Attribute | |
|---|---|---|---|---|---|---|
| | | East | Central | East | State-owned | Non-state owned |
| CSR | 0.005<br>(1.37) | 0.006<br>(1.50) | -0.005<br>(-0.52) | 0.008<br>(0.82) | 0.019<br>(1.19) | 0.005<br>(1.37) |
| $CSR^2$ | -0.001<br>(-1.42) | -0.001<br>(-1.51) | 0.001<br>(0.60) | -0.001<br>(-1.03) | -0.001<br>(-1.10) | -0.001<br>(-1.42) |
| Size | 0.002<br>(0.10) | 0.008<br>(0.33) | -0.052<br>(-0.89) | -0.036<br>(-0.49) | -0.122<br>(-1.08) | 0.002<br>(0.10) |
| Leverage | -0.086<br>(-0.98) | -0.056<br>(-0.56) | -0.334<br>(-1.60) | -0.163<br>(-0.55) | -0.684<br>(-1.34) | -0.086<br>(-0.98) |
| Liquitidy | -0.054<br>(-0.52) | -0.006<br>(-0.05) | -0.403<br>(-1.35) | -0.012<br>(-0.04) | -0.542<br>(-1.01) | -0.054<br>(-0.52) |
| Operational | -0.095**<br>(-2.29) | -0.099**<br>(-2.27) | -0.179<br>(-1.08) | -0.103<br>(-0.45) | -0.305<br>(-0.98) | -0.098<br>(-2.29) |
| IND/YEAR | YES | YES | YES | YES | YES | YES |
| $\text{Adj}-R^2$ | 0.0017 | 0.0015 | 0.0097 | -0.0170 | 0.0052 | 0.0017 |
| F | 1.73 | 1.50 | 1.53 | 0.39 | 1.08 | 1.73 |
| number | 2618 | 2072 | 327 | 219 | 89 | 2529 |

Note: The values in brackets are t. *, **, and *** are significant at the levels of 10%, 5%, and 1%, respectively.

The results of the empirical analysis of the impact of corporate social responsibility on the company's market performance are shown in Table 5. From the second column, we can see that after controlling a series of variables, the regression coefficient of CSR to RET is 0.005, and the t value is 1.37, while the regression coefficient of the square term $CSR^2$ to RET is -0.001, and the t value is -1.42. The one-time coefficient is positive and the two-term coefficient is negative, but neither is significant. It shows that there is an inverted U-shaped relationship between social responsibility and corporate market performance, but the level of significance is not high.

# 5. Robustness Test

From the empirical results of Table 4 and Table 5, we can see that there is a significant inverted U-shape between social responsibility and corporate accounting performance, and there is no significant relationship between social responsibility and corporate market performance. In order to verify the robustness of the above conclusions, the paper conducts a robustness test based on regional differences and the ultimate controller's attribute differences. The specific test results are also presented in Tables 4 and 5. Among them, columns 3-5 are based on the regression results of the east, central, and west regions, respectively. Columns 6-7 show the regression results based on state-owned and non-state-owned enterprises.

From the perspective of regional attributes, social responsibility has a significant impact on the accounting financial performance of the three regions of the east, central and west, indicating that the impact of social responsibility on corporate accounting financial performance does not mutate at the regional level. It shows good robustness. The relationship between social responsibility and market performance in the central region is different from the previous conclusions. The result is a U-shaped relationship. That is to say, the financial performances of the better or poorer corporate social responsibility are better than intermediate companies. It shows that enterprises in the central region can neither obtain low-cost advantages through resource conservation, nor can they obtain differentiated advantages through stakeholders, which is usually accompanied with poor financial performance.

Judging from the ultimate controller's attributes, social responsibility has a significant impact on the accounting performance of both the GEM listed state-owned and non-state-owned companies, and has no significant effect on the company's market performance. The empirical results are consistent with previous conclusions. It can be seen that the impact of social responsibility on company performance does not result in heterogeneous results in the ultimate controller's attribute dimension. The conclusion of this paper has good robustness.

# 6. Conclusion

This article takes 2618 observations of companies listed on GEM in 2010-2016 as research samples, and empirically tests the impact of corporate social responsibility on company performance. This study finds that the relationship between corporate social responsibility and corporate financial performance is inverted U-shaped, and accounting indicators have stronger explanatory power than market indicators. Through subdividing the sample, it further finds that the impact of corporate social responsibility on corporate accounting performance is better robustness in terms of regional attributes and ultimate controller attributes. It shows that the fulfillment of corporate social responsibility under the attributes of different regions and different controllers will enhance the company's accounting performance within a certain range. While for the company's market performance, under the attributes of different regions and different ultimate controllers, social responsibility has no significant effect. In particular, there is a U-shaped relationship in the central region.

Based on the research conclusions of this paper, the following policy recommendations are proposed: (1) In order to achieve a win-win result for social benefits and corporate economic benefits, enterprises should attach importance to shoulder certain social responsibilities. The sustainable management of enterprises depends on the supply of social resources and the continuous maintenance of social needs. In other words, get from society and pay back to society. (2) The concern of corporate managers should not be whether the performance of corporate social responsibility is good or not, or whether they are neutral. What they should care about is what level of social responsibility is the best for the company. (3) All sectors of society could create a positive cultural atmosphere of social responsibility, display a better image of a big country, and form a virtuous cycle of society.

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