

# Research on the Influencing Factors of Enterprise EPS: Based on the Panel Data of Listed Companies

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**Abstract:** In recent years, with the rapid growth of China's economy, the competition among various enterprises in different markets has become more and more stimulating. However, many enterprises ignore the social responsibility they should take while competing with other competitors around their own interests. Based on stakeholder theory, agency theory, and signaling theory, this paper classifies corporate social responsibility into four categories: government, investors, employees, and suppliers, and characterizes corporate value by EPS value, applying the publicly disclosed financial data of 3614 companies listed and traded in Shanghai and Shenzhen exchanges in 2019 for empirical analysis. This paper finds that CSR has a significant impact on corporate value, but there are some differences in the impact of each social responsibility on corporate value.

## 1. Introduction

Enterprises are an important part of the market economy and play a pivotal role in economic growth and social development. Since the founding of the country, the favorable environment for enterprise development has stimulated the profit-seeking mentality of a large number of capitalists, who have taken up a large amount of social resources to pursue economic interests without any bottom line, causing a series of serious problems such as resource consumption, environmental pollution and manpower shortage. Since the reform and opening up, with the continuous development of China's economy, the fulfillment of corporate social responsibility has received more and more attention and focus. To achieve sustainable development of enterprises and subsequently increase their value, active fulfillment of social responsibility is a necessary link. The report of the 19th National Congress contains an in-depth definition and explanation of the connotation and direction of corporate social responsibility, emphasizing the important role of enterprises in environmental protection, poverty alleviation and many other aspects of social development. If enterprises want to survive and develop in society they must rely on society and pursue their own economic interests under the premise of achieving social interests. Otherwise, they will not only be condemned by the public opinion, but also may lead to legal sanctions and even lose the qualification to participate in fair competition in the market. Therefore, how to prove the positive influence of CSR on enterprise value and improve the awareness of enterprises to fulfill social responsibility become inevitable objective requirements to promote the healthy and sustainable development of market economy and the stable rise of enterprises themselves. In order to motivate enterprises to take the initiative to fulfill their social responsibility, the academic community tries to prove through the research on CSR that there is no conflict between the behavior of enterprises in fulfilling their responsibility and improving their corporate value. Although the research results of different scholars vary due to different data selection and research methods, most of the studies have confirmed the important role of social responsibility in the process of enhancing corporate value.

In this paper, we will select the financial data of 3,641 companies listed and traded on the Shanghai and Shenzhen exchanges in 2019 to further empirically test the mechanism by which corporate value is influenced by CSR and enrich the study of the relationship between CSR and corporate value, which can provide empirical evidence to motivate companies to actively fulfill their social

responsibility and promote their long-term healthy development.

## **2. Review of the Literature**

In this paper, EPS is selected to measure enterprise value. The measurement of enterprise value has been a research challenge, and different scholars have not yet agreed on its theoretical qualitative analysis. He Yin et al. (2020) found that it is reasonable to choose ROA, the return on total assets, as an indicator to measure the operational efficiency and profitability of enterprises when studying the competitiveness of enterprises [2]. Zhu Yaqin (2010) also added in a follow-up study that it is a better measure of enterprise value when using accounting indicators, such as EPS per share [3].

The most widely cited and accepted stakeholder theory is that "the fulfillment of social responsibility should take into account not only the expectations and requirements of shareholders, but also those of all stakeholders". In his study on accounting information of CSR disclosure, Chen Yuqing (2005) mentioned that a company cannot only operate with the sole purpose of maximizing profit or making money for shareholders, but also maximizing the social interests of stakeholders other than shareholders' interests is an important goal of business operation [1]. With the continuous development of social economy, social responsibility has become one of the important indicators to evaluate the development of the company, and the protection of the company's interests for other stakeholders is not only beneficial to the company's daily business activities, but also can fully reflect the fairness of the law.

Domestic research on the relationship between corporate value and social responsibility started late; Yao, Haixin et al. (2016) used data from Shanghai and Shenzhen listed companies in 2005 and found that corporate fulfillment of social responsibility can increase shareholders' wealth [4]. Shen Hongtao (2007) conducted an empirical study and found that companies with better profitability are more inclined to disclose information about the company's social responsibility [5].

Another view is that corporate social responsibility will reduce the corporate value of enterprises. This is due to the fact that costs will inevitably be incurred in the process of enterprises choosing to undertake social responsibility, which will result in a decline in corporate profits and a decrease in corporate value. Li Zheng (2016) studied the value relevance of CSR with a sample of 521 listed companies, and the results showed that from the current period, the more companies that undertake CSR, the lower their value [6].

In summary, domestic scholars' research on the relationship between CSR and corporate value is still in its initial stage, and the research findings are not yet consistent. Although foreign scholars have started their research earlier, they have not yet reached a consensus. It is hoped that the research method and content of this paper can provide some reference value for other scholars who study this direction, and the findings of this paper can also provide a theoretical basis for Chinese enterprises to take the initiative to assume social responsibility.

## **3. Thesis Analysis and Research Hypothesis**

### **3.1. The Relationship Between Overall Corporate Social Responsibility and Corporate Value**

In the process of undertaking social responsibility, enterprises are bound to incur certain costs, such as complete payment of taxes, regular donations, employee or supplier welfare subsidies, but in the long run, the economic benefits they receive are much smaller than the costs of fulfilling their social responsibility. Therefore, this paper argues that overall corporate social responsibility has a positive effect on corporate value, based on the following main theories.

### **3.2. Stakeholder Theory**

Fulfilling social responsibility will increase the satisfaction of different stakeholders, such as employees, customers, suppliers and the public. These satisfaction will indirectly improve the business efficiency or reduce the cost of the enterprise. For example, satisfied customers trust more in the product service and business capability of the enterprise under the same conditions and are more likely to enter into a long-term relationship. Satisfied investors are willing to invest in the

company at a smaller interest rate; Satisfied public will voluntarily publicize the company's word-of-mouth in an invisible way, reducing the company's advertising costs.

### 3.3. Signaling Theory

Information asymmetry is widespread in capital markets, and companies can take a series of actions to transmit relevant information to the market and reduce their relative information asymmetry, which can favorably distinguish themselves from other companies with serious information asymmetry in the market. Fulfilling social responsibility can improve corporate reputation and brand image, and has a certain information transfer effect. Supplementing one's financial information with non-financial information can reduce the possibility of investors underestimating the company due to information asymmetry.

### 3.4. Agency Theory Holds That

Corporate fulfillment of social responsibility plays a role in monitoring and checking the agency problems between shareholders and management, which can more strongly persuade the market public and investors to believe that corporate executives are strictly managing themselves and enhancing their corporate image.

Based on the above theoretical analysis, the hypothesis of this paper is proposed:

H1: Other things being equal, the overall social responsibility of enterprises has a positive contribution to corporate value.

## 4. Data Sources and Variable Selection

### 4.1. Data Source

This paper selects companies listed and traded on the Shanghai and Shenzhen stock exchanges in 2019 as the research sample to empirically analyze the relationship between corporate social responsibility and corporate value. After screening, 3614 listed companies with complete data disclosure are selected in this paper, and the data of their publicly disclosed information in the third quarter of 2019 are processed to provide data support for the later empirical analysis. The data in this paper are obtained from the CSMAR database.

### 4.2. Variable Selection

(1) Explanatory variables

Enterprise value (EPS):

Based on the existing domestic and foreign studies and the current situation of China's stock market development stage, we find that since China's capital market is still immature, this paper uses accounting indicators to measure corporate value and selects earnings per share (EPS) as the explanatory variable in this study.

(2) Explanatory variables

Referring to the research methods in the existing literature, this paper measures corporate social responsibility in four dimensions:

The social responsibility of enterprises to the government, the social responsibility of enterprises to investors, the social responsibility of enterprises to employees, and the social responsibility of enterprises to suppliers. Also refer to the formula for calculating the social contribution rate in the "Ministry of Finance's Index System for Evaluating the Economic Efficiency of Enterprises", which was formulated by the Ministry of Finance in 1995:

$$\text{Social contribution rate} = \text{Total social contribution} \div \text{Total average assets} \times 100\%$$

The explanatory variables used in this study are as follows:

① Corporate social responsibility to government (GR):

$$(\text{All taxes paid} - \text{Tax rebates received}) \div \text{Total average assets} \times 100\%$$

Socially responsible companies are more likely to receive superior government policy support,

thus increasing their corporate value.

② Corporate social responsibility to investors (IR):

$$(\text{Cash paid to repay debts} + \text{cash paid to distribute dividends, profits or pay interest}) \div \text{Total average assets} \times 100\%$$

The social responsibility of enterprises to investors is conducive to establishing long-term good relations with investors and obtaining stable financial support. stable financial support, thus promoting enterprise development.

③ Social responsibility of enterprises to employees (WR):

$$\text{Cash paid to and for employees} \div \text{Total assets} \times 100\%$$

The social responsibility of the company to its employees is conducive to improving the efficiency of the employees and positively contributing to the enhancement of corporate value.

④ Corporate social responsibility (SR) to suppliers:

$$(\text{Accounts Payable} + \text{Notes Payable}) \div \text{Total Average Assets} \times 100\%$$

Corporate social responsibility to suppliers helps maintain stable supply chain relationships, which provides the foundation for increasing corporate value.

(3) Control variables

In order to make the conclusions reliable, we draw on previous research results and consider a variety of factors that affect the value of enterprises. Based on the existing research and literature review, the classical impact indicators that have significant influence on enterprise value in the existing research are selected as control variables in this paper. The control variables selected in this paper are as follows by table 1:

① Size of the firm (SIZE)

Measured as the natural logarithm of a firm's total assets, it is used to control for the impact of scale effects on the value of the firm.

② Growth of the enterprise (GROWTH)

The growth rate of main business revenue is used to control the impact of growth on enterprise value.

③ Financial leverage (DEBT)

The double-edged sword effect of debt on enterprise value is controlled by the gearing ratio.

Table 1 Variable descriptions and data sources

Variables	Variable Explanation	Indicator Selection	Data source
EPS	Corporate Value	Earnings per share	CSMAR Database
GR	Corporate social responsibility to government	Difference between taxes paid and tax refunds received Ratio to average assets	CSMAR Database
IR	Corporate social responsibility to investors	Cash paid to repay debts and dividends, profits or interest paid Ratio of the sum of cash to average assets	CSMAR Database
WR	Corporate social responsibility to employees	Payments to and for employees Ratio of cash to average assets	CSMAR Database
SR	Corporate social responsibility to suppliers	Sum of accounts payable and notes payable to average assets Ratio of average assets	CSMAR Database
SIZE	Enterprise's scale	Natural logarithm of the company's total assets	CSMAR Database
GROWTH	Growth of the enterprise	Growth rate of main business revenue	CSMAR Database
DEBT	Financial leverage	Gearing ratio	CSMAR Database

### 4.3. Descriptive Statistics

The descriptive statistics of the data are as follows by table 2:

Table 2 Descriptive statistics of variables

Variables	Observations	Mean	Standard deviation	Minimum value	Maximum value
EPS	3614	0.341866	0.736981	-5.489557	25.80191
GR	3614	0.019553	0.024037	-0.116270	0.340327
IR	3614	0.129644	0.121115	-0.000186	1.149991
WR	3614	0.055678	0.049885	0.000453	0.943375
SR	3614	0.123223	0.101591	0.000000	1.212152
SIZE	3614	23.39566	1.524458	17.73894	31.04633
GROWTH	3614	0.090208	0.946034	-4.133385	28.07752
DEBT	3614	0.445853	0.305370	0.015232	8.646814

## 5. Empirical Analysis

### 5.1. Model Setting

Based on the previous theoretical analysis, we predict that corporate commitment to various social responsibilities (to government, employees, investors, and suppliers) has a positive contribution to corporate value. In this paper, we select cross-sectional data publicly disclosed by 3614 companies listed and traded on the Shanghai and Shenzhen stock exchanges in the third quarter of 2019 and construct the following empirical model to test the proposed hypothesis.

$$EPS_i = \beta_0 + \beta_1 GR_i + \beta_2 IR_i + \beta_3 WR_i + \beta_4 SR_i + \beta_5 SIZE_i + \beta_6 GROWTH_i + \beta_7 DEBT_i + u_i$$

where  $\beta$  is the parameter to be estimated and  $u_i$  is the random perturbation term.

Table 3 Regression results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.729702	0.139141	-12.43130	0.0000
EPS	3.583666	0.319561	11.21434	0.0000
GR	-0.255834	0.047795	-5.352692	0.0000
IR	0.303760	0.077283	3.930496	0.0001
WR	-0.121539	0.086458	-1.405760	0.1599
SR	0.091443	0.006509	14.04923	0.0000
SIZE	0.007703	0.003306	2.330109	0.0199
GROWTH	-0.057981	0.010152	-5.711232	0.0000
Weighted Statistics				
R-squared	0.118108			0.219700
Adjusted R-squared	0.116396	S.D. dependent Var	Akaike info	0.492569
S.E. of regression	0.469908		Schwarz criterion	1.329652
Sum squared resid	795.8110	Hannan-Quinn criter.	Durbin-	1.343366
Log likelihood	-2393.351		Waston stat	1.334538
F-statistic	68.95288		Weighted mean dep.	1.916097
Prob(F-statistic)	0.000000			0.202470
Unweighted Statistics				
R-squared	0.114019		Mean dependent var	0.342076
Adjusted R-squared	0.112298		S.D. dependent var	0.737124
S.E. of regression	0.694503		Sum squared resid	1738.334
Durbin-Waston stat	1.965680			

According to Table 3, the model estimation results can be written as:

$$\begin{aligned}
EPS_i = & -1.729702 + 3.583666GR_i - 0.255834 + 0.303760WR_i - 0.121539SR_i + \\
& 0.091443SIZE_i + 0.007703GROWTH_i - 0.057981DEBT_i + e_i \\
& (0.139141)(0.319561)(0.047795)(0.077283)(0.096458) \\
& (0.006509)(0.003306)(0.010152) \\
t = & (-12.43130) (11.21434) (-5.362692) (3.930496) (-1.405760)
\end{aligned}$$

## 5.2. Model Testing

### (1) Goodness-of-fit test

As can be seen from the results, the coefficient of decidability  $R^2 = 0.114019$ , correcting the decidability coefficient  $\bar{R}^2 = 0.112298$ , shows that the decidability coefficient is still low, which indicates that the degree of influence of all the explanatory variables included in the model on the joint of the explanatory variables is not high. As mentioned above, this may be due to the combination of many complex factors affecting the social value of the enterprise, the large sample size, and the cross-sectional data, but the purpose of this model is economic structural analysis, not forecasting, so this does not directly indicate the goodness of the model.

### (2) t-test

For  $H_0: \beta_j = 0 (j = 1,2,3,4)$ , respectively, given a significance level  $\alpha = 0.05$ , and checking the t-quantile table yields a critical value of  $t_{0.025} = 1.96$  for a degree of freedom of  $n - k = 3607$ . From the results, it is clear that The t-statistics corresponding to  $\beta (j = 1,2,3)$  are all greater than 1.96. This indicates that at the significance level  $\alpha = 0.05$ , respectively, all should reject  $H_0: \beta_j = 0 (j = 1,2,3)$ . In other words, with other explanatory variables held constant, in addition to the explanatory variable corporate social responsibility to suppliers (SR), the explanatory variable corporate social responsibility to government (GR) corporate social responsibility to investors (IR) corporate social responsibility to workers (WR) has a significant effect on the explanatory variable "corporate social value (EPS).

### (3) P-value test

The  $P$  values corresponding to the estimated values are all less than 0.05, indicating that the corresponding explanatory variables have a significant effect on the explained variables at the significance level  $\alpha = 0.05$ .

## 5.3. Analysis of Economic Results

The model estimation results show that, assuming other variables are constant, for every 1 unit increase in corporate social responsibility to government, on average, corporate social value will increase by 3.583666 units; for every 1 unit increase in corporate social responsibility to investors, on average, corporate social value will decrease by 0.255834 units; for every 1 unit increase in corporate social responsibility to employees, on average, corporate social value will increase by 0.303760 units; for every 1 unit increase in corporate social responsibility to suppliers, on average, corporate social value will decrease by 0.121539 units. For each unit increase in the social responsibility of the company to its employees, the average social value of the company will increase by 0.303760 units; for each unit increase in the social responsibility of the company to its suppliers, the average social value of the company will decrease by 0.121539 units.

## 6. Conclusion

From the overall dimension, corporate social responsibility can significantly promote the rise of corporate value. By improving the social reputation of enterprises and solidifying the relationship between enterprises and various social subjects, enterprises undertaking social value promotes the rise of enterprise value; under certain conditions, when the value of enterprises is higher, enterprises are more inclined to undertake more social responsibility. Therefore, the first hypothesis of this paper is proved. From the subject dimension, the social responsibility of enterprises toward government and employees is positively related to enterprise value. By comparing the regression coefficients, we find

that enterprises' social responsibility to the government is the most effective in enhancing their own value. For the social responsibility of employees, although the impact is smaller, it can also promote the rise of enterprise value to a certain extent, thus, this proves the second hypothesis of this paper to a certain extent. In contrast, the results of the study show that the increase in socially responsible investment in investors by firms instead reduces the enterprise value, which may be due to the fact that the assumption of social responsibility to investors may divert part of the capital applied to invest in production and operation, which to some extent affects the subsequent expansion and development of the firm and thus has a negative impact on the enterprise value. However, its correctness remains to be further tested. The results of corporate social responsibility towards suppliers are not significant, indicating that there is no significant correlation between the two. The control variable of this paper, enterprise scale, also has a significant positive effect on enterprise value. The expansion of enterprise scale lays the foundation of human resources and information circulation for enterprise development, and the scale effect also enables enterprises to gain more advantages in the market competition, thus promoting the improvement of enterprise value. On the other hand, the increase of financial leverage of enterprises will pose a certain degree of threat to their financial situation, which is not conducive to long-term stable development. Enterprises should take social responsibility to promote their own development, so they should pay attention to the fulfillment of social responsibility to create a good corporate image, obtain superior policy support, strengthen the existing supply chain relationship, and enhance the internal cohesion of the enterprise, so as to further promote the healthy and high speed development of the enterprise.

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