The Relationship between Corporate Social Responsibility and Financial Performance

Jiatai Li[1] and Xiangyi Xu[2, *]

[1]School of Economics and Management, Sichuan Vocational and Technical University of Industry and Commerce, Chengdu, 610000, China

[2]Department of statistic, Jiangxi University of finance and economics, Nanchang, 330000, China

*Corresponding author: 2202204405@stu.jxufe.edu.cn

Abstract. With the rise of sustainable development, Environmental, Social, and Governance (ESG) factors have become crucial for evaluating corporate social responsibility. This research therefore examines the relationship between CSR and company financial outcomes using statistical regression analysis. Strong evidence is noted that the relationship of financial outcomes with Corporate Social Responsibility (CSR) activity postulates a positive relationship amid CSR's shareholder accountability and both the comprehensive CSR index and corporate performance. These findings point out that integration of ESG criteria in investment decisions is important because they provide insight that a company is bound to sustain and meet up with its resistance in the long run. Further, research has outpointed the significance of corporate governance directing CSR efforts towards infusing business with transparency and responsibility. Focusing on sustainability and social responsibility enhances the way a company is perceived, attracts investment, and helps to mitigate risks linked with the environment and society. These are the main observations that underline the importance of public awareness and the necessity for organizations to develop future-oriented CSR approaches that would positively feed into a more sensitive corporate environment and sustainable economic development.

Keywords: Corporate social responsibility (CSR); financial performance; public traded company.

1. Introduction

Corporate Social Responsibility (CSR) has become the most central focus for companies lately, indicating a transition from solely prioritizing profit maximization to incorporating social and environmental considerations into their operations. The increasing constraints due to the exhaustion of natural resources like water, soil, air, forests, and fuel are some factors due to which the pressure increases in the most academic researches. The highest energy users and polluters have now seen industries and enterprises need to establish sustainable frameworks with an urgency due to growing regulatory scrutiny [1]. In the meantime, there is consumer awareness building up that is consciously turning towards socially responsible choice and is trying to minimize its social and environmental negatives. In response, businesses of varied sizes are proactively introducing sustainability practices along with socially responsible strategies in their day-to-day business operations [2]. Corporate social responsibility has become a kind of yardstick through which the public assesses whether the company is contributing to social value to a substantial extent along with economic benefits. In the organizational sphere, CSR initiatives encompass a spectrum of efforts, from extensive strategies to focused endeavors aimed at enhancing supply chains, energy efficiency, and fostering diversity, equality, and inclusion [3].

True, some of these initiatives in CSR at times may be initiated out of external pressures, but indeed it cannot be denied that its application leads to positive impacts on public support, corporate reputation, and market performance. As an example, Ghoul has identified that firms with a sense of corporate social responsibility in their operations are associated with a greater value attached to their shares and a lower level of risk [4]. Additionally, Martin and Li have attested that a relationship between CSR and corporate reputation exists, which has an associated improvement in performance [5]. Research studies have also proved that stronger CSR efforts can be associated with substantial

financial benefits, such as higher market value and lower costs of debt. Statistical relevant evidence in support of a beneficial role of CSR activities on the performance of corporations was also reported in the research work of Zhang. For instance, in another study recently, research was based on recent CSR scores along with financial data from leading companies that indicated the benefits that can come to a corporation's financial performance from CSR activities [6]. Research has also uncovered a purported negative correlation between a company's financial outcomes and its CSR initiatives.

A study carried out by Edward and E. Webb in verification of the relationship through time-series fixed effects approach suggests that, in fact, the association between CSR and financial performance is considerably weaker than it was presumed before [7]. Conversely, Lin found that financial slack enhances the positive relationship between CSR and financial performance; therefore, companies would actually benefit from CSR activities only in case they have financial slack available [8]. Some research work, on the other hand, has found that some CSR activities do not have a statistically significant impact on financial performance [9]. In this light, the present prospective study seeks to assess how the implementation of CSR affects the financial outcomes of Chinese companies, employing multiple regression analysis as the methodology.

The present research is based on CSMAR covering the years 2010-2020. Drawing from the Stakeholder Theory, the model of the enterprise social responsibility index of the IT industry could be constructed for the measurement of financial performance. The control variables, included in a multiple linear regression model, are company size, listing date, growth capability, and capital structure. Two primary indicators with the highest effect of CSR on financial outcomes were found in examining the correlation between social responsibility and financial performance in the present study across different kinds of enterprises. In addition, it proposes measures and recommendations for enhancing corporate social responsibility so that it can lay a more solid foundation for the promotion of an initiative on social responsibility by enterprises, which is of great importance to the sustainable development of the national economy and society. Accordingly, Chen reported a highly mixed effect of CSR on financial performance among all selected industries and sectors-a strong reminder of the necessity of sector-based adjustments [10].

2. Methods

2.1. Data Source

To achieve the research objectives, this study utilizes both theoretical and empirical methodologies to examine how the financial outcomes are influenced by corporate social responsibility initiatives. The primary sources of data for this research are the CSMAR database and data from HX. Data encompassing the period from 2010 to 2020 from publicly traded companies in the information Consumer goods sector are collected and organized. The CSR variable is based on social responsibility report scores retrieved from HX, while relevant financial data is sourced from the CSMAR database. Data pertaining to corporate social responsibility for Consumer goods company listed on the stock market from 2010 to 2020 are specifically chosen for analysis. All statistics are sourced from yearly reports, corporate social responsibility reports, and the official websites of the Shanghai Stock Exchange, Shenzhen Stock Exchange, and the corresponding listed companies. In cases of missing data, information is retrieved from the annual reports of the listed companies and manually entered

2.2. Selection and Explanation of Indicators

The HX Corporate Social Responsibility Assessment System employs a percentage-based methodology to evaluate publicly traded companies across five domains: Shareholder Responsibility (20%), Employee Responsibility (20%), Supplier, Customer, and Consumer Rights Responsibility (20%), Environmental Responsibility (10%), and Social Responsibility (30%). In this article, we utilize the HX Corporate Social Responsibility Score as a metric to gauge CSR. This indicator

quantifies the fulfilment of social responsibility by companies and establishes corporate social responsibility metrics, particularly in terms of shareholder responsibility, based on stakeholder theory.

Moreover, we employ metrics such as asset profitability and equity return to gauge financial performance. ROA is the overall profitability measure in a firm, depicting a firm's relation between net profit and the average total assets and portrays a firm's efficiency in making money on its assets. A high ROA represents good efficiency in asset utilization. Similarly, another good indicator of high value is ROE, which is another key metric for company performance.

To ensure research reliability, we refine variable selection by considering factors like company size and listing age alongside corporate social responsibility. Total assets represent company size, acknowledging its potential impact on social responsibility and performance. Additionally, listing age accounts for variations in company lifecycle stages and market profitability requirements. These variables are controlled to enhance the study's accuracy.

The detailed variables along with their definitions can be found in Table 1. This table presents the name of each variable, its definition, and potential measurement methods. These variables are crucial factors in the study, and they are essential for understanding and interpreting the research results.

Table 1. Variable information

Variable type	Variable name	Quantitative methods
independent variable	CSR	Professional Report Score
dependent variable	ROA	ROA = Net Profit /Total Assets
dependent variable	ROE	ROE = Net Profit/Shareholders
control variable	SIZE	Take the natural logarithm of total assets
control variable	AGE	(Reporting Year - Listing Year) + 1

2.3. Methods Introduction

Regarding the quantitative framework, this study utilized a conventional econometric model and performed regression analysis to explore the impact of corporate social responsibility endeavors on financial results. Regression analysis, a fundamental and reliable statistical method, was employed to model the connection between a dependent variable and one or two independent variables using observed data.

$$Y = \beta 0 + \beta 1 * X + \beta 2 * AGE + \beta 3 * SIZE + \alpha \quad (1)$$

The principal objective of this paper is to undertake a quantitative assessment of the impact of CSR and social involvement on a firm's financial performance, discerning whether these effects lean towards positivity or negativity. In this context, X stands for the predictor variable, denoting the CSR Index obtained from the scores of the Chinese Corporate Social Responsibility Research Report. Y represents the dependent variables, where $Y1$ represents ROE and $Y2$ represents ROA. $\beta 2 * AGE$ acts as the control variable for the company's age, while $\beta 3 * SIZE$ serves as the control variable for the company's assets. α signifies potential influences from factors other than X. Accordingly, this relationship can be represented by two distinct equations.

$$ROE = \beta 0 + \beta 1 * CSR + \beta 2 * AGE + \beta 3 * SIZE + \alpha \quad (2)$$

$$ROA = \beta 0 + \beta 1 * CSR + \beta 2 * AGE + \beta 3 * SIZE + \alpha \quad (3)$$

3. Results and Discussion

3.1. Basic Information

Prior to attempting to fit data into equations (2), (3), this paper initially assessed the presence and strength of the relationship between these variables using a scatterplot, as depicted in Figure 1.

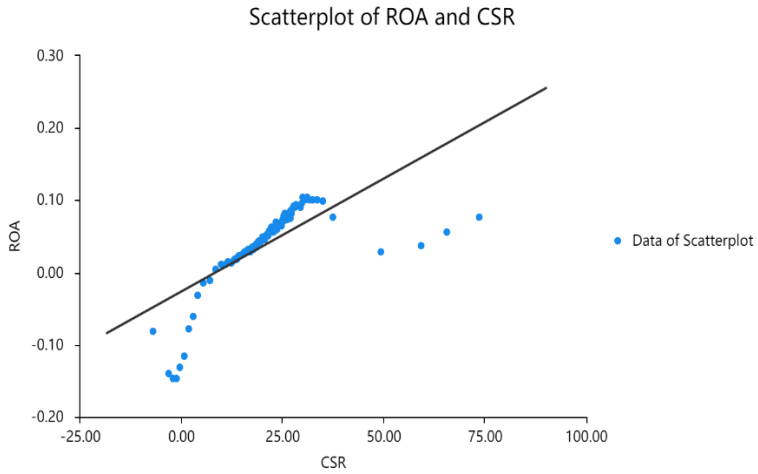

Fig. 1 Scatterplot of ROA and CSR

From Figure 1, it is evident that a direct correlation is present between the CSR index and ROA. While this scatterplot does not conclusively establish causation between variables, indicating that one variable causes the other, it does suggest a significant connection among them.

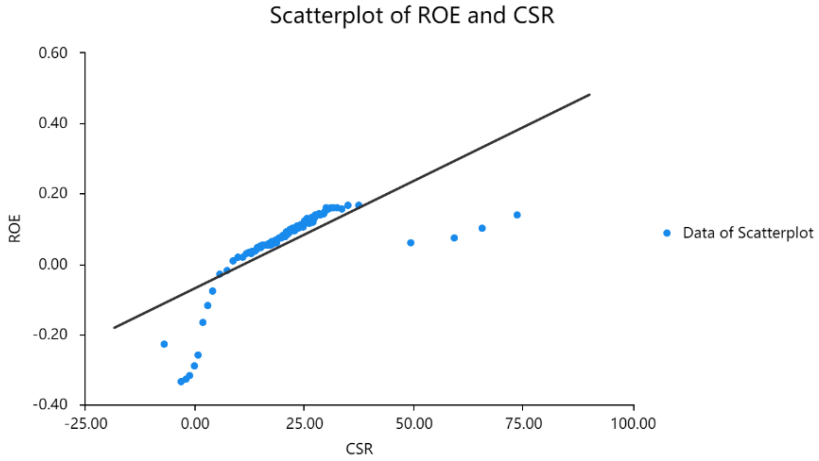

Fig. 2 Scatterplot of ROE and CSR

Based on Figure 2, it's clear that there's a linear correlation between the CSR index and ROA. Although this scatterplot doesn't definitively prove causation, implying that one factor directly influences the other, it does indicate a noteworthy association between them. Consequently, this study undertook additional steps to assess and quantify their correlations using regression analysis.

To begin with, Table 2 presents the descriptive statistics, offering a comprehensive overview of the original data along with additional statistical attributes sourced from various data repositories.

Table 2. Statistical Summaries

	CSR Index	ROE	ROA	AGE	SIZE
Max	90.010	0.397	0.244	3.332	26.398
Min	-18.450	-0.962	-0.382	0.000	19.475
Mean	21.384	0.062	0.041	2.060	22.252
Count	19106	19106	19106	19106	19106
Sample difference	12.181	0.139	0.070	0.946	1.297
Kurtosis	4.748	15.167	7.821	-0.438	0.453
Skewness	1.167	-2.987	-1.632	-0.693	0.752

3.2. Model Results

After excluding three companies with insufficient financial data, the remaining 19,106 entries were considered intact and eligible for analysis. Subsequently, SPSS and RStudio software were utilized to build the linear regression model and generate the results, depicted in Tables 3 and 4.

Table 3. Statistical Regression Analysis

Measures	Y=ROA X=CSR	Y=ROE X=CSR
Multiple R	0.593	0.561
R Square	0.352	0.315
Adjusted R Square	0.352	0.314
Standard Error	0.057	0.115
Observations	19127	19127

Based on the table above, a linear regression analysis was conducted with CSR, Size, and List Age as independent variables and ROE as the dependent variable. The R-squared value of the model is 0.315, indicating that CSR, Size, and List Age collectively account for 31.5% of the variation in ROE. In another model, with ROA as the dependent variable, the R-squared value is 0.352, suggesting that CSR, Size, and List Age combined explain 35.2% of the variation in ROA.

Table 4. ROE regression coefficient table

	Unstandardized coefficient		Standardized coefficient	t	p	95% CI	VIF
	B	S.E.	Beta				
intercept	-0.131	0.015	-	-8.545	0.000**	-0.161 ~ -0.101	-
CSR	0.006	0.000	0.515	83.024	0.000**	0.006 ~ 0.006	1.073
Size	0.006	0.001	0.052	7.439	0.000**	0.004 ~ 0.007	1.337
Age	-0.027	0.001	-0.182	-26.793	0.000**	-0.029 ~ -0.025	1.288

Note: **: 0.01 significnace level

After examining the tables above, it becomes apparent that the coefficient of determination for models stands at 0.593. This implies a robust fit, suggesting that around 60% of the collected data can be elucidated by these models (table 4). With this level of confidence established, we can now proceed to precisely quantify the parameters and articulate these models in the subsequent manner:

$$ROE = -0.131 + 0.006 * CSR + 0.006 * Size - 0.027 * Age \quad (4)$$

Table 5. ROA regression coefficient table

	Unstandardized coefficient		Standardized coefficient	t	p	95% CI	VIF
	B	Standard error	Beta				
intercept	0.055	0.008	-	7.280	0.000**	0.041~0.070	-
CSR	0.003	0.000	0.531	88.019	0.000**	0.003 ~ 0.003	1.074
Size	-0.002	0.000	-0.037	-5.503	0.000**	-0.003~ -0.001	1.337
Age	-0.017	0.000	-0.231	-35.046	0.000**	-0.018 ~ -0.016	1.287

Upon scrutinizing the aforementioned tables, it is evident that the coefficient of determination for the models is 0.561. This indicates a strong fit, suggesting that approximately 60% of the collected

data can be accounted for by these statistical representations (see table 5). With this level of confidence established, we can now proceed to precisely determine the parameters and describe these statistical representations in the following manner:

$$ROA = 0.055 + 0.003 * CSR - 0.002 * Size - 0.017 * Age \quad (5)$$

The findings derived from scatter plots and linear regression analyses reveal a statistically noteworthy influence of CSR initiatives on companies' financial outcomes. The affirmative coefficients delineated in models (4) and (5) substantiate the causal relationship between CSR endeavors and both shareholder equity returns and asset returns, indicating a favorable association between these factors. More precisely, for every incremental unit in the CSR index score, a projected increase of 0.006 units in shareholder equity returns is anticipated, whereas the augmentation in asset returns is comparatively slight, standing at 0.003 units. It can be confidently stated that CSR activities yield positive financial benefits, driving financial growth and market performance. Both shareholder equity returns and asset returns are expected to experience improvement. This conclusion is consistent with prior academic research and holds significant value for future analysis.

Moreover, by incorporating controls for variables such as corporate asset size and the age of the company at the time of listing, the regression analysis indicates that the age of the listed company appears to moderate the correlation between CSR and the financial outcomes of the company. Specifically, for each unit increase in the age of the listed company, it is expected that shareholder equity returns will decrease by 0.027 units, while asset returns will decrease by 0.017 units. It can be confidently asserted that older companies seem to face greater difficulty in enhancing their financial performance through the improvement of social responsibility. The impact of corporate asset size is also noteworthy. From the table, we observe that for each unit increase in total company assets, shareholder equity returns are expected to increase by 0.006 units, while asset returns decrease by 0.002 units. The size of the company's assets exhibits a positive correlation with shareholder equity returns but a negative correlation with asset returns, which presents an intriguing phenomenon.

4. Conclusion

Overall, the statistical data clearly demonstrate that CSR index scores have a positive impact on two financial indicators. The primary research results further demonstrate that strengthening CSR can yield long-term financial benefits. Notably, in comparison, the improvement in CSR has a more pronounced effect on shareholder return on equity than on asset return. This suggests that CSR primarily influences overall financial performance through enhancing brand reputation and garnering widespread shareholder support. Moreover, the data suggest that the inherent characteristics of the company may influence the correlation between CSR initiatives and financial outcomes. In this study, the time of listing exerted a restraining effect on this relationship, while the influence of firm size is multifaceted. By analyzing the relationship between CSR initiatives and financial results, this paper addresses certain gaps in the literature pertaining to Chinese listed companies and adds to the existing body of knowledge. This empirical investigation can also deepen comprehension of the significance of CSR in business management, providing insights for business leaders and policymakers in their strategic processes.

Authors Contributions

All the authors contributed equally and their names were listed in alphabetical order.

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