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Exploring the Influence of Corporate Social Responsibility on Capital Structure: Evidence from Vietnam's Listed Energy Companies

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Abstract: ***Social responsibility is an issue that enterprises are increasingly adopting due to its recognized benefits. The article utilizes data from 34 energy enterprises listed on the Ho Chi Minh City Stock Exchange and the Hanoi Stock Exchange for the period from 2018 to 2023 to assess the impact of social responsibility on the capital structure of these enterprises. Pooled OLS, FEM, REM and GLS data research methods are used. The research results show that social responsibility has a negative impact on the capital structure of energy enterprises listed on the Vietnamese stock market. When enterprises perform social responsibility effectively, they can mitigate risks, enhance their corporate reputation, attract diverse sources of funding, and reduce their dependence on loans. The research results are meaningful for enterprises and managers in promoting the implementation of social responsibility.***

Keywords: Social responsibility, capital structure, financial leverage, Vietnam energy sector, corporate governance

1. Introduction

In the context of a modern and constantly evolving economy, corporate social responsibility (CSR) has become an increasingly important issue, as it is not only a trend but also affects the business operations and financial strategies of enterprises. According to the annual report on the Environmental Performance Index (EPI) published by an environmental organization in the United States, Vietnam is ranked among the 10 countries in Asia with the most serious air pollution, particularly fine dust pollution (PM 10 and PM 2.5). The energy industry has a significant impact on the environment and society, providing essential services such as electricity, coal, and water that are indispensable to life. However, due to the characteristics of the industry, thermal power plants emit large amounts of dust and gas waste that directly impact the environment, creating air pollution, water pollution, and the greenhouse effect. Energy enterprises need to implement social responsibility activities, aiming for sustainable development, and building the company's reputation by creating a positive environment for the community and society. Implementing CSR not only helps enterprises enhance their brand image and improve relations with stakeholders, but it can also impact their capital structure by altering the level of access to capital, the cost of capital, and their long - term financing strategy. The article examines the impact of social responsibility on the capital structure of enterprises, comprising the following sections: Part 1, Introduction; Part 2, Literature Review; Part 3, Data and Research Model; Part 4, Research Results; and Part 5, Conclusions.

This study is significant as it provides new insights into the Vietnamese context, where CSR practices are still developing, helping policymakers and managers optimize capital structures through socially responsible strategies.

2. Literature Review

Previous empirical studies have demonstrated that corporate social responsibility (CSR) has a significant impact on the capital structure of enterprises, affecting two key aspects. First, CSR contributes to reducing information asymmetry between enterprises and stakeholders. Second, CSR plays a crucial role in mitigating the overall risk faced by enterprises. The results of some studies have shown that CSR reporting enhances transparency and reduces information asymmetry between companies and creditors, enabling enterprises to maintain higher financial leverage. According to Jang and Ardichvili (2020), CSR activities improve credit ratings and reduce financing costs. Attig et al. (2013) and Jiraporn et al. (2014) found that credit rating agencies assign relatively higher scores to companies with favorable corporate social responsibility (CSR) reporting. Companies publishing CSR reports tend to manage their finances more proactively, indicating a positive correlation between CSR disclosure and the debt ratio.

Furthermore, CSR reporting complements traditional financial reporting, which firms often use to connect with their stakeholders. According to Hong and Kacperczyk (2009), firms with CSR strategies tend to receive more attention from analysts than firms that have not implemented CSR activities. CSR reporting can reduce lenders' concerns by reducing information asymmetry and increasing corporate transparency. Therefore, CSR reporting is seen as a signal that firms are concerned about the interests of stakeholders. Firms that actively engage in corporate social responsibility (CSR) are often exposed to lower levels of risk (Gardberg and

Fombrun, 2006; Godfrey, 2005; Godfrey et al., 2009). Cheng et al. (2014) found that firms with better corporate social responsibility (CSR) performance face significantly lower capital constraints. Goss and Roberts (2011) argue that firms that invest in Corporate Social Responsibility (CSR) are more likely to have lower risk and improved financial performance than firms that do not utilize CSR. Consequently, socially responsible firms are more likely to enjoy attractive loans at lower interest rates from banks.

Many empirical studies have shown that CSR has a significant impact on the debt - to - equity ratio. Some studies have shown that using CSR increases the debt ratio. According to Starks (2009) and Mishra and Modi (2012), firms with high CSR performance are encouraged to borrow on more favorable credit terms because lenders perceive these firms as more stable and less risky. Lins et al. (2017) analyzed data from companies in 40 countries during the 2008 financial crisis. They found that companies with high corporate social responsibility (CSR) were more likely to use debt to sustain their operations during market downturns. On the contrary, studies have shown that companies that focus on corporate social responsibility (CSR) tend to use less debt. Benlemlih and Bitar (2018) found that companies with good CSR practices reduce agency conflicts and transparent governance between shareholders and managers, making the use of debt as a monitoring mechanism unnecessary, and thus making the company less dependent on debt.

In developed and developing countries, there have been many studies on the relationship between social responsibility and capital structure. However, there have been controversies about the correlation between this relationship. Studies by Gross and Robert (2011), Orlitzky and Benjamin (2001) suggest that CSR helps reduce financial risks, thereby reducing financial leverage. In contrast to the above studies, Harjoto (2016), Hamrouni et al. (2019) argue that CSR helps businesses borrow at preferential interest rates, thereby increasing financial leverage. It can be observed that there is no direct correlation between social responsibility and the capital structure of enterprises; therefore, it is necessary to consider specific contexts, subjects, and times to demonstrate this correlation more clearly.

3. Data, Methodology, and Research Model

The data on the topic of the impact of Corporate Social Responsibility (CSR) on the capital structure of enterprises is based on the data of energy enterprises listed on the Ho Chi Minh City Stock Exchange (HOSE) and the Hanoi Stock Exchange (HNX). The study uses data from audited financial statements of enterprises for the period from 2018 to 2023. Additionally, CSR data is collected from sustainable development reports and annual reports of enterprises to calculate their CSR scores. The research sample used includes 34 listed companies with 204 observations, with all the necessary information. The data is taken from annual reports and sustainable development reports of enterprises on two websites, Vietstock. vn and CafeF. vn. Based on numerous previous empirical studies, the article uses LEV as the dependent variable, with corporate social responsibility (CSR) as the independent variable. The author also includes control variables such as ROA, which measures the profitability of the enterprise, enterprise size (SIZE), and asset structure of the enterprise (TANG).

Dependent Variable

LEV - Financial leverage is a measure used in the thesis to measure the level of debt use, the use of financial leverage will indicate the impact of social responsibility on the capital structure of the enterprise. Rajan and Zingales (1995) analyzed the capital structure of companies in the G7, using the debt - to - total assets ratio (LEV) as the dependent variable to measure capital structure. Frank and Goyal (2009) used the ratio of total debt to total assets to calculate the capital structure and analyzed the factors that affect an enterprise's debt decision.

Goss and Roberts (2011) and Hamrouni et al. (2019) utilized financial leverage to examine the ability of enterprises to disclose CSR and their borrowing capacity, investigating the relationship between capital structure and social responsibility by measuring the level of debt used by the enterprises.

Financial leverage is expressed by the following formula:

$$\boldsymbol{Lev = \frac{Debt}{Total\ Asset}}$$

Independent variables

Based on the results of studies by Hackston and Milne (1996) and Aras et al. (2010), CSR activities in Vietnam revolve around four main topics: environment, employees, community, and products. According to the study by Ho Thi Van Anh (2017), CSR scoring is conducted using the unweighted method, the total social responsibility score of each indicator will be equal to the average score of the total questions in that indicator, the total CSR index of each enterprise is the average score of the four social responsibility indicators mentioned above. The formula used to calculate social responsibility is:

$$\boldsymbol{CSR\ component\ index}_{ij} = \frac{\sum_{i=1}^{k} \boldsymbol{csr}_{ij}}{\boldsymbol{n}_{ij}}$$

$$\boldsymbol{CSR\ index}_{ij} = \frac{\sum_{i=1}^{4} \boldsymbol{CSR\ component\ index}_{ij}}{\boldsymbol{4}}$$

csr_{ij} = 1 If information on the i[th] social responsibility criterion of the j[th] company is publicly available; csr_{ij} = 0 if no information; 0 ≤ CSRj ≤ 1

n_{ij} is the number of social responsibility criteria in each indicator

The study hypothesizes: H1: There is an inverse relationship between the CSR index and the capital structure of the enterprise.

Control variables

The study incorporated three control variables: firm size (SIZE), firm structure (TANG), and firm profitability (ROA), to enhance the model's robustness. Studies have shown that debt tends to increase as firm size increases, and the trade - off theory strongly supports this argument. Furthermore, if a firm's growth rate is high, it tends to use more financial leverage (Dakua, 2018). According to Dakua (2018), if a firm has more tangible assets, it has a lower risk of bankruptcy,

thereby encouraging lenders to support. Research by Cheng et al. (2014) shows that firms with a high proportion of fixed assets tend to have long - term business strategies and are less susceptible to market fluctuations. According to Tran Viet Dung and Bui Dan Thanh (2021), owning more fixed assets can make it easier for a firm to borrow capital due to the collateral. The profitability of a company is expressed through the Return on Assets (ROA) indicator, which represents the return on total assets. According to the trade - off theory, there is a positive relationship between a company's profitability and its debt ratio (Titman and Wessels, 1988). However, according to the pecking order theory, there is an inverse relationship between the debt ratio and profitability (Dakua, 2018).

The model used to measure the impact of social responsibility on corporate capital structure, based on the research of Nguyen Thi Lien Huong (2021), Dakua (2018) is shown as follows:

$$LEV_{i,t} = \beta_0 + \beta_1 CSR_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 TANG_{i,t} + \beta_4 ROA_{i,t} + \varepsilon_{i,t}$$

4. Research Results and Discussion

Correlation analysis

Table 1: Correlation coefficients between variables in the model

	LEV	CSR	SIZE	TANG	ROA
LEV	1				
CSR	-0.0565	1			
SIZE	0.0021	0.441	1		
TANG	0.3794	0.0551	0.1237	1	
ROA	-0.3438	-0.063	-0.086	-0.0572	1

Source: Authors calculated and synthesized from Stata 17 software

The correlation coefficients between the variables are all below 70% with the highest correlation pair being 37.94% between the control variable TANG and the dependent variable LEV, indicating no serious multicollinearity concerns.

Regression results of the impact of social responsibility on financial leverage

Table 2: Multivariate regression results of the impact of CSR on LEV of energy enterprises listed on the Vietnam Stock Exchange

	Pooled OLS	FEM	REM
CSR	-0.0954	- 0.313***	- 0.231***
SIZE	-0.0093	0.368***	0.127***
TANG	0.222***	0.0787*	0.130***
ROA	- 0.863***	- 0.609***	- 0.697***
Prob > F	0	0	0
F test	0		
Breusch Pagan Test			0
Hausman Test		0	

*p<0.10, **p<0.05, ***p<0.01

Source: Authors calculated and synthesized from Stata 17 software

Table 2 shows the results of analyzing the impact of CSR on the capital structure of enterprises through the dependent variable of financial leverage of energy enterprises listed on the Vietnam Stock Exchange from 2018 to 2023 using the least squares regression model (Pooled Regression - Pooled OLS), the random effects regression model (Random Effects Model - REM) and the fixed effects regression model (Fixed Effects Model - FEM).

The F - test is used to examine the suitability of the least squares regression model (OLS) and the fixed effects regression model (FEM). Considering Prob > F = 0.0000, which is statistically significant less than 0.05, the FEM model is more suitable than the OLS model.

The authors tested the suitability of the OLS least squares regression model and the REM random effects regression model with the Breusch - Pagan test, which resulted in the REM model being selected as the more suitable model for estimation. Next, the authors employed the Hausman test to choose the most appropriate model between the FEM model and the REM model, which identified the FEM model as the preferred choice.

Table 3: Results of heteroskedasticity and autocorrelation tests

Test	Results
Heteroscedasticity Test	There is heteroscedasticity
Autocorrelation Test	There is autocorrelation

Source: Authors calculated and synthesized from Stata 17 software

To overcome the model's shortcomings of heteroscedasticity and autocorrelation, the generalized least squares (GLS) method is employed.

Table 4: Generalized Least Squares result

Prob > chi2 = 0.0000				
LEV	Coefficient	Error	z	P > |z|
CSR	-0.13483	0.055461	-2.43	0.015
SIZE	0.024529	0.017751	1.38	0.167
TANG	0.194052	0.035336	5.49	0
ROA	-0.465	0.220729	-5	0

Source: Authors calculated and synthesized from Stata 17 software

Table 4 presents the regression results of the impact of CSR on LEV, utilizing the GLS generalized least squares method. From the table above, it can be seen that CSR has a negative impact on capital structure, as represented by LEV, with a correlation coefficient of - 0.135 and a p - value of 0.015, which is less than 0.05. This means that when CSR increases, financial leverage will decrease, and businesses will use less debt. This result is similar to the studies by Gross and Robert (2011) and Orlitzky and Benjamin (2001). Companies that implement CSR well will also reduce agency conflicts and financial risks (Benlemlih and Bitar, 2018). The results from the GLS regression model provide reliable data to support the article's hypothesis: There is a negative impact of the CSR index on the enterprise's capital structure. However, this result is contrary to the studies of Harjoto (2017), Hamrouni et al. (2019), showing that CSR has not had an impact on reducing borrowing costs, helping businesses access more preferential loans. The explanation for this may be because social responsibility has only recently become popular in Vietnam, when lenders will often be more interested in the collateral

assets of businesses than whether businesses perform social responsibility or not.

In addition, the results also show a positive relationship between the asset structure of TANG enterprises and financial leverage, with a correlation coefficient of 0.194 and a p - value = 0.000 < 0.01, indicating that when a business has a higher ratio of fixed assets to total assets, they will borrow more. This result is similar to the studies of Dakua (2019), Cheng et al. (2014). Moreover, ROA and financial leverage are negatively correlated with a correlation coefficient of - 0.465 and p - value = 0.000 < 0.01. That is, when a business has higher profitability, it will use less financial leverage. This result is consistent with the ranking theory, which suggests that businesses will prioritize using internal capital sources before external capital sources. However, the trade - off theory proposes a positive correlation between ROA and LEV. The control variable of enterprise size (SIZE) has a correlation coefficient of 0.024, showing a positive correlation with financial leverage; however, the p - value = 0.167 > 0.1, so it is not statistically significant and has no impact on the dependent variable of financial leverage.

5. Conclusion

Research on the impact of social responsibility on the capital structure of energy enterprises listed on the Vietnamese stock market with data from 34 companies, collecting 204 observation samples in the period from 2018 to 2023. From the research results, social responsibility has a negative impact on the capital structure of enterprises, meaning that when enterprises perform social responsibility better, they will reduce the level of financial leverage. Social responsibility can reduce financial risks for enterprises, attract other sources of capital, and reduce risks when borrowing.

In the current trend of sustainable development, businesses are increasingly focusing on investing in social responsibility activities. Building a comprehensive social responsibility report can help companies to mitigate financial risks, enhance transparency, and strengthen their brand image. For each field, companies need to develop a tailored approach to social responsibility, so in addition to common approaches, they must enhance their skills and knowledge in implementing social responsibility effectively. In particular, a comprehensive social responsibility report will help businesses enhance their position in the market, as social responsibility activities not only benefit businesses but also stakeholders, such as society and the community. This research emphasizes the need for both corporate managers and policymakers to further integrate CSR into financial decision - making frameworks to achieve sustainable business growth.

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