

Capital Structure and Corporate Social Responsibility Disclosure: The Moderating Role of Profitability in Public Companies

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ABSTRAK

This study examines the relationship between financial structure and corporate social responsibility (CSR) disclosure in energy sector companies listed on the Indonesia Stock Exchange. Using a quantitative approach, the research sample was selected through purposive sampling, resulting in 10 companies observed over the 2020–2024 period (50 firm-year observations). Data were analyzed using panel data regression with a Fixed Effect Model (FEM). To ensure the validity of the estimates, the model was adjusted using robust standard errors to address detected issues of heteroscedasticity and autocorrelation. The results show that leverage has a significant negative effect on CSR disclosure, whereas firm size has a significant positive effect. Moderated Regression Analysis (MRA) reveals that profitability plays a significant moderating role in the relationship between leverage and CSR disclosure, indicating that firms with higher profitability can sustain their CSR practices despite financial pressures. However, profitability does not moderate the relationship between firm size and CSR disclosure. This study contributes by identifying profitability as a pure moderating variable in the leverage-CSR relationship and a homogenizer in the firm size-CSR relationship. Overall, CSR disclosure is influenced by both financial structure and firm characteristics, highlighting the importance of maintaining profitability to support responsible business practices.

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INTRODUCTION

Corporate Social Responsibility (CSR) has become an integral component of modern corporate governance, as firms are increasingly evaluated not only on profit performance but also on their contributions to social welfare and environmental sustainability. This shift encourages companies to build legitimacy and stakeholder trust through more transparent non-financial practices and reporting ([Novietta et al., 2022](#)), ([Marietza, 2023](#)). Globally, policy directions are also moving toward strengthening CSR and sustainability reporting. Economic studies on mandatory CSR and sustainability reporting indicate that discussions regarding reporting obligations and the standards applied continue to gain importance due to their implications for corporate accountability and governance ([Christensen et al., 2021](#)).

The phenomenon of inconsistent Corporate Social Responsibility (CSR) disclosure among energy sector companies in Indonesia. Based on observational data from 2020 to 2024, a significant transparency issue was identified, characterized by a substantial disclosure gap of up to 36.4% between issuers in 2020. Furthermore, while the aggregate data indicates a positive trend, on an individual level, 40% of the observed companies failed to maintain consistent reporting and experienced a decline in their disclosure scores during the study period. For instance, one firm saw its CSR score decrease from 0.955 to 0.818



in 2021, while another company's score dropped from 0.864 to 0.773 in 2022. These fluctuations suggest the presence of financial constraints that compel companies to reduce their social transparency. This evidence provides a strong empirical foundation for the urgency of examining profitability as a moderating variable in the relationship between capital structure and CSR disclosure

CSR disclosure functions as a communication tool for companies to demonstrate accountability, reduce information asymmetry, and strengthen relationships with stakeholders. The literature further asserts that CSR disclosure can be associated with various economic outcomes, including enhanced reputation, improved financial performance, better access to external financing, and strengthened corporate accountability ([Ali et al., 2023](#)). Consistently, studies examining the relationship between CSR and the cost of capital suggest that markets may respond to CSR performance through financing costs, such as the cost of debt or equity, although the direction of the effect may vary depending on institutional and policy contexts ([Prasad et al., 2022](#)).

However, a firm's decision to disclose CSR is not made in isolation. The state of the art in sustainability and CSR reporting research positions disclosure drivers within the frameworks of legitimacy, stakeholder, and institutional theories, which explain why companies are motivated to report socio-environmental performance in response to regulatory pressures, norms, and public expectations ([Benvenuto et al., 2023](#)). In the context of developing countries, literature reviews also indicate that firm characteristics, such as firm size and financial performance, are the factors most frequently reported as influencing the extent of CSR disclosure, whereas other factors (including leverage) often produce more limited or inconsistent findings across studies ([Ali et al., 2022](#)).

Empirical debate remains particularly strong regarding certain financial factors. The Debt-to-Equity Ratio (DER), as a proxy for leverage, is often associated with financing pressures and resource allocation priorities, which theoretically may constrain a firm's capacity to implement and report CSR initiatives. Conversely, highly leveraged firms may be incentivized to engage in CSR disclosure as a reputational signal to maintain the trust of creditors and investors ([Purba & Candradewi, 2019](#)), ([Wahyuniyasanti & Mertha, 2022](#)), ([Filemon & Krisnawati, 2017](#)). The inconsistency in both the direction and significance of findings underscores the continued relevance of examining leverage using more recent data ([Duni et al., 2023](#)).

In addition to leverage, firm size is theoretically linked to public visibility, media exposure, and stakeholder pressure intensity. Larger companies tend to have stronger incentives and greater capacity to disclose CSR more extensively ([Abbas et al., 2019](#)), ([Dewi & Budiasih, 2021](#)), ([Putra & Setiawan, 2022](#)). Smaller firms, on the other hand, may face resource constraints and compliance costs that limit the breadth of CSR disclosure ([Khairin & Firmansyah, 2024](#)). Profitability, for example measured by Return on Assets (ROA), is often considered an "enabler" because earnings provide financial space for socio-environmental programs while reinforcing performance signals to stakeholders ([Gantino et al., 2022](#)), ([Kalsum, 2021](#)).

Based on the discussion above, the main research problem of this study is the inconsistent empirical evidence regarding the effects of DER (leverage), firm size, and profitability (ROA) on CSR disclosure, particularly in light of the growing dynamics of sustainability reporting and regulatory or market pressures over the past decade. The novelty of this study lies in examining ROA as a moderating variable, which may clarify the roles of DER and firm size in CSR disclosure, particularly for firms in the energy sector. This issue is also pertinent because evidence suggests that mandatory CSR or reporting policies can produce unintended consequences, such as potential financial pressures, highlighting the need to consider evolving contexts when testing the determinants of disclosure ([Liang & Chen, 2024](#)), ([Christensen et al., 2021](#)).

This study aims to analyze the influence of DER, firm size, and ROA on CSR disclosure. The expected contributions are threefold: (1) providing an academic

contribution by updating empirical evidence and strengthening the state of the art on CSR disclosure determinants; (2) offering practical guidance for management in designing credible CSR reporting strategies aligned with financial capacity; and (3) serving as a reference for investors, creditors, and regulators in assessing corporate socio-environmental accountability through more comparable disclosure information.

CSR and its disclosure are generally explained through stakeholder theory and legitimacy theory. Stakeholder theory emphasizes that companies building strong relationships with stakeholders are more likely to gain support that impacts business sustainability, whereas legitimacy theory stresses the need for firms to ensure their operations align with social norms and expectations ([Saeed et al., 2023](#)).

In the context of reporting, increasing transparency demands make CSR disclosure—through annual reports, sustainability reports, and other public channels—ever more relevant, including in jurisdictions where CSR reporting policies or mandates are being strengthened ([Liang & Chen, 2024](#)).

Corporate Social Responsibility Disclosure (CSR)

Corporate sustainability is driven by effective engagement with various entities, from financiers to local communities ([Freeman et al., 2010](#)). This framework positions CSR disclosure as a primary instrument for strategic dialogue. Through systematic reporting, enterprises can validate their social and environmental accountability, thereby gaining public legitimacy and curtailing information asymmetry. Particularly in the energy industry a sector under constant public surveillance CSR disclosure functions as more than a mandatory task, it is a critical asset for sustaining stakeholder confidence and mitigating social risks.

CSR disclosure can be understood as the communication of a company's performance and practices in economic, environmental, and social dimensions to stakeholders, often realized through sustainability reporting and/or integration within corporate reports ([Wahyuningrum et al., 2022](#)).

In quantitative research, CSR disclosure is frequently measured using disclosure indices based on established standards, such as the Global Reporting Initiative (GRI). A common measurement approach involves using GRI items (e.g., GRI Standards 2016) as a checklist (scoring) to calculate the extent of disclosure ([Wahyuningrum et al., 2022](#)).

Recent literature also emphasizes the importance of disclosure quality, as it relates to the reliability of information received by the market and stakeholders. Consequently, the issue of merely disclosing versus disclosing with quality has become a focal point in contemporary research ([Ting, 2021](#)).

Debt-to-Equity Ratio (DER)

DER is a leverage ratio that indicates the proportion of a firm's financing derived from debt relative to equity, typically calculated as total liabilities (or total debt) divided by shareholders' equity ([Fernando, 2025](#)).

Theoretically, firms with high DER face obligations (interest payments, covenant restrictions, and liquidity pressures) that may reduce discretionary budget space for activities such as CSR programs and CSR reporting costs. However, empirical evidence often varies, as some firms may increase disclosure to reduce information asymmetry in the eyes of creditors and investors. This divergence in CSR determinants is frequently discussed in studies on emerging markets ([Boubakri et al., 2021](#)).

Firm Size

Firm size reflects the scale of operations and resources available to a company. In empirical research, firm size is often proxied by the natural logarithm of total assets (Ln Total Assets) to stabilize data variation and represent firm scale ([Wahyuningrum et al., 2022](#)).

Conceptually, larger firms tend to have higher public visibility, stronger stakeholder scrutiny, and greater resource capacity to establish more comprehensive reporting systems. Accordingly, firm size is generally predicted to have a positive relationship with CSR disclosure. However, in certain contexts, the relationship may not be significant—for instance, when large firms withhold information to avoid “political costs” or other pressures (Boubakri et al., 2021).

Return on Assets (ROA)

ROA is an accounting-based profitability indicator that measures a company’s efficiency in generating profit from its managed assets, typically calculated as net income divided by total assets (Tripopsakul, 2025). From a “slack resources” perspective, high profitability creates resource flexibility to fund CSR programs and enhance the quality and breadth of disclosure. Nevertheless, in some contexts, firms may prioritize financial targets, resulting in an inconsistent effect of ROA on CSR disclosure (Boubakri et al., 2021).

As a moderating variable, ROA is positioned to influence the strength of the relationship between DER and CSR disclosure. Specifically, when profitability is high, firms are better able to sustain CSR activities and reporting despite high leverage, as debt-related pressures are effectively “absorbed” by the firm’s earnings capacity. Consequently, the negative effect of DER on CSR disclosure is expected to weaken for more profitable firms (Liang & Chen, 2024).

A large corporate scale does not automatically guarantee effectiveness in converting social activities into financial performance. In the context of this study, the insignificant moderating role of ROA on the relationship between firm size and CSR disclosure suggests that large companies tend to disclose social information as a long-term legitimacy-building strategy, which remains independent of short-term profitability fluctuations. This reinforces the view that for firms with substantial assets, CSR disclosure has become an established part of their reputation management. Consequently, the availability of financial resources (ROA) is no longer a primary driver in expanding the scope of their sustainability information (Anastasya et al., 2025).

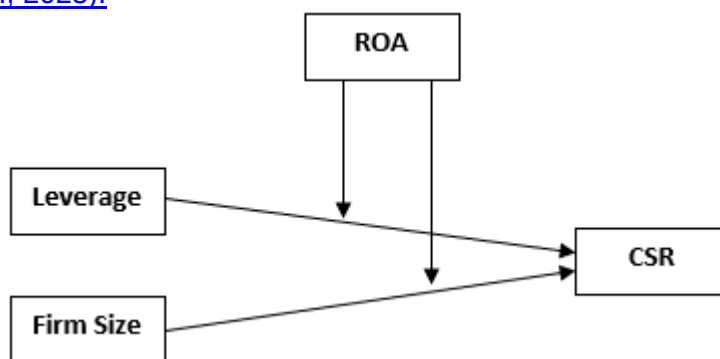


Figure 1. Conceptual Framework

Source : Proccesing data (2026)

METHODS

Adopting a quantitative, descriptive, and analytical design, this study seeks to test objective theoretical frameworks through measurable data (Creswell & Creswell, 2018). It focuses on identifying the impact of independent variables on the CSR reporting of energy sector entities on the IDX. Notably, ROA is utilized as a moderating variable to determine its influence on these relationships. The dataset comprises panel observations from 10 specific energy companies over a five-year period (2020–2024).

Population and Sample

The population of this study comprises all energy sector companies listed on the IDX during the 2020–2024 period, totaling 97 companies. The research sample was determined using purposive sampling, based on the criteria of companies having complete annual reports and being listed on the IDX throughout the specified period. The sample size was calculated using Slovin's formula with a 10% margin of error, resulting in a total sample of 50 companies.

Data Types and Collection Techniques

The study uses secondary data obtained from the annual reports of companies listed on the IDX. The data include information related to CSR values, Debt-to-Equity Ratio (DER), Firm Size (SIZE), and Return on Assets (ROA) for the period 2020–2024. Data collection was conducted through documentation, by accessing the annual reports published by each company included in the sample.

Operational Definition of Variables

Four variables are analyzed in this research. The dependent variable, Corporate Social Responsibility (CSR), is quantified by examining CSR activity disclosures in annual reports using GRI standards tailored for the energy industry. The independent variables consist of the Debt-to-Equity Ratio (DER), calculated as the ratio of total liabilities to total equity; Firm Size (SIZE), represented by the company's total assets; and Return on Assets (ROA), which evaluates profitability by dividing net income by total assets.

Data Analysis Techniques

To test the hypotheses, a panel data regression approach is utilized, integrating cross-sectional and time-series data. This method involves evaluating three primary frameworks: the common, fixed, and random effect models. Selection of the optimal model follows a systematic testing process. First, the Chow Test is applied to compare the common effect versus fixed effect models; a p-value below 0.05 suggests that the fixed effect model is superior. Subsequently, the Hausman Test is performed to choose between fixed and random effects, where a p-value of less than 0.05 indicates the preference for the fixed effect model.

Heteroskedasticity and Autocorrelation Tests, after selecting the best model, the assumptions of regression, including heteroskedasticity and autocorrelation, are tested. Heteroskedasticity is tested using the Modified Wald Test for groupwise heteroskedasticity, while autocorrelation is tested using the Breusch-Pagan LM test of independence. If problems are detected (p-value < 0.05), the model will be adjusted using robust standard errors. Moderation Interaction Test, after identifying the best model and addressing heteroskedasticity and autocorrelation issues, the study proceeds to examine the moderating effect of ROA. The interactions between DER and ROA, as well as SIZE and ROA, are analyzed to determine whether ROA moderates the relationship between the independent variables and CSR. This analysis includes a simple slope evaluation to assess the moderation effect of ROA on both relationships. Following these analytical steps, the results will provide a comprehensive overview of the effects of DER, SIZE, and ROA on CSR disclosure, as well as the moderating role of ROA in these relationships.

RESULTS AND DISCUSSION

This study uses panel data from 10 energy sector companies over the period 2020–2024. The variables employed include Corporate Social Responsibility (CSR), Debt-to-

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Equity Ratio (DER), Firm Size (SIZE), and Return on Assets (ROA). CSR serves as the dependent variable, DER and SIZE as independent variables, and ROA as a moderating variable. The moderation effect of ROA is tested through the significance of the interaction between ROA and DER as well as ROA and SIZE.

Data analysis is conducted using panel data regression to obtain the best estimation model. The three models applied in panel regression are the common effect, fixed effect, and random effect (Park, 2011). Model selection begins with estimating the common effect and fixed effect models, followed by the Chow test. If the F-statistic or p-value < 0.05, the fixed effect model is considered more appropriate. Subsequently, the random effect model is estimated and the Hausman test is conducted to determine the better model between fixed and random effects (Wooldridge, 2010). If the chi-square or p-value < 0.05, the fixed effect model is selected.

Once the best model is determined, assumption tests are performed to detect heteroskedasticity and autocorrelation. Heteroskedasticity is tested using the Modified Wald Test, while autocorrelation is examined using the Breusch–Pagan LM test of independence (Yamin, 2021). If either test indicates a violation of assumptions, the model is re-estimated using robust standard errors to produce unbiased parameter estimates (Torres-Reyna, 2007). The next step involves determining the type of ROA moderation, whether it is pure moderation, quasi-moderation, homologizer, or antecedent variable, according to the criteria of Sharma (Sharma et al., 1981).

Descriptive statistics are used to summarize the research variables in terms of mean and standard deviation (Yamin, 2021). The results of the data processing are presented in Table 1.

Table 1. Descriptive Statistics

Tahun	CSR		DER		SIZE		ROA	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
2020	0,791	0,124	1,423	1,182	16,715	5,506	0,043	0,072
2021	0,841	0,069	1,457	1,220	18,044	4,754	0,112	0,160
2022	0,877	0,061	1,200	0,679	18,187	4,781	0,143	0,184
2023	0,927	0,078	1,017	0,621	18,284	4,805	0,111	0,120
2024	0,964	0,052	0,935	0,567	18,345	4,819	0,087	0,088
Total	0,880	0,099	1,206	0,888	17,915	4,775	0,099	0,131

Source: data that has been processed by the author (2026)

The mean value of CSR shows a consistent upward trend during the 2020-2024 period, starting at 0.791 in 2020 and increasing to 0.964 in 2024. The decreasing standard deviation each year indicates that the variation in CSR among companies is relatively low. The DER variable has a mean value of 1.423 in 2020 and shows a declining trend, reaching 0.935 in 2024. The SIZE variable exhibits an increasing trend in its mean value, rising from 16.715 in 2020 to 18.345 in 2024, indicating that the sampled companies generally experienced asset growth over the research period. The ROA variable shows an increase in mean ROA from 0.043 in 2020 to 0.087 in 2024, although it was relatively higher in the previous year.

Panel data regression analysis requires model testing to determine the most appropriate model. This evaluation is conducted through a series of tests, including the common effect, fixed effect, and random effect models. The determination of the optimal regression framework in this research is conducted through a systematic selection of panel data models. This process is vital for addressing the complexities of cross-sectional and time-series dimensions within the dataset. Specifically, a series of statistical evaluations

comprising the Chow test and the Hausman test are performed to decide between the Common Effect, Fixed Effect, and Random Effect models. Such a comprehensive testing sequence ensures that the chosen model provides the most consistent and efficient estimates for analyzing the determinants of CSR disclosure

Table 2. Model Selection and Assumption Tests

Uji Chow		Uji Hausmann		Uji otokorelasi		Uji Heterokedastisitas	
F Statistik	P-value	Chi square	P-value	Chi square	P-value	Chi square	P-value
5,61	0.000	41,44	0.000	76,042	0,003	625,65	0.000

Source: data that has been processed by the author (2026)

The selection process for the most suitable regression model began with an evaluation of the Common Effect versus the Fixed Effect models. In this stage, H_0 was assigned to the Common Effect model, while H_1 represented the Fixed Effect model. To distinguish between them, a Chow test was performed, resulting in an F-statistic of 5.61. Since this value exceeds the critical threshold of 1.96 and corresponds to a p-value below the 0.05 significance level, the null hypothesis was rejected in favor of H_1 .

After selecting the Fixed Effect model as the best model, the next step was to examine whether it contained autocorrelation or heteroskedasticity. Autocorrelation was tested using the Breusch-Pagan LM test of independence, which follows a Chi-square distribution. The estimated value of 76.042 > 1.96 or a p-value of 0.003 < 0.05 indicates that the Fixed Effect model contains autocorrelation.

Heteroskedasticity in the Fixed Effect model was tested using the Modified Wald Test for groupwise heteroskedasticity. The test yielded a p-value of 0.000 < 0.05, indicating the presence of heteroskedasticity in the model. Since the Fixed Effect model exhibited both autocorrelation and heteroskedasticity, the model estimation was adjusted using the robust option to produce more reliable standard errors for the Fixed Effect model.

Panel Data Regression

The best panel data regression model is the Fixed Effect model. This model assumes that the intercept (constant) differs across companies or over time, while the slope coefficients remain the same for all companies and periods. The Fixed Effect model estimation was conducted with the robust option to address potential heteroskedasticity and autocorrelation. The empirical results indicate that the Fixed Effect Model provides the best fit for analyzing the panel data in this research. Unlike simpler models, the Fixed Effect approach accounts for unique differences between firms by assigning individual intercepts, while maintaining consistent slope coefficients across the observation period. Furthermore, to enhance the validity of the hypothesis testing, the estimation integrated robust standard errors. This methodological choice was intentionally made to provide unbiased and efficient parameters in the presence of heteroskedasticity and autocorrelation, ensuring that the significant relationships between financial structure and CSR disclosure are not overstated

Table 3. Fixed Effect Regression Coefficient Test

	Coefficient	Robust standard error	t Statistik	p-value	[95% conf. interval]	
DER	-0,121	0,012	-9,790	0,000	-0,149	-0,093
SIZE	0,016	0,002	7,040	0,000	0,011	0,021
ROA	-1,685	1,173	-1,440	0,185	-4,337	0,968
DER X ROA	0,568	0,090	6,340	0,000	0,365	0,771
SIZE X ROA	0,055	0,059	0,930	0,377	-0,079	0,190
Const	0,745	0,042	17,670	0,000	0,650	0,841

Source: data that has been processed by the author (2026)

The empirical findings demonstrate that the Debt-to-Equity Ratio (DER) exerts a significantly adverse influence on Corporate Social Responsibility (CSR) disclosure. This is evidenced by a regression coefficient of -0.121 and a t-statistic of -9.790, which exceeds the critical value of 1.96 with a p-value of 0.000. Such results suggest an inverse relationship where higher financial leverage, represented by DER, leads to a reduction in the extent of CSR reporting. Conversely, the Firm Size (SIZE) variable shows a significantly positive impact on CSR, supported by a coefficient of 0.016 and a t-statistic of 7.040 ($p < 0.05$). This indicates that larger corporations tend to provide more comprehensive CSR disclosures than smaller ones. Regarding the moderating effects, Return on Assets (ROA) is found to significantly moderate the interaction between DER and CSR. With a coefficient of 0.568 and a t-statistic of 6.340 ($p\text{-value} = 0.000$), ROA acts as a crucial factor that alters the strength of the relationship between debt levels and social disclosure. However, the same moderating effect was not observed for the relationship between SIZE and CSR. The statistical analysis yielded a coefficient of 0.055 and a t-statistic of only 0.930. Since the p value of 0.377 is well above the 0.05 threshold, it can be concluded that ROA does not provide a significant moderating contribution to how firm size influences CSR disclosure.

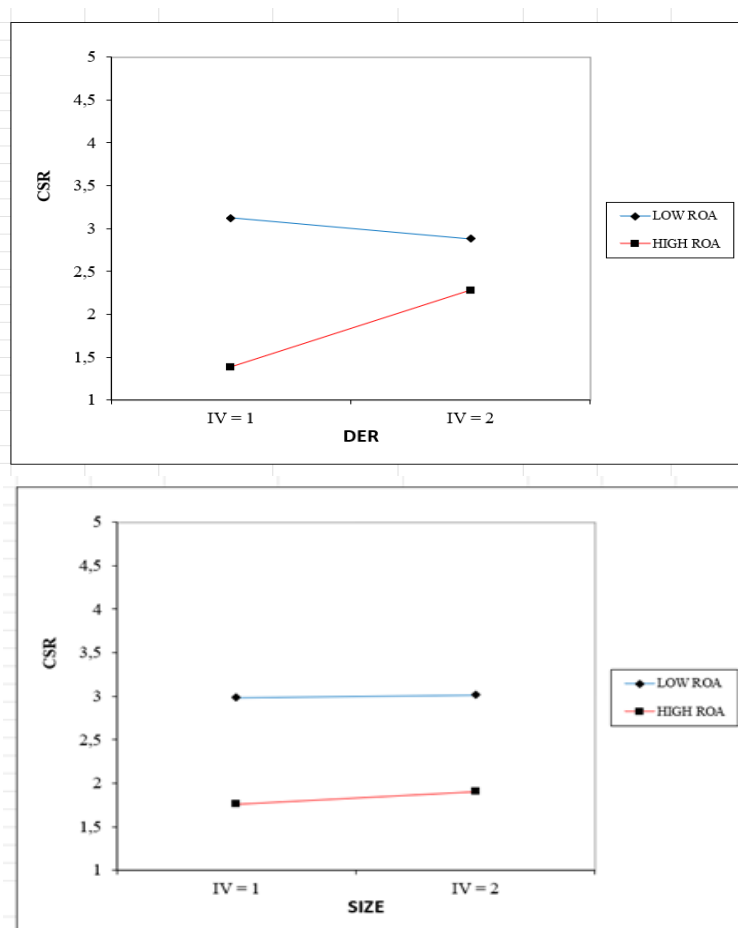


Figure 2. Simple Slope Analysis Efek Moderasi

Source: Processed by the author (2026)

Moderation testing, or examining the moderating effect, can be conducted using a simple slope analysis. This analysis visualizes the moderating effect of high (ROA high) and low (ROA low) levels of ROA. The results indicate that ROA plays a significant role as a moderating variable in the relationship between DER and CSR.

To rigorously determine the specific type of moderation—classifying it as quasi-

moderation, pure moderation, a homogenizer, or an antecedent/predictor—this study adheres to the analytical framework established by Sharma et al. The estimation process is systematically executed in two distinct phases: the first stage involves regressing the dependent variable against the independent and moderating variables without the interaction term to observe direct effects. In the second stage, the interaction term (the product of the independent variable and the moderator) is introduced into the model. By comparing the significance of the moderator and the interaction term across these two stages, the study can precisely identify the functional nature of profitability in altering the relationship between financial structure and CSR disclosure.

Table 4. Moderation Type Test

Variabel	Estimation without Interaction			Estimation with Interaction		
	Coefficient	t Statistik	P-value	Coefficient	t Statistik	P-value
DER	-0,065	-3,140	0,003	-0,121	-9,790	0,000
SIZE	0,019	2,360	0,024	0,016	7,040	0,000
ROA	-0,046	-0,220	0,826	-1,685	-1,440	0,185
DER X ROA				0,568	6,340	0,000
SIZE X ROA				0,055	0,930	0,377
Const	0,625	4,710	0,000	0,745	17,670	0,000

Source: data that has been processed by the author (2026)

The results of the first estimation, without including the interaction term, show that ROA is not significant, with a p-value of $0.826 > 0.05$. In the second estimation, the interaction term DER to ROA is significant, with a p-value of $0.000 < 0.05$, indicating that ROA acts as a pure moderating variable in the relationship between DER and CSR. Conversely, in the second estimation, the interaction term $SIZE \times ROA$ is not significant, with a p-value of $0.377 > 0.05$, indicating that ROA functions as a homogenizer moderation in this relationship.

Discussion

The increase in the average value of Corporate Social Responsibility (CSR) disclosure over the 2020–2024 period indicates that energy sector companies are becoming increasingly responsive to environmental and social demands. The consistent rise, accompanied by a decrease in variation among companies, suggests a convergence of CSR practices within the industry. These findings align with legitimacy theory, which posits that firms seek to align their activities and disclosures with societal values, norms, and expectations in order to maintain social legitimacy. In the energy sector, relatively high public and regulatory pressures encourage companies to enhance the quality and consistency of CSR disclosures as a means of sustaining social acceptance, as highlighted by Wahyuningrum et al, regarding the use of standardized reporting to meet stakeholder expectations.

On the other hand, the downward trend in the Debt-to-Equity Ratio (DER) indicates a shift toward a more conservative capital structure, while the increase in firm size reflects asset growth and greater public exposure. From a stakeholder theory perspective, larger firms with more stable financial structures face broader accountability demands from various stakeholders, including the government, investors, and society, as proposed by R. Edward Freeman. Meanwhile, fluctuations in Return on Assets (ROA) reflect the dynamic profitability of energy sector companies, which may influence financial flexibility. Nevertheless, the consistently increasing trend in CSR disclosure suggests that social responsibility reporting is not solely dependent on short-term profit performance, but rather forms part of a long-term strategy for maintaining stakeholder relationships.

Panel data regression estimation using the Fixed Effect model shows that financial structure and firm characteristics play distinct roles in explaining variations in CSR disclosure. Leverage, proxied by DER, demonstrates a significant negative relationship with CSR, indicating that increasing reliance on debt tends to limit management's capacity to allocate resources toward social and environmental activities. From a stakeholder theory perspective, creditor pressure prompts firms to prioritize financial stability and contractual obligations, such as interest payments and covenant restrictions, making long-term CSR activities less optimal, as argued by Fernando and Boubakri et al. Conversely, firm size exhibits a significant positive relationship with CSR, suggesting that larger companies tend to enhance CSR disclosure in response to higher legitimacy pressures and public expectations, which aligns with the research findings of Wahyuningrum et al and Boubakri et al who state that larger firms possess greater resource capacity for comprehensive reporting.

Furthermore, moderation testing indicates that profitability, proxied by ROA, plays a significant role in moderating the relationship between DER and CSR but does not moderate the relationship between firm size and CSR. The positive interaction between DER and ROA suggests that strong financial performance can mitigate the negative impact of leverage on CSR, allowing highly leveraged companies to maintain their social commitments when supported by adequate profitability. This finding confirms the assertion by Tripopsakul that profit serves as financial slack, enhancing a firm's ability to meet stakeholder demands. Conversely, the non-significant interaction between SIZE and ROA indicates that the effect of firm size on CSR is relatively stable and independent of profitability, reinforcing the role of firm size as a structural determinant in maintaining corporate social legitimacy; a phenomenon noted by Anastasya where large corporate scale does not automatically guarantee direct financial conversion of social activities.

The results of the simple slope analysis further show that profitability (ROA) significantly moderates the relationship between leverage (DER) and CSR disclosure, with firms exhibiting high ROA able to reduce the negative impact of leverage on CSR. This finding underscores that financial performance serves as a strategic flexibility, enabling firms to fulfill social demands even under capital structure pressure, consistent with the "slack resources" perspective and the empirical evidence provided by Liang and Chen, where high earnings capacity effectively absorbs debt-related pressures. According to the classification established by Sharma et al, ROA is categorized as a pure moderator in the DER–CSR relationship, as it does not directly affect CSR but is significant in the interaction term. In contrast, ROA does not moderate the relationship between firm size and CSR, indicating that the effect of firm size on CSR is stable and independent of profitability, thus classifying ROA as a homologizer moderation. This further supports the idea proposed by Anastasya and Boubakri et al that for asset-heavy firms, CSR reporting has become an institutionalized component of reputation management.

CONCLUSION

This study concludes that Corporate Social Responsibility (CSR) disclosure in energy sector companies tended to increase over the research period. Financial structure and firm characteristics play a role in shaping CSR disclosure patterns, with higher leverage associated with lower CSR, while larger firm size is associated with higher CSR. Profitability strengthens a company's ability to maintain CSR disclosure under conditions of high leverage but does not alter the relationship between firm size and CSR. These findings indicate that the sustainability of CSR disclosure is influenced by a firm's financial condition and structural characteristics.

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